TRAFFIC TECHNICAL MEMORANDUM

I-75 (SR 93) PD&E Study

From North of SR 52 to South of CR 476B
(Pasco, Hernando, and Sumter Counties)
FAP No.: 0751-120I
WPI No.: 411014-1

June 2007

Florida Department of Transportation
District Seven

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This proposed action consists of capacity and safety improvements to I-75 (SR 93), a four-lane divided limited access freeway, from North of SR 52 (Pasco County) to South of CR 476B (Sumter County)

Prepared for:
FLORIDA DEPARTMENT OF TRANSPORTATION
District Seven

Prepared by:
H.W. LOCHNER, INC.

June 2007

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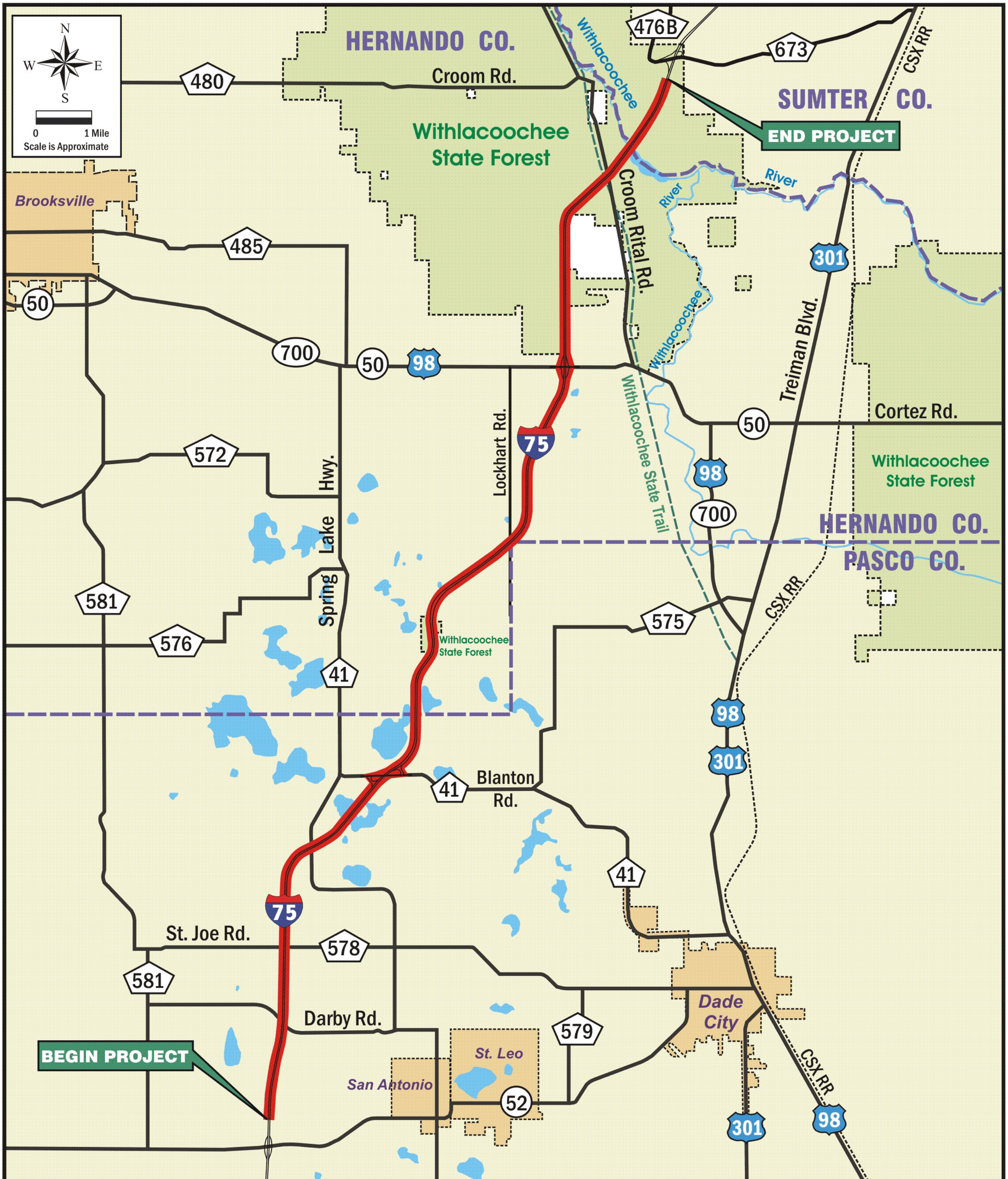
1 INTRODUCTION

The Florida Department of Transportation (FDOT) has conducted a Project Development and Environment (PD&E) study to evaluate capacity improvements along a portion of Interstate 75 (I-75) -State Road (SR) 93. The limits of the study extend from just north of SR 52 in Pasco County to just south of County Road (CR) 476B in Sumter County, Florida, a distance of approximately 20.8 miles. The design year for the improvements is Year 2030. Figure 1 illustrates the location and limits of this project.

1.1 Purpose

The objective of this PD&E study is to document the engineering and environmental analyses that were performed for this project so that the FDOT and the Federal Highway Administration (FHWA) can reach a decision on the type, location, and conceptual design of the necessary improvements of I-75 to accommodate future *traffic* demand in a safe and efficient manner. This study documents the need for the improvements as well as the procedures utilized to develop and evaluate various improvement alternatives. Information related to the engineering and environmental characteristics, which are essential for the alternatives analysis, was collected. Design criteria were established and preliminary alternatives were developed. The comparison of alternatives was based on a variety of parameters utilizing a matrix format. This process identified the alternative that would have minimal impacts, while providing the necessary improvements.

The PD&E study satisfies all applicable requirements, including the National Environmental Policy Act (NEPA), in order for this project to qualify for federal-aid funding of subsequent development phases (design, right-of-way acquisition, and construction). This Traffic Technical Memorandum (TTM) is one in a series of reports prepared as part of this PD&E Study. This report documents the existing (2005), opening (2010), interim (2020) and design year (2030) traffic conditions; the development of traffic parameters for the estimation of annual average daily traffic (AADT) and design hour volumes (DHV); and capacity and Level of Service (LOS) analyses of the design alternatives for this project.



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Project Location Map

Figure 1

1.2 Description of Project

I-75 is an interstate, limited access freeway. It is included in the State Highway System (SHS), designated as SR 93, the Florida Intrastate Highway System (FIHS), the Strategic Intermodal System (SIS), and the Federal Aid Interstate System. I-75 also serves as a major evacuation route throughout the state. Within the study limits, I-75 is a four-lane, divided, limited access, rural highway that generally occupies 300 feet of right of way.

The study area includes two interchanges and two rest areas (one in each direction). Specifically, a partial cloverleaf interchange is currently provided at Blanton Road (CR 41) approximately 6.3 miles north of SR 52 in Pasco County and a diamond interchange is present at Cortez Road (SR 50/US 98), approximately 9.3 miles north of CR 41 in Hernando County. The rest areas are located approximately 4.9 miles north of SR 50, in Sumter County.

From north of SR 50 to the northern terminus of the project, the Withlacoochee State Forest abuts the entire western border of I-75 and most of its eastern border. At the Hernando/Sumter County line, approximately 1.5 miles from the northern project terminus, I-75 crosses the Withlacoochee River. In addition, a number of potential and approved Developments of Regional Impact and smaller developments are located along both sides of the study area. Most of them are located in Hernando County, south of SR 50.

The study area for this project extends from just north of SR 52 in Pasco County to just south of CR 476B in Sumter County, Florida; a distance of approximately 20.8 miles. The study area encompasses the following Sections, Townships, and Ranges:

- <u>Pasco County:</u>
  - Sections 5 and 8 of Township 25 S, Range 20 E
  - Sections 2, 3, 9, 10, 16, 17, 20, 21, 28, 29, 32, 33 of Township 24 S, Range 20 E
- <u>Hernando County:</u>
  - Sections 13, 23, 24, 26, 35 of Township 23 S, Range 20 E
  - Sections 5, 6, 7, 18 of Township 23 S, Range 21 E
  - Sections 16, 17, 19, 20, 29, 30, 31, 32 of Township 22 S, Range 21 E

- Sumter County:
  - Sections 4, 9, 16 of Township 22 S, Range 21 E.

To facilitate development and evaluation of the improvement alternatives, the project was divided into three segments:

- Segment 1: from north of SR 52 (southern project terminus) to the Pasco/ Hernando county line; 7.8 miles
- Segment 2: from the Pasco/Hernando county line to SR 50; 7.0 miles
- Segment 3: from SR 50 to just south of CR 476B (northern project terminus); 6.0 miles.

1.3 Methodology

This TTM was prepared consistent with the appropriate transportation planning procedures and guidelines. The Pasco County Metropolitan Planning Organization (MPO) and Hernando County MPO both have included the widening of I-75 to a six-lane, divided facility in the Cost Affordable Plans of their Long Range Transportation Plans (LRTP). This improvement would increase overall system capacity, improve safety and reduce the growing congestion problem on I-75. I-75 in this area is increasingly being used as a commuter route to Tampa. In addition, the FDOT has designated I-75 within the limits of this project as a "transitioning" (from rural to urban) area. Therefore, according to FIHS standards, all of its components (mainline, ramps, merge/diverge areas) should provide adequate capacity to operate at level of service (LOS) "C" or better.

The development of this TTM is consistent with the procedures of the FDOT Project Traffic Forecasting Handbook. The Tampa Bay Regional Planning Model, Version 5.1 was used to develop design year (2030) traffic volumes (20 years post assumed opening year of 2010). For the purposes of this study, I-75 was assumed to be four-lanes divided in the No-Build alternative. The traffic analysis conducted for this TTM included:

- collecting traffic volume information, previous traffic studies, roadway characteristics and other necessary data,
- conducting existing traffic analysis including freeway segment, ramp merge / diverge analysis, and intersection capacity analysis,

- development of design and interim year traffic (furnished by FDOT),
- conducting design year traffic analysis, and
- evaluating build and no-build conditions.

A series of improvement alternatives are provided in this report to correct locations where future conditions will not meet the LOS standard of “C”. Improvements are evaluated in this report for their effectiveness in handling traffic demands and should not be considered final recommendations from the PD&E study. Recommended improvements from the overall PD&E study will need take into consideration other factors such as cost, constructability, right of way impacts, and future plans.

2 EXISTING CONDITIONS

2.1 Roadway and Intersection Characteristics

FDOT has designated I-75 as SR 93 – Section 14 140 000 in Pasco County, SR 93 – Section 08 150 000 in Hernando County, and SR 93 – Section 18 130 000 in Sumter County. I-75 is part of the Florida Strategic Intermodal System (SIS), which is FDOT's network of significant transportation facilities providing statewide movement of people and goods and providing links to major intermodal facilities, such as ports and terminals. The SIS's minimum standards for LOS and design are derived from the Florida Intrastate Highway System's (FIHS) parameters. Since the study area is in a transitioning (from rural to urban) area type, the LOS standard for I-75 in the study area is LOS C.

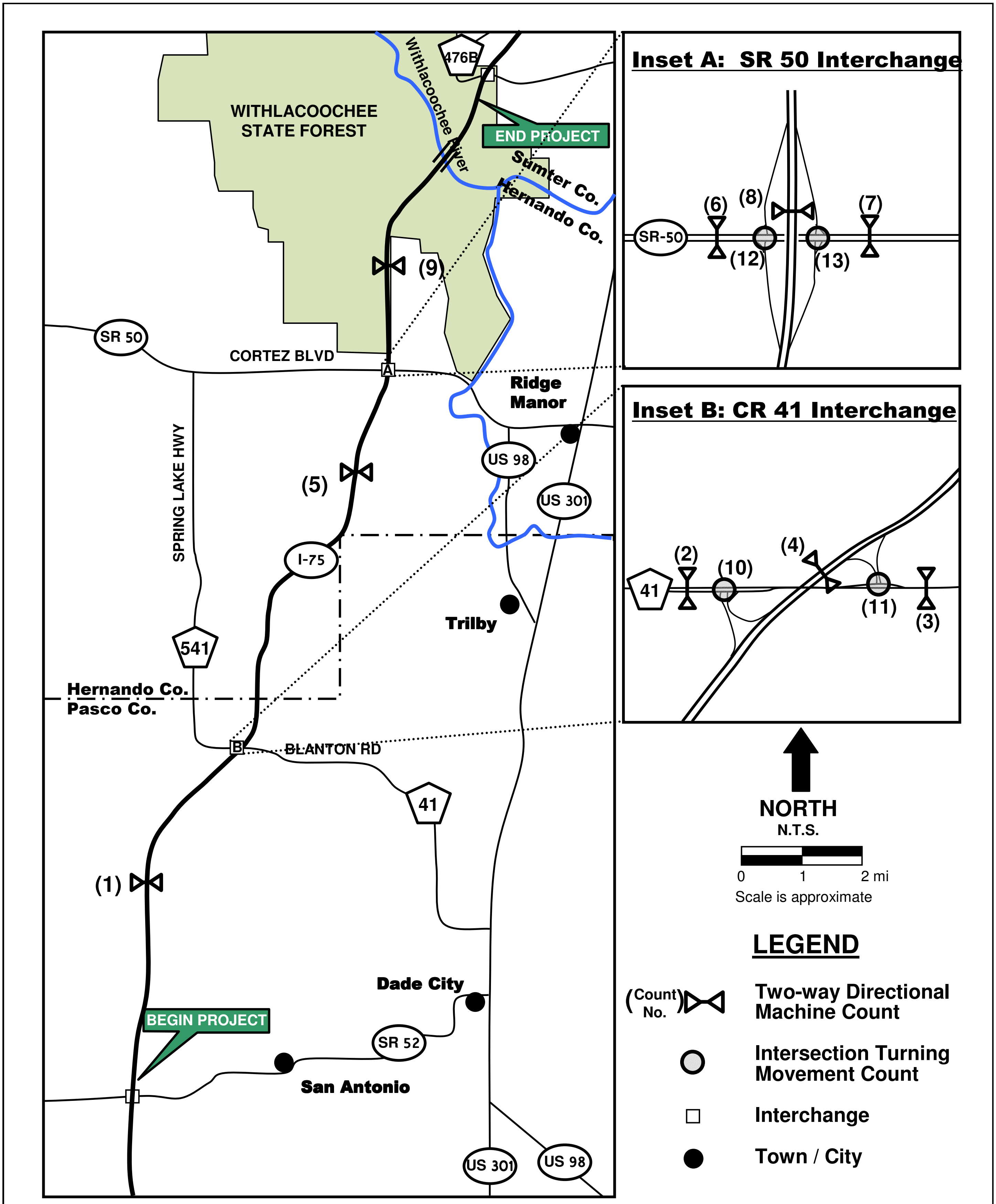
Within the study limits, I-75 is a four-lane, divided, limited access, interstate highway in a primarily rural setting. The roadway has 12-foot lanes, 10-foot outside paved shoulders, 4-foot inside paved shoulders, an open-drainage section and generally a standard 64-foot wide median. The median width is wider than standard through certain curve sections along the study area. The speed limit is posted at 70 miles per hour. Rest areas are located on both sides of the mainline in Sumter County. The exit from I-75 and entrance onto I-75 at the northbound rest area is approximately 1,700 feet and 3,200 feet north of the Withlacoochee River Bridge, respectively. The exit from I-75 and entrance onto I-75 at the southbound rest area is approximately 3,700 feet and 2,500 feet north of the Withlacoochee River Bridge, respectively.

I-75 within the study area has two interchanges at CR 41 (Blanton Road – Exit 293) in Pasco County and at SR 50 (Cortez Boulevard – Exit 301) in Hernando County. The CR 41 interchange is a two quadrant cloverleaf interchange with short off-ramp lengths that cause low speeds on the off-ramps and could affect traffic operations on the mainline during heavy traffic periods. SR 50 is a standard diamond interchange with off-ramps in the southeast quadrants and northwest quadrants and on-ramps in the southwest and northeast quadrants of the interchange. CR 41 is a two-lane undivided arterial that connects I-75 to Dade City and Spring Hill. SR 50 is a four-lane divided arterial that connects I-75 to Brooksville and Ridge Manor. The LOS standard for the ramp terminals at CR 41 is LOS D. The LOS standard for the ramp terminals at SR 50 the standard is LOS C. The ramp terminals at the CR 41 interchange currently are unsignalized, with one-way stop control on both off-ramp terminals. The ramp terminals at SR 50 are signalized.

2.2 Collection of Traffic Data

Field traffic counts collected for this project include 72-hour machine counts and 6-hour (6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m.) manual turning movement counts, which were conducted generally from Monday afternoon to Friday morning during the week of March 14, 2005. Machine counts included the count of trucks and intersection turning movement counts included the count of pedestrians and bicycles. The 72-hour machine counts were conducted at nine (9) locations and the turning movement counts were collected at the four (4) ramp terminal locations, as shown on Figure 2, and listed below. Summaries of the mainline count data and ramp terminal/cross street turning movement counts are provided in Appendices A and B, respectively.

- Three-day (72-hour) mainline / side street machine volume count locations:
  (1) I-75 between SR 52 and CR 41 interchanges
  (2) CR 41 (Blanton Road) west of I-75 Interchange
  (3) CR 41 (Blanton Road) east of I-75 Interchange
  (4) I-75 between southbound off-ramp and northbound off-ramp at CR 41 Interchange
  (5) I-75 between CR 41 and SR 50
  (6) SR 50 (Cortez Boulevard) west of I-75 Interchange and immediately east of LaRose Road
  (7) SR 50 (Cortez Boulevard) east of I-75 Interchange and immediately west of Windermere Road
  (8) I-75 between southbound off-ramp and northbound off-ramp at SR 50 Interchange
  (9) I-75 between SR 50 and Withlacoochee River Bridge (Hernando – Sumter County Line)



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Traffic Count Locations

Figure 2

- Intersection turning movement count locations:
  (10) CR 41 (Blanton Road) at I-75 southbound on-ramp and off-ramp
  (11) CR 41 (Blanton Road) at I-75 northbound on-ramp and off-ramp
  (12) SR 50 (Cortez Boulevard) at I-75 southbound on-ramp and off-ramp
  (13) SR 50 (Cortez Boulevard) at I-75 northbound on-ramp and off-ramp

A review of the 72-hour machine traffic counts indicates that they are incomplete. According to the count consultant, the count tubes became detached from the roadway surface numerous times during the counting period. This was caused by rain on the roadway that loosened the tape and nails attaching the tube to the roadway surface. This situation was discussed with FDOT project management to determine if new counts should be conducted. It was concluded that the data was sufficient for the purposes of this project with some manual adjustments and FDOT gave approval to use this data.

Additional traffic data collected for use in this study includes:

- Year 2005 and 2025 Tampa Bay Regional Planning Model Data
- Year 2003 FDOT – Florida Traffic Information CD (FTI CD)
- Year 2005 FDOT – Florida Traffic Information CD (FTI CD)
- Year 2005 FDOT – Florida Traffic Information (FTI DVD)
- Design year (2030) traffic projections from the Traffic Technical Memorandum conducted by District 5 for a segment of I-75 north of the study corridor.

Based on a review of the collected traffic counts, traffic patterns on I-75 in the study area are representative of rural conditions that do not follow typical commuter travel patterns. In the northbound direction, the peak hour, peak direction for traffic is generally between 10:00 a.m. and 1:00 p.m. in the northbound direction. A second peak hour occurs in the northbound direction around 3:30 p.m. to 4:30 p.m., which is generally 10% less than the prior peak hour volume. Southbound traffic is less than northbound traffic and its peak hour lies between 8:30 a.m. and 11:30 a.m. Since traffic was collected in March 2005, these traffic numbers may be skewed, as this is a heavy period for seasonal residents to drive north to their summer residences.

Peak hour traffic on CR 41 and SR 50 follow more typical commuting times with the morning peak direction occurring towards the I-75 from 6:30 a.m. to 7:30 a.m. and the afternoon peak direction occurring away from the I-75 from 3:30 p.m. to 4:30 p.m.

2.3 Traffic Parameters

The existing year (2005) AADT for mainline and ramp locations was estimated by multiplying the collected machine counts by the appropriate axle factor (AF) and seasonal factor (SF) provided by the FTI CD. AADTs derived were consistent with the FDOT provided volumes shown in Appendix C. Design Hour Volumes (DHV) for mainline and ramp locations were determined by applying the appropriate "K" and "D" factor to each AADT.

The design year (2030) AADT values were provided by FDOT (See Appendix C). FDOT developed the project traffic through the use of the Tampa Bay Regional Planning Model (TBRPM) version 5.1 model traffic (smoothed) and the I-75 District 5 PD&E Study. Mainline directional design hour volumes (DDHV) were determined by multiplying the appropriate K_{30} and D_{30} factors to the AADT.

FDOT District 7 Planning staff provided K_{30} and D_{30} factors for mainline I-75. These factors were: K_{30} of 9.40 and D_{30} of 56.35. The K_{30} factor provided by the FDOT is at or near the statewide observed minimum values for both rural and urban freeways, as seen in Table 1. This value is extremely low compared to the national K-factor range for rural freeways, yet within the national K-factor range for urban freeways, which implies that this area is transitioning from rural to urban. The provided D_{30} factor falls within both the statewide and national D-factor ranges for both rural and urban areas, as seen in Table 1.

A review of historical data available over the last three years was performed, as shown in Table 2. It was found that the FDOT provided factors are consistent with historical data, as the K_{30} factor ranges from 8.76 to 9.52 and the D_{30} factor ranges from 53.67 to 57.42 over the three year period. Therefore, the traffic factors (K_{30} of 9.40 and D_{30} of 56.35) used for mainline I-75 were considered reasonable.

Table 1

Comparison of Site Specific Data with State and National Data

Facility Type	K-Factor Ranges	FDOT Site Data*		State Data**		National Data**	
		K_{30}	D_{30}	K_{30}	D_{30}	K_{30}	D_{30}
Rural Freeway	Observed Minimum	8.76	52.76	9.60	52.30	15.00	54.00
	Observed Maximum	8.76	52.76	14.60	57.30	20.00	62.00
Urban Freeway	Observed Minimum	-	-	9.40	50.40	7.00	52.00
	Observed Maximum	-	-	10.00	61.20	10.00	57.00

* Source: Florida Traffic Information CD, 2003
** Source: FDOT Project Traffic Forecasting Handbook, 2002

Table 2

Traffic Characteristics for the I-75 PD&E Study Area

Count Station	Location	Year	FTI CD AADT	K_{30}	D_{30}	T_{24}
0093	I-75 (SR 93) - North of SR 52	2001	43,500	8.94	55.00	27.69
		2002	39,500	8.99	56.15	25.36
		2003	41,500	8.76	53.67	25.36
0094	I-75 (SR 93) - North of CR 41	2001	35,500	8.94	55.00	22.03
		2002	33,500	8.99	56.15	33.01
		2003	35,500	8.76	53.67	33.01
0037	I-75 (SR 93) - North of SR 50	2001	37,000	9.52	57.42	32.20
		2002	38,500	8.99	56.15	26.95
		2003	42,000	8.76	53.67	26.95
0046	SR 50 - West of I-75	2001	16,200	9.62	56.39	19.94
		2002	18,800	9.58	56.69	15.49
		2003	18,000	9.59	56.45	15.49
0018	SR 50 – East of I-75	2001	16,200	9.62	56.39	21.29
		2002	18,100	9.58	56.69	18.96
		2003	15,600	9.59	56.45	18.96

Source: Florida Traffic Information CD; 2001, 2002, and 2003 Versions

At the beginning of this study (April 2005), FDOT provided traffic factors K_{30} of 8.79 and D_{30} of 53.67 for mainline I-75. These factors were later revised in June 2005 based on internal FDOT review to K_{30} of 10.75 and D_{30} of 56.35. Although the K_{30} factor lies closer to the range recommended in the FDOT Project Traffic Forecasting Handbook (See Table 1) it is much higher than what has been observed in historical counts performed by FDOT (See Table 2). Lochner recommended that a K_{30} factor of 9.40 should be used since this lies on the lower end of FDOT recommendations for urban freeways and is consistent with historical observations on I-75. Also, the K_{30} factor of 9.40 compares more favorably to the factors used in similar type studies on I-75 conducted by FDOT north and south of this study area and is more similar to the K_{30} derived from the traffic counts conducted for this study. FDOT agreed to use this factor in June 2006. All correspondence regarding this issue is included in Appendix C.

DHVs for the crossroads were developed based on the K and D factors on SR 50 provided on the FDOT Traffic CD (2005). These factors were K_{30}=9.61 and D_{30}=54.5. These factors are slightly different than mainline I-75 but are more representative of the nature of the crossroad traffic. Factors for CR 41 were not available; therefore, the factors for SR 50 were used as the patterns are believed to be similar on these two east-west facilities.

For this study, FDOT set the 24-hour Truck (T24) factor for the mainline I-75 segments as 27.0%. The Design Hour T-factor for mainline I-75 was set to 13.5% (See Appendix C). This is consistent with Table 2 which shows that in 2003, the T24-factor ranged from 25.36 to 33.01 for the count stations covered in this study.

Figure 3 shows the AADT from the 2003 FTI CD and presents the AADT derived from the 2005 counts by application of the appropriate seasonal and axle factors.

2.4 Existing Year (2005) Intersection Traffic Volumes

Design hour turning movement volumes were determined by the initial use of the TURNS-5 software, which uses existing and design year AADTs, existing turning movement count data, and K_{30} and D_{30} factors to determine existing 2005 peak hour, turning movement volumes. The initial TURNS-5 output was then adjusted to provide balanced flows. This information is illustrated in the following figures:

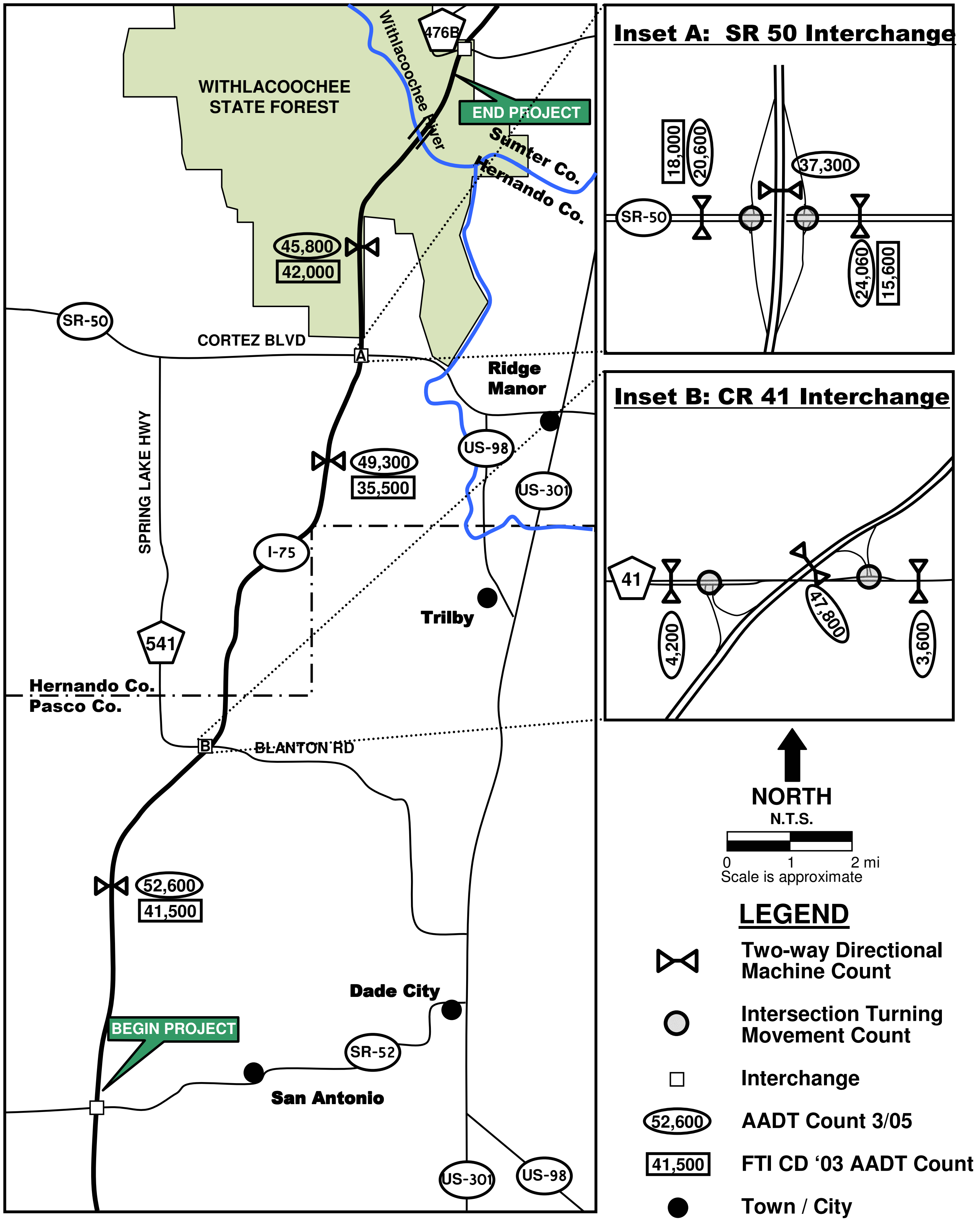
- Figure 4 shows the year 2005 intersection AADTs and directional design hour volumes.
- Figure 5 shows the year 2005 DHV turning movements.
- Figure 6 shows the year 2005 lane configuration.

2.5 Existing Year (2005) Freeway Segment and Ramp Merge / Diverge LOS

The existing year (2005) freeway segment and ramp merge / diverge LOS analysis for I-75 was conducted using the estimated existing year (2005) design hour volumes, previously shown on Figure 4. The LOS analysis was conducted using the Highway Capacity Software Version 5.2 (HCS Plus). This LOS analysis indicates that I-75 currently operates at LOS C northbound and LOS B southbound through the study area. The merge and diverge analysis indicates that the LOS for various merge and diverge sections of I-75 associated with the two interchanges within the study area varies from LOS C to LOS D, as shown on Figure 7. Since each interchange is spaced over five miles apart, there are no weaving sections within the study area, nor will there be in the design year.

2.6 Existing Year (2005) Intersection LOS Analysis Summary

According to the Pasco County Comprehensive Plan, the existing and future (2020) LOS standard for CR 41 is LOS D. The Hernando County Comprehensive Plan sets the LOS standard for SR 50 as LOS C. Since I-75 is an SIS facility and the study area is designated as a transitioning area, a standard of LOS C is required. (ref: Florida's Quality / Level of Service Handbook, LOS Standards, Table 6-1) The unsignalized intersections at the CR 41 interchange currently both operate at LOS B. The signalized intersections at SR 50 both operate at LOS B also, as shown on Figure 8. These intersections in the existing analysis meet the LOS standard.



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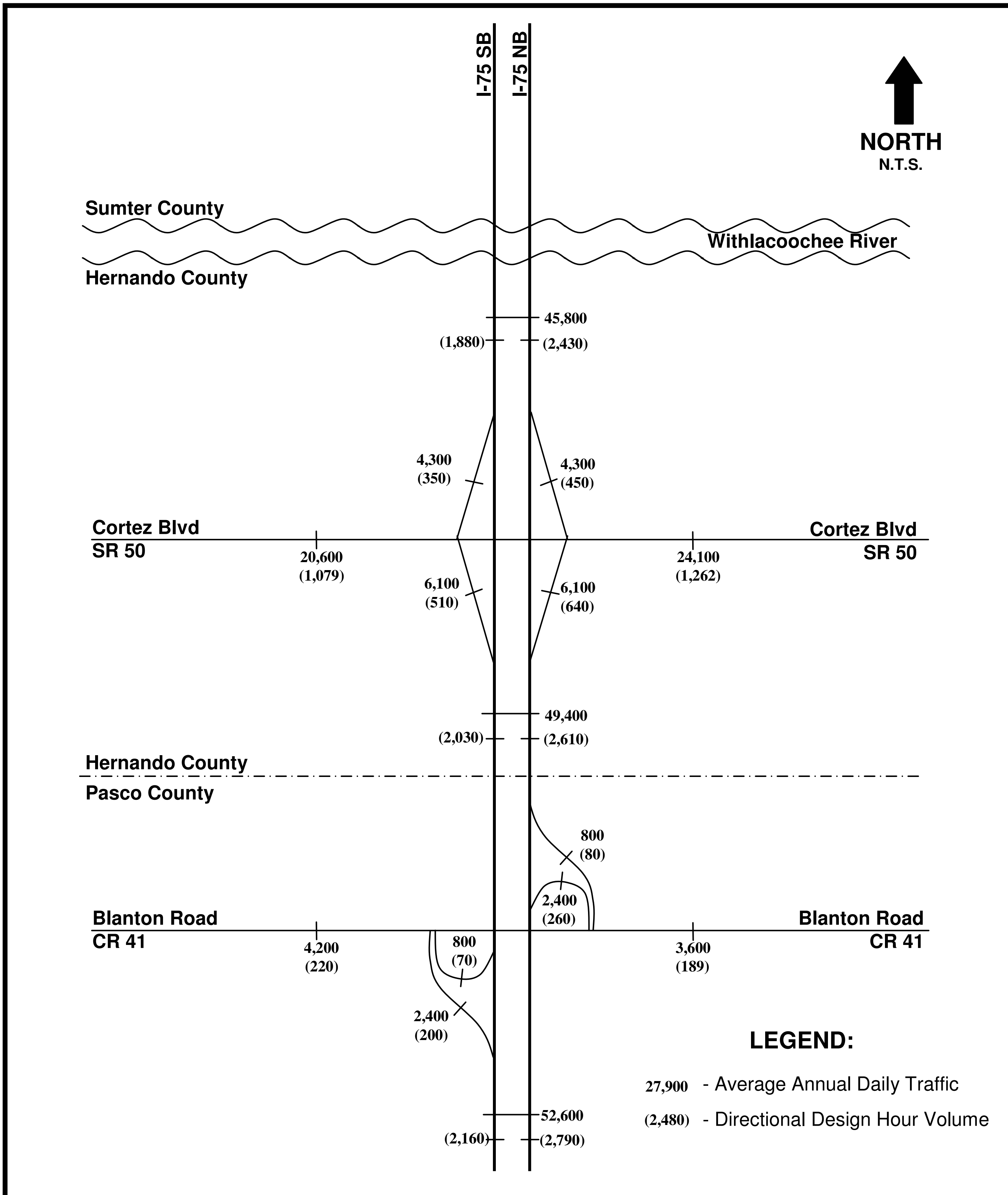
Annual Average Daily Traffic (AADT)

Figure 3



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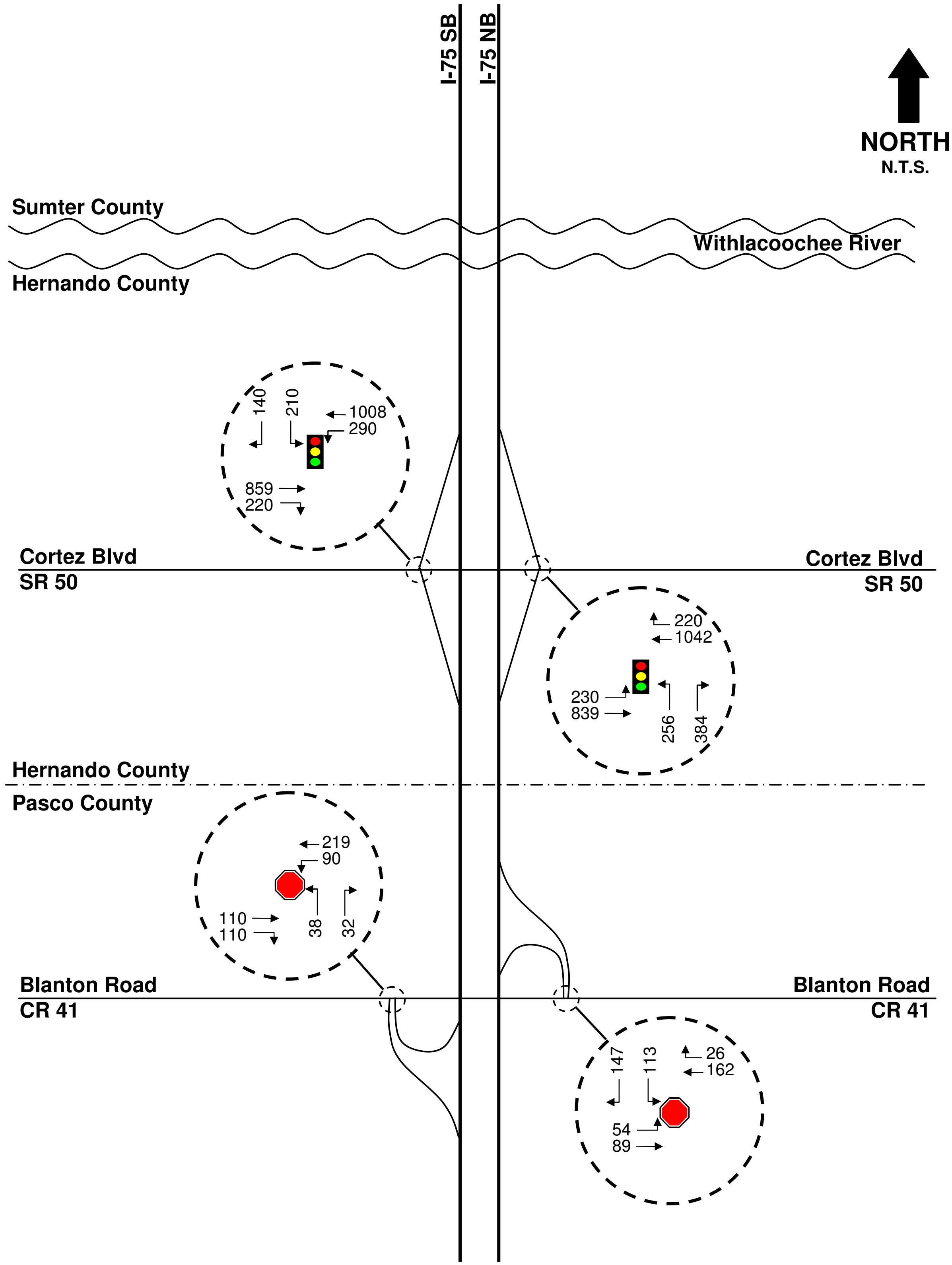
Existing Year (2005)
AADT & Peak Hour DDHV

Figure 4



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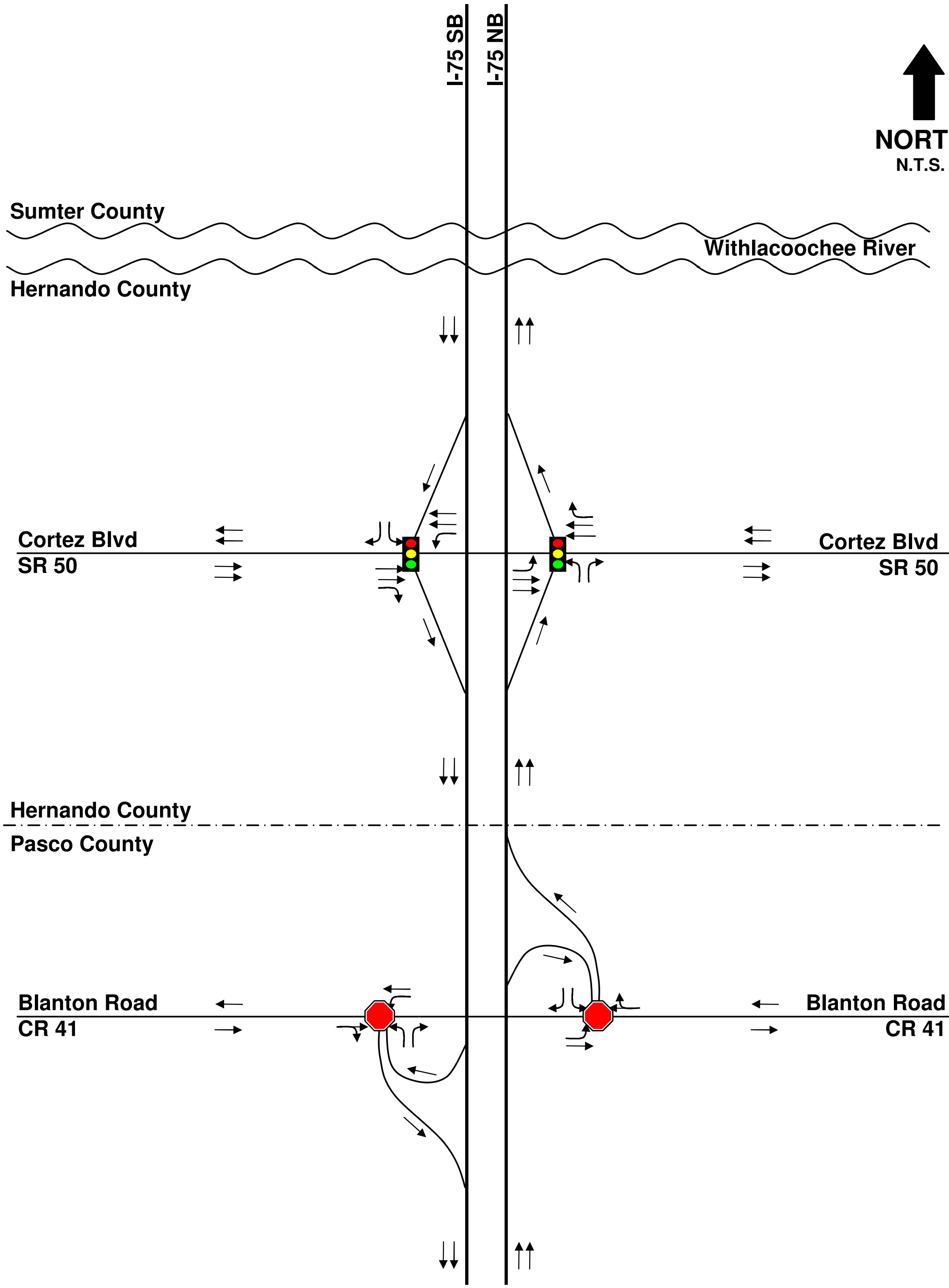
Existing (2005)
Intersection Peak Hour DHV

Figure 5



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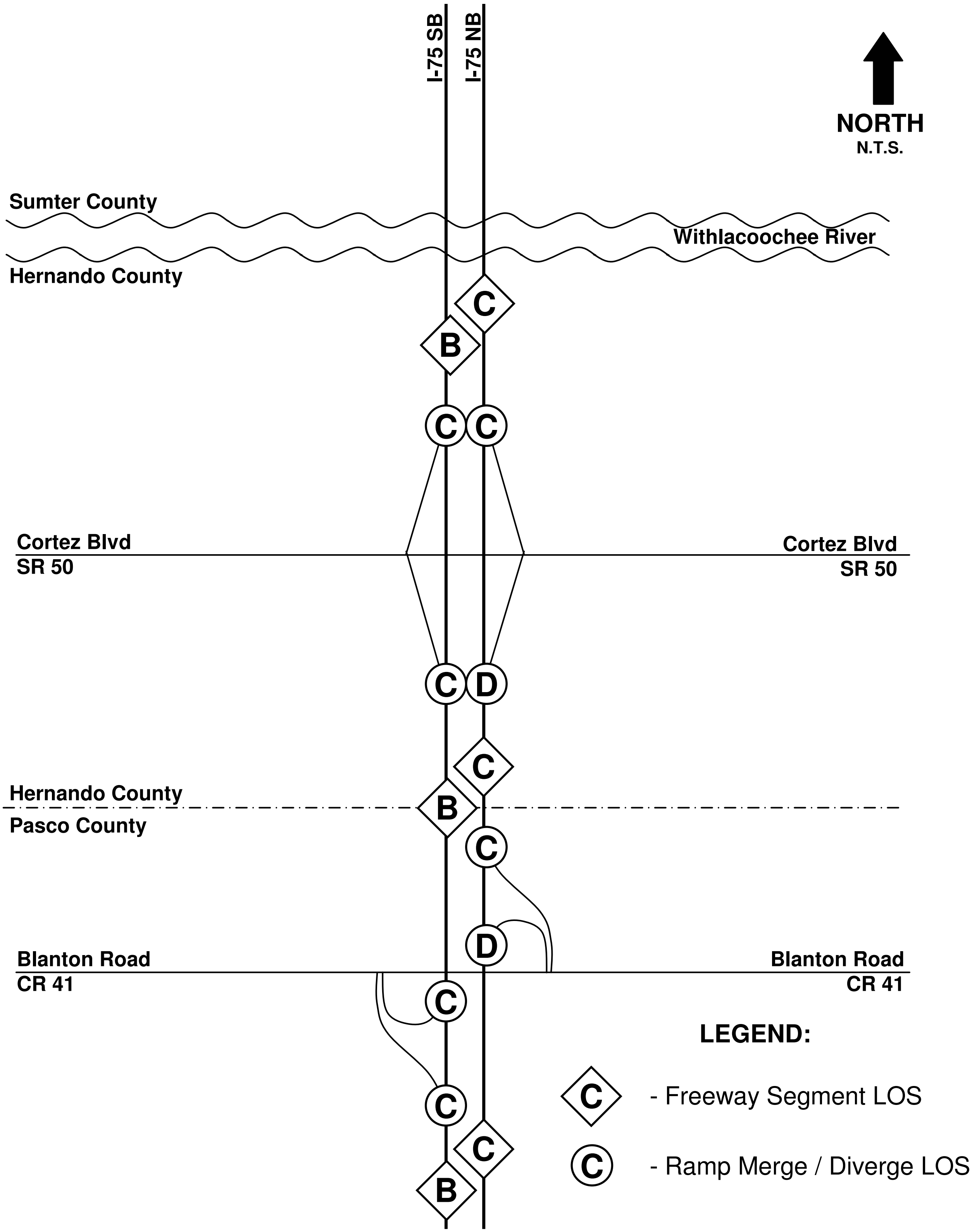
Existing (2005)
Lane Configuration

Figure 6



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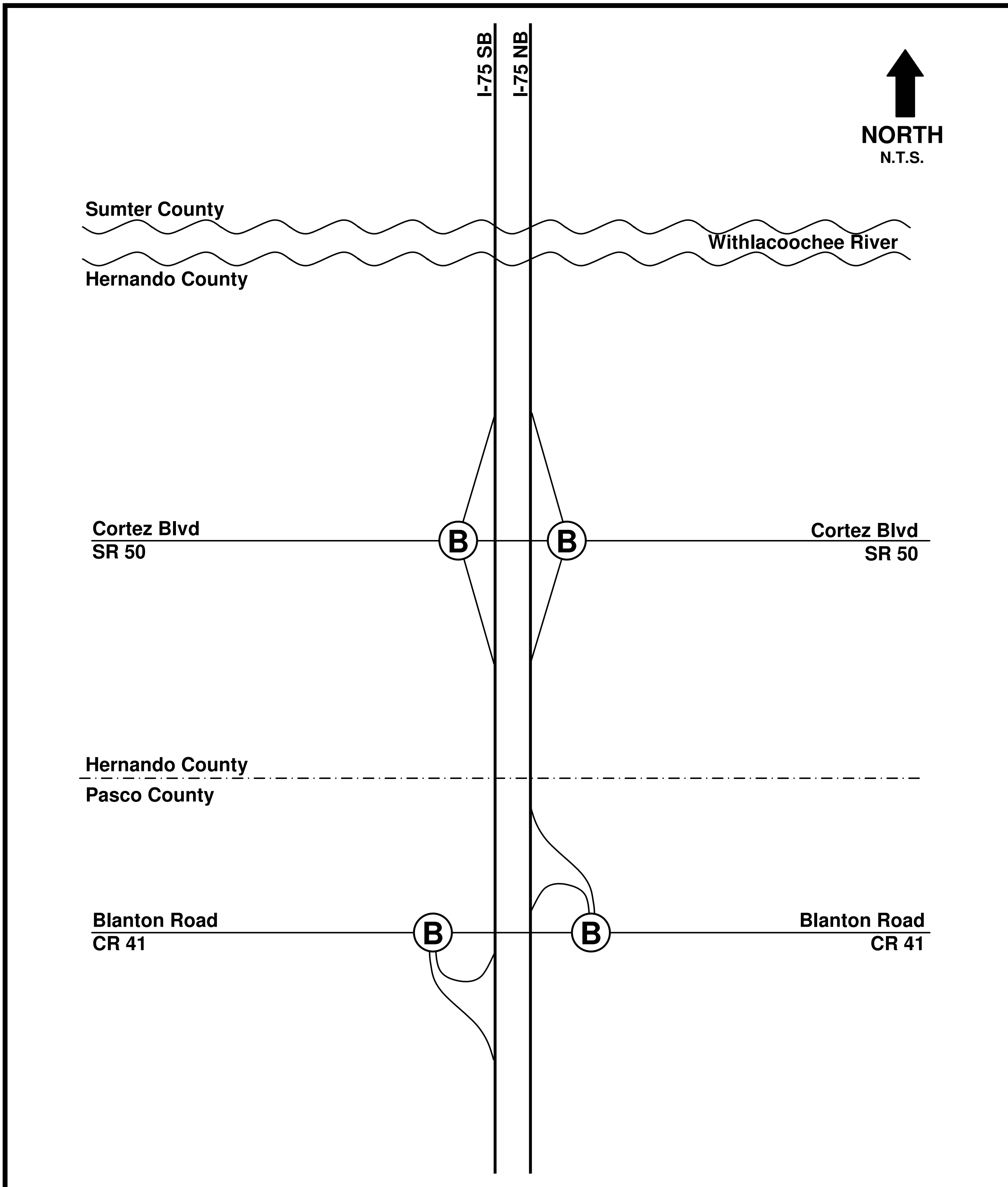
Existing (2005) Freeway Ramp Peak Hour LOS

Figure 7



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Existing (2005) Intersection Peak Hour LOS

Figure 8

2.7 Safety Considerations

Crash data for I-75 and SR 50 was collected for the five most recent years (1999 to 2003) from the FDOT. For CR 41, crash data from the Pasco County Traffic Operations Division was collected. Crash data was collected for 500 feet west of the western ramp terminal and 500 feet east of the eastern ramp terminal, a total distance of approximately 3,100 feet. Data collected from these sources include number and type of crashes, crash locations, number of fatalities and injuries and estimates of property damage and economic losses. It should be noted that only crashes which involve injuries, fatalities, or major property damage are included in the FDOT crash database.

As indicated in Table 3, the crash records for I-75 indicate that over the five years studied, 219 crashes occurred in Pasco County (average of 5.21 per year per mile), 332 crashes occurred in Hernando County (5.83 per year per mile), and 57 crashes occurred in Sumter County (11.4 per year per mile). There were 214 injuries and 3 fatalities in Pasco County, 384 injuries and 12 fatalities in Hernando County, and 44 injuries and 1 fatality in Sumter County. The average crash rate (crashes per million VMT) was slightly higher over the five-year period in Sumter County (0.56) than in Pasco County (0.35) or in Hernando County (0.40). The average crash rates are higher than the statewide average crash rate of 0.31 for rural interstates.

Economic losses were determined for every study area segment that was analyzed for safety considerations. According to figures from the FDOT Safety Office – Data Processing and Maintenance Manuals, June 2003, Property Damage Only crashes have an economic loss of $2,000 each, an average of $108,000 per injury, and $2,600,000 for each fatality. Therefore using the historical crash statistics from Table 3, total economic losses due to crashes occurring from 1999 to 2003 on the study area sections of I-75 in Pasco County was calculated to be $31,092,000; in Hernando County $65,726,000; and in Sumter County $7,394,000.

Crash History:

Table 3 presents an overview of the crash history of the study segment of I-75.

Table 3

Crash History Overview – I-75

	1999	2000	2001	2002	2003	Total	Average
I-75 Pasco County							
Fatalities	0	0	1	1	1	3	0.6
Injuries	44	39	44	49	38	214	42.8
Property Damage Only	17	9	26	17	21	90	18
Total	43	31	53	47	45	219	43.8
AADT	40500	35500	43500	39500	41500	200500	40100
Distance	8.44	8.44	8.44	8.44	8.44	-	-
Crash Rate	0.34	0.28	0.40	0.39	0.35	1.76	0.35
I-75 Hernando County							
Fatalities	1	0	2	5	4	12	2.4
Injuries	113	70	63	65	73	384	76.8
Property Damage Only	34	17	21	32	23	127	25.4
Total	98	51	55	67	61	332	66.4
AADT	40500	35500	43500	39500	41500	200500	40100
Distance	11.48	11.48	11.48	11.48	11.48	-	-
Crash Rate	0.58	0.34	0.30	0.40	0.35	1.98	0.40
I-75 Sumter County							
Fatalities	0	0	0	0	1	1	0.2
Injuries	11	7	4	11	11	44	8.8
Property Damage Only	3	2	7	3	6	21	4.2
Total	9	8	11	12	17	57	11.4
AADT	35500	29500	37000	38500	42000	182500	36500
Distance	1.50	1.50	1.50	1.50	1.50	-	-
Crash Rate	0.46	0.50	0.54	0.57	0.74	2.81	0.56
Total Study Area							
Fatalities	1	0	3	6	6	16	3.2
Injuries	168	116	111	125	122	642	128.4
Property Damage Only	54	28	54	52	50	238	47.6
Total	150	90	119	126	123	608	121.6
AADT	38333	33500	41333	39167	41667	194500	38900
Distance	21.42	21.42	21.42	21.42	21.42	-	-
Crash Rate	0.49	0.34	0.37	0.41	0.38	1.99	0.40

Source: FDOT 1999-2003 FDOT District VII CAR (Crash Analysis Report) System

Table 4 provides similar crash information for the cross roads, CR 41 and SR 50. Over the five years studied, 110 crashes occurred along SR 50 in the vicinity of the I-75 interchange in Hernando County (from 500' west of the interchange to 500' east of the interchange) and 5 crashes occurred along CR 41 in the vicinity of the I-75 interchange in Pasco County. There were 148 injuries and no fatalities along this section of SR 50 and 4 injuries and no fatalities along this section of CR 41. The average crash rate on SR 50 in the immediate area of the interchange with I-75 was 3.74/MEV (Million Entering Vehicles) compared to a statewide average of 0.642 crashes/MEV for suburban four-lane, two-way divided roadways. For the CR 41 interchange, the crash rate was 0.74 crashes/MEV compared to a statewide average of 0.242 crashes/MEV for rural two-lane, two-way undivided roadways.

Two notes of caution are provided in presenting these crash rates. First, the length of the SR 50 segment analyzed is 0.28 miles. This length is greater than the typical 0.1 mile maximum length used for spot analysis (based on Million Entering Vehicles or MEV), yet analysis as a segment (Million Vehicle Miles Travel or MVMT), which typically is a mile or greater, would have yielded a disproportionately high rate due to the short length involved. Second, in some cases, crash data for CR 41 appeared to duplicate some crashes showing in the I-75 data. Reconciliation of this was beyond the scope of this study; however, the data presented is believed to be an accurate interpretation of the information available and appears reasonable. Total economic losses due to crashes occurring from 1999 to 2003 at the SR 50 interchange was $16,052,000 and at the CR 41 interchange was $438,000.

Table 4

Crash History – Cross Roads

	1999	2000	2001	2002	2003	Total	Average
SR 50 Hernando County							
Fatalities	0	0	0	0	0	0	0
Injuries	19	29	53	20	27	148	29.6
Property Damage Only	5	3	5	14	7	34	6.8
Total	13	17	31	28	21	110	22
AADT	15,600	15,900	16,200	16,800	16,000	80,500	16,100
Distance	0.28	0.28	0.28	0.28	0.28	-	-
Crash Rate (per MEV)	2.28	2.93	5.24	4.57	3.60	-	3.74
CR 41 Pasco County							
Fatalities	0	0	0	0	0	0	0.0
Injuries	0	0	0	0	4	4	0.8
Property Damage Only	0	0	2	1	0	3	0.6
Total	0	0	2	1	2	5	1.0
AADT	3,600	3,650	3,700	3,750	3,800	18,500	3,700
Distance	0.59	0.59	0.59	0.59	0.59	-	-
Crash Rate (per MEV)	0.00	0.00	1.48	0.73	1.44	-	0.74

Source: FDOT 1999-2003 FDOT District VII CAR (Crash Analysis Report) System and Pasco County Transportation Office

Crash Types:

Table 5 indicates the highest frequency crashes along I-75 in the study area are rear end, sideswipe, and overturned. The "Other" category represents 33 other less significant crash types. These crash statistics reflect that as I-75 becomes more congested, speed differential between drivers and driver inattention will become the greatest contributors to crashes. Also, many crashes are caused by moving vehicles colliding with stopped vehicles, which is due to traffic exceeding the roadway's capacity or other unplanned incidents that cause traffic to slow or stop. Capacity improvements along I-75 will likely help prevent at least some of these crashes.

Table 6 shows that rear end crashes are by far the most frequent crash type along SR 50 near the I-75 interchange followed by angle and left turn crashes. Angle crashes are the most frequent crash type along CR 41 in the study area. These types of crashes are common at rural intersections and closer inspection is required to determine exact causes.

Table 5

Crash Types – I-75

Type (data code)	1999	2000	2001	2002	2003	Total	Percent	Average
Pasco County								
Rear End (1)	7	9	4	12	8	40	18.3%	8
Head On (2)	0	1	1	2	2	6	2.7%	1.2
Angle (3)	1	2	3	2	7	15	6.8%	3
Left Turn (4)	1	1	0	0	0	2	0.9%	0.4
Right Turn (5)	0	0	0	0	0	0	0.0%	0
Sideswipe (6)	6	3	6	4	5	24	11.0%	4.8
Hit Guardrail (18)	4	0	7	0	0	11	5.0%	2.2
Overturned (31)	12	9	10	10	4	45	20.5%	9
Other	12	6	22	17	19	76	34.7%	15.2
Totals	43	31	53	47	45	219		43.8
Hernando County								
Rear End (1)	20	10	11	14	6	61	18.4%	12.2
Head On (2)	0	0	0	1	0	1	0.3%	0.2
Angle (3)	4	7	2	1	5	19	5.7%	3.8
Left Turn (4)	0	0	0	0	0	0	0.0%	0
Right Turn (5)	0	0	0	0	0	0	0.0%	0
Sideswipe (6)	16	6	7	6	5	40	12.0%	8
Hit Guardrail (18)	8	4	4	5	11	32	9.6%	6.4
Overturned (31)	20	11	9	11	6	57	17.2%	11.4
Other	30	13	22	29	28	122	36.7%	24.4
Totals	98	51	55	67	61	332		66.4
Sumter County								
Rear End (1)	2	1	1	4	2	10	17.5%	2.0
Head On (2)	0	0	0	0	0	0	0.0%	0.0
Angle (3)	0	1	0	0	0	1	1.8%	0.2
Left Turn (4)	0	0	0	0	0	0	0.0%	0
Right Turn (5)	0	0	0	0	0	0	0.0%	0
Sideswipe (6)	1	1	1	0	1	4	7.0%	0.8
Hit Guardrail (18)	0	1	0	1	1	3	5.3%	0.6
Overturned (31)	2	1	2	3	3	11	19.3%	2.2
Other	4	3	7	4	10	28	49.1%	5.6
Totals	9	8	11	12	17	57		11.4
Total I-75 Study Area								
Rear End (1)	29	20	16	30	16	111	18.3%	22.2
Head On (2)	0	1	1	3	2	7	1.2%	1.4
Angle (3)	5	10	5	3	12	35	5.8%	7
Left Turn (4)	1	1	0	0	0	2	0.3%	0.4
Right Turn (5)	0	0	0	0	0	0	0.0%	0
Sideswipe (6)	23	10	14	10	11	68	11.2%	13.6
Hit Guardrail (18)	12	5	11	6	12	46	7.6%	9.2
Overturned (31)	34	21	21	24	13	113	18.6%	22.6
Other	46	22	51	50	57	226	37.2%	45.2
Totals	150	90	119	126	123	608		121.6

Source: FDOT 1999-2003 FDOT District VII CAR (Crash Analysis Report) System

Table 6

Crash Types – Cross Roads

Type (data code)	1999	2000	2001	2002	2003	Total	Average
SR 50 - Hernando County							
Rear End (1)	5	6	15	9	11	46	9.2
Head On (2)	0	0	0	1	0	1	0.2
Angle (3)	3	5	5	3	3	19	3.8
Left Turn (4)	2	4	5	5	3	19	3.8
Right Turn (5)	0	1	0	0	0	1	0.2
Sideswipe (6)	1	0	1	2	1	5	1.0
Hit Guardr'l (18)	0	0	0	0	0	0	0
Overturned (31)	0	0	0	0	0	0	0
Other	2	1	5	8	3	19	3.8
Total	13	17	31	28	21	110	22.0
CR 41 - Pasco County							
Rear End (1)	0	0	1	0	0	1	0.2
Head On (2)	0	0	0	0	1	1	0.2
Angle (3)	0	0	0	1	1	2	0.4
Left Turn (4)	0	0	0	0	0	0	0.0
Right Turn (5)	0	0	0	0	0	0	0.0
Sideswipe (6)	0	0	0	0	0	0	0.0
Hit Guardr'l (18)	0	0	0	0	0	0	0.0
Overturned (31)	0	0	0	0	0	0	0.0
Other	0	0	1	0	0	0	0.2
Total	0	0	2	1	2	5	1.0

Source: FDOT 1999-2003 FDOT District VII CAR (Crash Analysis Report) System and Pasco County Transportation Office

3 FUTURE CONDITIONS

The future year traffic conditions were developed and analyzed for the I-75 PD&E study area. Using design year traffic projections provided by FDOT (see Appendix "C" for F. Bitar to M. Clasgens memo, 4/18/05), operational conditions for each alternative including the no-build alternative were analyzed. A summary of this information and analyses is presented below.

3.1 Planned Improvements

The current Cost Affordable Long Range Transportation Plan (LRTP), as developed by the Pasco County MPO, Hernando County MPO and the FDOT, was used as the future year base transportation network. This network included the various transportation improvements that could be implemented by the various jurisdictions and agencies over the next twenty years. These improvements are documented in the *Long Range Transportation Plans* (LRTP) produced by the Pasco County and Hernando County MPOs. The Hernando County LRTP includes widening SR 50 to six-lanes with frontage lanes from Lockhart Road to Kettering Road. This improvement was not considered in this study, however, because Hernando County did not have plans in place for frontage lanes on SR 50 between Kettering Road and Lockhart Road at the time of report preparation. There are no future improvements for CR 41 in the study area included in the Pasco County LRTP.

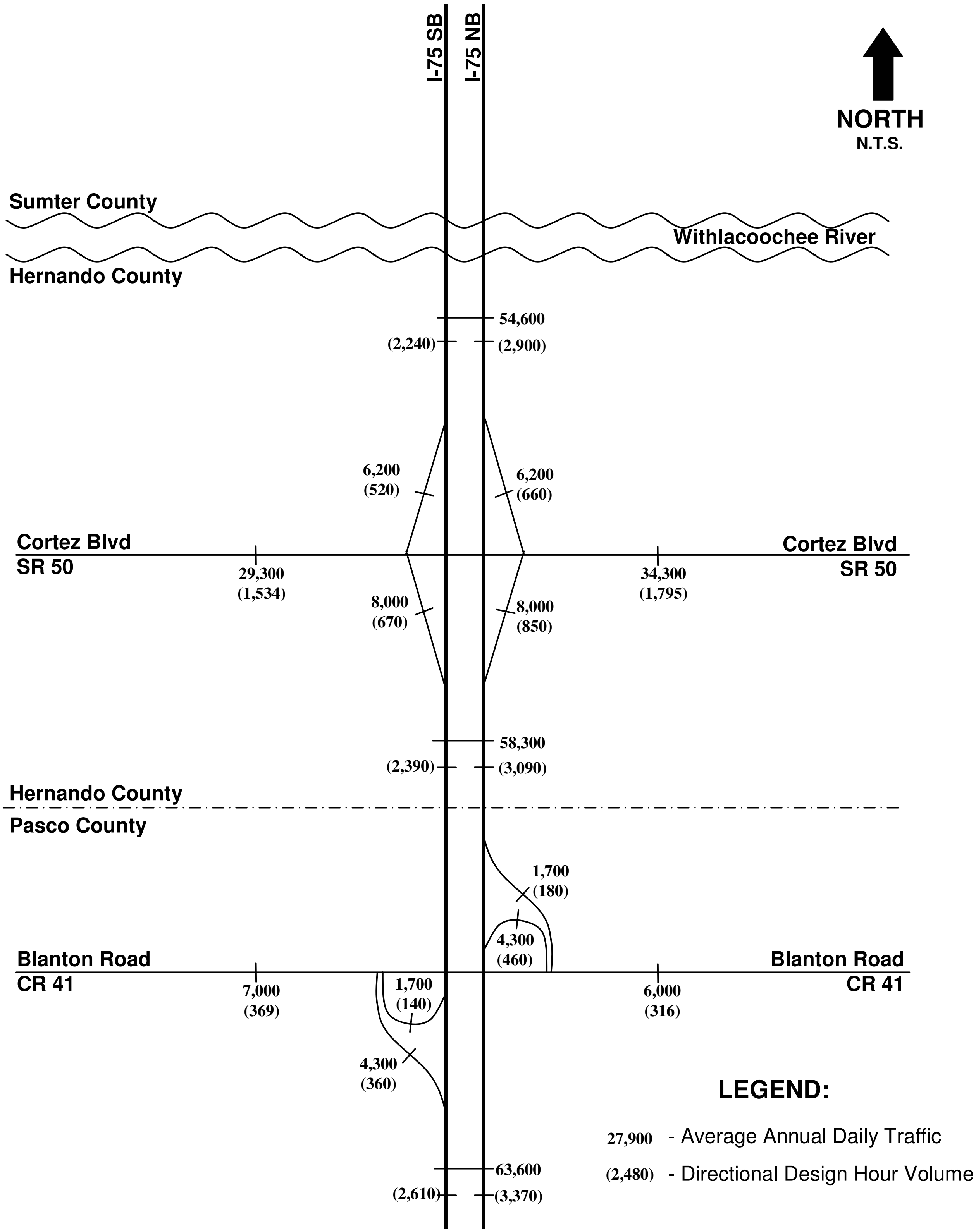
Despite both the Pasco and Hernando County Cost Affordable LRTPs listing I-75 as a 6-lane facility, the No-Build Analysis of this study assumed I-75 to be a four-lane, divided freeway. For the Build Analysis scenario, I-75 is analyzed with both six lane and eight lane cross sections, as both the Pasco and Hernando LRTPs include the widening of I-75 to six-lanes throughout the study area. Additional projects in the study limits that have been discussed by Hernando County officials are a new interchange on I-75 near Lockhart Road and a roadway connection between CR 41 to County Line Road in Masaryktown. Since both of these projects are not included in the current Hernando County LRTP, they were not considered in this study.

3.2 Interim Year and Design Year Traffic Projections

The year 2030 was selected as the design year for traffic analysis, since improvements are to operate at acceptable levels of service twenty (20) years from the assumed opening year of 2010. the FDOT provided the design year and interim year AADT volumes to be used in this study.

As previously stated, DHVs for mainline I-75 were developed from the AADTs using the I-75 K_{30} and D_{30} factors discussed earlier in the report. DHVs for the crossroads were based on the K_{30} and D_{30} factors of SR 50, which were provided on the 2005 FDOT Traffic Information CD. These factors were K_{30}=9.61 and D_{30}=54.5. These factors are slightly different than mainline I-75, but are more representative of the nature of the crossroad traffic. Factors for CR 41 were not available; therefore, the factors for SR 50 were used as the patterns are believed to be similar on these two east-west facilities.

Figures 9, 10, and 11 present the opening year (2010), interim year (2020), and design year (2030) AADTs and DHVs, respectively.



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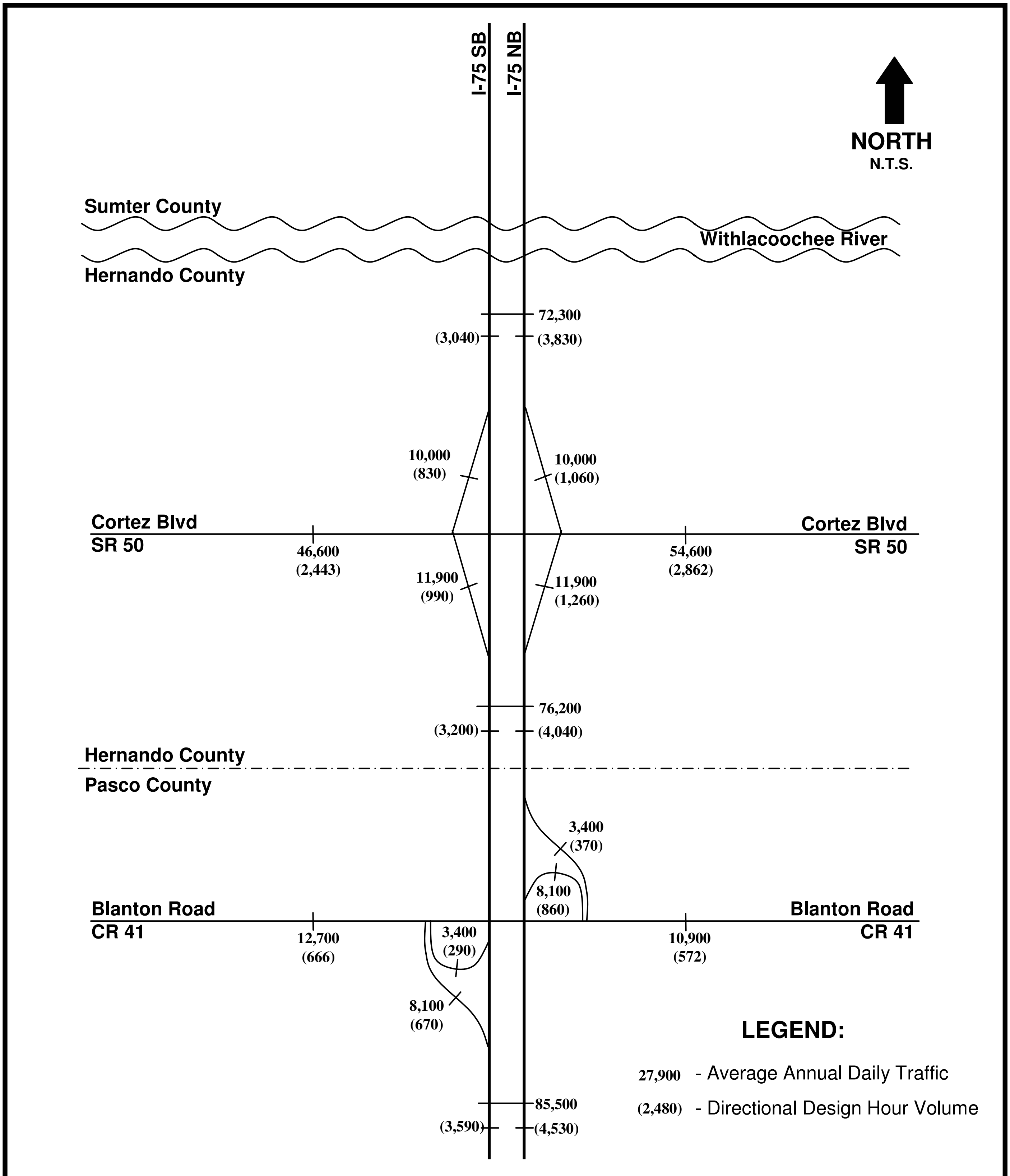
Opening Year (2010)
AADT & Peak Hour DDHV

Figure 9



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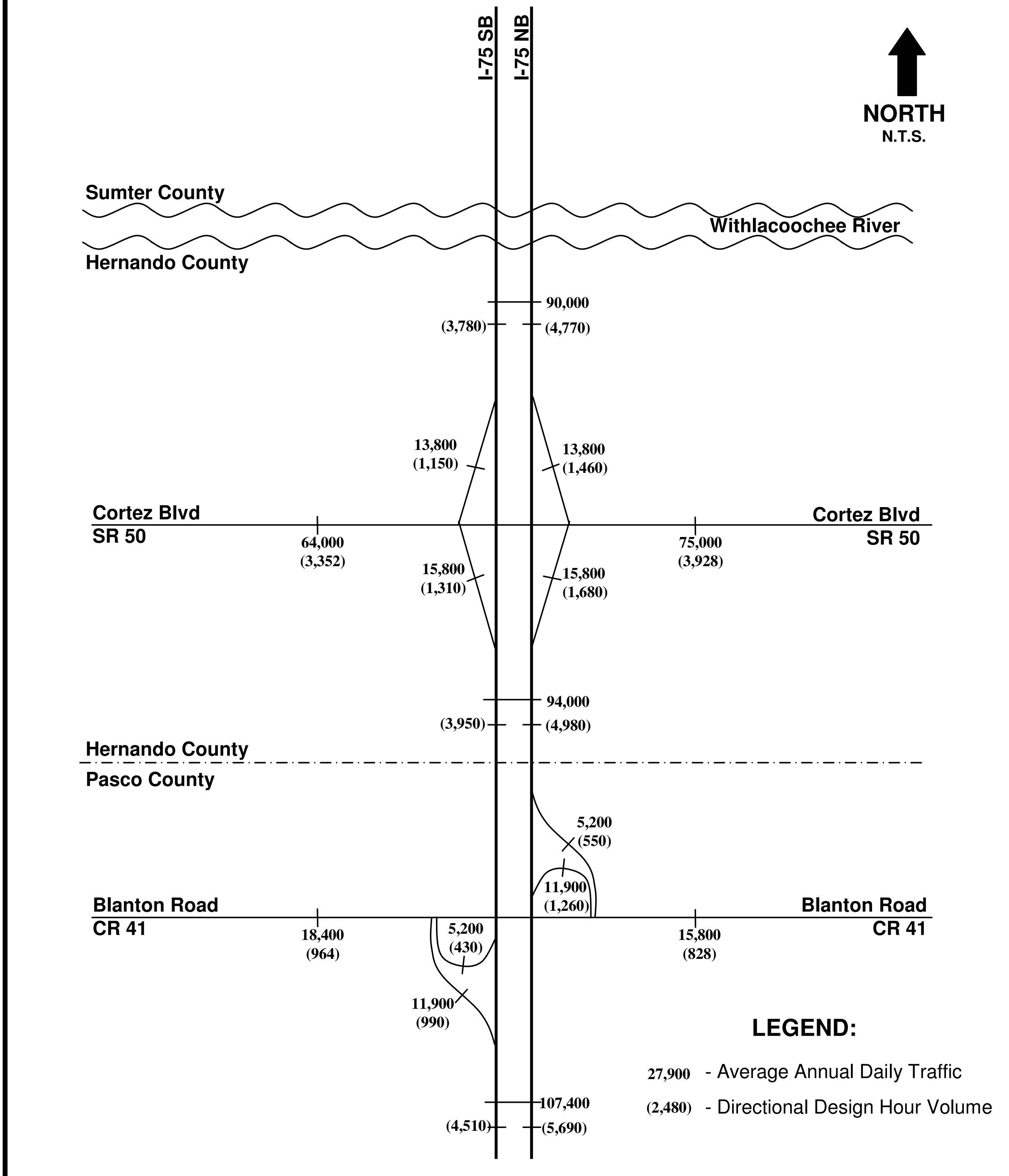
Interim Year (2020)
AADT & Peak Hour DDHV

Figure 10



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Design Year (2030)
AADT & Peak Hour DDHV

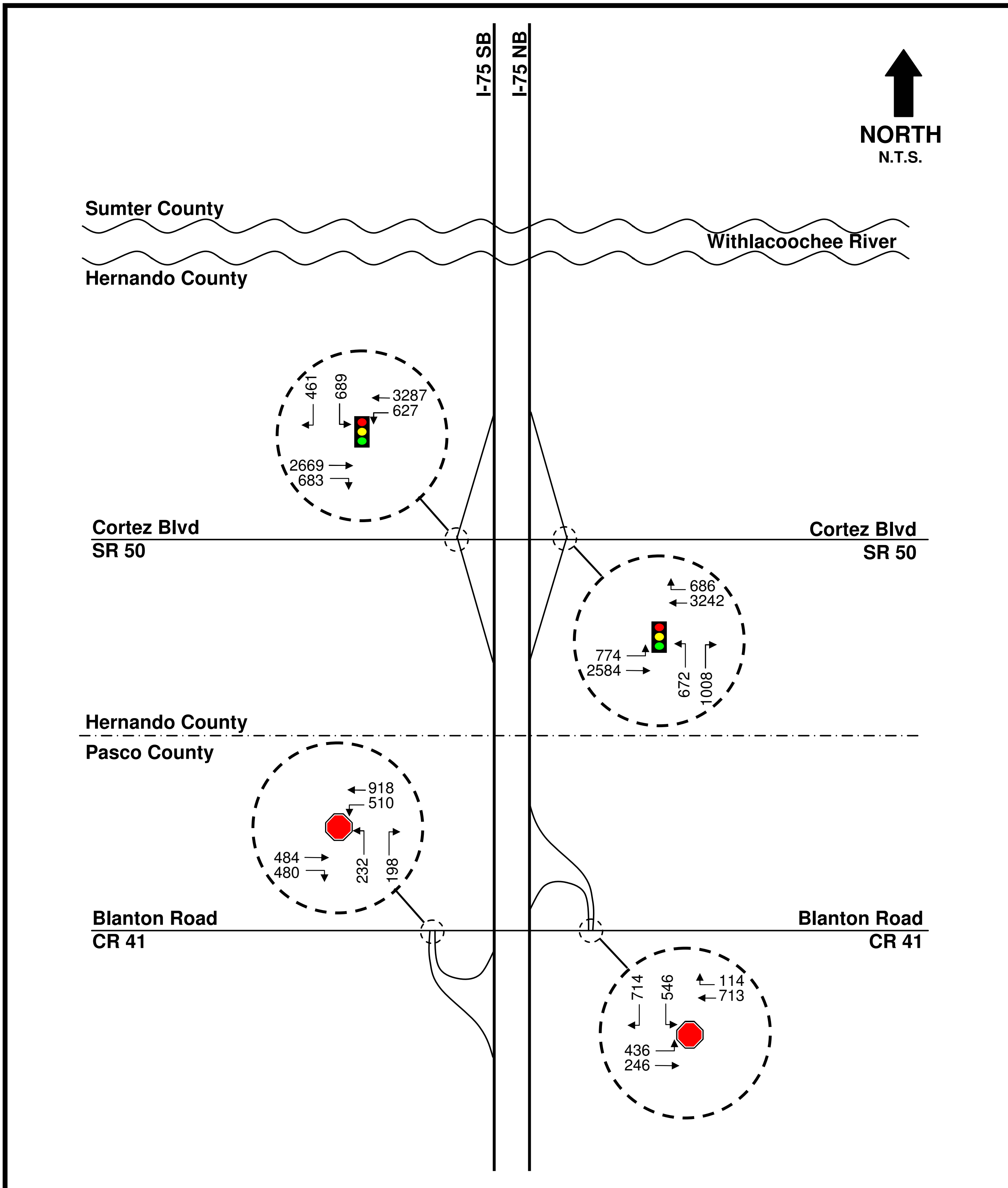
Figure 11

3.3 Design Year (2030) No-Build Intersection LOS Analysis

Design hourly volumes (DHV) for I-75, SR 50, CR 41 and all freeway ramps were developed from provided AADTs, K-factors and D-factors. The resulting DHVs are provided in Figure 11. These design hourly volumes were then use to determine the intersection design hourly volumes, through the use of the TURNS-5 software and subsequent rebalancing. Figure 12 provides the design year (2030) intersection design hour volumes, while Figure 13 shows the design year (2030) lane configuration and the type of traffic control (signalized or unsignalized) for the No-Build Alternative. These existing conditions were analyzed using Highway Capacity Software (HCS Plus). The results of these analyses indicate that all ramp terminal intersections with cross streets are expected to operate at LOS F under the No-Build conditions in the 2030 design year. These level of service results are shown on Figure 14.

For the ramp terminal / cross-street intersection analysis, the LOS standard for the cross streets was determined from the Comprehensive Plans of each county. At CR 41, the standard is LOS D and for the ramp terminals at SR 50 the standard is LOS C. A full signal warrant analysis should be performed at CR 41 during the design phase of this project. Since the unsignalized intersections at CR 41 are expected to operate at LOS F in the 2030 design year under the No-Build conditions, the CR 41 intersections were considered to be signalized in the Build case.

The signalized intersections at the northbound and southbound off-ramp / on-ramp terminals at SR 50 are projected to operate at LOS F with the planned widening of SR 50 to a six-lane facility. Ramp terminal or more extensive improvements will be necessary to improve the LOS at these locations.



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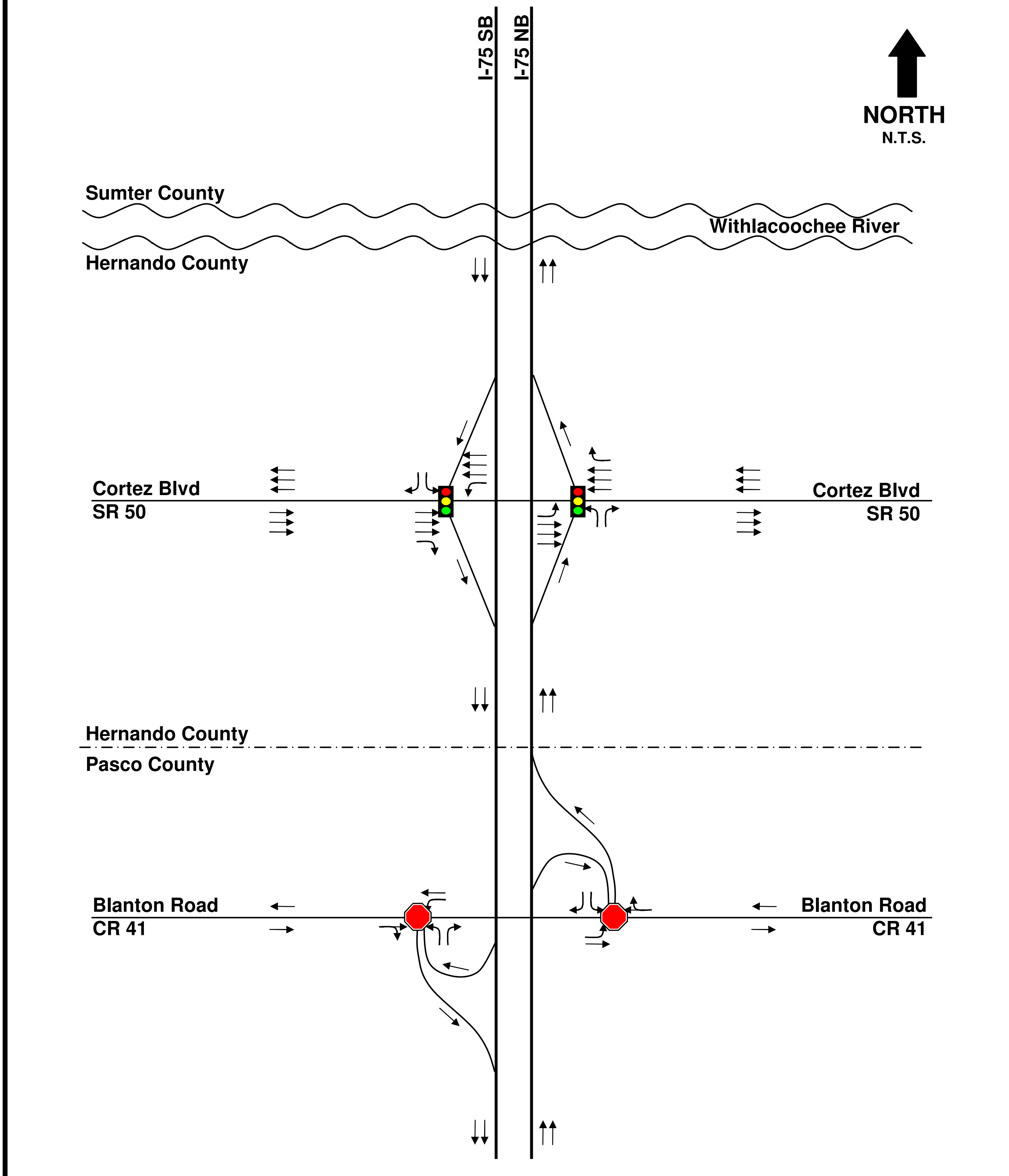
No-Build Design Year (2030) Intersection Peak Hour DDHV

Figure 12



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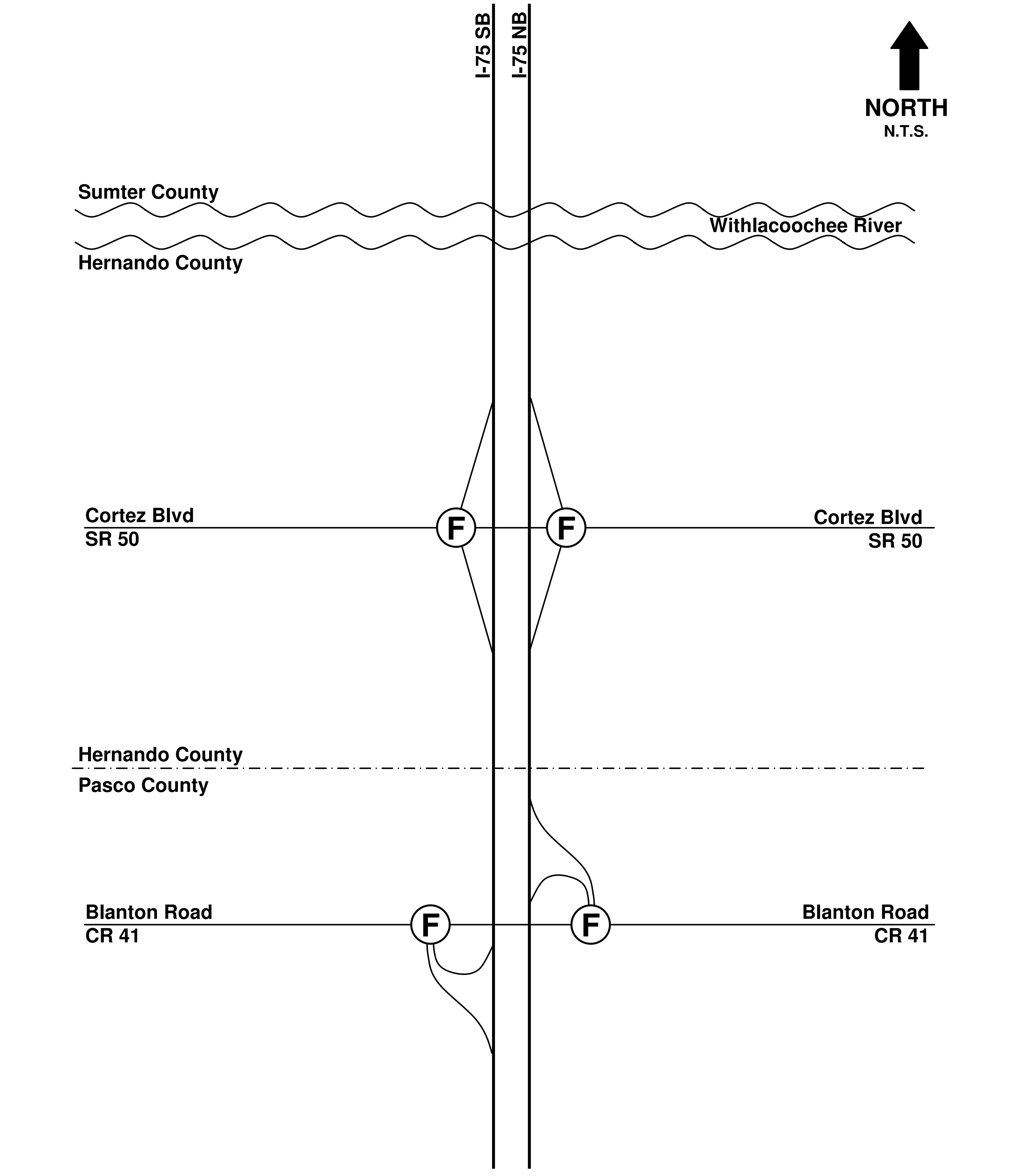
Design Year (2030)
No-Build Lanes

Figure 13



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Design Year (2030) No-Build Intersection Peak Hour LOS

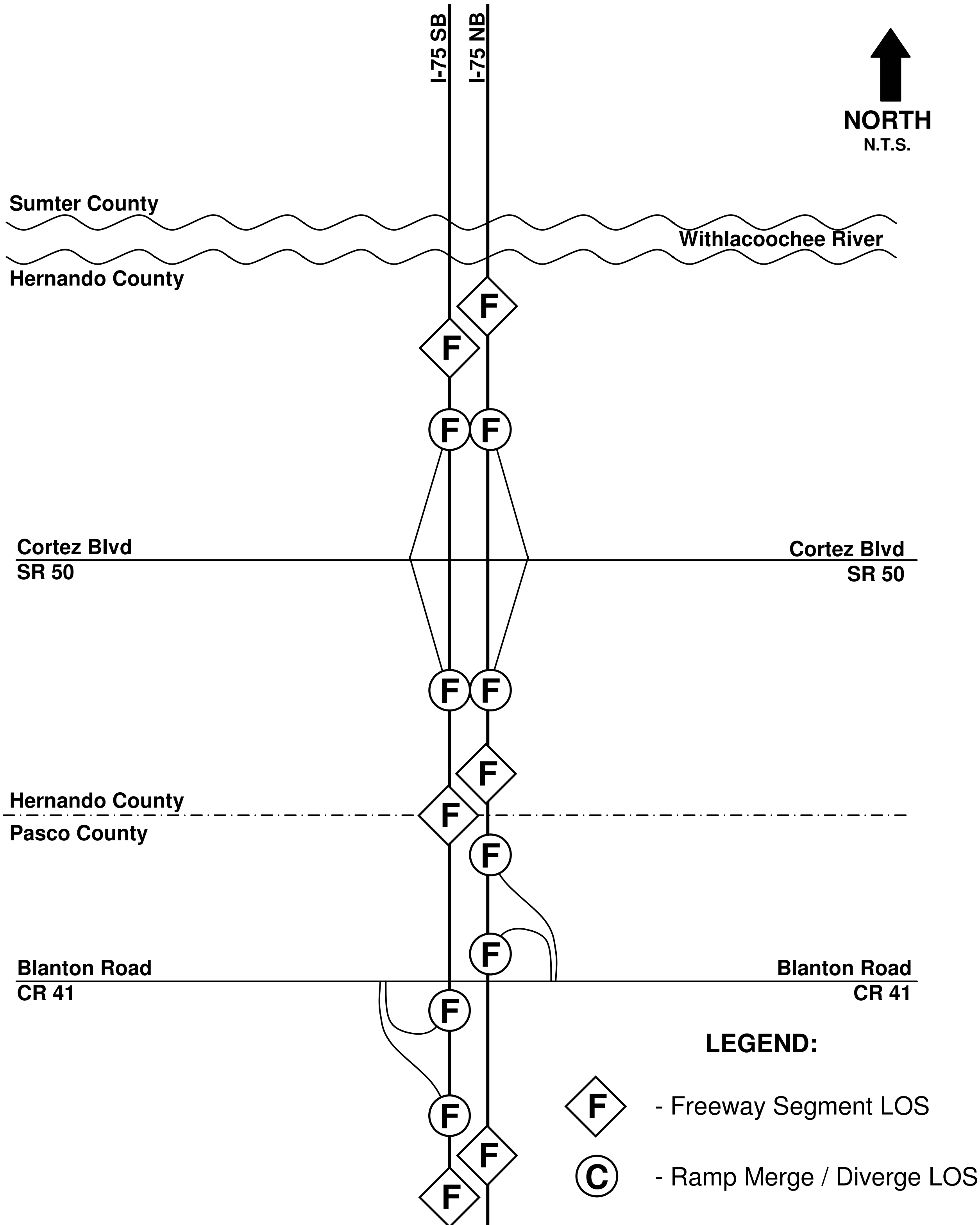
Figure 14

3.4 Design Year (2030) No-Build Freeway Segment LOS

The LOS analysis was conducted using HCS Plus. This analysis indicates that with a four lane cross section, traffic along I-75 will operate at LOS F for all three segments studied. These results are shown on Figure 15. Similar to the existing year analysis, the design year LOS standard for I-75 was set at LOS C. Therefore, traffic operations will not meet the LOS standard under design year (2030) conditions; widening of I-75 will be required to adequately handle future traffic demands.

3.5 Design Year (2030) No-Build Ramp Merge/Diverge LOS

The design year (2030) ramp merge / diverge LOS analysis for I-75 was conducted using the estimated design year (2030) design hour volumes shown in Figure 11. Based on this analysis, all ramp merge and diverge sections will operate at LOS F and thus will not meet the LOS standard under No-Build conditions. These results are shown with the freeway segment LOS results on Figure 15. These poor results are largely due to insufficient capacity on the mainline, particularly with respect to volumes in the right lane, more so than being a result of poorly functioning ramp merge or diverge sections.



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Design Year (2030) No-Build Freeway / Ramp Peak Hour LOS

Figure 15

3.6 Build Freeway Segment and Ramp Merge / Diverge LOS

For the Build alternatives considered, analyses were done for the Opening Year (2010), Interim Year (2020) and Design Year (2030). These analyses are presented in this section for the I-75 mainline and ramp junctions. The following section presents the ramp termini analyses.

Since capacity of the mainline is the key factor in having I-75 meet LOS standards, two widening alternatives (6-lane and 8-lane) were analyzed in this TTM. As shown in Figures 16a and 16b, a 6-lane cross-section on I-75 will meet the LOS standard of C until 2020. By 2030, a 6-lane section will not suffice as shown in Figure 16c. This figure indicates that the northbound lanes will operate at LOS D or LOS E with a 6-lane section, and no worse than LOS C with an 8-lane section.

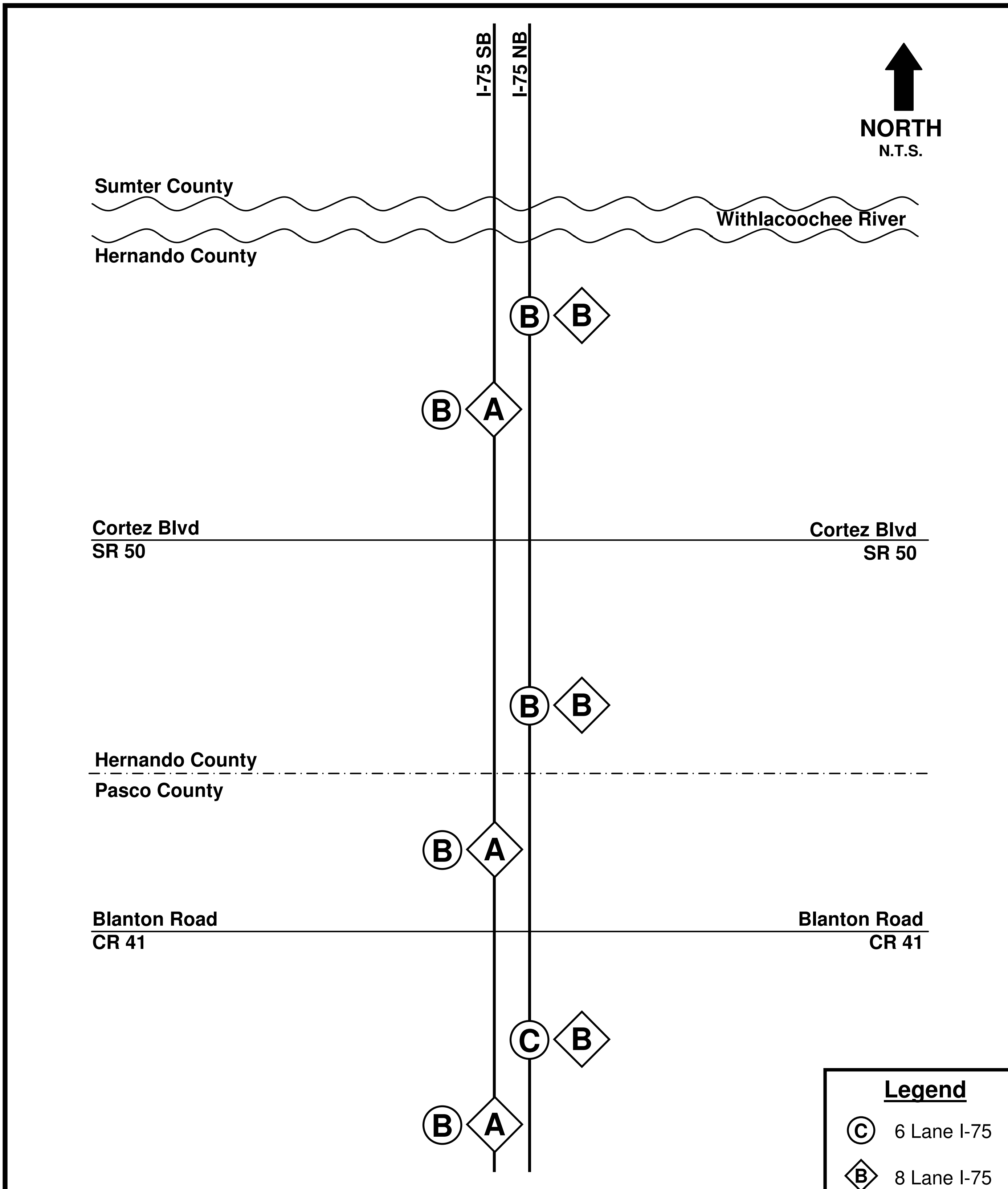
With the 8-lane widening alternative, the I-75 NB off-ramp to SR 50 and the I-75 SB off-ramp to SR 50, will remain operating at substandard LOS. Various alternatives, including the implementation of auxiliary lanes, deceleration / acceleration lanes, widening of the ramps, were tried to improve these conditions to the LOS standard. The list below shows the minimum improvement required to have all I-75 ramp diverge sections to meet or better the LOS standard of C.

- <u>I-75 northbound off-ramp to SR 50</u> – Widen the off-ramp to two lanes. Add a minimum 500 foot long right-side auxiliary lane that will become a drop lane into the northbound off-ramp. The right-most mainline of northbound I-75 will become a decision lane for northbound I-75 and the northbound off-ramp to SR 50.
- <u>I-75 southbound off-ramp to SR 50</u> – Add a minimum 500 foot deceleration lane in advance of the gore area for this off-ramp.

With these improvements all freeway segment and ramp merge and diverge segments will operate at or better than the standard of LOS C for the design year of 2030.

The ramp junctions have also been examined. As shown in Figures 17a, 17b and 17c, a 6-lane section of I-75 will result in LOS D conditions at the northbound exit ramp of the CR 41 interchange by Year 2020. As shown in Figure 17c, an 8-lane section will result in conditions no worse than LOS C for all CR 41 ramp junctions by 2030.

Assuming that I-75 is widened to 6-lanes, ramp junctions at the SR 50 interchange will produce acceptable levels of service through Year 2020, as shown in Figures 18a and 18b. Figure 18c indicates that an I-75 6-lane section will result in LOS D for the southbound ramp junctions as well as the northbound on-ramp junction by Year 2030. An 8-lane section on I-75 will produce LOS C or better conditions for Year 20 for these junctions. The northbound off-ramp must be upgraded to a 2-lane off-ramp by Year 2020 to meet acceptable levels of service for either a 6-lane or an 8-lane I-75, as shown in Figure 18c.



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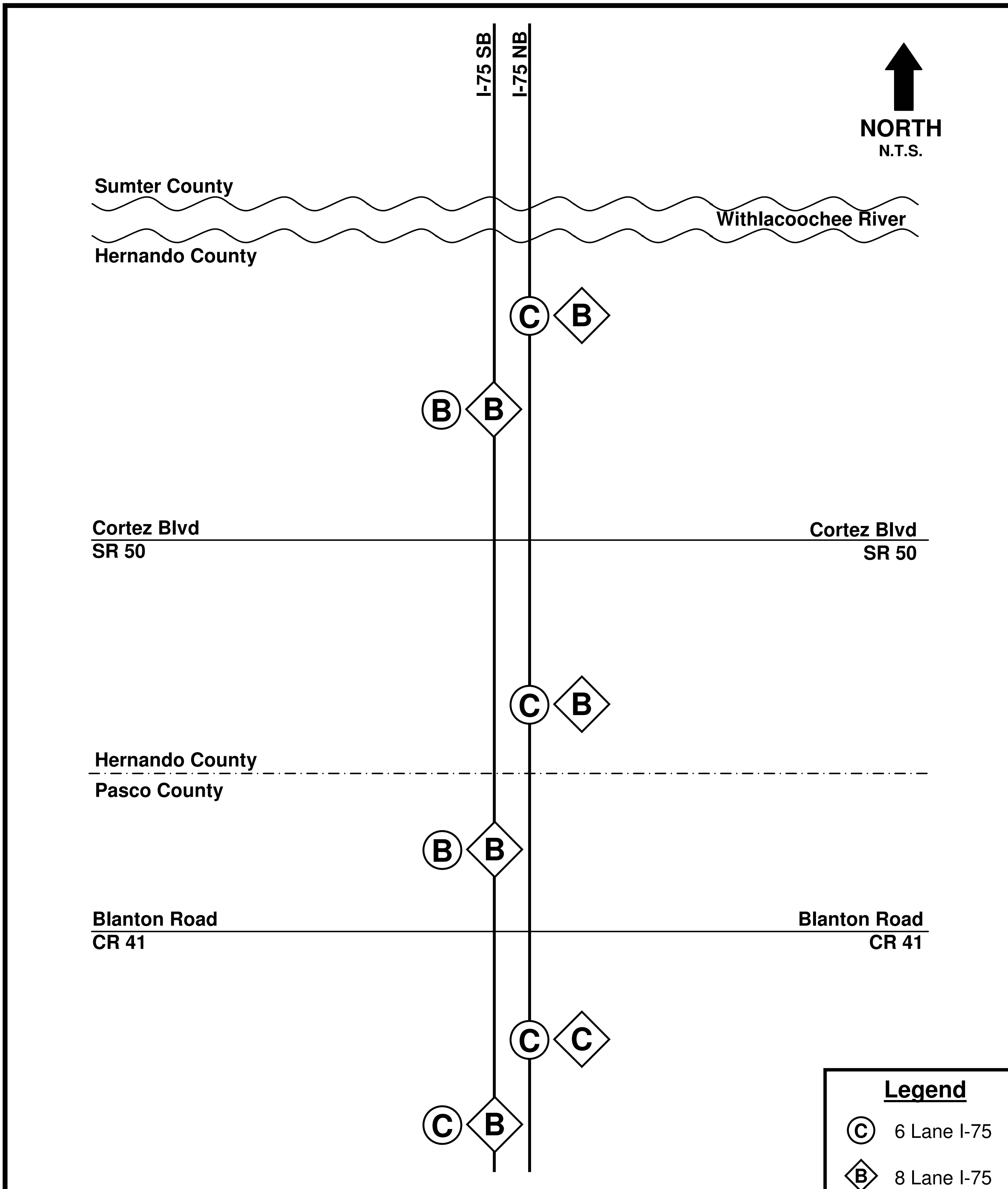
Opening Year (2010)
Build Freeway LOS

Figure 16a



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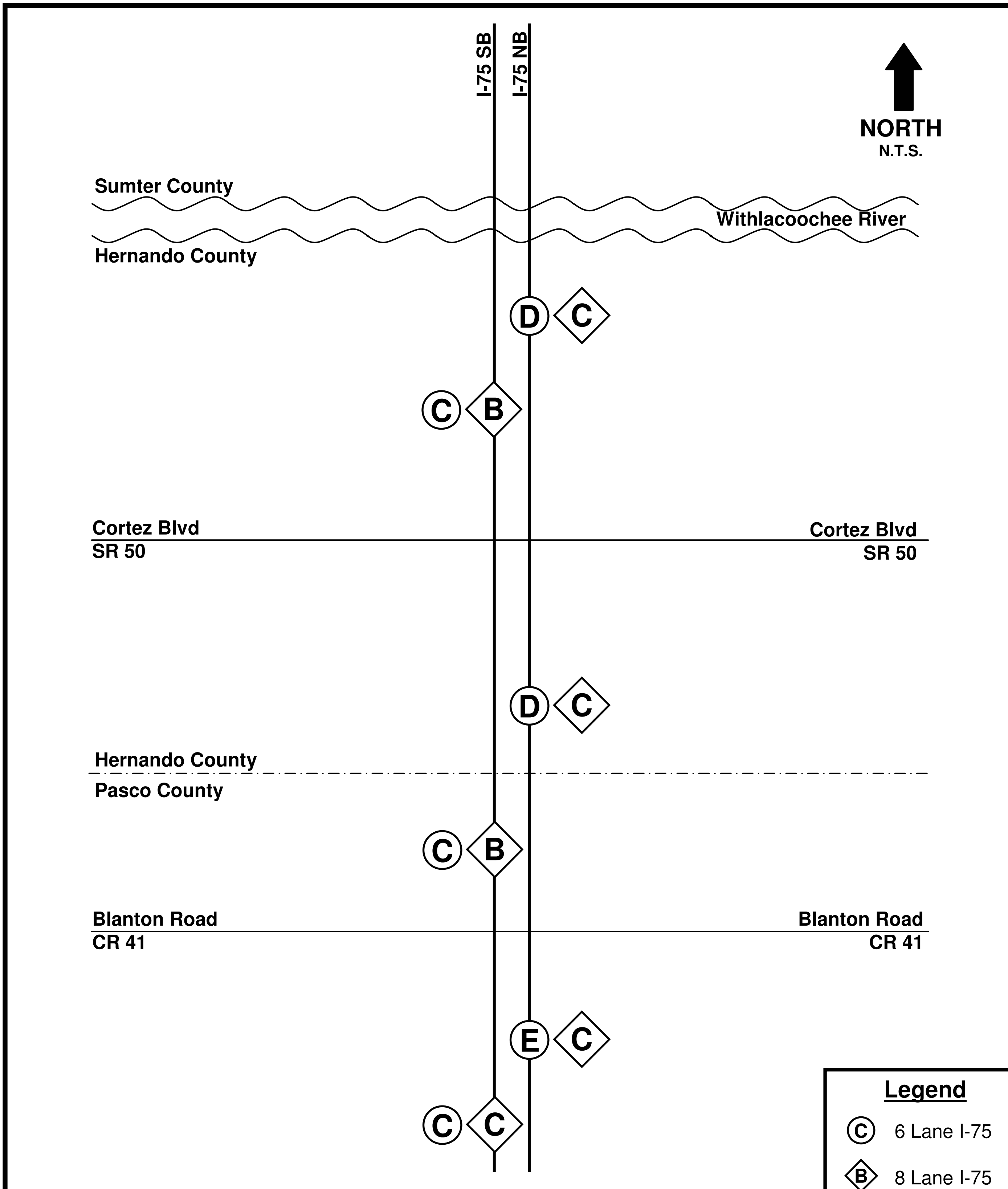
Interim Year (2020)
Build Freeway LOS

Figure 16b



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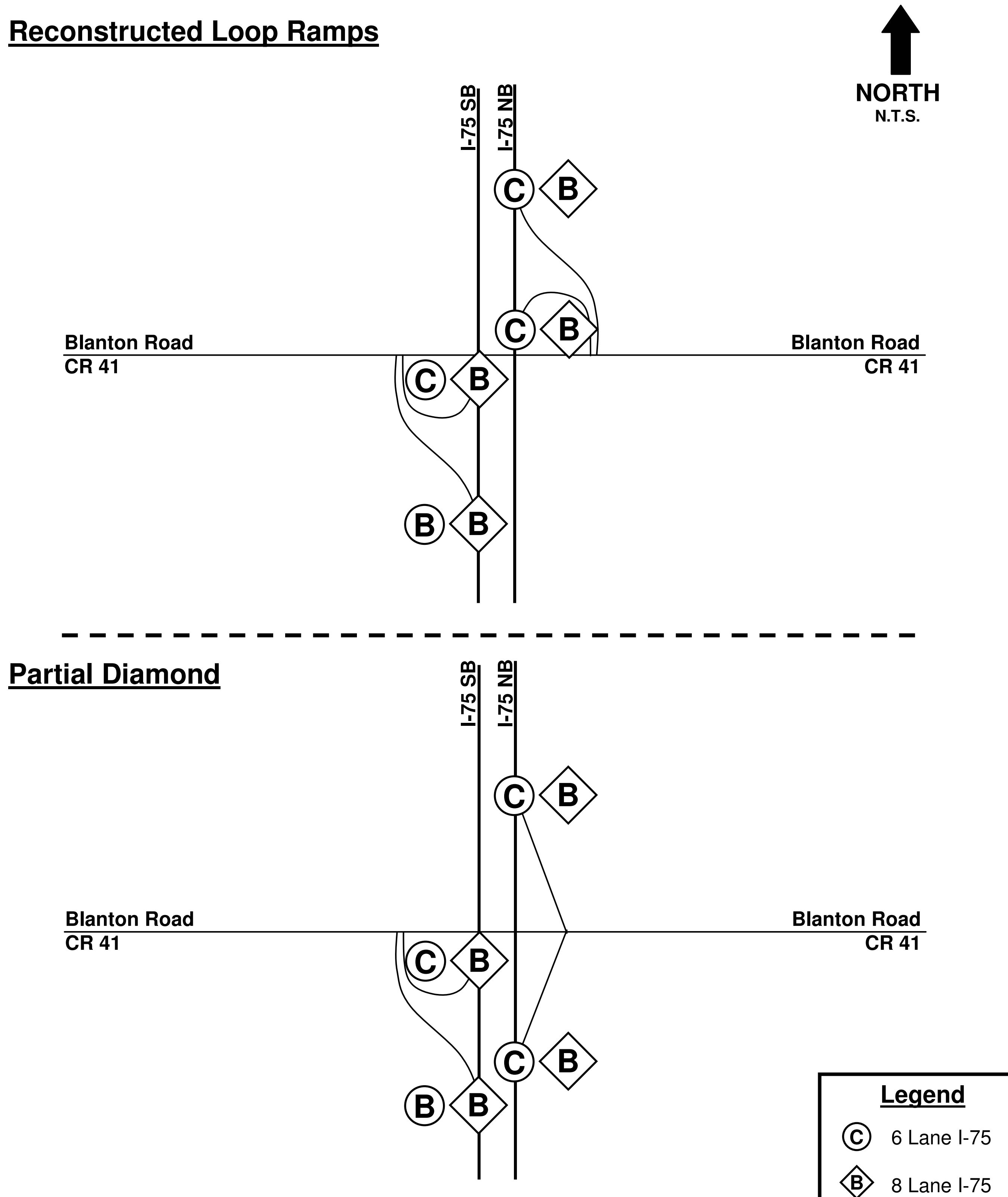
Design Year (2030)
Build Freeway LOS

Figure 16c



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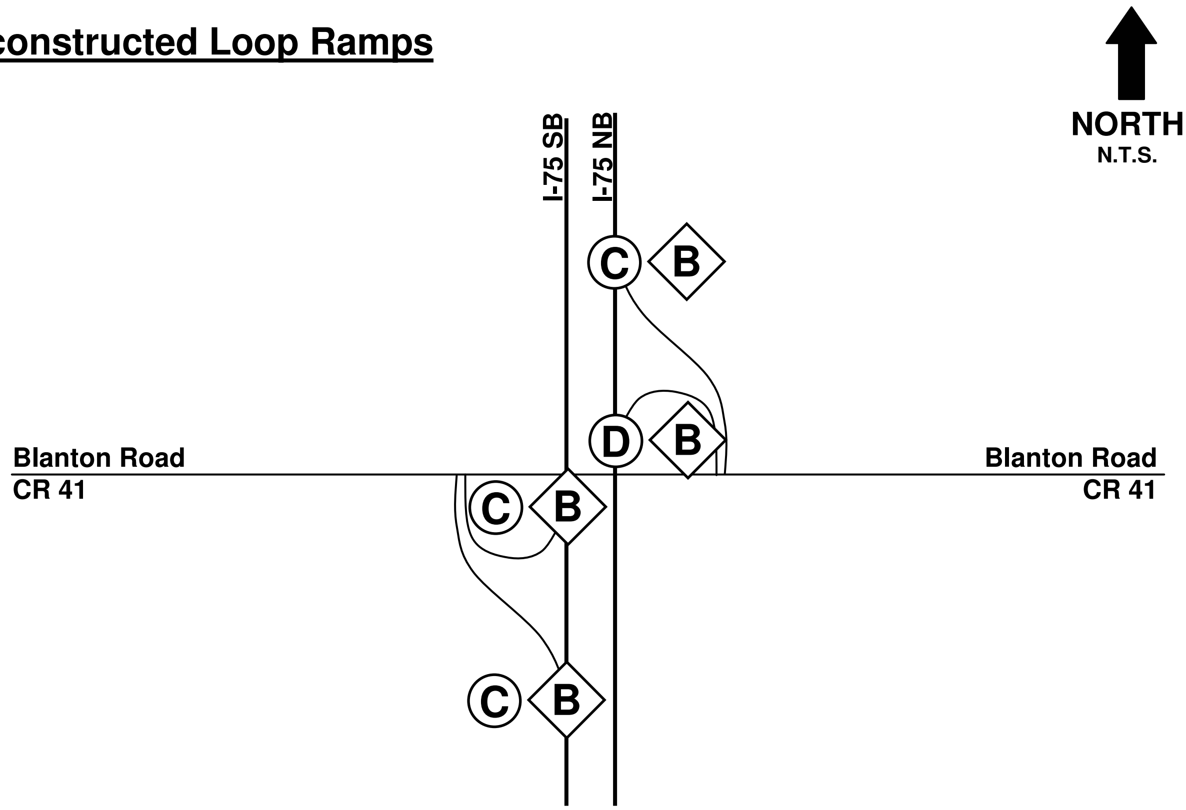
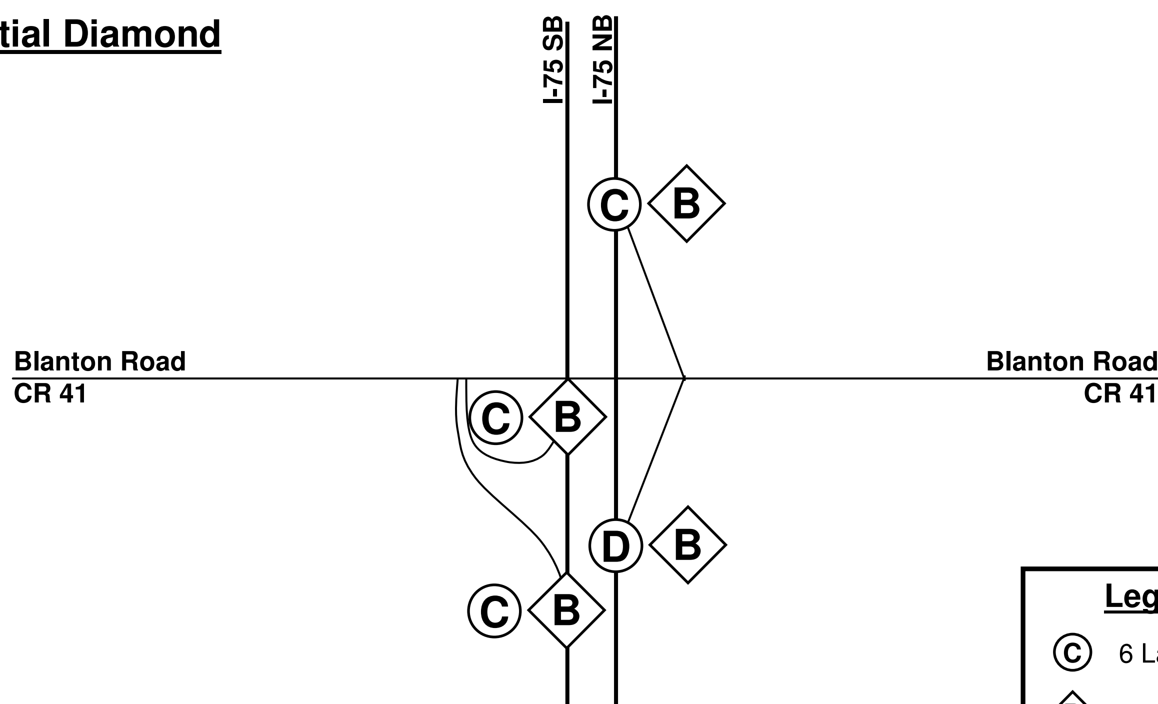
2010 Build LOS
CR 41 Ramp Junctions

Figure 17a

Reconstructed Loop Ramps



Partial Diamond



Legend

- C: 6 Lane I-75
- B: 8 Lane I-75

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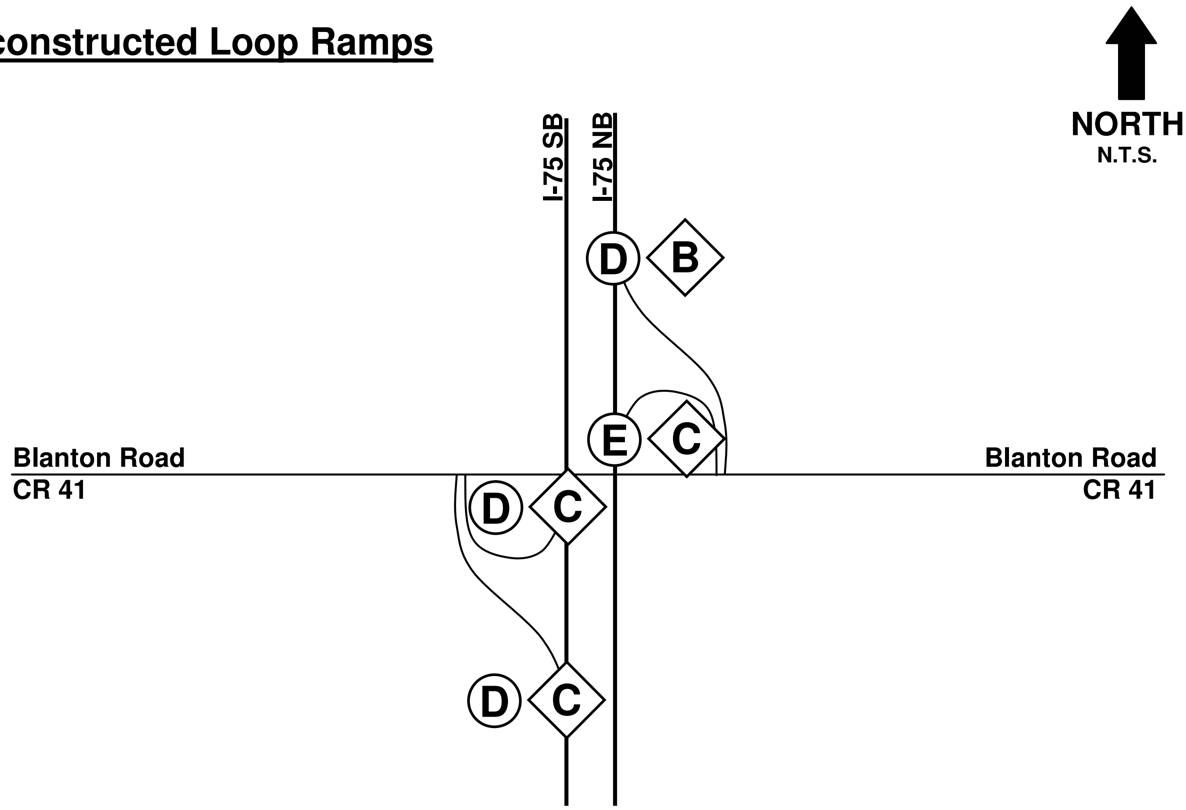
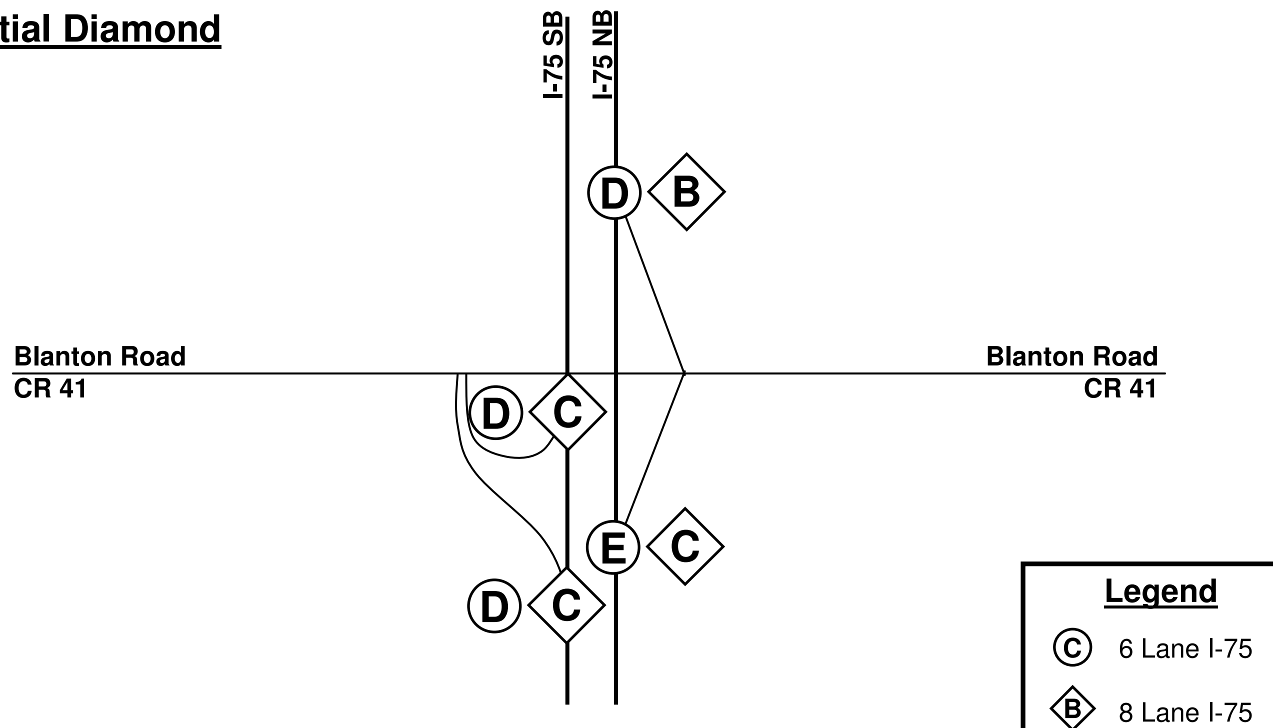
2020 Build LOS
CR 41 Ramp Junctions

Figure 17b

Reconstructed Loop Ramps



Partial Diamond



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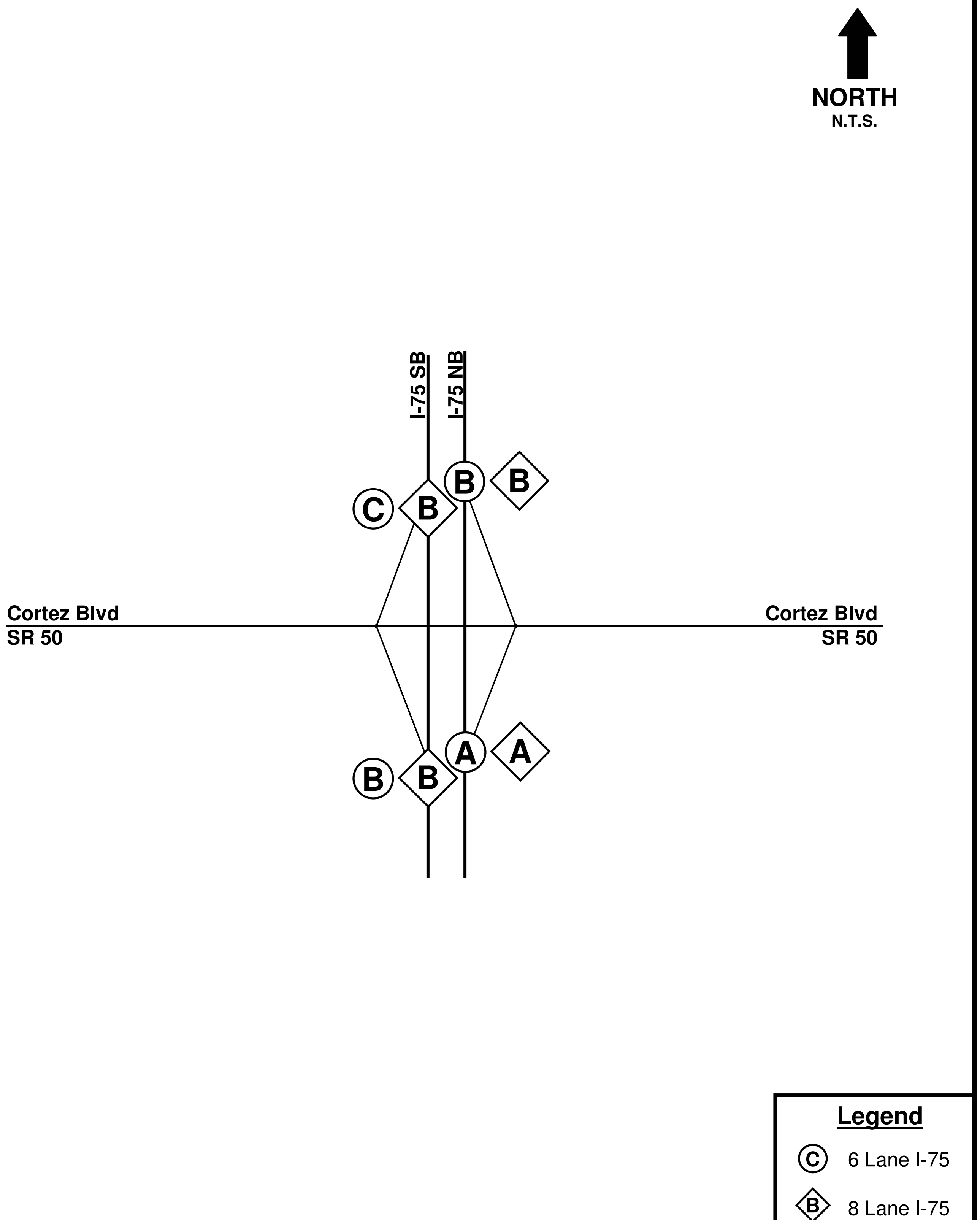
2030 Build LOS
CR 41 Ramp Junctions

Figure 17c



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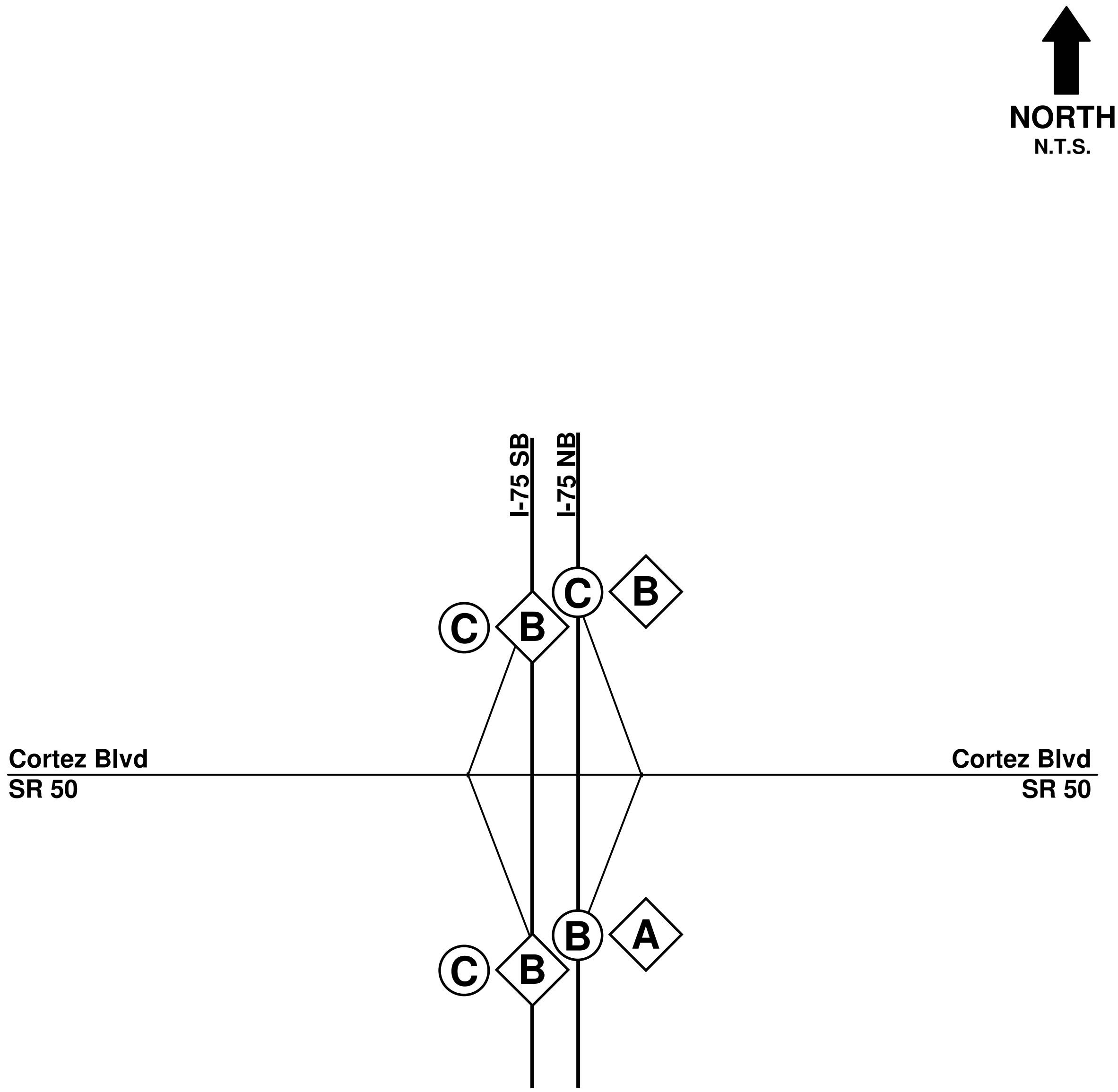
2010 Build LOS
SR 50 Ramp Junctions

Figure 18a



Legend

C 6 Lane I-75

B 8 Lane I-75

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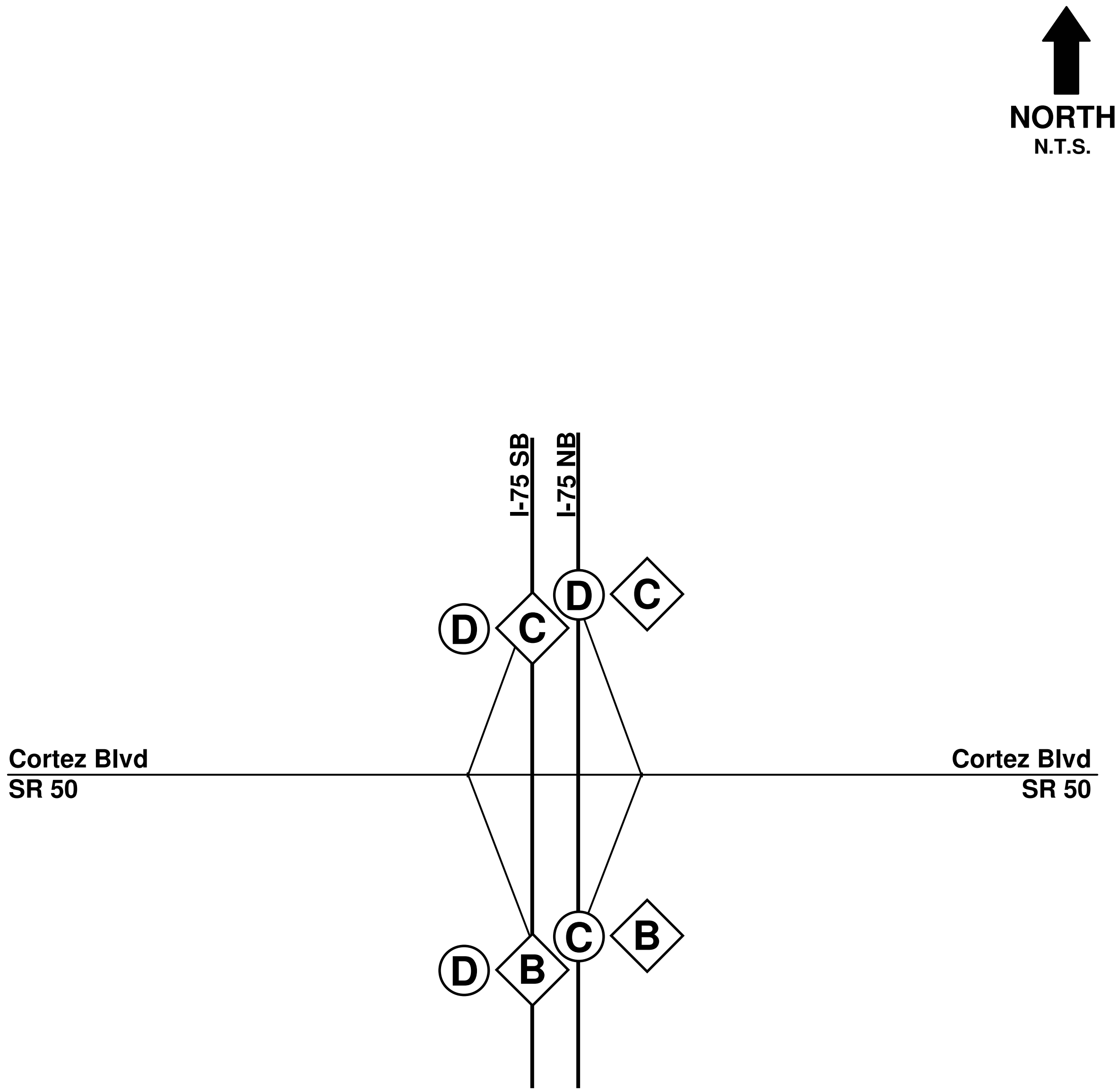
2020 Build LOS
SR 50 Ramp Junctions

Figure 18b



Legend

- C (circle): 6 Lane I-75
- B (diamond): 8 Lane I-75

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2030 Build LOS
SR 50 Ramp Junctions

Figure 18c

3.7 Build Intersections LOS Analysis

CR 41

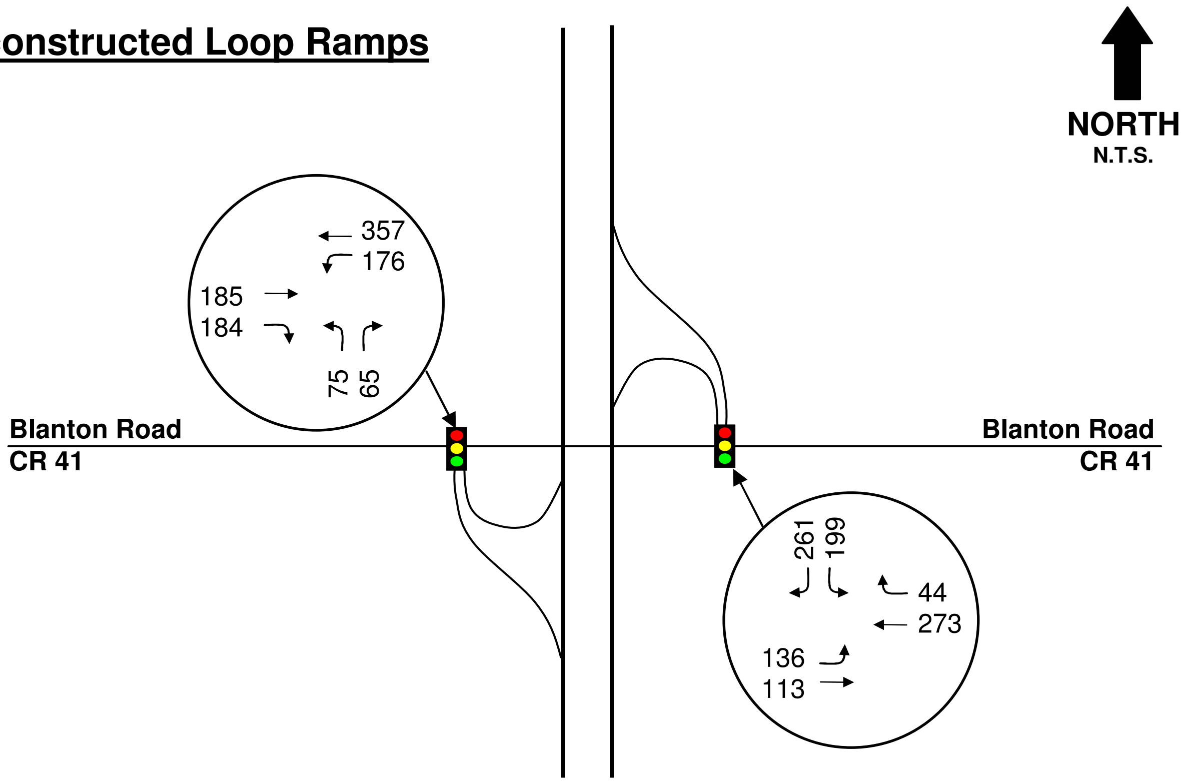
Since operations at interchange ramps can have a direct influence on mainline traffic, ensuring that conditions meet LOS standards is very important. To improve the substandard conditions at ramp terminals on CR 41 and SR 50, a number of improvement alternatives were analyzed. One of the main issues at the CR 41 (Blanton Road) interchange is that the present unsignalized traffic control at both ramp terminals will not adequately handle the much higher turning movements under design year conditions. For purposes of this analysis, both ramp termini are assumed to be signalized in the opening year.

Presently, the northbound off ramp to CR 41 is approximately 620 feet long from the gore point to the stop bar at the ramp terminal. Future volumes will likely produce queues that exceed the storage capacity of the current ramp design. Also, the future widening of I-75 will further shorten this off-ramp length and thus reduce the storage capacity even more. To address storage deficiencies that will exist on the northbound off-ramp to CR 41, this ramp must either be reconstructed to provide more queue storage or be replaced by a northbound off-ramp that is located in the southeast quadrant of the interchange, thus creating a partial diamond interchange at CR 41. These two alternatives were examined in the build scenarios of this study.

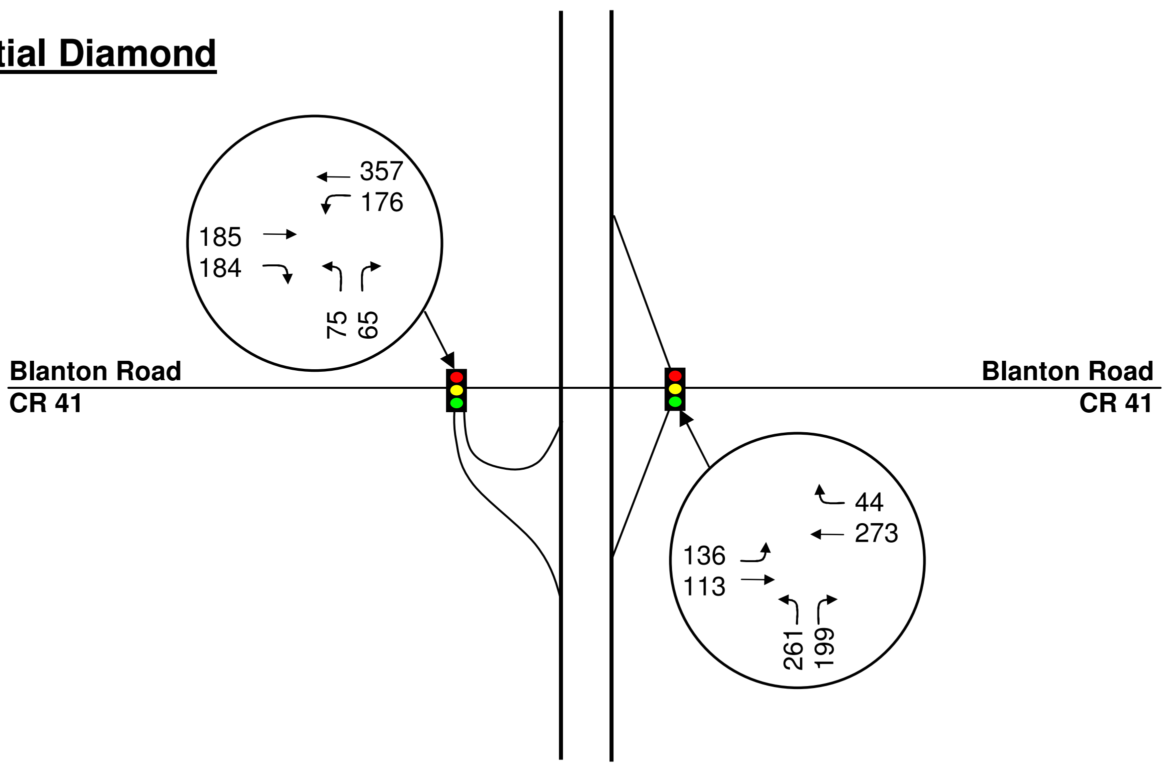
Unlike the northbound off-ramp, the southbound off-ramp at CR 41 is expected to meet or exceed the design year storage demands with its current configuration. The southbound off-ramp is longer than the northbound off-ramp (approximately 780 feet long). Also, the traffic volumes on this ramp are substantially less than those of the northbound ramp. For these reasons, the southbound off-ramp at CR 41 is long enough to meet design year traffic demands and thus can be retained; however mainline widening will necessitate the reconstruction of this ramp, retaining the current cloverleaf concept.

Opening, Interim and Design Year volumes are shown on Figures 19a, 19b and 19c respectively while lane configurations for the two Build alternatives are shown in Figure 20. Figure 21 shows the Levels of Service for the three years analyzed for both Build alternatives.

Reconstructed Loop Ramps



Partial Diamond



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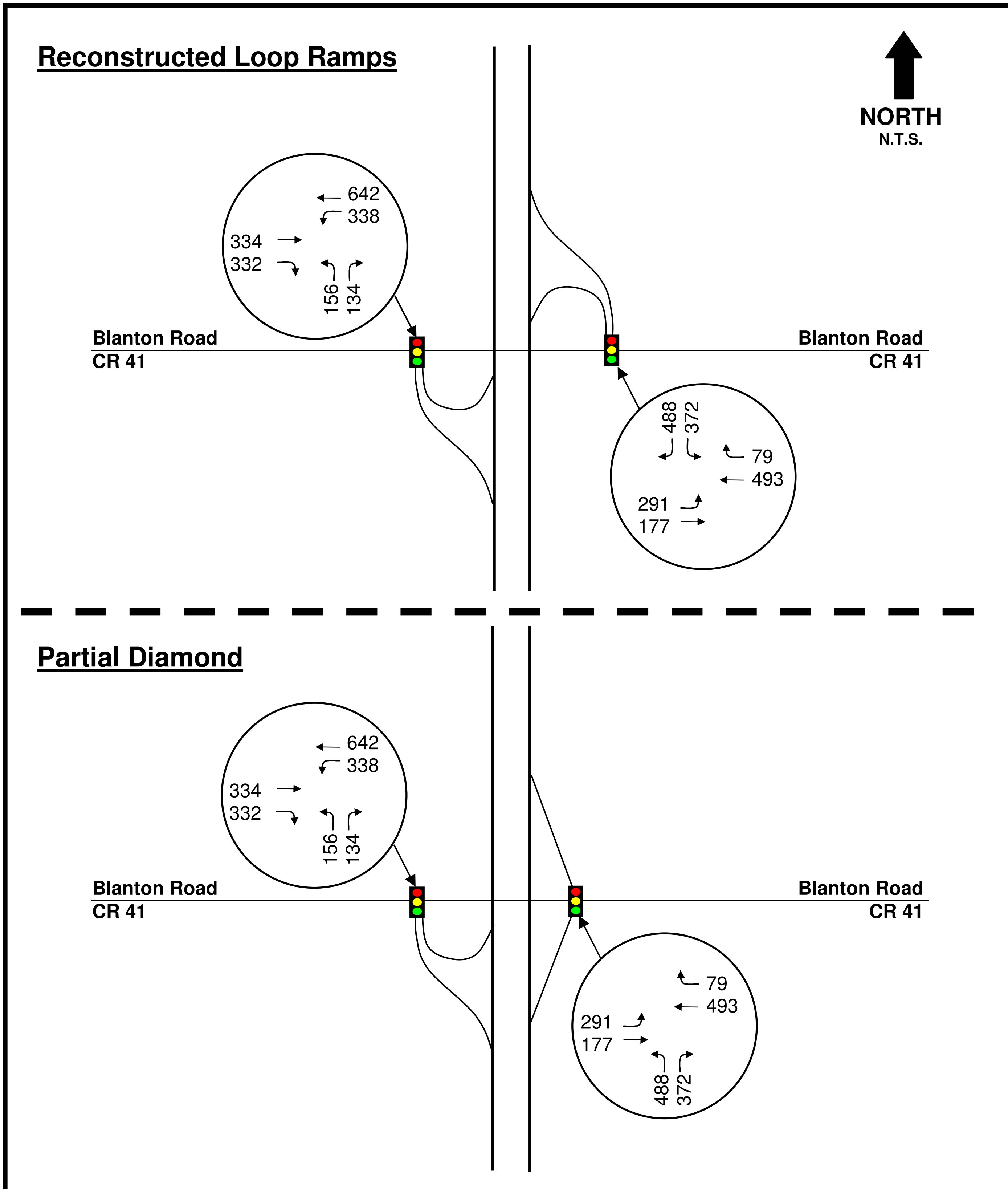
2010 Volumes
CR 41 Intersection

Figure 19a



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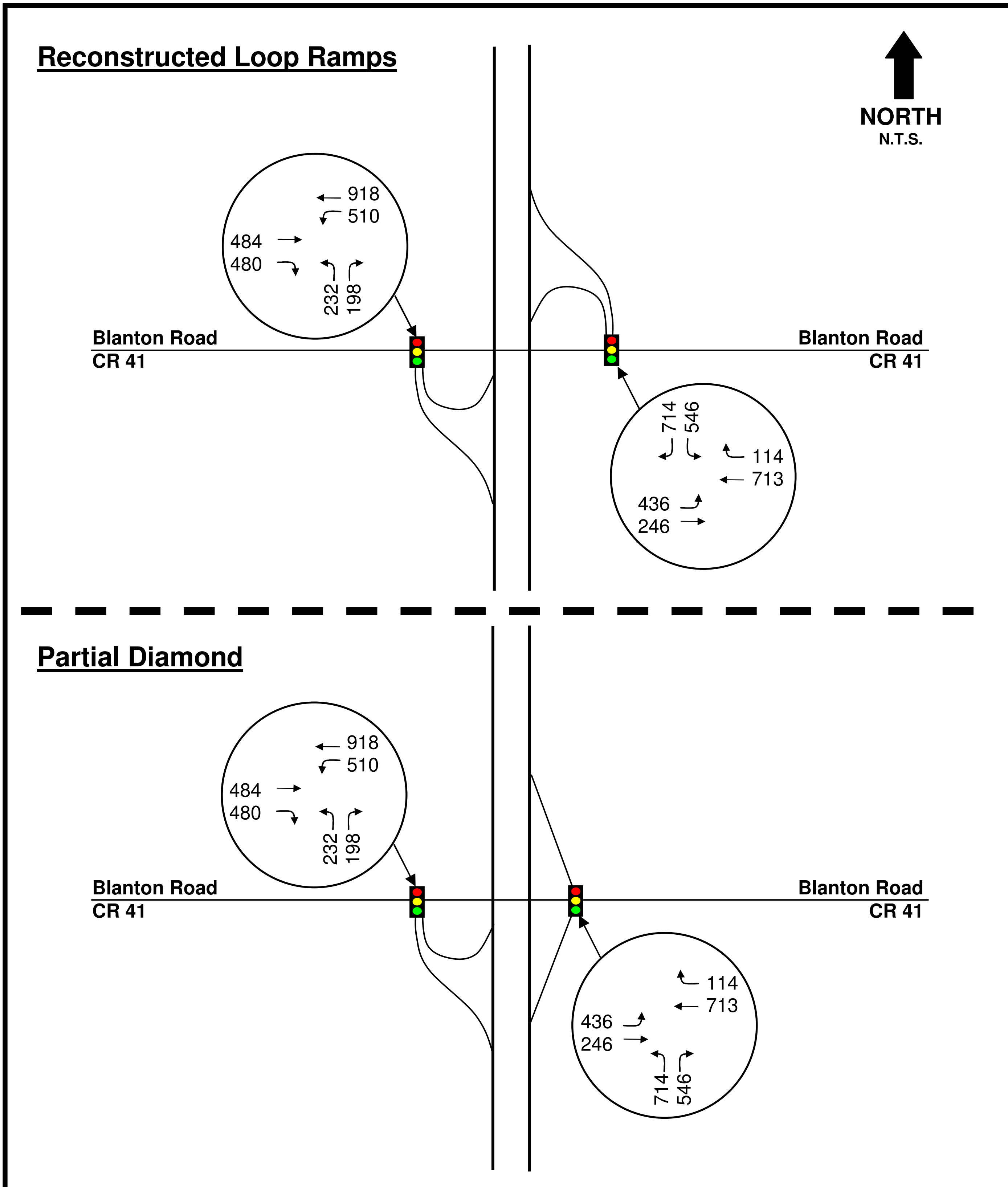
2020 Volumes
CR 41 Intersection

Figure 19b



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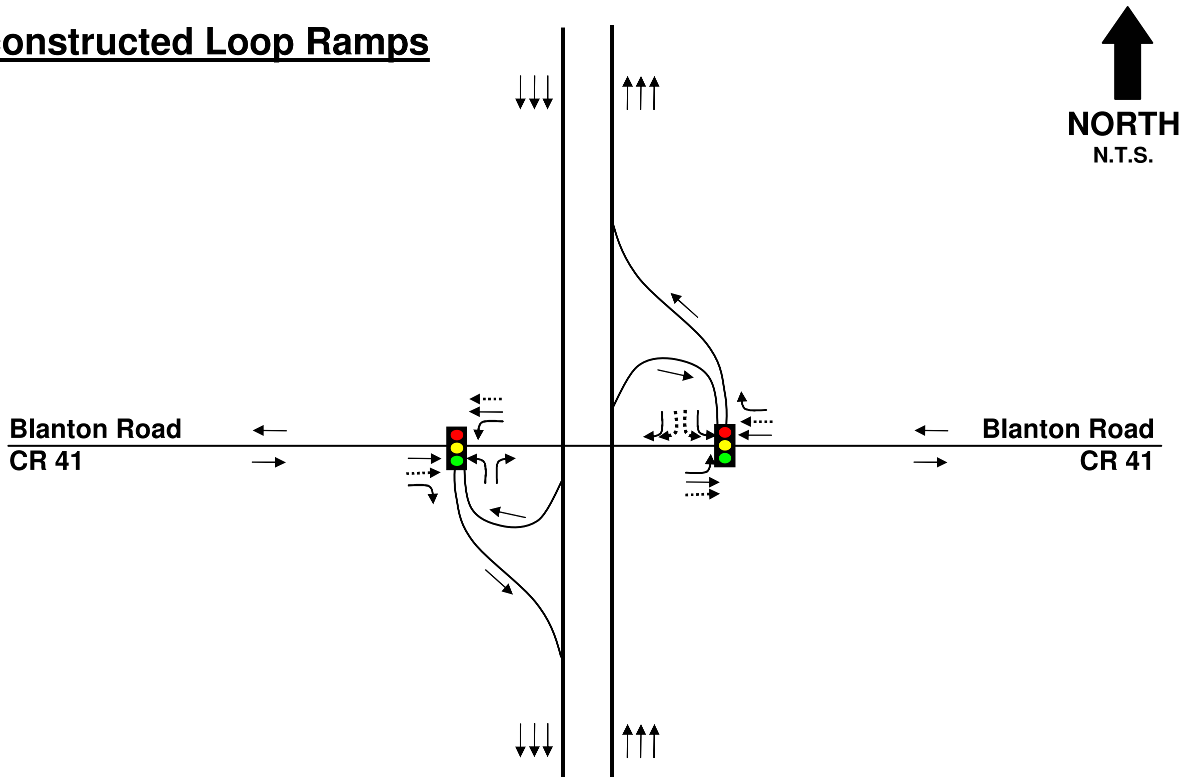
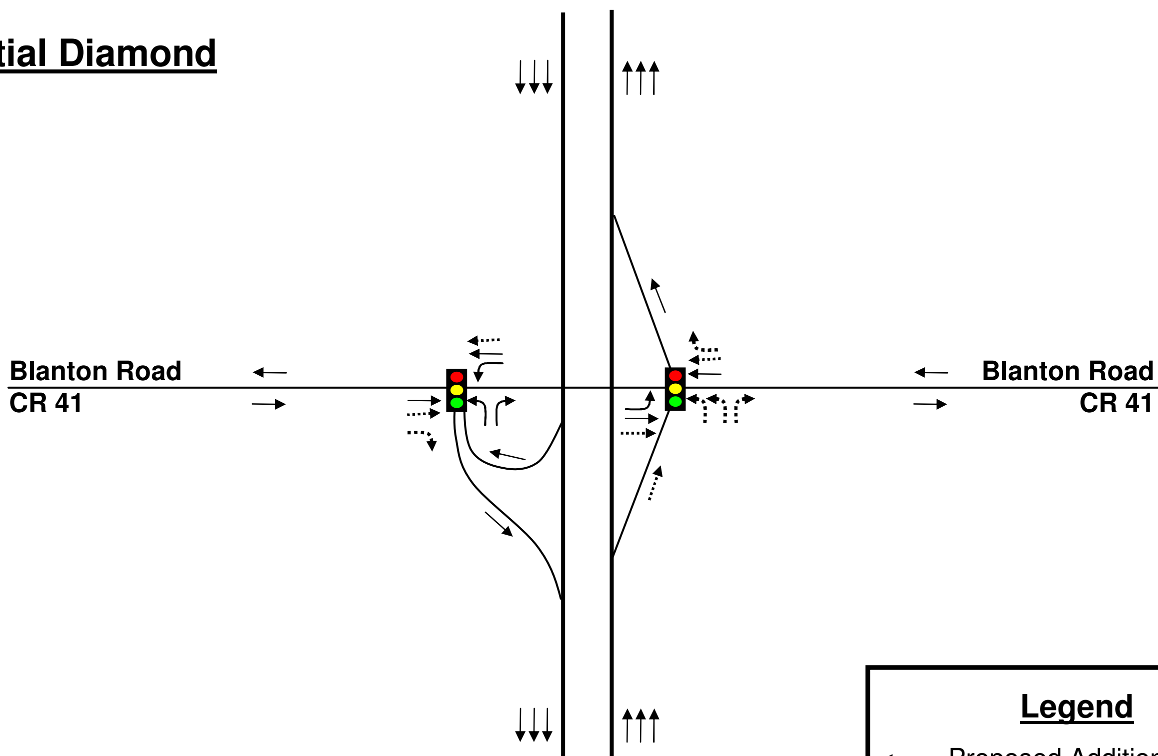
2030 Volumes
CR 41 Intersection

Figure 19c

Reconstructed Loop Ramps



Partial Diamond



Legend

- Proposed Additional Lane

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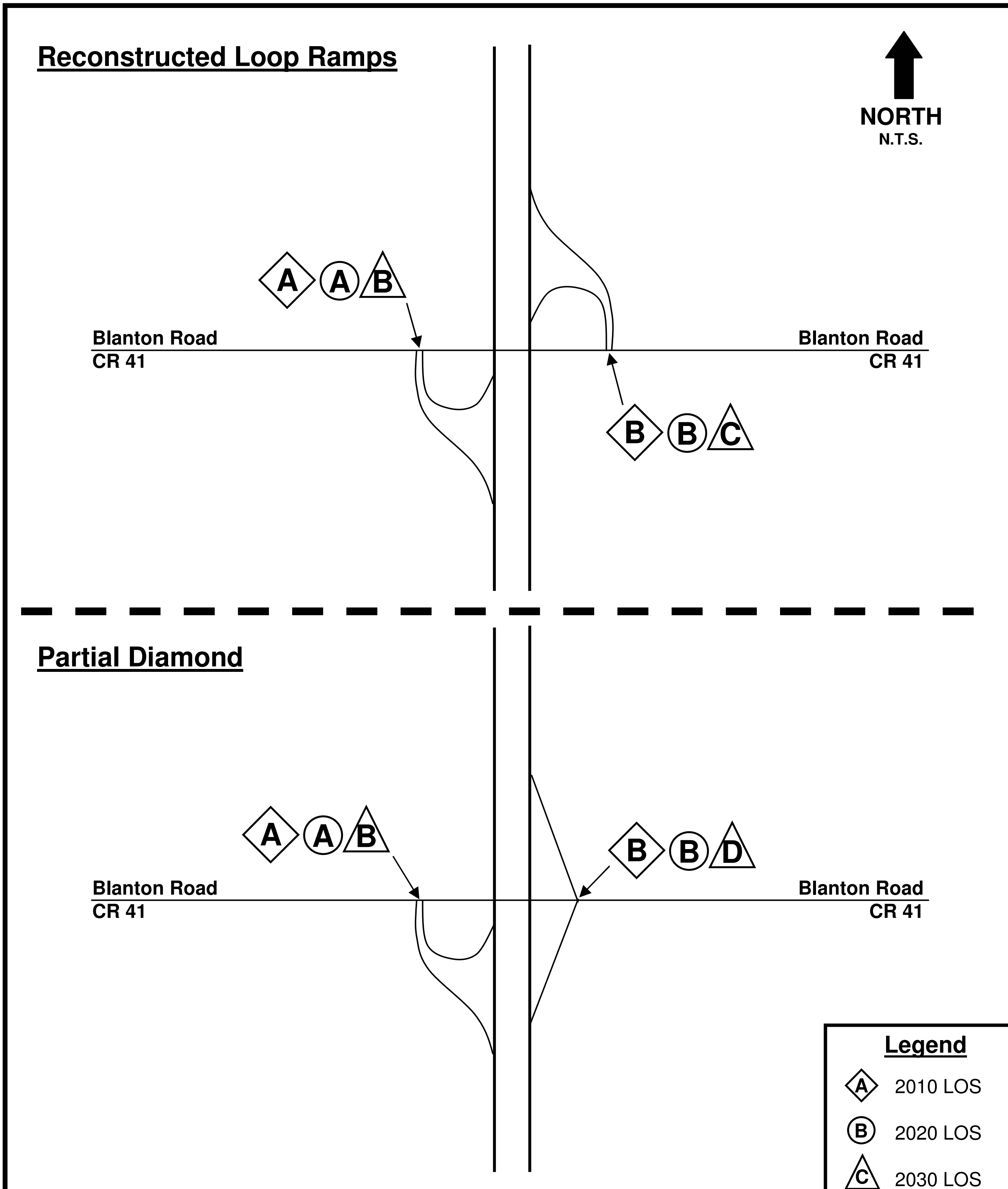
Build Lane Configurations
CR 41 Intersection

Figure 20



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Build LOS
CR 41 Intersection

Figure 21

SR 50

The ramp terminals, in their existing condition, will both operate at LOS F under design year traffic demands. To improve operating conditions, a total of five alternatives were developed and evaluated; however not all alternatives were found to provide acceptable operations. Although the focus of operations is on mainline I-75, it was strongly desired to also provide acceptable operations on SR 50, an SIS route, within the interchange area. Early on, it was decided that this study would not encompass a complete evaluation for SR 50 outside of the interchange area, as it would be outside the scope of this project. In addition, there are a large number of unknowns regarding future development. Numerous discussions occurred between the study consultant, FDOT District staff, County officials and developers representatives to gain a better understanding of future conditions.

The five alternatives evaluated to improve interchange operations include:

- Implementation of lane improvements to the existing diamond interchange,
- Conversion of the existing diamond interchange to a single point urban interchange,
- Addition of a loop ramp to serve westbound to southbound traffic,
- A westbound-to-southbound flyover ramp and
- A northbound-to-westbound flyover ramp.

Based on the initial demand volumes, approach and turning movement volumes were generated for each of the alternatives. These volumes are shown on Figures 22a-1 through 22c-2. Lane configurations associated with these alternatives are shown on Figures 23a and 23b.

Figure 24a indicates that neither lane improvements nor the single point urban interchange will improve conditions enough to meet the standard of LOS C for the design year. The westbound to southbound loop ramp alternative, will produce better results at the two ramp terminal intersections; however the western intersection will operate at LOS D, while the eastern intersection will operate at LOS E, as seen in Figure 24a. Both results are below the LOS standard of C set for SR 50. This alternative consists of the following improvements to the interchange:

- A westbound to southbound loop ramp located in the northwest quadrant of the interchange,
- A right-most channelized westbound lane that feeds this loop ramp and that begins at some point east of the northbound ramp intersection (this allows westbound traffic to proceed and not conflict with northbound to westbound traffic turning left from the I-75 off-ramp),
- The addition of an eastbound left turn lane for the eastern intersection, resulting in dual eastbound left turn lanes,
- The addition of southbound left turn and right turn lanes, resulting in dual southbound right and left turn lanes,
- The addition of two northbound left turn lanes, resulting in three northbound left turn lanes, and
- Widening SR 50 east of I-75 to some point east of the interchange to allow the northbound right turn lane to be a free flowing movement. This is the preferred treatment and assumes the relocation of the signal at Bronson Boulevard. If this signal cannot be relocated, the ramp terminal should be modified to a dual right-turn operation under signal control; however, this introduces ramp storage issues which would not exist under the preferred treatment.

The westbound to southbound flyover alternative will produce results at the two ramp terminal intersections that are similar to the results of the westbound to southbound loop ramp alternative. This alternative also results in western and eastern intersections which will operate at LOS D and LOS E, respectively, as seen in Figure 24b. Again, both intersections will operate at levels below the LOS standard of SR 50. The westbound to southbound flyover alternative consists of the following improvements to the interchange:

- A westbound to southbound flyover that begins in the northwest quadrant of the interchange,
- The addition of an eastbound left turn lane at the eastern intersection, resulting in dual eastbound left turn lanes,
- The addition of a southbound right turn lane, resulting in two southbound right turn lanes,

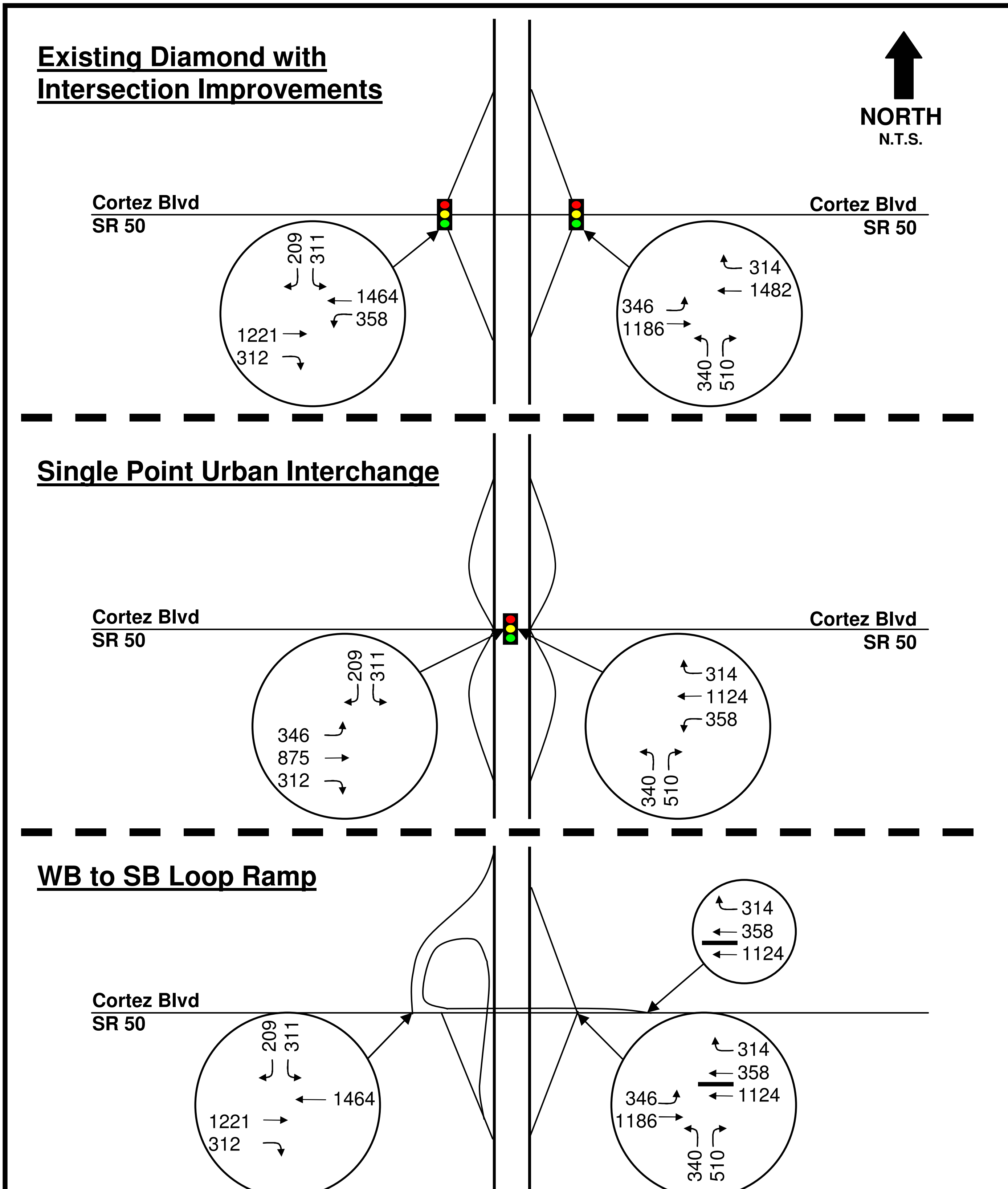
- The addition of two left turn lanes for both the northbound and southbound left turn movements, resulting in three left turn lanes, and
- Widening SR 50 east of I-75 to some point east of the interchange to allow the northbound right turn lane to be allowed a free flowing movement.

The northbound to westbound flyover alternative will produce results at the two ramp terminal intersections that are equal to or better than all other alternatives. In the design year, the western intersection will operate at LOS D, while the eastern intersection will operate at LOS C, as seen in Figure 24b. Although the eastern intersection will meet the standards set for SR 50, the western intersection will operate below the LOS standard of C. The northbound to westbound flyover alternative consists of the following improvements to the interchange:

- A northbound to westbound flyover that begins in the southeast quadrant of the interchange, originating from the northbound off-ramp,
- The addition of an eastbound left turn lane at the eastern intersection, resulting in dual eastbound left turn lanes,
- The addition of a southbound right turn lane, resulting in two southbound right turn lanes,
- The addition of two left turn lanes for southbound left turn movements, resulting in three left turn lanes, and
- Widening SR 50 east of I-75 to some point east of the interchange to allow the northbound right turn lane to be allowed a free flowing movement.

Although these improvements do not allow the SR 50 interchange to operate at LOS C, the interchange improvements necessary to allow the interchange to operate at the LOS C standard requires a fully directional interchange with flyovers for every left turn movement. An improvement of this magnitude was not considered feasible, especially considering that other nearby intersections will likely operate at worse than LOS C and will act to meter traffic approaching the interchange. Thus, it is recommended that the appropriate improvements be implemented and a waiver of the LOS standard for the ramp termini be granted, as this situation is similar to that of a constrained roadway.

The recommended improvements at the ramp terminals of the CR 41 and SR 50 interchanges are shown on Figure 25 and their resulting LOS is shown on Figure 26.



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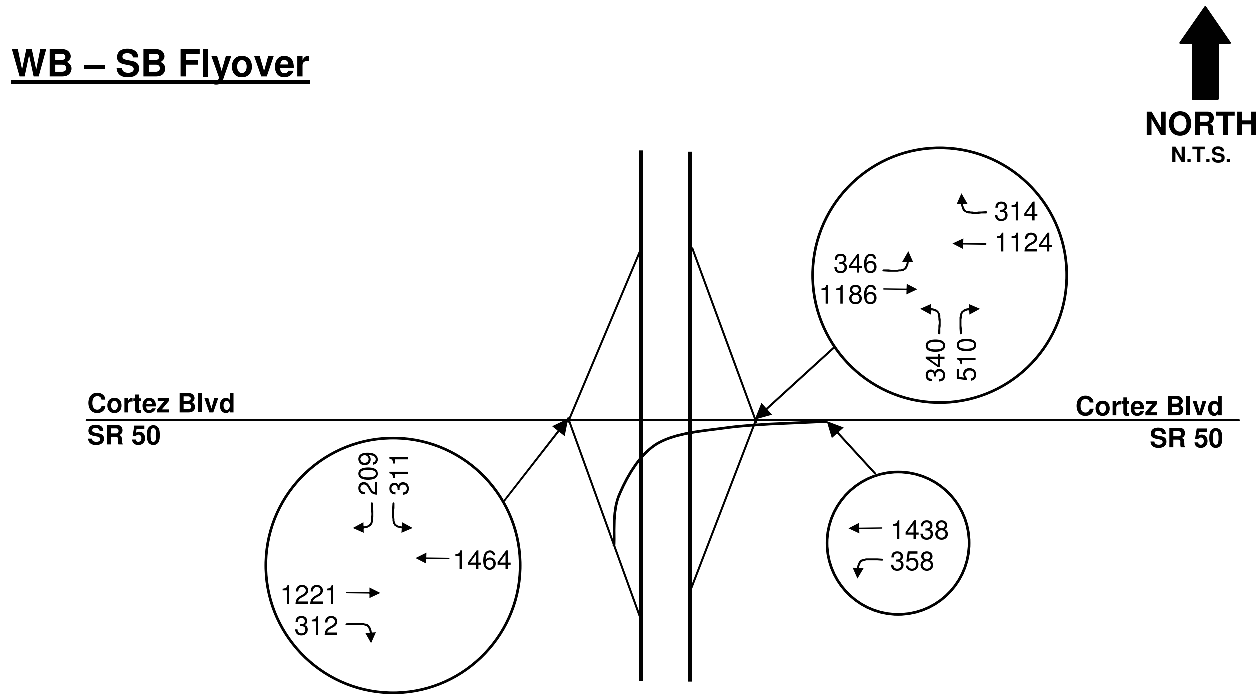
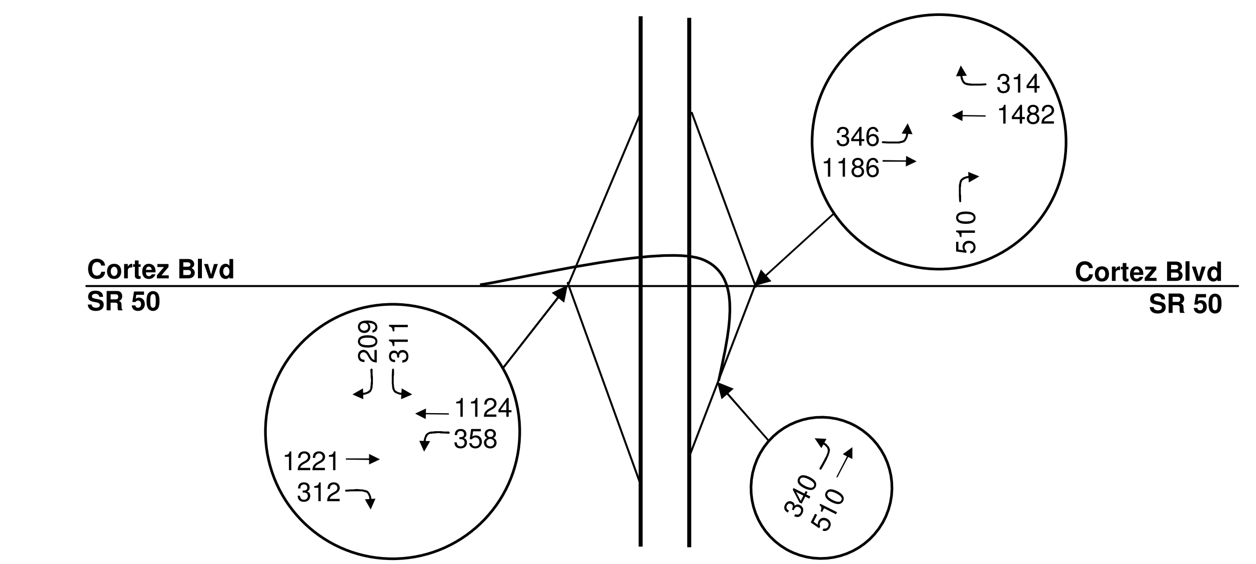
2010 Volumes
SR 50 Intersection

Figure 22a-1

WB – SB Flyover



NB – WB Flyover



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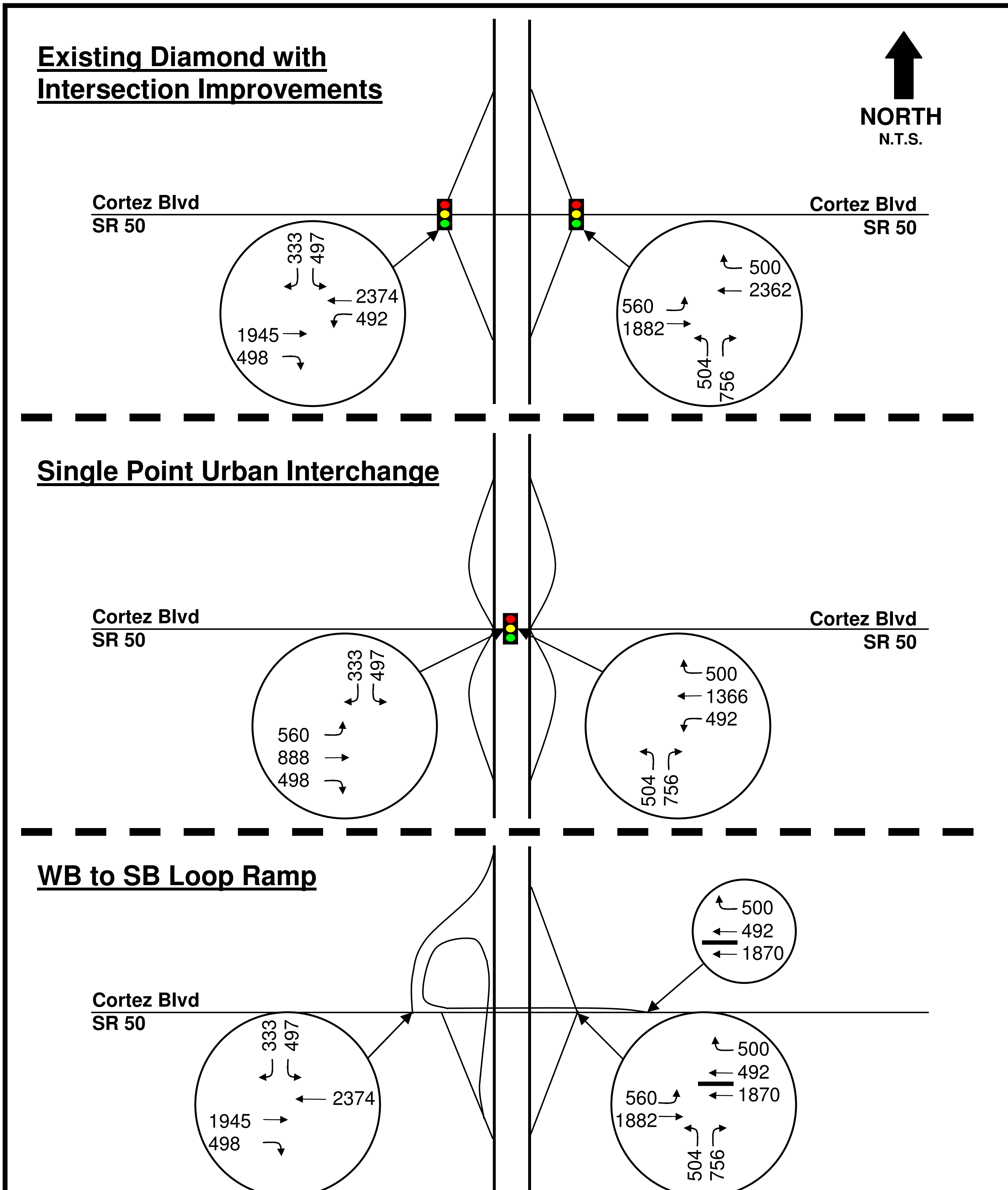
2010 Volumes
SR 50 Intersection

Figure 22a-2



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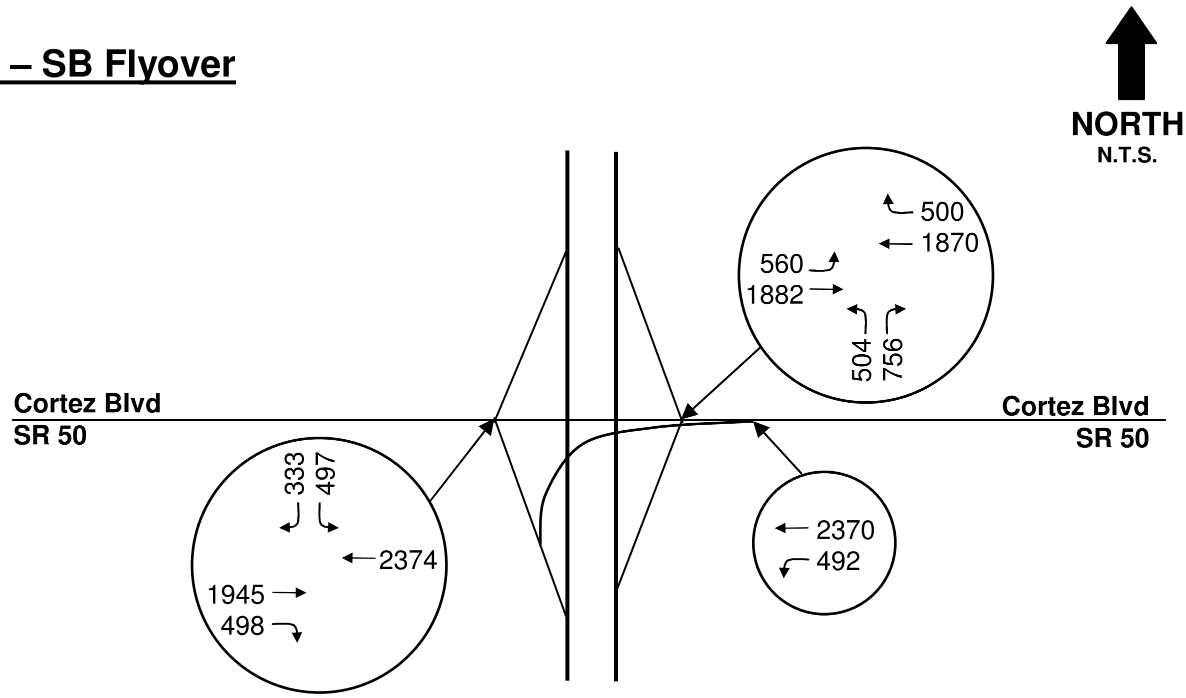
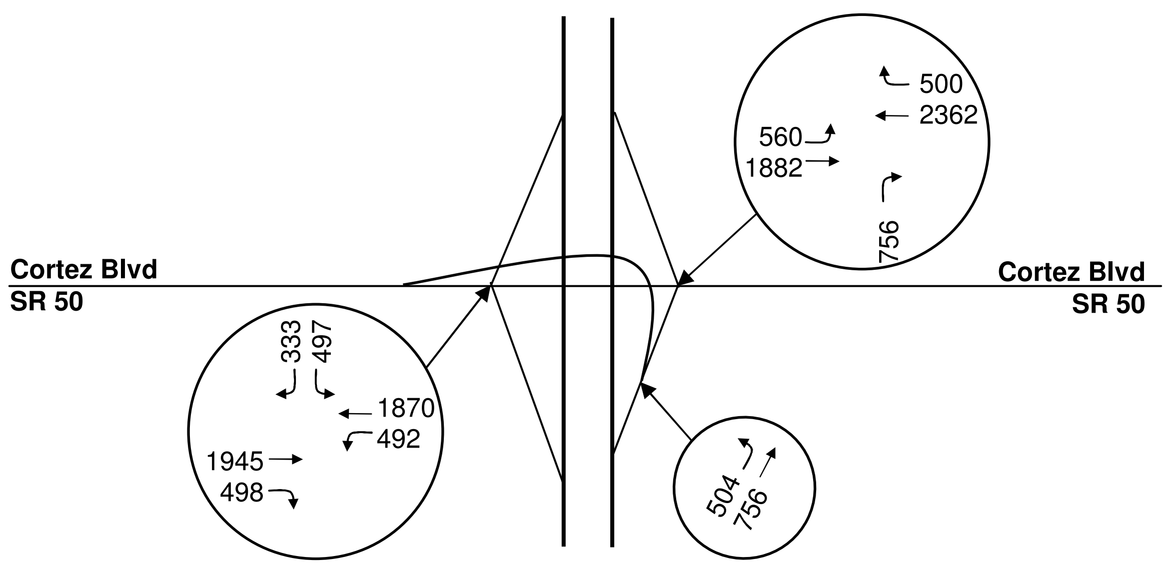
2020 Volumes
SR 50 Intersection

Figure 22b-1

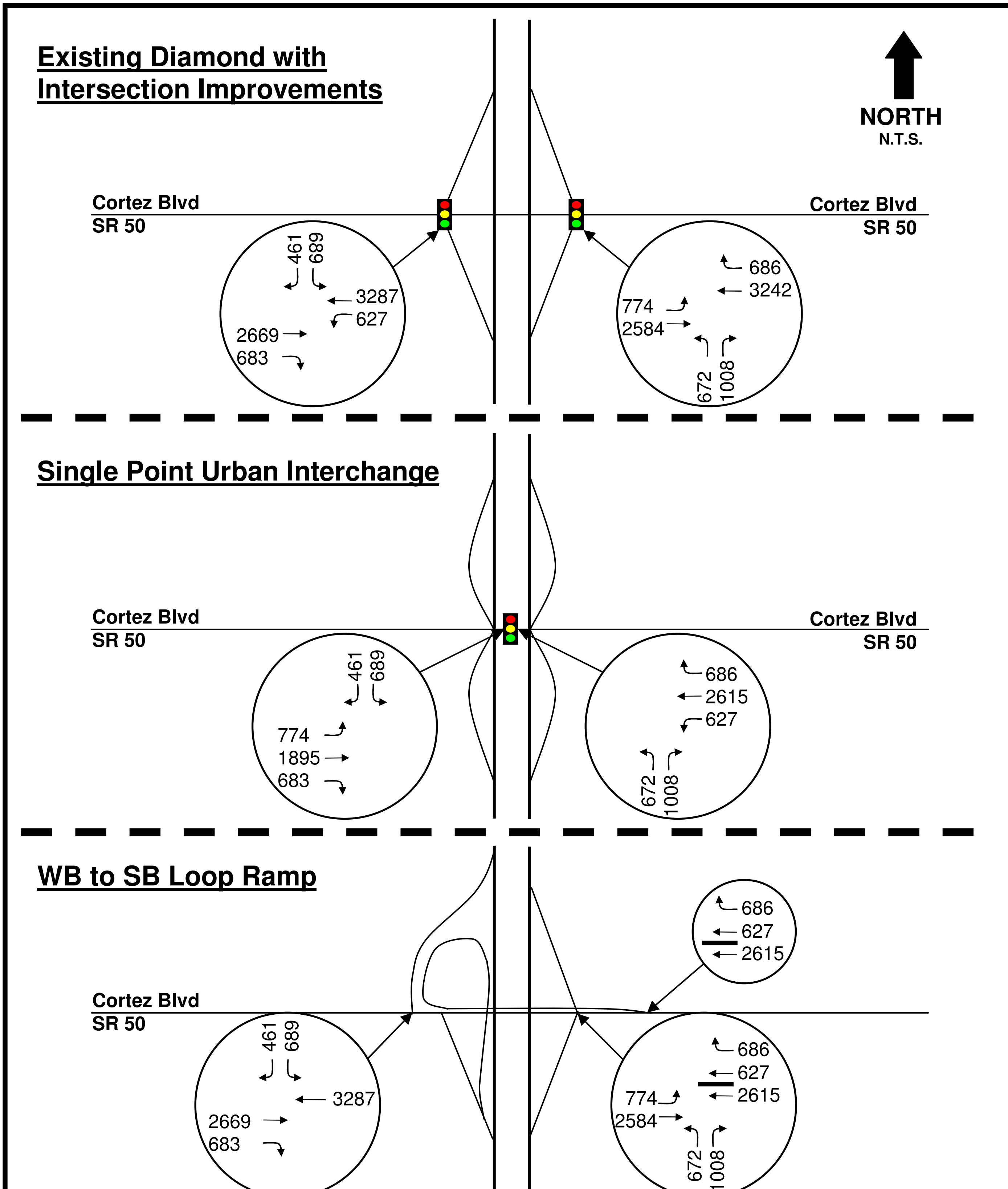
WB – SB Flyover



NB – WB Flyover



I-75 PD&E Study ***Traffic Technical Memorandum*** North of SR 52 to South of CR 476B (Pasco, Hernando, and Sumter Counties) WPI No. 411014-1 FAP No. 0751-120I	**2020 Volumes** **SR 50 Intersection** **Figure 22b-2**



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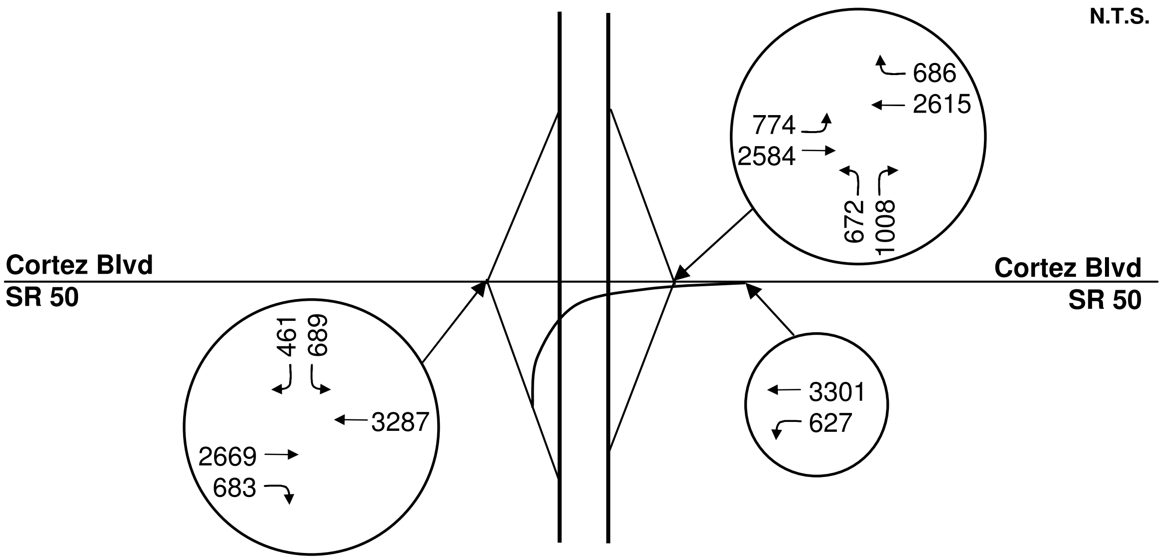
2030 Volumes
SR 50 Intersection

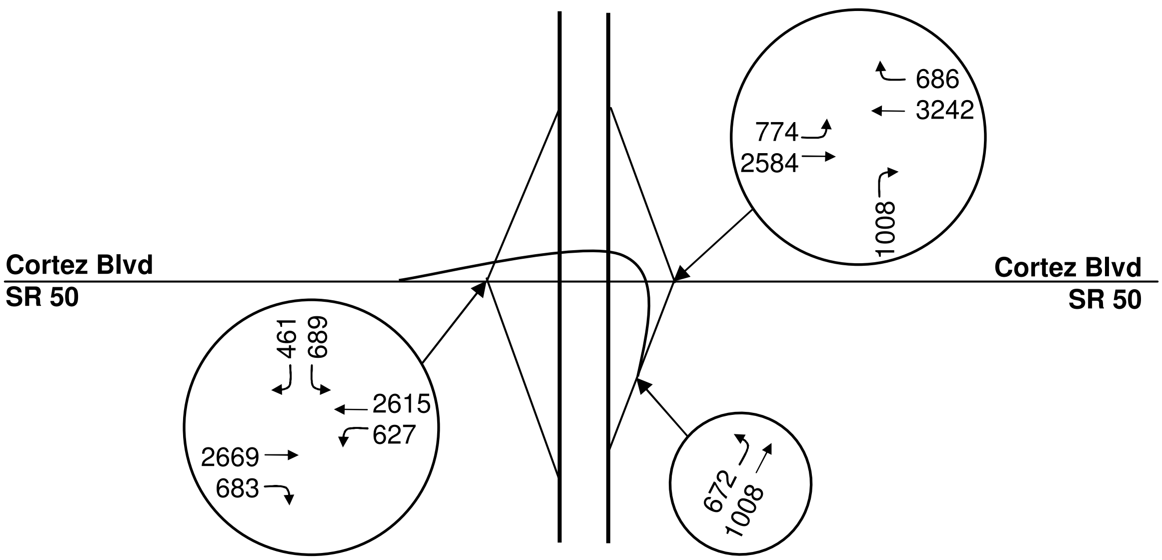
Figure 22c-1

WB – SB Flyover

NORTH
N.T.S.



NB – WB Flyover



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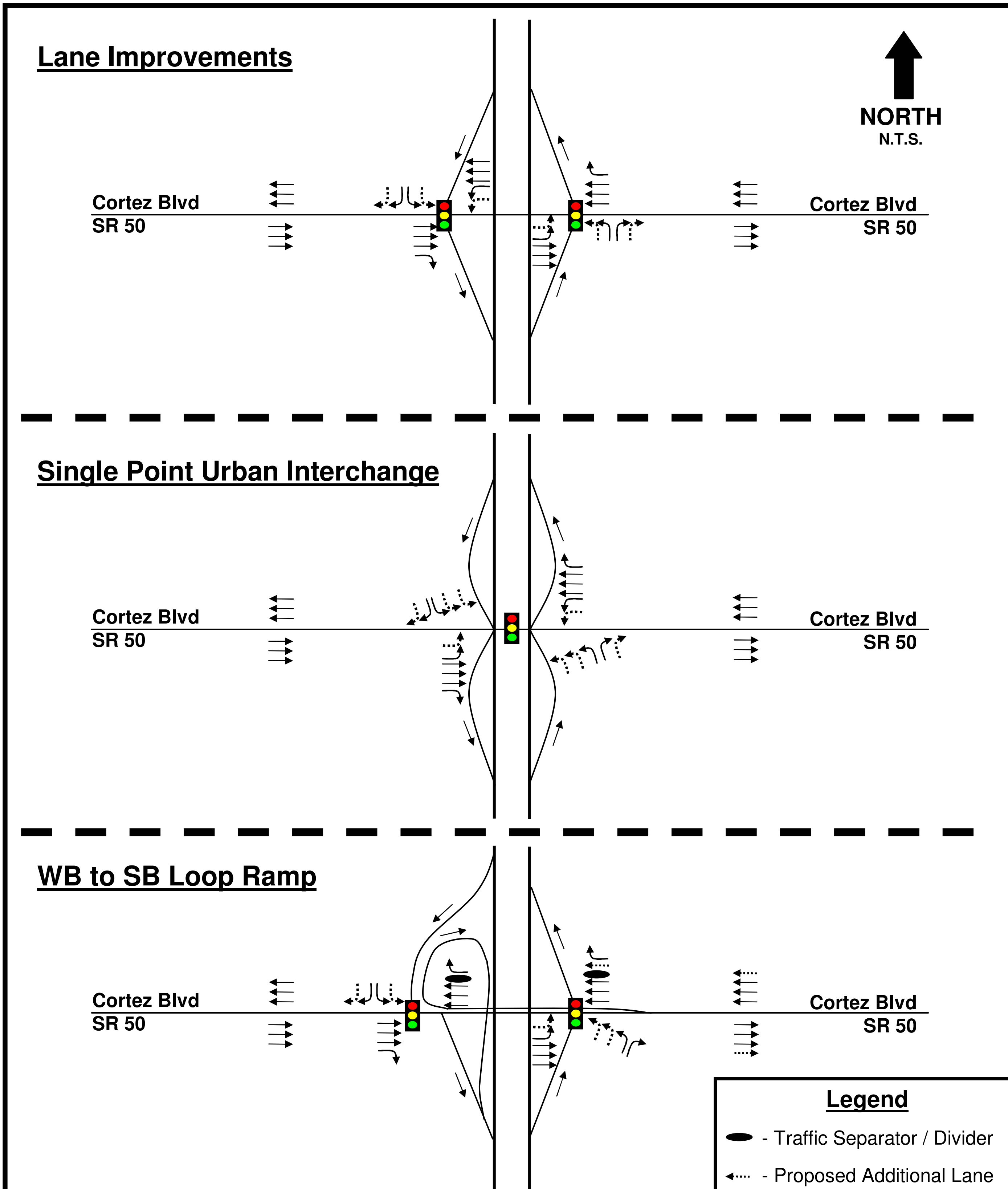
2030 Volumes
SR 50 Intersection

Figure 22c-2



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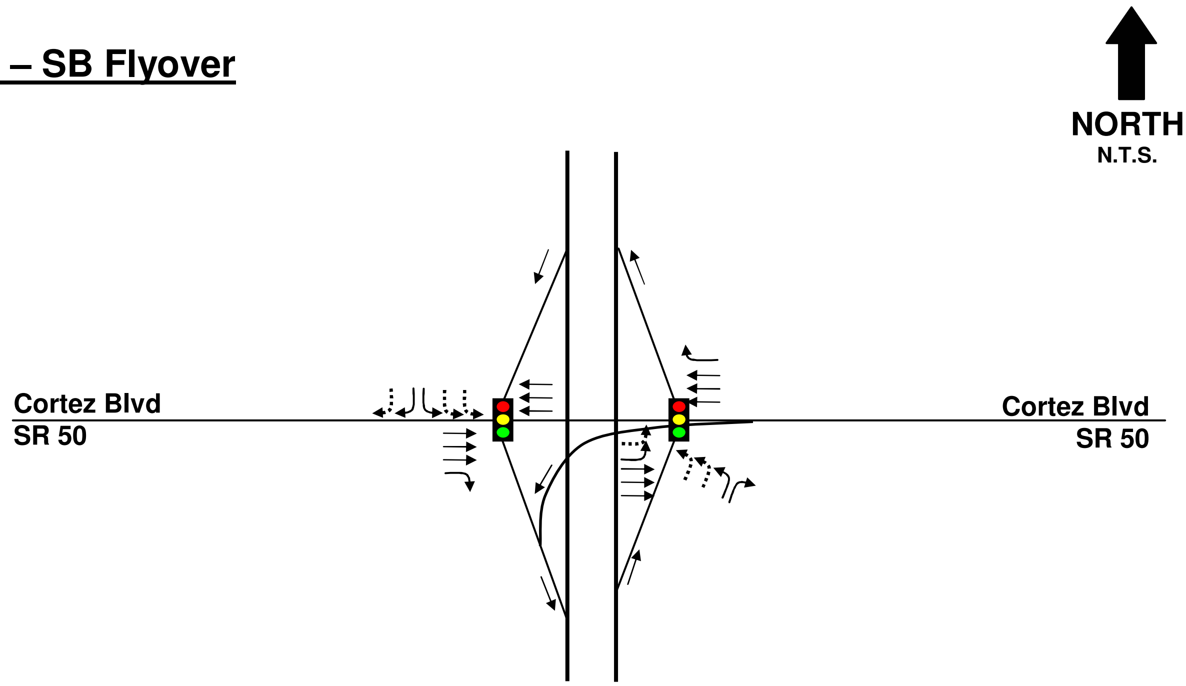
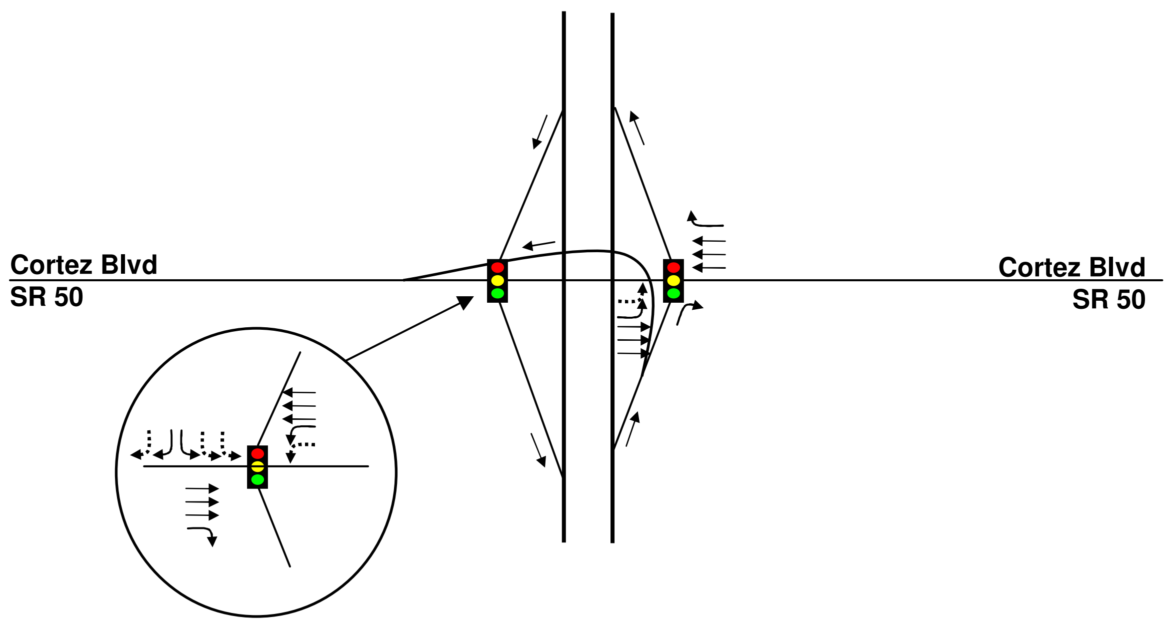
Build Lanes
SR 50 Intersection

Figure 23a

WB – SB Flyover



NB – WB Flyover



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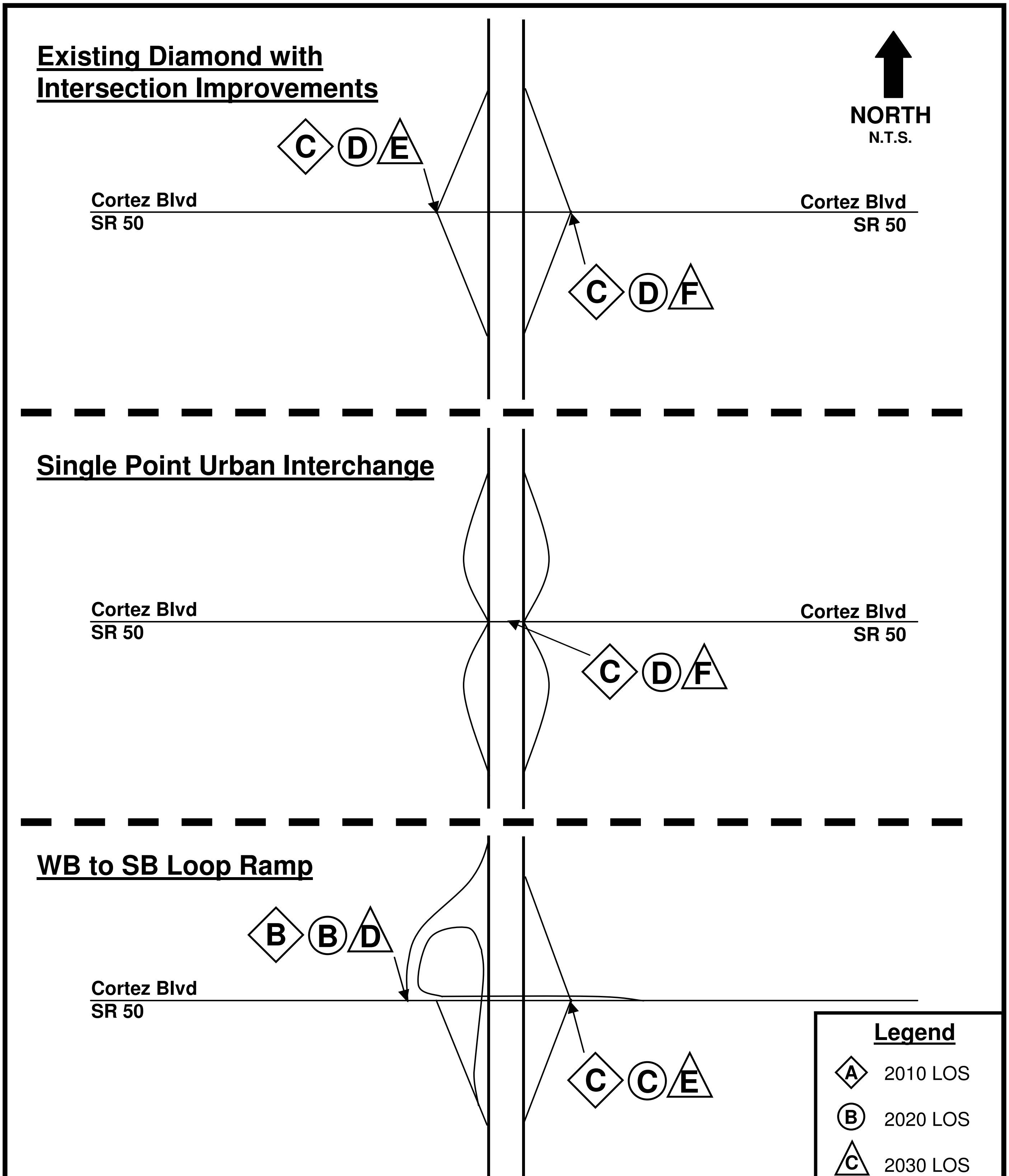
Build Lanes
SR 50 Intersection

Figure 23b



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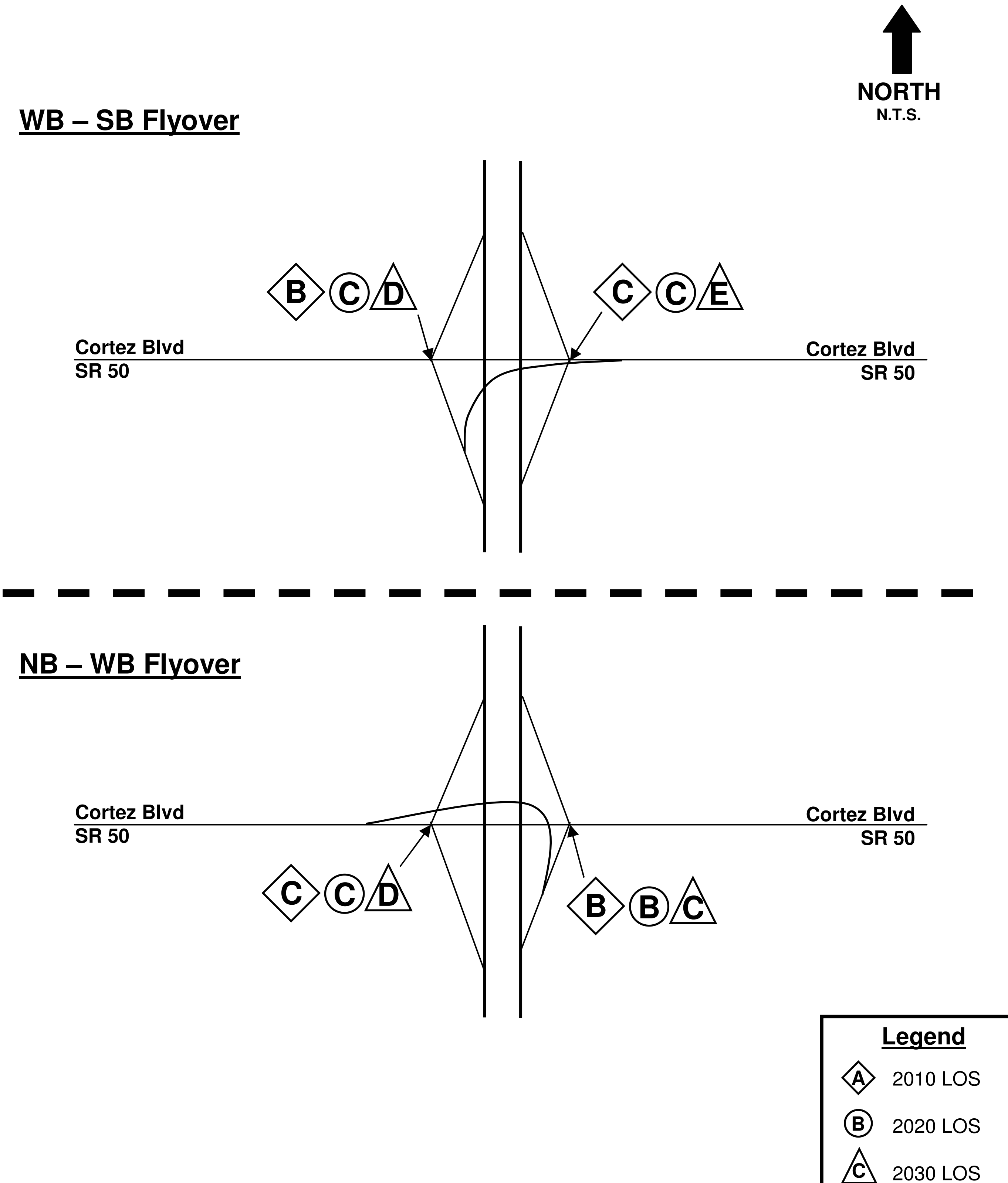
Build LOS
SR 50 Intersection

Figure 24a



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2030 Build LOS
SR 50 Intersection

Figure 24b

Table 7 below summarizes the intersection Level of Service results of the preceding graphics.

Table 7

Level of Service Results for Ramp Termini

No-Build Alternatives

Location	2010		2020		2030	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
I-75 NB Ramps/CR 41	26.8	D	943.5	F	11077.0	F
I-75 SB Ramps/CR 41	23.8	C	964.1	F	22094.0	F
I-75 NB Ramps/SR 50	42.5	D	128.4	F	271.5	F
I-75 SB Ramps/SR 50	29.9	C	79.7	E	156.7	F

Build Alternatives

Location	2010		2020		2030	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
I-75 NB Ramps/CR 41						
NB Partial Clover (WBT=2, SBLT=2)	11.3	B	13.6	B	24.2	C
NB Partial Clover (WBT=2, SBLT=1)	18.3	B	24.3	C	57.2	E
NB Partial Clover (WBT=1, SBRT=FF)	28.8	C	43.7	D	135.8	F
NB Diamond	13.5	B	16.2	B	39.4	D
I-75 SB Ramps/CR 41						
SB Partial Clover	6.5	A	8.7	A	14.1	B
I-75 NB Ramps/SR 50						
Lane Improvements	27.1	C	51.2	D	143.7	F
SPUI	34.7	C	46.2	D	104.8	F
WB to SB Loop Ramp (WB Thru)	19.6	B	27.1	C	67.2	E
WB to SB Loop Ramp (WB-SB Only)	20.7	C	28.7	C	70.7	E
WB to SB Fly-Over	22.7	C	32.2	C	77.6	E
NB to WB Fly-Over	10.1	B	13.2	B	27.7	C
I-75 SB Ramps/SR 50						
Lane Improvements	26.6	C	38.3	D	79.9	E
Loop Ramp	13.8	B	17.5	B	36.8	D
WB to SB Fly-Over	17.6	B	22.3	C	51.2	D
NB to WB Fly-Over	25.8	C	28.2	C	36.0	D

3.8 Determination of Storage Lengths

The required storage lengths for turn lanes recommended at the ramp terminals at CR 41 and SR 50 were estimated using the red-time formula, found in 7.4.7 Intersection Design – Lane Configuration of the FDOT Plans Preparation Manual. Since it is possible that through-lane queuing can sometimes block access to right and left turn lanes, turn lane queuing requirements were also reviewed against anticipated queues in the through lanes. Table 8 compares the calculated queue lengths from the red time formula to the existing storage lane length. Shaded cells indicate design queues that will exceed the existing storage length and thus in designing these intersections, improvements to these lanes is required.

Table 8

Recommended Alternative (2030) Storage Lengths

Intersection	Control	Turn Lane	Number of Lanes	Existing Storage	Queue Length
SR 50 @ I-75 NB Ramps	Signal	Northbound Left	3	500’	207’
		Northbound Right	2	500’	840’
		Eastbound Left	2	300’	645’
		Eastbound Thru	3	300’	1436’
		Westbound Thru	3	--	1802’
		Westbound Right	1	--	1144’
SR 50 @ I-75 SB Ramps	Signal	Southbound Left	3	400’	383’
		Southbound Right	2	400’	385’
		Eastbound Thru	3	--	1483’
		Eastbound Right	1	--	1139’
		Westbound Left	2	300’	520’
		Westbound Thru	3	300’	1453’
CR 41 @ I-75 NB Ramps	Signal	Northbound Left	2	--	595’
		Northbound Right	1	--	910’
		Eastbound Left	1	250’	727’
		Eastbound Thru	1	1,900’	405’
		Westbound Thru	2	--	595’
		Westbound Right	1	200’	190’
CR 41 @ I-75 SB Ramps	Signal	Northbound Left	1	575’	387’
		Northbound Right	1	575’	330’
		Eastbound Thru	2	--	404’
		Eastbound Right	1	375’	800’
		Westbound Left	1	250’	850’
		Westbound Thru	2	1,900’	765’

4 SUMMARY AND CONCLUSIONS

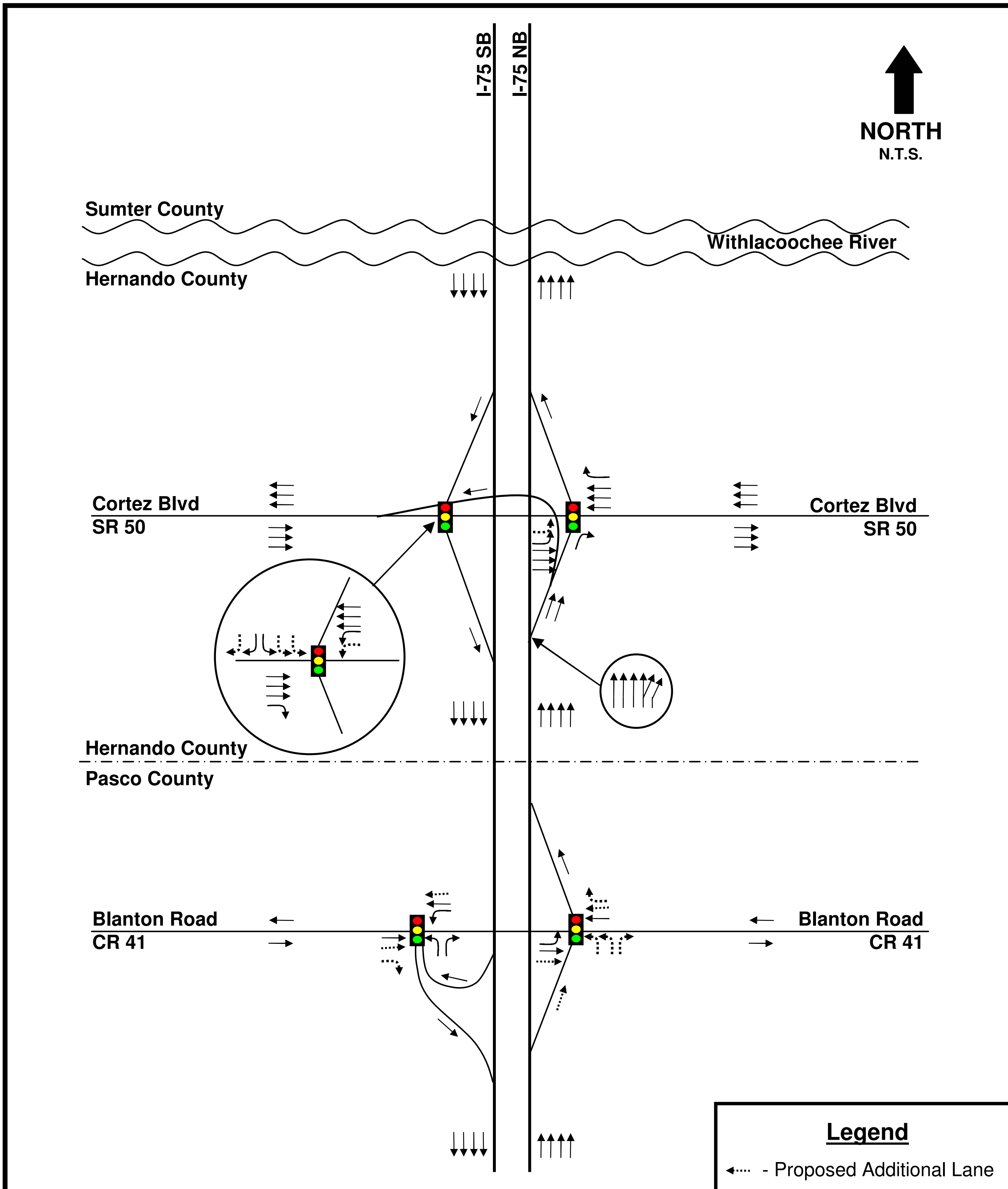
Existing (2005) and design year (2030) traffic analyses were conducted as part of the I-75 PD&E Study to document the existing levels of service in the corridor as well as the anticipated future levels of service in the corridor. Results of the existing condition LOS analyses indicate that the existing I-75 study area and interchanges at CR 41 and SR 50 operate at or better than the LOS standard for SIS facilities in transitioning areas, with the exception of the northbound I-75 off-ramp to SR 50, which operates at LOS D.

Design year (2030) traffic forecasts were developed by FDOT personnel using the TBRPM Version 5.1. The No-Build roadway network was based on the design year (2025) Cost Affordable plans of the Hernando County and Pasco County LRTPs, which includes the widening of SR 50 to six lanes within the study area.

The design year (2030) - build alternative key improvements are the widening of I-75 to eight-lanes throughout the study area, addition of auxiliary lanes, and ramp improvements. With these improvements, the results of the Build alternative analyses indicate that all segments of I-75 will operate at or better than the LOS standard of C, which is required for SIS roadways in transitioning areas.

Ramp terminals at the CR 41 and SR 50 interchanges will also require improvement. At the CR 41 interchange, it is recommended that the northbound loop off-ramp presently located in the northeast quadrant be replaced with a slip ramp in the southeast quadrant. In addition, both ramp terminal intersections with CR 41 will require signalization. At the SR 50 interchange, it is recommended a flyover ramp serving northbound I-75 to westbound SR 50 traffic be constructed. In addition, widening SR 50 east of the interchange to allow the northbound right turn movement to be free flowing and other lane improvements such as multiple turn lanes on the northbound and southbound off-ramps and on-ramps will be necessary. With these improvements, the results of the Build alternative analyses indicate that the ramp terminals at both interchanges will operate at or better than the LOS standard of D, which is the standard set by both Pasco and Hernando counties for their respective roadways; but not the LOS standard of C required since SR 50 west of I-75 is an SIS facility.

Figure 25 shows the recommended Build lane configurations with the resulting Levels of Service shown on Fig. 26.



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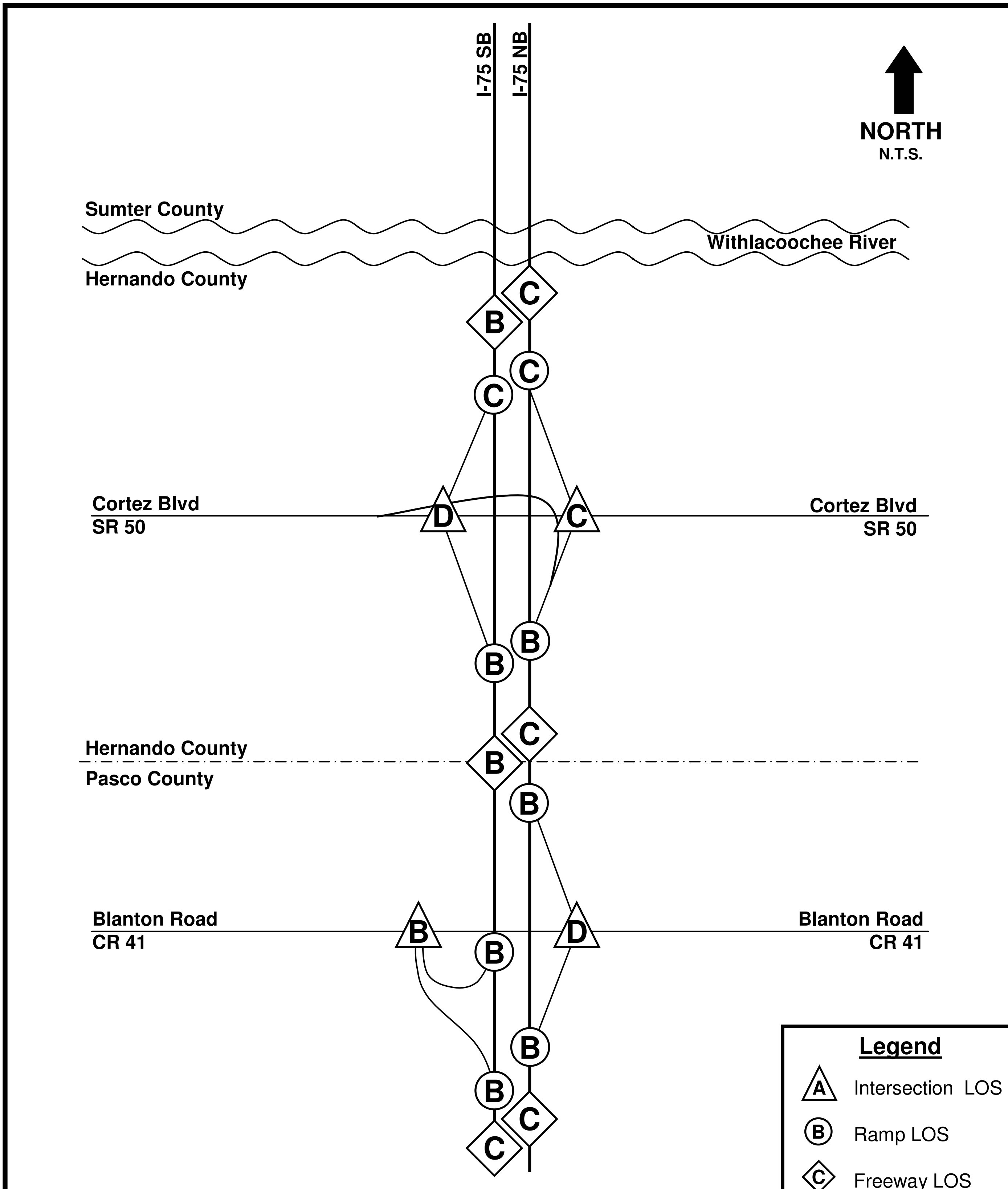
Recommended Build Lanes

Figure 25



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Design Year (2030)
Recommended Build LOS

Figure 26

APPENDIX 'A'

MAINLINE AADT TRAFFIC COUNT SUMMARIES

I-75 PD&E Study - Pasco, Hernando, Sumter Counties
24-hour Machine Count Data Times

	Count Location 1 - I-75 between SR 52 and CR 41									
	Northbound					Southbound				
Time	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)
12:00 AM			398		448			505	509	540
1:00 AM			332		323			401	491	411
2:00 AM			320		399			468	404	476
3:00 AM			392		393			642	523	581
4:00 AM			489		503			796	780	774
5:00 AM			729		928			1487	1208	1161
6:00 AM			1189		[illegible]			1880	1698	1482
7:00 AM			1572		1882			1725	[illegible]	1385
8:00 AM			[illegible]		2186			2089	[illegible]	1690
9:00 AM			1967		[illegible]			2019	1808	1680
10:00 AM		2339			[illegible]		[illegible]	[illegible]	2852	1790
11:00 AM		2363	[illegible]	1982	2182		2139	2100	1906	1943
12:00 PM		2018	2251	2362	2248		1906	1619	1672	1920
1:00 PM		2282	[illegible]	2383	[illegible]		1724	1628	[illegible]	1952
2:00 PM		[illegible]	[illegible]	2423	[illegible]		[illegible]	1580	1558	2162
3:00 PM	1933	[illegible]	[illegible]	2040	2837	1689	1725	[illegible]	[illegible]	2140
4:00 PM	2158	[illegible]	[illegible]	2048		1682	[illegible]	[illegible]	[illegible]	
5:00 PM	[illegible]	[illegible]	[illegible]	[illegible]		1624	[illegible]	[illegible]	[illegible]	
6:00 PM	[illegible]	[illegible]	[illegible]	[illegible]		1352	[illegible]	[illegible]	[illegible]	
7:00 PM	[illegible]	[illegible]	[illegible]	[illegible]		1031	[illegible]	[illegible]	[illegible]	
8:00 PM	[illegible]	[illegible]	[illegible]	[illegible]		889	[illegible]	[illegible]	[illegible]	
9:00 PM	[illegible]	[illegible]	[illegible]	970		751	[illegible]	771	[illegible]	
10:00 PM	787	[illegible]		694		658	[illegible]	675	698	
11:00 PM		556		610		501	648	610	539	
Sum	11427	22579	27823	20620	27945	10182	20520	30054	25909	21818

	NB	SB
(11:00 AM–12:00 PM)	-19.61%	-3.08%
(11:00 PM)	-0.74%	-1.31%

Northbound
1. Tuesday (3/15) - 10:00 AM to Wednesday (3/16) - 10:00 AM   AADT = 31530   0.95   29954
2. Thursday (3/17) - 11:00 AM to Friday (3/18) - 11:00 AM   AADT = 34520   0.95   32794

Southbound
1. Tuesday (3/15) - 10:00 AM to Wednesday (3/16) - 10:00 AM   AADT= 32596   0.95   30966
2. Wednesday (3/16) - 10:00 AM to Thursday (3/17) - 10:00 AM   AADT= 27285   0.95   25921
3. Thursday (3/17) - 10:00 AM to Friday (3/18) - 10:00 AM   AADT= 27506   0.95   26131

I-75 PD&E Study - Pasco, Hernando, Sumter Counties
24-hour Machine Count Data Times

	Count Location 4 - I-75 @ CR 41 bridge									
	Northbound					Southbound				
Time	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)
12:00 AM			396	387			405	411	507	551
1:00 AM			333	297			383	356	451	439
2:00 AM			[illegible]	303			382	374	[illegible]	542
3:00 AM			[illegible]	323			468	502	490	533
4:00 AM			462	493			935	594	685	[illegible]
5:00 AM			703	639			[illegible]	1050	1026	1044
6:00 AM			[illegible]	[illegible]			1252	1286	[illegible]	[illegible]
7:00 AM			[illegible]	1439			[illegible]	[illegible]	[illegible]	[illegible]
8:00 AM			[illegible]	1559			[illegible]	[illegible]	[illegible]	1520
9:00 AM			[illegible]	1665			[illegible]	[illegible]	[illegible]	1618
10:00 AM			[illegible]	[illegible]			1687	[illegible]	[illegible]	[illegible]
11:00 AM	2345	2296	[illegible]	[illegible]		1835	[illegible]	[illegible]	[illegible]	1924
12:00 PM	[illegible]	[illegible]	[illegible]	[illegible]		1862	[illegible]	[illegible]	[illegible]	[illegible]
1:00 PM	[illegible]	[illegible]	[illegible]	2087		1843	[illegible]	[illegible]	[illegible]	1972
2:00 PM	[illegible]	[illegible]	[illegible]	1755		1900	[illegible]	[illegible]	1597	
3:00 PM	[illegible]	[illegible]	[illegible]			1708	[illegible]	[illegible]	[illegible]	
4:00 PM	[illegible]	[illegible]	[illegible]			1662	[illegible]	[illegible]	[illegible]	
5:00 PM	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	
6:00 PM	[illegible]	[illegible]	[illegible]			1291	[illegible]	[illegible]	[illegible]	
7:00 PM	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	
8:00 PM	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	
9:00 PM	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	
10:00 PM	[illegible]	[illegible]	[illegible]			656	[illegible]	854	[illegible]	
11:00 PM	520	558	530			562	534	609	658	
Sum	21451	19843	30928	17539	0	17586	26232	26047	26818	16921

	NB	SB
12:00 PM		-9.27%
11:00 PM	-8.35%	-12.07%

Northbound

1. Tuesday (3/15) - 11:00 AM to Wednesday (3/16) - 11:00 AM — AADT = 31089 — 0.95 — 29535
2. Wednesday (3/16) - 11:00 AM to Thursday (3/17) - 11:00 AM — AADT = 29168 — 0.95 — 27710

Southbound

1. Tuesday (3/15) - 12:00 AM to Wednesday (3/16) - 12:00 AM — AADT= 26232 — 0.95 — 24920
2. Wednesday (3/16) - 12:00 AM to Thursday (3/17) - 12:00 AM — AADT= 26047 — 0.95 — 24745
3. Thursday (3/17) - 12:00 AM to Friday (3/18) - 12:00 AM — AADT= 26818 — 0.95 — 25477

4

5

I-75 PD&E Study - Pasco, Hernando, Sumter Counties
24-hour Machine Count Data Times

	Count Location 5 - I-75 between CR 41 and SR 50											
	Northbound					Southbound						
Time	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	NB	SB
12:00 AM			409	415	463			498	510	546		
1:00 AM			336	309	383			357	479	[illegible]		
2:00 AM			316	[illegible]	340			395	387	[illegible]		
3:00 AM			370	357	366			514	504	539		
4:00 AM			482	524	613			605	729	808		
5:00 AM			1002	860	845			886	1057	1083		
6:00 AM			1027	1159	1408			1298	1425	1188		
7:00 AM			1869	1746	1886			1195	1273	1226		
8:00 AM			[illegible]	1581	2179			1289	1354	1559		
9:00 AM			2159	2109	2538			1376		1858		
10:00 AM			[illegible]	[illegible]	[illegible]			1538		1836		
11:00 AM		1962	[illegible]	[illegible]	2950		1489	1583	2046	1955		
12:00 PM		[illegible]	[illegible]	[illegible]	2842		1572	[illegible]	1721	1935	-21.06%	-12.33%
1:00 PM	2405	2034	[illegible]	2347	1525		[illegible]	[illegible]	1582	2059		
2:00 PM	2076	1929	[illegible]	2009		X	1617	[illegible]	1634			
3:00 PM	1855	[illegible]	[illegible]	[illegible]			1557	[illegible]	[illegible]			
4:00 PM	2350	[illegible]	[illegible]	[illegible]			1522	[illegible]	[illegible]			
5:00 PM	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]			
6:00 PM	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]			
7:00 PM	[illegible]	[illegible]	[illegible]	[illegible]			1024	[illegible]	[illegible]			
8:00 PM	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]			
9:00 PM	[illegible]	[illegible]	[illegible]	[illegible]			800	[illegible]	[illegible]			
10:00 PM	[illegible]	[illegible]	[illegible]	700			[illegible]	[illegible]	707			
11:00 PM	503	548	550	610			536	605	680		-2.93%	#DIV/0!
Sum	15104	18748	30302	31974	21495	0	15699	25127	24457	17384		

Northbound

1. Tuesday (3/15) - 11:00 AM to Wednesday (3/16) - 11:00 AM	AADT =	29971	0.95	28472
2. Wednesday (3/16) - 11:00 AM to Thursday (3/17) - 11:00 AM	AADT =	30405	0.95	28885
2. Thursday (3/17) - 11:00 AM to Friday (3/18) - 11:00 AM	AADT =	34826	0.95	33085

Southbound

1. Tuesday (3/15) - 11:00 AM to Wednesday (3/16) - 11:00 AM	AADT=	25730	0.95	24444
2. Wednesday (3/16) - 9:00 AM to Thursday (3/17) - 9:00 AM	AADT=	25721	0.95	24435
3. Thursday (3/17) - 11:00 AM to Friday (3/18) - 11:00 AM	AADT=	28178	0.95	26769

I-75 PD&E Study - Pasco, Hernando, Sumter Counties
24-hour Machine Count Data Times

	Count Location 8 - I-75 at SR 50 bridge									
	Northbound					Southbound				
Time	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)
12:00 AM			344		376		367	397		501
1:00 AM			295		293		325	316		417
2:00 AM			278		281		373	370		469
3:00 AM			266		290		474	473		488
4:00 AM			368		476		647	572		698
5:00 AM			391		581		890	875		864
6:00 AM			804		1030		825	890		808
7:00 AM			1130		1474		959	943		1004
8:00 AM			1293		1898		1148	1104		1203
9:00 AM			1572		2010		1126	1187		1329
10:00 AM			1963	1893	2443		1152	1266	1047	1582
11:00 AM			1275	1847	2463		1311	1129	1131	1081
12:00 PM		1702	1685	1778	2241		1184	1154	1383	1625
1:00 PM		1578	1559	1703			1210		1260	
2:00 PM	1721	1588	1580	1549		1473	1282		1379	
3:00 PM	1392	[illegible]	1580	1585		1322	1227		1290	
4:00 PM	1581	[illegible]	1588	1505		1305	1065		1222	
5:00 PM	[illegible]	[illegible]	[illegible]	[illegible]		1242	1152		1030	
6:00 PM	1096	[illegible]	[illegible]	[illegible]		997	1367		1088	
7:00 PM	986	[illegible]	[illegible]	[illegible]		1011	1224		[illegible]	
8:00 PM	838	[illegible]	[illegible]	[illegible]		[illegible]	1227		887	
9:00 PM	774	880	[illegible]	[illegible]		627	678		690	
10:00 PM	644	527	620	584		516	551		654	
11:00 PM	532	478	370	496		456	494		583	
Sum	10792	13175	24036	18026	15792	9485	21351	10547	14854	12500

	NB	SB
12:00 PM	-20.41%	-2.34%
11:00 PM	-7.81%	-51.44%

Northbound
1. Wednesday (3/16) - 12:00 AM to Thursday (3/17) - 12:00 AM AADT = 24036 0.95 22834
2. Thursday (3/17) - 10:00 AM to Friday (3/18) - 10:00 AM AADT = 26671 0.95 25337

Southbound
1. Tuesday (3/15) - 12:00 AM to Wednesday (3/16) - 12:00 AM AADT= 21351 0.95 20283
3. Thursday (3/17) - 10:00 AM to Friday (3/18) - 10:00 AM AADT= 22626 0.95 21495

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(9)

I-75 PD&E Study - Pasco, Hernando, Sumter Counties
24-hour Machine Count Data Times

	Count Location 9 - I-75 between SR 50 and Withlacoochee River											
	Northbound					Southbound						
Time	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	NB	SB
12:00 AM			418	415			443	475		592		
1:00 AM			347	293			413	347		586		
2:00 AM			349	351			418	437		564		
3:00 AM			388	353			534	546		632		
4:00 AM			483	530			792	741		907		
5:00 AM			802	703			1032	1096		1104		
6:00 AM			1150	1244			1146	1270		1118		
7:00 AM			1615	1456			1256	1371		1418		
8:00 AM			[illegible]	1625			1450	1629		1647		
9:00 AM			[illegible]	1383			1690	1655		1882		
10:00 AM			[illegible]	1041			1880	1626		1966		
11:00 AM			[illegible]	[illegible]			1665	1749	1428	2139		
12:00 PM			2056	2298			1362	1699	1749	2162	#DIV/0!	-5.79%
1:00 PM		2011	2066				1520		1574	2177		
2:00 PM	2347	2075	[illegible]			1797	[illegible]		1674			
3:00 PM	2181	[illegible]	[illegible]			1718	1526		1649			
4:00 PM	2074	[illegible]	[illegible]			1680	[illegible]		1580			
5:00 PM	[illegible]	[illegible]	[illegible]			1618	[illegible]		1406			
6:00 PM	2524	2125	[illegible]			1221	1015		1394			
7:00 PM	[illegible]	1382	[illegible]			[illegible]	1008		1425			
8:00 PM	[illegible]	[illegible]	2010			854	1038		1066			
9:00 PM	1885	1201	[illegible]			[illegible]	1273		916			
10:00 PM	[illegible]	842	[illegible]			865	853		803			
11:00 PM	664	598	641			529	544		792		-13.15%	1.18%
Sum	14711	14851	30981	14051	0	11811	26446	14633	17496	18737		

Northbound

1. Tuesday (3/15) - 1:00 PM to Wednesday (3/16) - 1:00 PM AADT = 31112 0.95 29556
2. Wednesday (3/16) - 1:00 PM to Thursday (3/17) - 1:00 PM AADT = 28771 0.95 27332

Southbound

1. Tuesday (3/15) - 12:00 AM to Wednesday (3/16) - 12:00 AM AADT= 26446 0.95 25124
3. Thursday (3/17) - 11:00 AM to Friday (3/18) - 11:00 AM AADT= 29754 0.95 28266

APPENDIX 'B'

CROSS STREET AADT TRAFFIC COUNT SUMMARIES
&
CROSS STREET INTERSECTION TURNING MOVEMENT COUNTS

I-75 PD&E Study - Pasco, Hernando, Sumter Counties
24-hour Machine Count Data Times

	Count Location 2 - CR 41 West of I-75 Interchange									
	Eastbound					Westbound				
Time	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)
12:00 AM		8	9	7			12	15	25	
1:00 AM		4	3	2			13	14	10	
2:00 AM		2	3	3			4	13	12	
3:00 AM		10	9	9			11	7	7	
4:00 AM		32	38	36			9	7	8	
5:00 AM		170	182	158			28	26	23	
6:00 AM		328	329	325			80	94	74	
7:00 AM		292	170	286			110	101	92	
8:00 AM		208	212	177			108	90	96	
9:00 AM		187	[illegible]	177			86	99	87	
10:00 AM		[illegible]	157	125			108	102	97	
11:00 AM		128	136	122			114	104	127	
12:00 PM		[illegible]	136	102			108	152	130	
1:00 PM		116	123	116			140	179	128	
2:00 PM		112	111	106			138	102	150	
3:00 PM		107	124	119			218	204	160	
4:00 PM		180	150	149			275	274	218	
5:00 PM		[illegible]	178	162			298	292	281	
6:00 PM		[illegible]	109	105			226	225	173	
7:00 PM		[illegible]	64	87			157	[illegible]	119	
8:00 PM		72	21	40			[illegible]	[illegible]	98	
9:00 PM		32	37	38			60	[illegible]	[illegible]	
10:00 PM		11	14	17			39	42	58	
11:00 PM		14	17	13			23	30	40	
Sum	0	2575	2586	2414	0	0	2508	2554	2377	0

		Raw	SF	ACF	
Eastbound					
1. Tuesday (3/15)	AADT =	2575	0.95	0.89	2177
2. Wednesday (3/16)	AADT =	2586	0.95	0.89	2186
3. Thursday (3/17)	AADT =	2414	0.95	0.89	2041
Average					*2135*
Westbound					
1. Tuesday (3/15)	AADT=	2508	0.95	0.89	2121
2. Wednesday (3/16)	AADT=	2554	0.95	0.89	2159
3. Thursday (3/17)	AADT=	2377	0.95	0.89	2010
Average					*2097*
Total					4231

I-75 PD&E Study - Pasco, Hernando, Sumter Counties
24-hour Machine Count Data Times

	Count Location 3 - CR 41 East of I-75 Interchange									
	Eastbound					Westbound				
Time	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)
12:00 AM		17	12	17			9	8	14	
1:00 AM		17	11	10			7	6	8	
2:00 AM		8	8	8			9	9	14	
3:00 AM		9	10	3			10	15	9	
4:00 AM		9	10	7			27	20	21	
5:00 AM		43	63	32			90	84	87	
6:00 AM		100	100	99			215	214	198	
7:00 AM		153	156	140			176	182	157	
8:00 AM		120	130	114			140	126	128	
9:00 AM		120	108	127			85	105	107	
10:00 AM		102	95	106			117	104	88	
11:00 AM		116	107	96			102	107	117	
12:00 PM		118	109	80			135	120	120	
1:00 PM		103	121	102			115	102	109	
2:00 PM		115	93	104			135	129	98	
3:00 PM		132	182	145			150	116	138	
4:00 PM		227	221	184			162	177	161	
5:00 PM		207	225	181			179	150	188	
6:00 PM		202	208	170			127	140	113	
7:00 PM		165	170	93			180	173	96	
8:00 PM		65	60	21			64	53	52	
9:00 PM		62	56	53			41	50	43	
10:00 PM		29	33	44			24	20	46	
11:00 PM		30	22	27			14	19	22	
Sum	0	2156	2172	2003	0	0	2216	2168	2100	0

		Raw	SF	ACF	
Eastbound					
1. Tuesday (3/15)	AADT =	2156	0.95	0.89	1823
2. Wednesday (3/16)	AADT =	2172	0.95	0.89	1836
3. Thursday (3/17)	AADT =	2003	0.95	0.89	1694
Average					*1784*
Westbound					
1. Tuesday (3/15)	AADT=	2216	0.95	0.89	1874
2. Wednesday (3/16)	AADT=	2168	0.95	0.89	1833
3. Thursday (3/17)	AADT=	2100	0.95	0.89	1776
Average					*1827*
Total					3612

I-75 PD&E Study - Pasco, Hernando, Sumter Counties
24-hour Machine Count Data Times

	Count Location 6 - SR 50 West of I-75 Interchange									
	Eastbound					Westbound				
Time	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)
12:00 AM		81	68	58			109		131	118
1:00 AM		80	60	58			84		79	94
2:00 AM		89	[illegible]	76			75		118	127
3:00 AM		121	116	124			85		110	134
4:00 AM		404	302	364			158		109	194
5:00 AM		596	508	461			299		215	247
6:00 AM		759	[illegible]	724			569		607	509
7:00 AM		797	785	762			724		716	695
8:00 AM		859	881	867			729		750	674
9:00 AM		807	720	794			801		720	635
10:00 AM		861	810	748			738		763	809
11:00 AM		865	811	830			799		748	885
12:00 PM		780	784	757			758	801	783	722
1:00 PM		744	738	726			768	824	731	
2:00 PM		829	[illegible]	762		913	774	884	780	
3:00 PM		902	935	911		964		895	831	
4:00 PM		989	992	852		918		854	852	
5:00 PM		[illegible]	[illegible]	899		893		781	785	
6:00 PM		1036	[illegible]	917		578		431	807	
7:00 PM		925	724	390		474		430	460	
8:00 PM		254	202	209		328		322	328	
9:00 PM		175	224	242		237		262	281	
10:00 PM		146	127	151		162		209	207	
11:00 PM		102	108	118		120		151	187	
Sum	0	12718	12337	12308	0	5499	7360	6973	11823	5817

Eastbound

		Raw	SF	ACF	
1. Tuesday (3/15)	AADT =	12718	0.93	0.91	10763
2. Wednesday (3/16)	AADT =	12337	0.93	0.91	10441
3. Thursday (3/17)	AADT =	12308	0.93	0.91	10416
Average					*10540*

Westbound

1. Tues (3/15) - 12:00AM to 12:00PM & Wed (3/16) - 12:00PM to 12:00	AADT=	12033	0.93	0.91	10184
3. Thursday (3/17)	AADT=	11823	0.93	0.91	10006
Average					*10095*

Total 20635

I-75 PD&E Study - Pasco, Hernando, Sumter Counties
24-hour Machine Count Data Times

	Count Location 7 - SR 50 East of I-75 Interchange									
	Eastbound					Westbound				
Time	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)	Mon (3/14)	Tues (3/15)	Wed (3/16)	Thurs (3/17)	Fri (3/18)
12:00 AM		98	130	109			106	103	139	
1:00 AM		110	107	94			94	90	87	
2:00 AM		93	[illegible]	109			91	112	140	
3:00 AM		129	154	139			100	198	121	
4:00 AM		355	420	391			180	182	160	
5:00 AM		407	492	445			437	379	375	
6:00 AM		712	653	664			722	690	629	
7:00 AM		804	759	796			878	909	841	
8:00 AM		852	943	870			910	889	880	
9:00 AM		853	900	927			891	915	865	
10:00 AM		985	[illegible]	820			884	838	907	
11:00 AM		968	870	905			921	820	922	
12:00 PM		[illegible]	801	958			925	897	848	
1:00 PM		850	838	887			918	954	856	
2:00 PM		981	861	859			898	932	886	
3:00 PM		1013	1070	990			982	958	952	
4:00 PM		1084	1053	908			1003	[illegible]	882	
5:00 PM		[illegible]	981	1078			890	[illegible]	1133	
6:00 PM		[illegible]	655	766			624	658	[illegible]	
7:00 PM		[illegible]	[illegible]	590			579	564	[illegible]	
8:00 PM		309	[illegible]	431			383	[illegible]	411	
9:00 PM		[illegible]	305	357			282	300	308	
10:00 PM		258	253	253			205	242	229	
11:00 PM		164	155	218			177	177	185	
Sum	0	14648	14392	14419	0	0	14086	13914	13831	0

Eastbound

		Raw	SF	ACF	
1. Tuesday (3/15)	AADT =	14648	0.95	0.89	12385
2. Wednesday (3/16)	AADT =	14392	0.95	0.89	12168
3. Thursday (3/17)	AADT =	14419	0.95	0.89	12191
Average					*12248*

Westbound

1. Tuesday (3/15)	AADT=	14086	0.95	0.89	11910
2. Wednesday (3/16)	AADT=	13914	0.95	0.89	11764
3. Thursday (3/17)	AADT=	13831	0.95	0.89	11694
Average					*11789*

Total 24038

10

BAYSIDE ENGINEERING INC.

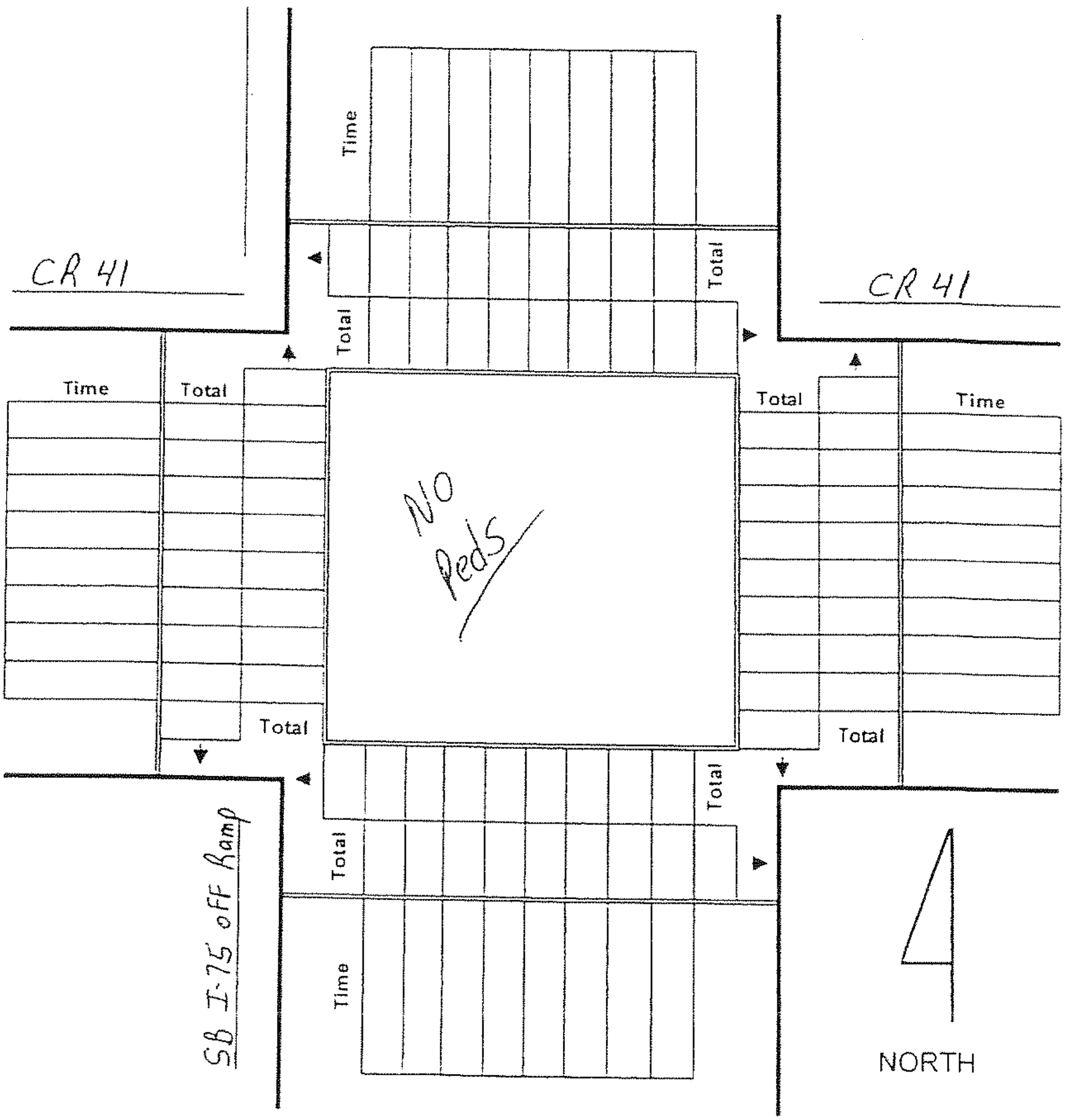
PEDESTRIAN MOVEMENT SUMMARY

Section: ______ State Road: SB I-75 Ramps City: Jessamine

Milepost: ______ Intersecting Road: CR 41 County: Pasco

Time Periods: 6:00 - 9:00 AM / 4:00 - 7:00 PM Data By: Ron Completed By: ______

Count Date: 3-15-05 Date: ______



BAYSIDE ENGINEERING INC.

BICYCLE MOVEMENT SUMMARY

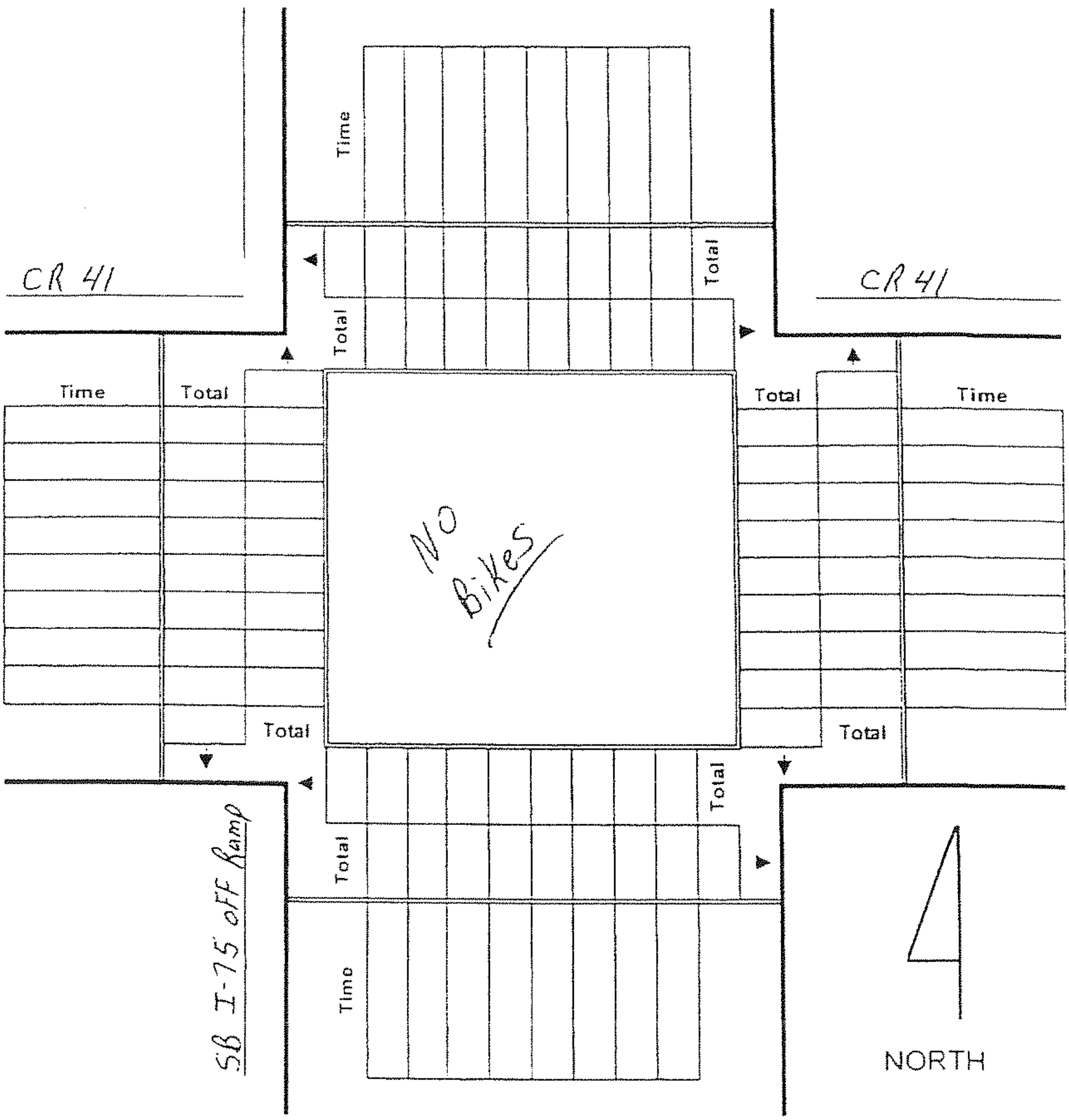
Section: ______ State Road: SB I-75 Ramps City: Jessamine

Milepost: ______ Intersecting Road: CR 41 County: Pasco

Time Periods: 6:00 - 9:00 AM

4:00 - 7:00 PM Data By: Ron Completed By: ______

Count Date: 3-15-05 Date: ______



Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by Ron
Board # : 1320
Weather cool / rainy

File Name : SB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 1

Groups Printed- Passenger Vehicles

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	0	0	0	0	41	13	0	54	0	0	0	0	0	18	69	87	141
06:15	0	0	0	0	32	25	0	57	1	0	1	2	0	13	77	90	149
06:30	0	0	0	0	40	22	0	62	0	0	2	2	0	23	56	79	143
06:45	0	0	0	0	26	13	0	39	1	0	3	4	0	18	42	60	103
Total	0	0	0	0	139	73	0	212	2	0	6	8	0	72	244	316	536
07:00	0	0	0	0	18	16	0	34	1	0	0	1	0	18	36	54	89
07:15	0	0	0	0	34	21	0	55	6	0	2	8	0	29	40	69	132
07:30	0	0	0	0	24	29	0	53	1	0	3	4	0	35	33	68	125
07:45	0	0	0	0	20	25	0	45	1	0	2	3	0	23	46	69	117
Total	0	0	0	0	96	91	0	187	9	0	7	16	0	105	155	260	463
08:00	0	0	0	0	16	25	0	41	2	0	2	4	0	25	31	56	101
08:15	0	0	0	0	17	22	0	39	1	0	5	6	0	17	25	42	87
08:30	0	0	0	0	8	20	0	28	1	0	2	3	0	23	26	49	80
08:45	0	0	0	0	20	22	0	42	0	0	1	1	0	19	36	55	98
Total	0	0	0	0	61	89	0	150	4	0	10	14	0	84	118	202	366
16:00	0	0	0	0	13	49	0	62	2	0	5	7	0	16	11	27	96
16:15	0	0	0	0	6	60	0	66	0	0	5	5	0	38	16	54	125
16:30	0	0	0	0	9	70	0	79	2	0	5	7	0	22	18	40	126
16:45	0	0	0	0	19	75	0	94	3	0	7	10	0	33	15	48	152
Total	0	0	0	0	47	254	0	301	7	0	22	29	0	109	60	169	499
17:00	0	0	0	0	15	78	0	93	1	0	3	4	0	25	10	35	132
17:15	0	0	0	0	8	72	0	80	3	0	0	3	0	25	9	34	117
17:30	0	0	0	0	12	62	0	74	3	0	5	8	0	23	7	30	112
17:45	0	0	0	0	5	63	0	68	2	0	2	4	0	18	9	27	99
Total	0	0	0	0	40	275	0	315	9	0	10	19	0	91	35	126	460
18:00	0	0	0	0	10	56	0	66	1	0	5	6	0	21	4	25	97
18:15	0	0	0	0	13	49	0	62	2	0	3	5	0	16	13	29	96
18:30	0	0	0	0	10	53	0	63	1	0	2	3	0	12	12	24	90
18:45	0	0	0	0	6	54	0	60	2	0	3	5	0	15	10	25	90
Total	0	0	0	0	39	212	0	251	6	0	13	19	0	64	39	103	373
Grand Total	0	0	0	0	422	994	0	1416	37	0	68	105	0	525	651	1176	2697
Apprch %	0.0	0.0	0.0		29.8	70.2	0.0		35.2	0.0	64.8		0.0	44.6	55.4		
Total %	0.0	0.0	0.0	0.0	15.6	36.9	0.0	52.5	1.4	0.0	2.5	3.9	0.0	19.5	24.1	43.6	

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	06:00																
Volume	0	0	0	0	139	73	0	212	2	0	6	8	0	72	244	316	536
Percent	0.0	0.0	0.0		65.6	34.4	0.0		25.0	0.0	75.0		0.0	22.8	77.2		
Volume	0	0	0	0	139	73	0	212	2	0	6	8	0	72	244	316	536
Volume	0	0	0	0	32	25	0	57	1	0	1	2	0	13	77	90	149
Peak Factor																	0.899
High Int.	5:45:00				06:30				06:45				06:15				
Volume	0	0	0	0	40	22	0	62	1	0	3	4	0	13	77	90	
Peak Factor								0.855				0.500				0.878	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : SB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 2

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection	16:15																
Volume	0	0	0	0	49	283	0	332	6	0	20	26	0	118	59	177	535
Percent	0.0	0.0	0.0		14.8	85.2	0.0		23.1	0.0	76.9		0.0	66.7	33.3		
Volume	0	0	0	0	49	283	0	332	6	0	20	26	0	118	59	177	535
Volume	0	0	0	0	19	75	0	94	3	0	7	10	0	33	15	48	152
Peak Factor																	0.880
High Int.					16:45				16:45				16:15				
Volume	0	0	0	0	19	75	0	94	3	0	7	10	0	38	16	54	
Peak Factor								0.883				0.650				0.819	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ron
Board # : 1320
Weather : cool / rainy

File Name : SB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 1

Groups Printed- Trucks & Buses

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
06:15	0	0	0	0	0	3	0	3	0	0	1	1	0	0	1	1	5
06:30	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	2
06:45	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	2	4	0	6	0	0	1	1	0	0	2	2	9
07:15	0	0	0	0	1	1	0	2	0	0	0	0	0	2	0	2	4
07:30	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
07:45	0	0	0	0	1	2	0	3	1	0	0	1	0	2	0	2	6
Total	0	0	0	0	2	4	0	6	1	0	0	1	0	6	0	6	13
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	3
08:15	0	0	0	0	0	1	0	1	1	0	2	3	0	1	0	1	5
08:30	0	0	0	0	0	2	0	2	0	0	0	0	0	1	1	2	4
08:45	0	0	0	0	3	3	0	6	1	0	0	1	0	0	1	1	8
Total	0	0	0	0	3	6	0	9	2	0	2	4	0	4	3	7	20
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
16:15	0	0	0	0	0	2	0	2	0	0	1	1	0	3	1	4	7
16:30	0	0	0	0	1	2	0	3	0	0	2	2	0	0	0	0	5
16:45	0	0	0	0	1	2	0	3	0	0	0	0	0	3	1	4	7
Total	0	0	0	0	2	6	0	8	0	0	3	3	0	7	3	10	21
17:00	0	0	0	0	1	2	0	3	0	0	0	0	0	3	0	3	6
17:15	0	0	0	0	1	1	0	2	0	0	0	0	0	0	2	2	4
17:30	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
17:45	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total	0	0	0	0	2	4	0	6	0	0	1	1	0	3	2	5	12
18:00	0	0	0	0	1	1	0	2	1	0	0	1	0	0	0	0	3
18:15	0	0	0	0	0	1	0	1	0	0	0	0	0	2	4	6	7
18:45	0	0	0	0	0	1	0	1	1	0	0	1	0	0	0	0	2
Total	0	0	0	0	1	3	0	4	2	0	0	2	0	2	4	6	12
Grand Total	0	0	0	0	12	27	0	39	5	0	7	12	0	22	14	36	87
Apprch %	0.0	0.0	0.0		30.8	69.2	0.0		41.7	0.0	58.3		0.0	61.1	38.9		
Total %	0.0	0.0	0.0	0.0	13.8	31.0	0.0	44.8	5.7	0.0	8.0	13.8	0.0	25.3	16.1	41.4	

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	08:00																
Volume	0	0	0	0	3	6	0	9	2	0	2	4	0	4	3	7	20
Percent	0.0	0.0	0.0		33.3	66.7	0.0		50.0	0.0	50.0		0.0	57.1	42.9		
Volume	0	0	0	0	3	6	0	9	2	0	2	4	0	4	3	7	20
Volume	0	0	0	0	3	3	0	6	1	0	0	1	0	0	1	1	8
Peak Factor																	0.625
High Int.	5:45:00				08:45				08:15				08:00				
Volume	0	0	0	0	3	3	0	6	1	0	2	3	0	2	1	3	
Peak Factor								0.375				0.333				0.583	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : SB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 2

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection 16:15																	
Volume	0	0	0	0	3	8	0	11	0	0	3	3	0	9	2	11	25
Percent	0.0	0.0	0.0		27.3	72.7	0.0		0.0	0.0	100.0		0.0	81.8	18.2		
Volume	0	0	0	0	3	8	0	11	0	0	3	3	0	9	2	11	25
Volume	0	0	0	0	1	2	0	3	0	0	0	0	0	3	1	4	7
Peak Factor																	0.893
High Int.					16:30				16:30				16:15				
Volume	0	0	0	0	1	2	0	3	0	0	2	2	0	3	1	4	
Peak Factor								0.917				0.375				0.688	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ron
Board # : 1320
Weather : cool / rainy

File Name : SB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 1

Groups Printed- U-Turns

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
16:30	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Apprch %	0.0	0.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	06:00																
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Factor																	0.000
High Int.	5:45:00				5:45:00				5:45:00				5:45:00				
Volume																	
Peak Factor																	
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection	16:00																
Volume	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Percent	0.0	0.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Volume	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Volume	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Peak Factor																	0.250
High Int.					16:30												
Volume	0	0	0	0	1	0	0	1									
Peak Factor								0.250									

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ron
Board # : 1320
Weather : cool / rainy

File Name : SB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 1

Groups Printed- Passenger Vehicles - Trucks & Buses - U-Turns

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	0	0	0	0	41	13	0	54	0	0	0	0	0	18	70	88	142
06:15	0	0	0	0	32	28	0	60	1	0	2	3	0	13	78	91	154
06:30	0	0	0	0	41	23	0	64	0	0	2	2	0	23	56	79	145
06:45	0	0	0	0	27	13	0	40	1	0	3	4	0	18	42	60	104
Total	0	0	0	0	141	77	0	218	2	0	7	9	0	72	246	318	545
07:00	0	0	0	0	18	16	0	34	1	0	0	1	0	18	36	54	89
07:15	0	0	0	0	35	22	0	57	6	0	2	8	0	31	40	71	136
07:30	0	0	0	0	24	30	0	54	1	0	3	4	0	37	33	70	128
07:45	0	0	0	0	21	27	0	48	2	0	2	4	0	25	46	71	123
Total	0	0	0	0	98	95	0	193	10	0	7	17	0	111	155	266	476
08:00	0	0	0	0	16	25	0	41	2	0	2	4	0	27	32	59	104
08:15	0	0	0	0	17	23	0	40	2	0	7	9	0	18	25	43	92
08:30	0	0	0	0	8	22	0	30	1	0	2	3	0	24	27	51	84
08:45	0	0	0	0	23	25	0	48	1	0	1	2	0	19	37	56	106
Total	0	0	0	0	64	95	0	159	6	0	12	18	0	88	121	209	386
16:00	0	0	0	0	13	49	0	62	2	0	5	7	0	17	12	29	98
16:15	0	0	0	0	6	62	0	68	0	0	6	6	0	41	17	58	132
16:30	0	0	0	0	11	72	0	83	2	0	7	9	0	22	18	40	132
16:45	0	0	0	0	20	77	0	97	3	0	7	10	0	36	16	52	159
Total	0	0	0	0	50	260	0	310	7	0	25	32	0	116	63	179	521
17:00	0	0	0	0	16	80	0	96	1	0	3	4	0	28	10	38	138
17:15	0	0	0	0	9	73	0	82	3	0	0	3	0	25	11	36	121
17:30	0	0	0	0	12	63	0	75	3	0	5	8	0	23	7	30	113
17:45	0	0	0	0	5	63	0	68	2	0	3	5	0	18	9	27	100
Total	0	0	0	0	42	279	0	321	9	0	11	20	0	94	37	131	472
18:00	0	0	0	0	11	57	0	68	2	0	5	7	0	21	4	25	100
18:15	0	0	0	0	13	50	0	63	2	0	3	5	0	18	17	35	103
18:30	0	0	0	0	10	53	0	63	1	0	2	3	0	12	12	24	90
18:45	0	0	0	0	6	55	0	61	3	0	3	6	0	15	10	25	92
Total	0	0	0	0	40	215	0	255	8	0	13	21	0	66	43	109	385
Grand Total	0	0	0	0	435	1021	0	1456	42	0	75	117	0	547	665	1212	2785
Apprch %	0.0	0.0	0.0		29.9	70.1	0.0		35.9	0.0	64.1		0.0	45.1	54.9		
Total %	0.0	0.0	0.0	0.0	15.6	36.7	0.0	52.3	1.5	0.0	2.7	4.2	0.0	19.6	23.9	43.5	

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	06:00																
Volume	0	0	0	0	141	77	0	218	2	0	7	9	0	72	246	318	545
Percent	0.0	0.0	0.0		64.7	35.3	0.0		22.2	0.0	77.8		0.0	22.6	77.4		
Volume	0	0	0	0	141	77	0	218	2	0	7	9	0	72	246	318	545
Volume	0	0	0	0	32	28	0	60	1	0	2	3	0	13	78	91	154
Peak Factor																	0.885
High Int.	5:45:00				06:30				06:45				06:15				
Volume	0	0	0	0	41	23	0	64	1	0	3	4	0	13	78	91	
Peak Factor								0.852				0.563				0.874	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : SB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 2

	Southbound				CR 41 Westbound				SB I-75 OFF RAMP Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 16:45 - Peak 1 of 1																	
Intersection 16:15																	
Volume	0	0	0	0	53	291	0	344	6	0	23	29	0	127	61	188	561
Percent	0.0	0.0	0.0		15.4	84.6	0.0		20.7	0.0	79.3		0.0	67.6	32.4		
Volume	0	0	0	0	53	291	0	344	6	0	23	29	0	127	61	188	561
Volume	0	0	0	0	20	77	0	97	3	0	7	10	0	36	16	52	159
Peak Factor																	0.882
High Int.					16:45				16:45				16:15				
Volume	0	0	0	0	20	77	0	97	3	0	7	10	0	41	17	58	
Peak Factor								0.887				0.725				0.810	

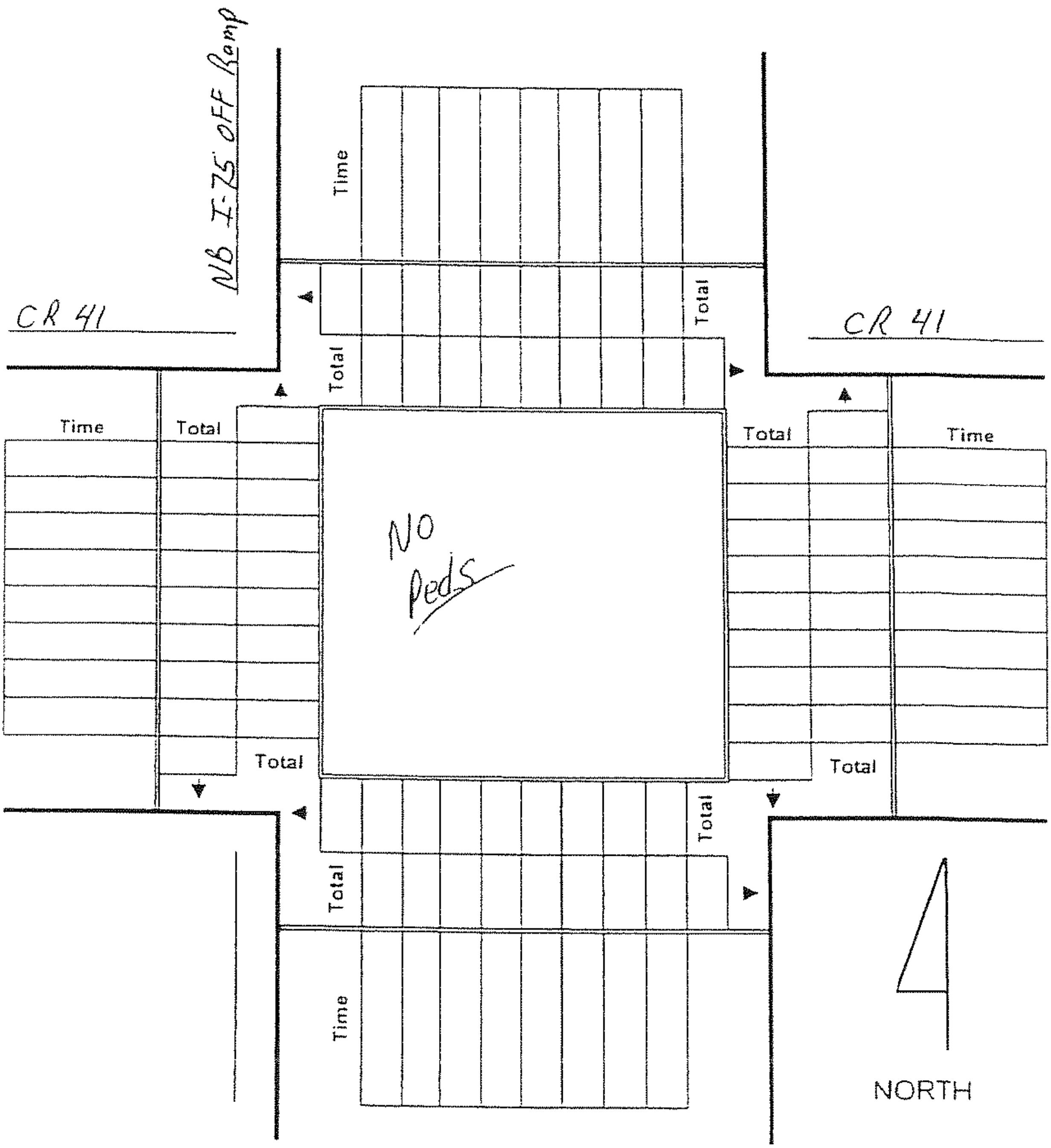
BAYSIDE ENGINEERING INC.

PEDESTRIAN MOVEMENT SUMMARY

Section: ______
Milepost: ______
Time Periods: 6:00 - 9:00 AM
4:00 - 7:00 PM

State Road: NB - I - 75 Ramps
Intersecting Road: CR 41
Data By: Ryan
Count Date: 3-15-05

City: Jessamine
County: Pasco
Completed By: ______
Date: ______



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BAYSIDE ENGINEERING INC.

BICYCLE MOVEMENT SUMMARY

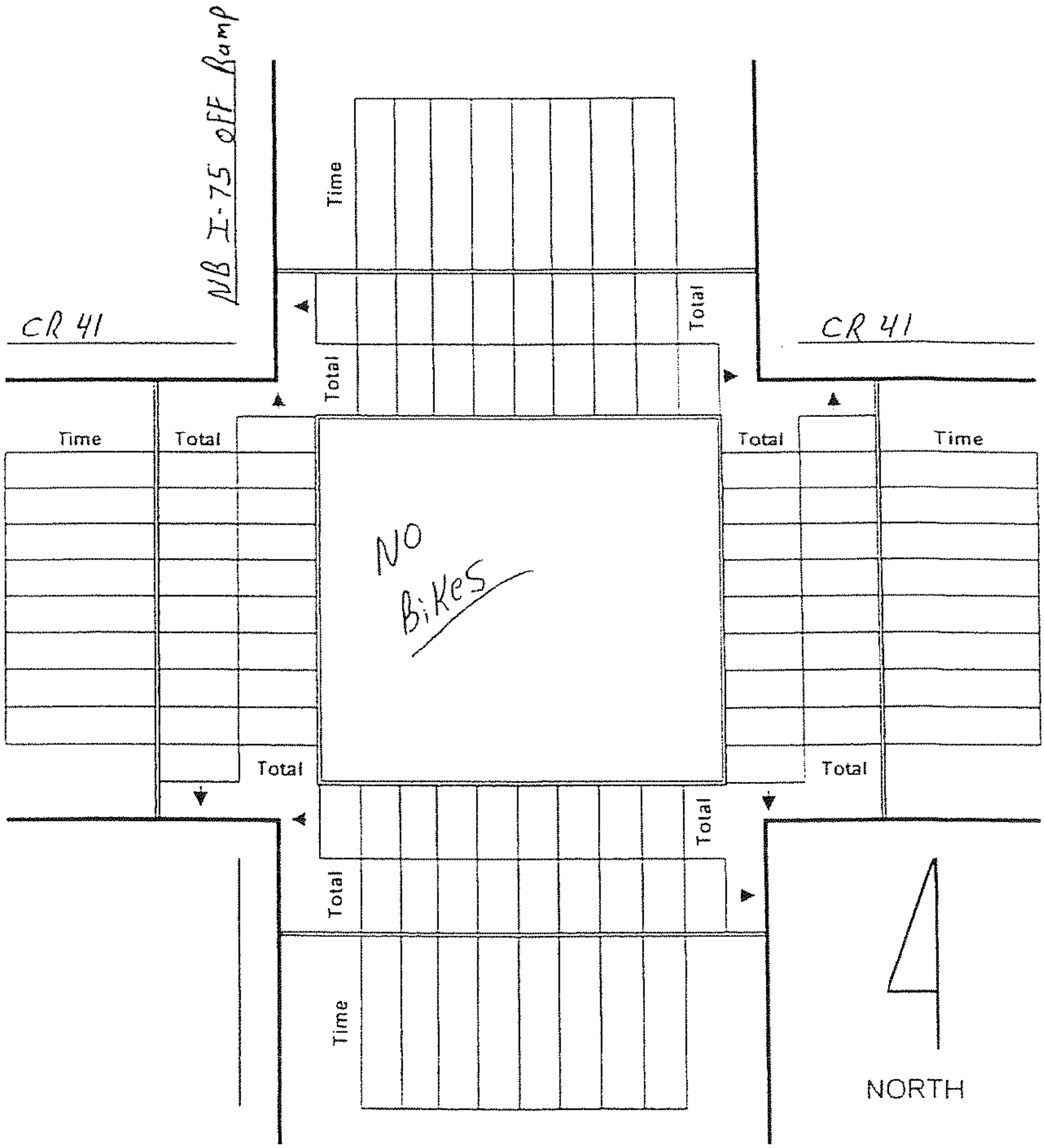
Section: ______ State Road: NB I-75 Ramps City: Jessamine

Milepost: ______ Intersecting Road: CR 41 County: Pasco

Time Periods: 6:00 - 9:00 Am
4:00 - 7:00 PM

Data By: Ryan Completed By: ______

Count Date: 3-15-05 Date: ______



Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ryan
Board # : 1321
Weather : cool / rainy

File Name : NB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 1

Groups Printed- Passenger Vehicles

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	2	0	5	7	0	53	0	53	0	0	0	0	1	17	0	18	78
06:15	4	0	3	7	0	52	1	53	0	0	0	0	0	15	0	15	75
06:30	10	0	5	15	0	54	4	58	0	0	0	0	2	22	0	24	97
06:45	2	0	4	6	0	34	2	36	0	0	0	0	2	19	0	21	63
Total	18	0	17	35	0	193	7	200	0	0	0	0	5	73	0	78	313
07:00	5	0	6	11	0	29	3	32	0	0	0	0	0	19	0	19	62
07:15	7	0	6	13	0	42	3	45	0	0	0	0	1	35	0	36	94
07:30	16	0	13	29	0	40	4	44	0	0	0	0	4	37	0	41	114
07:45	5	0	11	16	0	34	1	35	0	0	0	0	5	19	0	24	75
Total	33	0	36	69	0	145	11	156	0	0	0	0	10	110	0	120	345
08:00	4	0	13	17	0	26	5	31	0	0	0	0	2	26	0	28	76
08:15	8	0	11	19	0	26	7	33	0	0	0	0	3	14	0	17	69
08:30	8	0	6	14	0	24	2	26	0	0	0	0	4	23	0	27	67
08:45	10	0	15	25	0	25	3	28	0	0	0	0	5	14	0	19	72
Total	30	0	45	75	0	101	17	118	0	0	0	0	14	77	0	91	284
16:00	22	0	34	56	0	23	1	24	0	0	0	0	3	18	0	21	101
16:15	18	0	42	60	0	29	6	35	0	0	0	0	2	41	0	43	138
16:30	27	0	43	70	0	35	5	40	0	0	0	0	3	25	0	28	138
16:45	25	0	49	74	0	43	4	47	0	0	0	0	1	39	0	40	161
Total	92	0	168	260	0	130	16	146	0	0	0	0	9	123	0	132	538
17:00	31	0	46	77	0	45	6	51	0	0	0	0	3	23	0	26	154
17:15	19	0	44	63	0	39	4	43	0	0	0	0	0	28	0	28	134
17:30	28	0	29	57	0	38	5	43	0	0	0	0	6	23	0	29	129
17:45	26	0	42	68	0	23	3	26	0	0	0	0	0	18	0	18	112
Total	104	0	161	265	0	145	18	163	0	0	0	0	9	92	0	101	529
18:00	28	0	41	69	0	27	6	33	0	0	0	0	2	25	0	27	129
18:15	16	0	31	47	0	30	4	34	0	0	0	0	1	18	0	19	100
18:30	29	0	41	70	0	21	1	22	0	0	0	0	2	12	0	14	106
18:45	19	0	40	59	0	18	5	23	0	0	0	0	2	15	0	17	99
Total	92	0	153	245	0	96	16	112	0	0	0	0	7	70	0	77	434
Grand Total	369	0	580	949	0	810	85	895	0	0	0	0	54	545	0	599	2443
Apprch %	38.9	0.0	61.1		0.0	90.5	9.5		0.0	0.0	0.0		9.0	91.0	0.0		
Total %	15.1	0.0	23.7	38.8	0.0	33.2	3.5	36.6	0.0	0.0	0.0	0.0	2.2	22.3	0.0	24.5	

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	07:15																
Volume	32	0	43	75	0	142	13	155	0	0	0	0	12	117	0	129	359
Percent	42.7	0.0	57.3		0.0	91.6	8.4		0.0	0.0	0.0		9.3	90.7	0.0		
Volume	32	0	43	75	0	142	13	155	0	0	0	0	12	117	0	129	359
Volume	16	0	13	29	0	40	4	44	0	0	0	0	4	37	0	41	114
Peak Factor																	0.787
High Int.	07:30				07:15				5:45:00				07:30				
Volume	16	0	13	29	0	42	3	45	0	0	0	0	4	37	0	41	
Peak Factor				0.647				0.861								0.787	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : NB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 16:45 - Peak 1 of 1																	
Intersection	16:15																
Volume	101	0	180	281	0	152	21	173	0	0	0	0	9	128	0	137	591
Percent	35.9	0.0	64.1		0.0	87.9	12.1		0.0	0.0	0.0		6.6	93.4	0.0		
Volume	101	0	180	281	0	152	21	173	0	0	0	0	9	128	0	137	591
Volume	25	0	49	74	0	43	4	47	0	0	0	0	1	39	0	40	161
Peak Factor																	0.918
High Int.	17:00				17:00								16:15				
Volume	31	0	46	77	0	45	6	51	0	0	0	0	2	41	0	43	
Peak Factor				0.912				0.848								0.797	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ryan
Board # 1321
Weather cool / rainy

File Name : NB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 1

Groups Printed- Trucks & Buses

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
06:15	1	0	3	4	0	1	0	1	0	0	0	0	0	1	0	1	6
06:30	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	2
06:45	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Total	2	0	3	5	0	3	2	5	0	0	0	0	0	1	0	1	11
07:00	0	0	0	0	0	3	1	4	0	0	0	0	1	0	0	1	5
07:15	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
07:30	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
07:45	2	0	0	2	0	3	0	3	0	0	0	0	1	1	0	2	7
Total	2	0	0	2	0	8	1	9	0	0	0	0	2	4	0	6	17
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
08:15	1	0	1	2	0	1	1	2	0	0	0	0	1	2	0	3	7
08:30	2	0	0	2	0	2	0	2	0	0	0	0	0	1	0	1	5
08:45	0	0	3	3	0	2	3	5	0	0	0	0	0	0	0	0	8
Total	3	0	4	7	0	5	4	9	0	0	0	0	1	5	0	6	22
16:00	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	2
16:15	0	0	1	1	0	0	0	0	0	0	0	0	2	2	0	4	5
16:30	0	0	1	1	0	2	0	2	0	0	0	0	2	0	0	2	5
16:45	0	0	2	2	0	1	1	2	0	0	0	0	0	3	0	3	7
Total	0	0	4	4	0	3	2	5	0	0	0	0	5	5	0	10	19
17:00	0	0	0	0	0	4	0	4	0	0	0	0	0	3	0	3	7
17:15	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	2
17:30	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	2
17:45	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
Total	1	0	1	2	0	5	2	7	0	0	0	0	0	4	0	4	13
18:00	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
18:15	0	0	0	0	0	1	1	2	0	0	0	0	1	1	0	2	4
18:45	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	2
Total	0	0	1	1	0	3	2	5	0	0	0	0	1	1	0	2	8
Grand Total	8	0	13	21	0	27	13	40	0	0	0	0	9	20	0	29	90
Apprch %	38.1	0.0	61.9		0.0	67.5	32.5		0.0	0.0	0.0		31.0	69.0	0.0		
Total %	8.9	0.0	14.4	23.3	0.0	30.0	14.4	44.4	0.0	0.0	0.0	0.0	10.0	22.2	0.0	32.2	

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	08:00																
Volume	3	0	4	7	0	5	4	9	0	0	0	0	1	5	0	6	22
Percent	42.9	0.0	57.1		0.0	55.6	44.4		0.0	0.0	0.0		16.7	83.3	0.0		
Volume	3	0	4	7	0	5	4	9	0	0	0	0	1	5	0	6	22
Volume	0	0	3	3	0	2	3	5	0	0	0	0	0	0	0	0	8
Peak Factor																	0.688
High Int.	08:45				08:45				5:45:00				08:15				
Volume	0	0	3	3	0	2	3	5	0	0	0	0	1	2	0	3	
Peak Factor				0.583				0.450								0.500	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : NB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 2

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection	16:15																
Volume	0	0	4	4	0	7	1	8	0	0	0	0	4	8	0	12	24
Percent	0.0	0.0	100.0		0.0	87.5	12.5		0.0	0.0	0.0		33.3	66.7	0.0		
Volume	0	0	4	4	0	7	1	8	0	0	0	0	4	8	0	12	24
Volume	0	0	0	0	0	4	0	4	0	0	0	0	0	3	0	3	7
Peak Factor																	0.857
High Int.	16:45				17:00								16:15				
Volume	0	0	2	2	0	4	0	4	0	0	0	0	2	2	0	4	
Peak Factor				0.500				0.500								0.750	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ryan
Board # 1321
Weather cool / rainy

File Name : NB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 1

Groups Printed- U-Turns

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
08:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Apprch %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	08:00																
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Percent	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Peak Factor																	0.250
High Int.	5:45:00				5:45:00				5:45:00				08:45				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
Peak Factor																0.250	
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection	17:00																
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Percent	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Peak Factor																	0.250
High Int.													17:45				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
Peak Factor																0.250	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ryan
Board # : 1321
Weather : cool / rainy

File Name : NB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 1

Groups Printed- Passenger Vehicles - Trucks & Buses - U-Turns

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	2	0	5	7	0	53	1	54	0	0	0	0	1	17	0	18	79
06:15	5	0	6	11	0	53	1	54	0	0	0	0	0	16	0	16	81
06:30	10	0	5	15	0	55	5	60	0	0	0	0	2	22	0	24	99
06:45	3	0	4	7	0	35	2	37	0	0	0	0	2	19	0	21	65
Total	20	0	20	40	0	196	9	205	0	0	0	0	5	74	0	79	324
07:00	5	0	6	11	0	32	4	36	0	0	0	0	1	19	0	20	67
07:15	7	0	6	13	0	43	3	46	0	0	0	0	1	36	0	37	96
07:30	16	0	13	29	0	41	4	45	0	0	0	0	4	39	0	43	117
07:45	7	0	11	18	0	37	1	38	0	0	0	0	6	20	0	26	82
Total	35	0	36	71	0	153	12	165	0	0	0	0	12	114	0	126	362
08:00	4	0	13	17	0	26	5	31	0	0	0	0	2	28	0	30	78
08:15	9	0	12	21	0	27	8	35	0	0	0	0	4	16	0	20	76
08:30	10	0	6	16	0	26	2	28	0	0	0	0	4	24	0	28	72
08:45	10	0	18	28	0	27	6	33	0	0	0	0	6	14	0	20	81
Total	33	0	49	82	0	106	21	127	0	0	0	0	16	82	0	98	307
16:00	22	0	34	56	0	23	2	25	0	0	0	0	4	18	0	22	103
16:15	18	0	43	61	0	29	6	35	0	0	0	0	4	43	0	47	143
16:30	27	0	44	71	0	37	5	42	0	0	0	0	5	25	0	30	143
16:45	25	0	51	76	0	44	5	49	0	0	0	0	1	42	0	43	168
Total	92	0	172	264	0	133	18	151	0	0	0	0	14	128	0	142	557
17:00	31	0	46	77	0	49	6	55	0	0	0	0	3	26	0	29	161
17:15	19	0	44	63	0	40	5	45	0	0	0	0	0	28	0	28	136
17:30	28	0	30	58	0	38	6	44	0	0	0	0	6	23	0	29	131
17:45	27	0	42	69	0	23	3	26	0	0	0	0	1	19	0	20	115
Total	105	0	162	267	0	150	20	170	0	0	0	0	10	96	0	106	543
18:00	28	0	42	70	0	28	6	34	0	0	0	0	2	25	0	27	131
18:15	16	0	31	47	0	31	5	36	0	0	0	0	2	19	0	21	104
18:30	29	0	41	70	0	21	1	22	0	0	0	0	2	12	0	14	106
18:45	19	0	40	59	0	19	6	25	0	0	0	0	2	15	0	17	101
Total	92	0	154	246	0	99	18	117	0	0	0	0	8	71	0	79	442
Grand Total	377	0	593	970	0	837	98	935	0	0	0	0	65	565	0	630	2535
Apprch %	38.9	0.0	61.1		0.0	89.5	10.5		0.0	0.0	0.0		10.3	89.7	0.0		
Total %	14.9	0.0	23.4	38.3	0.0	33.0	3.9	36.9	0.0	0.0	0.0	0.0	2.6	22.3	0.0	24.9	

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	07:15																
Volume	34	0	43	77	0	147	13	160	0	0	0	0	13	123	0	136	373
Percent	44.2	0.0	55.8		0.0	91.9	8.1		0.0	0.0	0.0		9.6	90.4	0.0		
Volume	34	0	43	77	0	147	13	160	0	0	0	0	13	123	0	136	373
Volume	16	0	13	29	0	41	4	45	0	0	0	0	4	39	0	43	117
Peak Factor																	0.797
High Int.	07:30				07:15				5:45:00				07:30				
Volume	16	0	13	29	0	43	3	46	0	0	0	0	4	39	0	43	
Peak Factor				0.664				0.870								0.791	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : NB I-75 Ramps @ CR 41
Site Code : 00000000
Start Date : 03/15/2005
Page No : 2

	NB I-75 OFF RAMP Southbound				CR 41 Westbound				Northbound				CR 41 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 15:00 to 18:45 - Peak 1 of 1																	
Intersection	16:15																
Volume	101	0	184	285	0	159	22	181	0	0	0	0	13	136	0	149	615
Percent	35.4	0.0	64.6		0.0	87.8	12.2		0.0	0.0	0.0		8.7	91.3	0.0		
Volume	101	0	184	285	0	159	22	181	0	0	0	0	13	136	0	149	615
Volume	25	0	51	76	0	44	5	49	0	0	0	0	1	42	0	43	168
Peak Factor																	0.915
High Int.	17:00				17:00								16:15				
Volume	31	0	46	77	0	49	6	55	0	0	0	0	4	43	0	47	
Peak Factor				0.925				0.823								0.793	

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BAYSIDE ENGINEERING INC.

PEDESTRIAN MOVEMENT SUMMARY

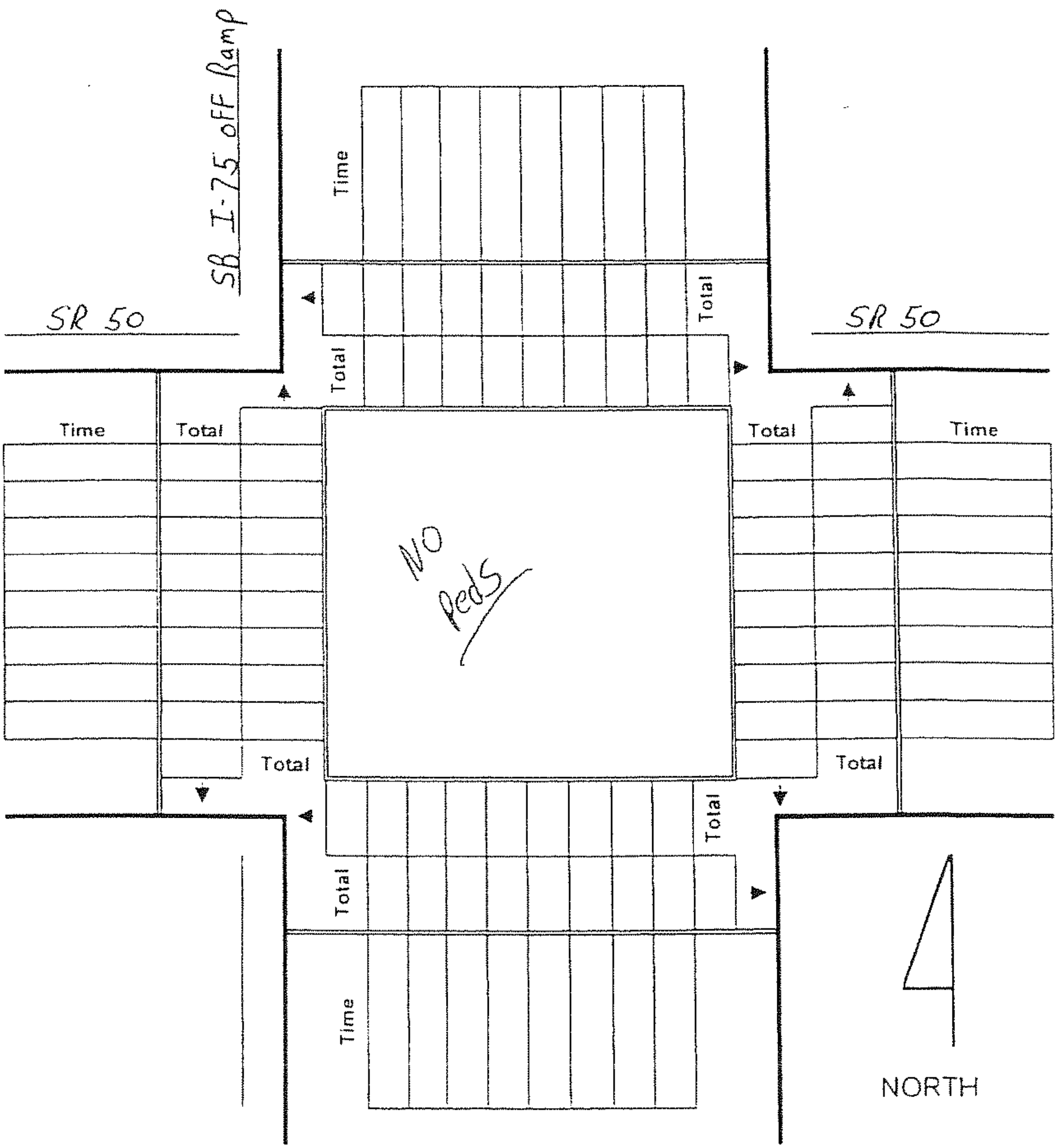
Section: ____________ State Road: SB I-75 Ramps City: Ridge Manor

Milepost: ____________ Intersecting Road: SR 50 County: Hernando

Time Periods: 6:00 - 9:00 Am

4:00 - 7:00 Pm Data By: Ron / Ryan Completed By: ____________

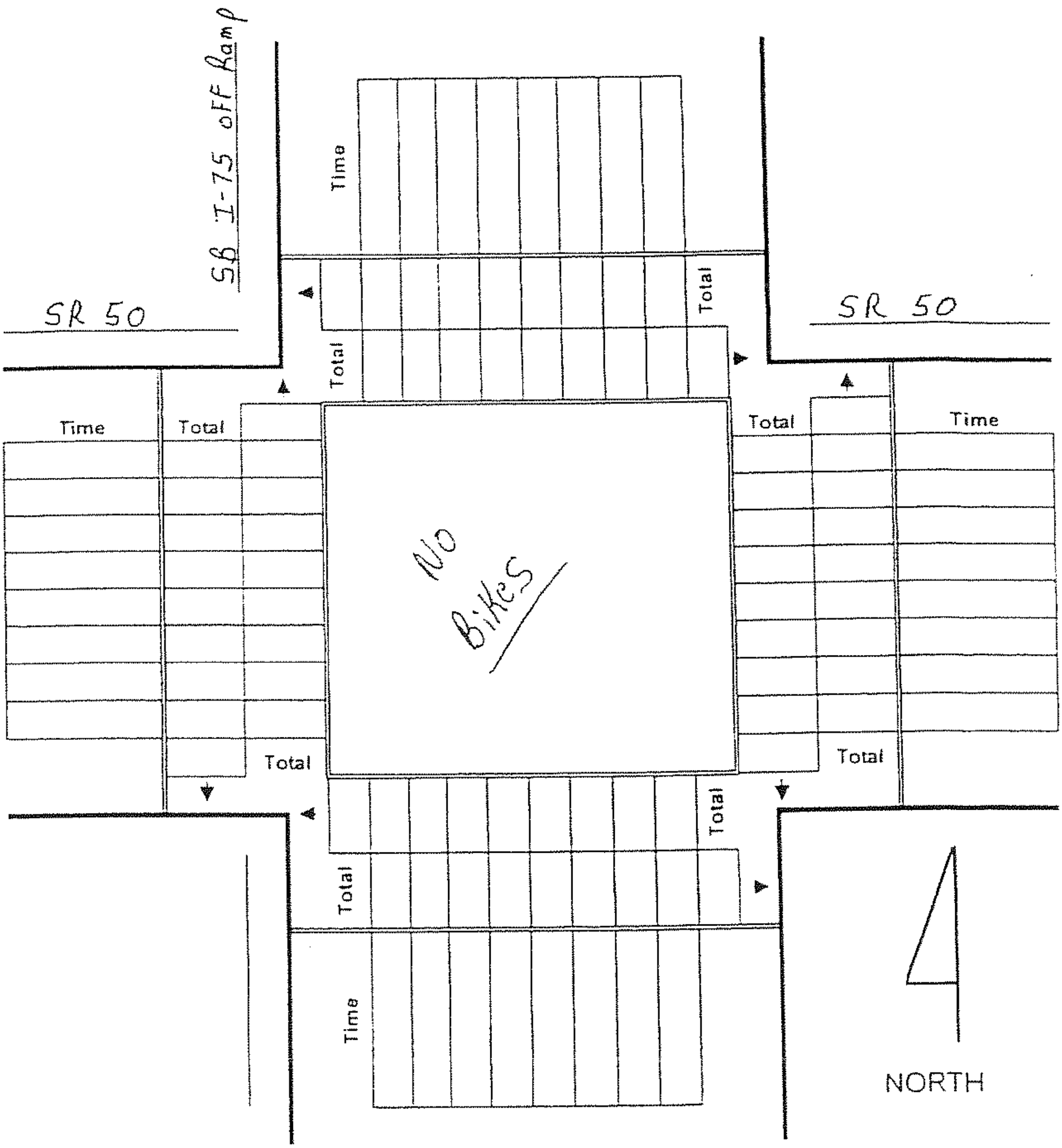
Count Date: 1320 / 1321 Date: ____________



BAYSIDE ENGINEERING INC.

BICYCLE MOVEMENT SUMMARY

Section		State Road:	SB I-75 Ramps	City:	Ridge Manor
Milepost:		Intersecting Road:	SR 50	County:	Hernando
Time Periods:	6:00 - 9:00 Am 4:00 - 7:00 PM	Data By:	Ron / Ryan	Completed By:	
		Count Date:	1320 / 1321	Date:	



Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ron / Ryan
Board # : 1320 / 1321
Weather : cool / rainy

File Name : SB I-75 Ramps @ SR 50
Site Code : 00000000
Start Date : 03/16/2005
Page No : 1

Groups Printed- Passenger Vehicles

	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	6	0	17	23	45	67	0	112	0	0	0	0	0	69	24	93	228
06:15	11	0	21	32	41	75	0	116	0	0	0	0	0	91	24	115	263
06:30	15	0	26	41	34	108	0	142	0	0	0	0	0	92	27	119	302
06:45	14	0	18	32	33	91	0	124	0	0	0	0	0	109	21	130	286
Total	46	0	82	128	153	341	0	494	0	0	0	0	0	361	96	457	1079
07:00	10	1	26	37	37	98	0	135	0	0	0	0	0	101	12	113	285
07:15	13	0	22	35	45	116	0	161	0	0	0	0	0	127	27	154	350
07:30	16	0	17	33	26	125	0	151	0	0	0	0	0	129	17	146	330
07:45	8	0	18	26	34	114	0	148	0	0	0	0	0	113	20	133	307
Total	47	1	83	131	142	453	0	595	0	0	0	0	0	470	76	546	1272
08:00	13	0	29	42	31	100	0	131	0	0	0	0	0	121	12	133	306
08:15	17	0	8	25	19	107	0	126	0	0	0	0	0	128	24	152	303
08:30	11	0	23	34	29	109	0	138	0	0	0	0	0	138	22	160	332
08:45	9	0	26	35	46	120	0	166	0	0	0	0	0	140	19	159	360
Total	50	0	86	136	125	436	0	561	0	0	0	0	0	527	77	604	1301
16:00	21	0	45	66	23	134	0	157	0	0	0	0	0	191	37	228	451
16:15	19	0	38	57	30	144	0	174	0	0	0	0	0	177	33	210	441
16:30	26	0	39	65	26	145	0	171	0	0	0	0	0	159	23	182	418
16:45	20	0	28	48	24	135	0	159	0	0	0	0	0	161	20	181	388
Total	86	0	150	236	103	558	0	661	0	0	0	0	0	688	113	801	1698
17:00	27	0	41	68	32	138	0	170	0	0	0	0	0	116	20	136	374
17:15	19	0	48	67	30	156	0	186	0	0	0	0	0	145	28	173	426
17:30	24	0	40	64	27	135	0	162	0	0	0	0	0	166	17	183	409
17:45	16	0	38	54	32	118	0	150	0	0	0	0	0	115	25	140	344
Total	86	0	167	253	121	547	0	668	0	0	0	0	0	542	90	632	1553
18:00	15	0	26	41	28	124	0	152	0	0	0	0	0	130	20	150	343
18:15	13	0	22	35	15	104	0	119	0	0	0	0	0	103	12	115	269
18:30	8	0	28	36	23	87	0	110	0	0	0	0	0	88	17	105	251
18:45	14	0	22	36	23	121	0	144	0	0	0	0	0	67	8	75	255
Total	50	0	98	148	89	436	0	525	0	0	0	0	0	388	57	445	1118
Grand Total	365	1	666	1032	733	2771	0	3504	0	0	0	0	0	2976	509	3485	8021
Apprch %	35.4	0.1	64.5		20.9	79.1	0.0		0.0	0.0	0.0		0.0	85.4	14.6		
Total %	4.6	0.0	8.3	12.9	9.1	34.5	0.0	43.7	0.0	0.0	0.0	0.0	0.0	37.1	6.3	43.4	

	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	08:00																
Volume	50	0	86	136	125	436	0	561	0	0	0	0	0	527	77	604	1301
Percent	36.8	0.0	63.2		22.3	77.7	0.0		0.0	0.0	0.0		0.0	87.3	12.7		
Volume	50	0	86	136	125	436	0	561	0	0	0	0	0	527	77	604	1301
Volume	9	0	26	35	46	120	0	166	0	0	0	0	0	140	19	159	360
Peak Factor																	0.903
High Int.	08:00				08:45				5:45:00				08:30				
Volume	13	0	29	42	46	120	0	166	0	0	0	0	0	138	22	160	
Peak Factor				0.810				0.845								0.944	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : SB I-75 Ramps @ SR 50
Site Code : 00000000
Start Date : 03/16/2005
Page No : 2

	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection	16:00																
Volume	86	0	150	236	103	558	0	661	0	0	0	0	0	688	113	801	1698
Percent	36.4	0.0	63.6		15.6	84.4	0.0		0.0	0.0	0.0		0.0	85.9	14.1		
Volume	86	0	150	236	103	558	0	661	0	0	0	0	0	688	113	801	1698
Volume	21	0	45	66	23	134	0	157	0	0	0	0	0	191	37	228	451
Peak Factor																	0.941
High Int.	16:00				16:15								16:00				
Volume	21	0	45	66	30	144	0	174	0	0	0	0	0	191	37	228	
Peak Factor				0.894				0.950								0.878	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ron / Ryan
Board # : 1320 / 1321
Weather : cool / rainy

File Name : SB I-75 Ramps @ SR 50
Site Code : 00000000
Start Date : 03/16/2005
Page No : 1

Groups Printed- Trucks & Buses

	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	2	0	3	5	4	8	0	12	0	0	0	0	0	21	10	31	48
06:15	5	0	1	6	3	17	0	20	0	0	0	0	0	33	7	40	66
06:30	2	0	9	11	7	25	0	32	0	0	0	0	0	33	8	41	84
06:45	14	0	4	18	5	20	0	25	0	0	0	0	0	26	7	33	76
Total	23	0	17	40	19	70	0	89	0	0	0	0	0	113	32	145	274
07:00	5	0	7	12	5	37	0	42	0	0	0	0	0	22	4	26	80
07:15	8	0	4	12	13	21	0	34	0	0	0	0	0	21	3	24	70
07:30	7	0	8	15	7	25	0	32	0	0	0	0	0	30	10	40	87
07:45	5	0	12	17	4	26	0	30	0	0	0	0	0	36	2	38	85
Total	25	0	31	56	29	109	0	138	0	0	0	0	0	109	19	128	322
08:00	13	0	6	19	11	23	0	34	0	0	0	0	0	33	7	40	93
08:15	4	0	12	16	8	32	0	40	0	0	0	0	0	36	10	46	102
08:30	6	0	10	16	11	28	0	39	0	0	0	0	0	29	5	34	89
08:45	4	0	8	12	4	33	0	37	0	0	0	0	0	25	3	28	77
Total	27	0	36	63	34	116	0	150	0	0	0	0	0	123	25	148	361
16:00	10	0	6	16	5	28	0	33	0	0	0	0	0	27	5	32	81
16:15	4	0	5	9	1	21	0	22	0	0	0	0	0	10	5	15	46
16:30	3	0	2	5	4	25	0	29	0	0	0	0	0	13	3	16	50
16:45	2	0	2	4	6	8	0	14	0	0	0	0	0	12	2	14	32
Total	19	0	15	34	16	82	0	98	0	0	0	0	0	62	15	77	209
17:00	3	0	1	4	2	11	0	13	0	0	0	0	0	16	2	18	35
17:15	6	1	1	8	8	6	0	14	0	0	0	0	0	10	2	12	34
17:30	7	0	1	8	4	13	0	17	0	0	0	0	0	9	3	12	37
17:45	2	0	5	7	0	6	0	6	0	0	0	0	0	7	3	10	23
Total	18	1	8	27	14	36	0	50	0	0	0	0	0	42	10	52	129
18:00	8	0	4	12	6	8	0	14	0	0	0	0	0	4	4	8	34
18:15	8	0	0	8	3	7	0	10	0	0	0	0	0	2	2	4	22
18:30	12	0	1	13	5	3	0	8	0	0	0	0	0	3	2	5	26
18:45	9	0	0	9	2	7	0	9	0	0	0	0	0	3	3	6	24
Total	37	0	5	42	16	25	0	41	0	0	0	0	0	12	11	23	106
Grand Total	149	1	112	262	128	438	0	566	0	0	0	0	0	461	112	573	1401
Apprch %	56.9	0.4	42.7		22.6	77.4	0.0		0.0	0.0	0.0		0.0	80.5	19.5		
Total %	10.6	0.1	8.0	18.7	9.1	31.3	0.0	40.4	0.0	0.0	0.0	0.0	0.0	32.9	8.0	40.9	

	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	07:45																
Volume	28	0	40	68	34	109	0	143	0	0	0	0	0	134	24	158	369
Percent	41.2	0.0	58.8		23.8	76.2	0.0		0.0	0.0	0.0		0.0	84.8	15.2		
Volume	28	0	40	68	34	109	0	143	0	0	0	0	0	134	24	158	369
Volume	4	0	12	16	8	32	0	40	0	0	0	0	0	36	10	46	102
Peak Factor																	0.904
High Int.	08:00				08:15				5:45:00				08:15				
Volume	13	0	6	19	8	32	0	40	0	0	0	0	0	36	10	46	
Peak Factor				0.895				0.894								0.859	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : SB I-75 Ramps @ SR 50
Site Code : 00000000
Start Date : 03/16/2005
Page No : 2

	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection	16:00																
Volume	19	0	15	34	16	82	0	98	0	0	0	0	0	62	15	77	209
Percent	55.9	0.0	44.1		16.3	83.7	0.0		0.0	0.0	0.0		0.0	80.5	19.5		
Volume	19	0	15	34	16	82	0	98	0	0	0	0	0	62	15	77	209
Volume	10	0	6	16	5	28	0	33	0	0	0	0	0	27	5	32	81
Peak Factor																	0.645
High Int.	16:00				16:00								16:00				
Volume	10	0	6	16	5	28	0	33	0	0	0	0	0	27	5	32	
Peak Factor				0.531				0.742								0.602	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ron / Ryan
Board # : 1320 / 1321
Weather : cool / rainy

File Name : SB I-75 Ramps @ SR 50
Site Code : 00000000
Start Date : 03/16/2005
Page No : 1

Groups Printed- U-Turns

	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:30	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
07:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:30	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
07:45	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	2	0	0	2	0	0	0	0	1	0	0	1	3
08:15	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
16:00	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
16:15	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
16:45	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3
17:00	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
18:30	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
18:45	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	2	0	0	2	0	0	0	0	1	0	0	1	3
Grand Total	0	0	0	0	10	0	0	10	0	0	0	0	2	0	0	2	12
Apprch %	0.0	0.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	83.3	0.0	0.0	83.3	0.0	0.0	0.0	0.0	16.7	0.0	0.0	16.7	

	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	07:00																
Volume	0	0	0	0	2	0	0	2	0	0	0	0	1	0	0	1	3
Percent	0.0	0.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
Volume	0	0	0	0	2	0	0	2	0	0	0	0	1	0	0	1	3
Volume	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Peak Factor																	0.750
High Int.	5:45:00				07:30				5:45:00				07:00				
Volume	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1	
Peak Factor								0.500								0.250	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : SB I-75 Ramps @ SR 50
Site Code : 00000000
Start Date : 03/16/2005
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	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 16:45 - Peak 1 of 1																	
Intersection	16:00																
Volume	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3
Percent	0.0	0.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Volume	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3
Volume	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Peak Factor																	0.750
High Int.					16:00												
Volume	0	0	0	0	1	0	0	1									
Peak Factor								0.750									

Counted by : Ron / Ryan
Board # : 1320 / 1321
Weather : cool / rainy

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : SB I-75 Ramps @ SR 50
Site Code : 00000000
Start Date : 03/16/2005
Page No : 1

Groups Printed- Passenger Vehicles - Trucks & Buses - U-Turns

	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	8	0	20	28	49	75	0	124	0	0	0	0	0	90	34	124	276
06:15	16	0	22	38	44	92	0	136	0	0	0	0	0	124	31	155	329
06:30	17	0	35	52	42	133	0	175	0	0	0	0	0	125	35	160	387
06:45	28	0	22	50	38	111	0	149	0	0	0	0	0	135	28	163	362
Total	69	0	99	168	173	411	0	584	0	0	0	0	0	474	128	602	1354
07:00	15	1	33	49	42	135	0	177	0	0	0	0	1	123	16	140	366
07:15	21	0	26	47	58	137	0	195	0	0	0	0	0	148	30	178	420
07:30	23	0	25	48	34	150	0	184	0	0	0	0	0	159	27	186	418
07:45	13	0	30	43	39	140	0	179	0	0	0	0	0	149	22	171	393
Total	72	1	114	187	173	562	0	735	0	0	0	0	1	579	95	675	1597
08:00	26	0	35	61	42	123	0	165	0	0	0	0	0	154	19	173	399
08:15	21	0	20	41	28	139	0	167	0	0	0	0	0	164	34	198	406
08:30	17	0	33	50	40	137	0	177	0	0	0	0	0	167	27	194	421
08:45	13	0	34	47	50	153	0	203	0	0	0	0	0	165	22	187	437
Total	77	0	122	199	160	552	0	712	0	0	0	0	0	650	102	752	1663
16:00	31	0	51	82	29	162	0	191	0	0	0	0	0	218	42	260	533
16:15	23	0	43	66	32	165	0	197	0	0	0	0	0	187	38	225	488
16:30	29	0	41	70	30	170	0	200	0	0	0	0	0	172	26	198	468
16:45	22	0	30	52	31	143	0	174	0	0	0	0	0	173	22	195	421
Total	105	0	165	270	122	640	0	762	0	0	0	0	0	750	128	878	1910
17:00	30	0	42	72	35	149	0	184	0	0	0	0	0	132	22	154	410
17:15	25	1	49	75	38	162	0	200	0	0	0	0	0	155	30	185	460
17:30	31	0	41	72	31	148	0	179	0	0	0	0	0	175	20	195	446
17:45	18	0	43	61	32	124	0	156	0	0	0	0	0	122	28	150	367
Total	104	1	175	280	136	583	0	719	0	0	0	0	0	584	100	684	1683
18:00	23	0	30	53	34	132	0	166	0	0	0	0	0	134	24	158	377
18:15	21	0	22	43	18	111	0	129	0	0	0	0	0	105	14	119	291
18:30	20	0	29	49	29	90	0	119	0	0	0	0	0	91	19	110	278
18:45	23	0	22	45	26	128	0	154	0	0	0	0	1	70	11	82	281
Total	87	0	103	190	107	461	0	568	0	0	0	0	1	400	68	469	1227
Grand Total	514	2	778	1294	871	3209	0	4080	0	0	0	0	2	3437	621	4060	9434
Apprch %	39.7	0.2	60.1		21.3	78.7	0.0		0.0	0.0	0.0		0.0	84.7	15.3		
Total %	5.4	0.0	8.2	13.7	9.2	34.0	0.0	43.2	0.0	0.0	0.0	0.0	0.0	36.4	6.6	43.0	

	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	08:00																
Volume	77	0	122	199	160	552	0	712	0	0	0	0	0	650	102	752	1663
Percent	38.7	0.0	61.3		22.5	77.5	0.0		0.0	0.0	0.0		0.0	86.4	13.6		
Volume	77	0	122	199	160	552	0	712	0	0	0	0	0	650	102	752	1663
Volume	13	0	34	47	50	153	0	203	0	0	0	0	0	165	22	187	437
Peak Factor																	0.951
High Int.	08:00				08:45				5:45:00				08:15				
Volume	26	0	35	61	50	153	0	203	0	0	0	0	0	164	34	198	
Peak Factor				0.816				0.877								0.949	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : SB I-75 Ramps @ SR 50
Site Code : 00000000
Start Date : 03/16/2005
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	SB I-75 OFF RAMP Southbound				SR 50 Westbound				Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection	16:00																
Volume	105	0	165	270	122	640	0	762	0	0	0	0	0	750	128	878	1910
Percent	38.9	0.0	61.1		16.0	84.0	0.0		0.0	0.0	0.0		0.0	85.4	14.6		
Volume	105	0	165	270	122	640	0	762	0	0	0	0	0	750	128	878	1910
Volume	31	0	51	82	29	162	0	191	0	0	0	0	0	218	42	260	533
Peak Factor																	0.896
High Int.	16:00				16:30								16:00				
Volume	31	0	51	82	30	170	0	200	0	0	0	0	0	218	42	260	
Peak Factor				0.823				0.953								0.844	

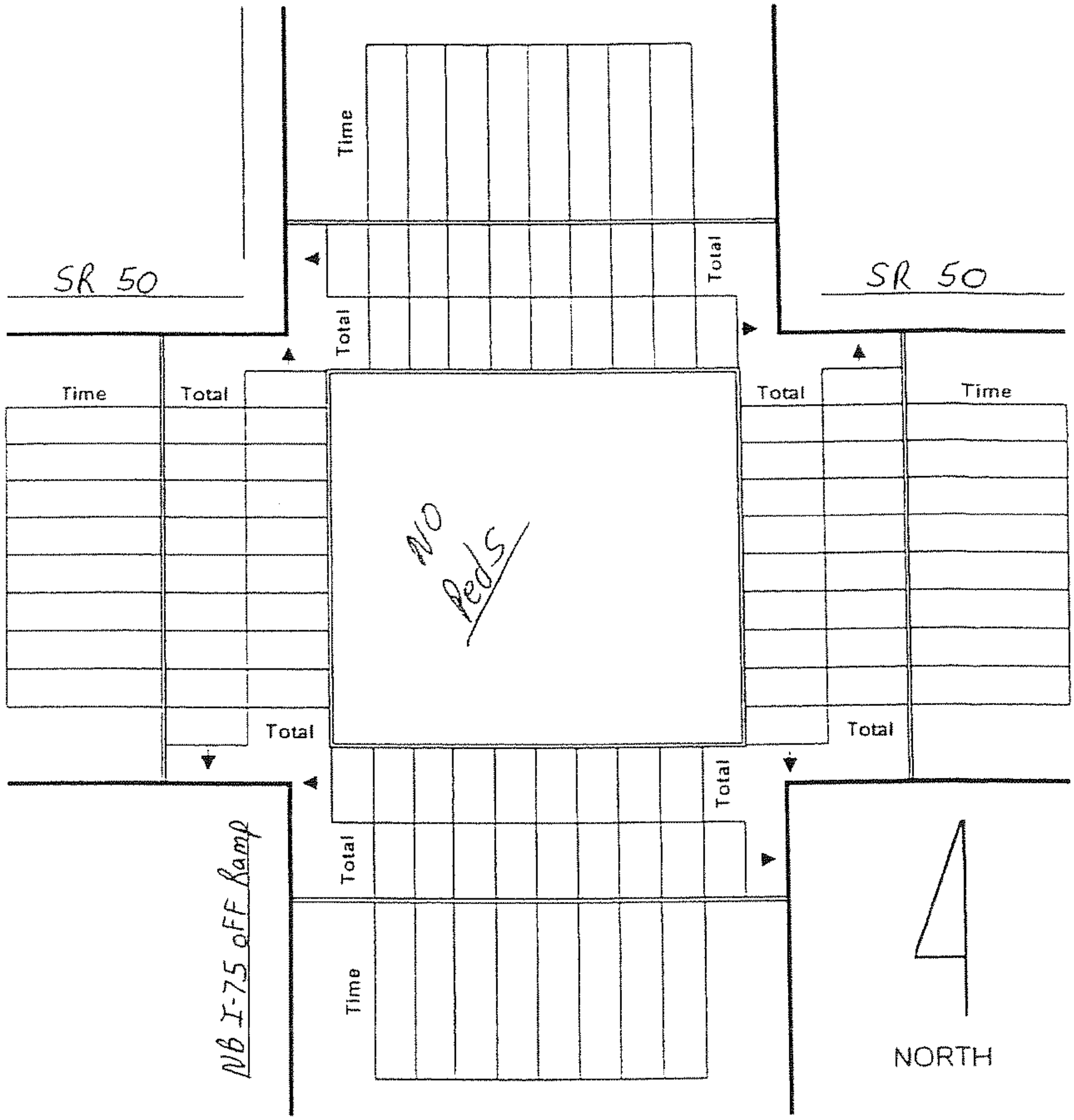
BAYSIDE ENGINEERING INC.

PEDESTRIAN MOVEMENT SUMMARY

Section:
Milepost:
Time Periods: 6:00-9:00 Am
4:00-7:00 Pm

State Road: NB I-75 Ramps
Intersecting Road: SR 50
Data By: Ron / Ryan
Count Date: 1320 / 1321

City: Ridge Manor
County: Hernando
Completed By:
Date:



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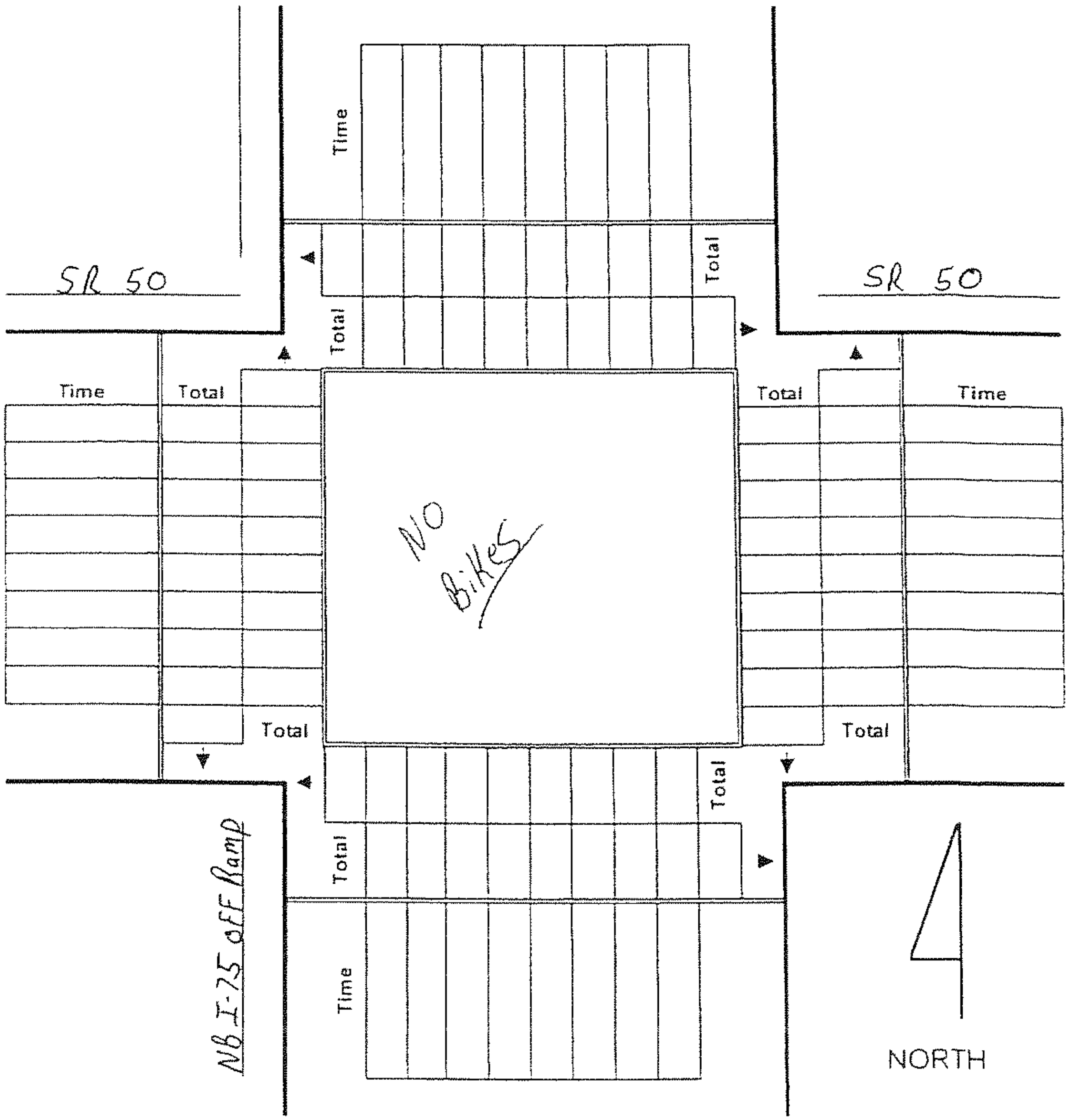
BAYSIDE ENGINEERING INC.

BICYCLE MOVEMENT SUMMARY

Section:
Milepost:
Time Periods: 6:00 - 9:00 Am
4:00 - 7:00 PM

State Road: NB I-75 Ramps
Intersecting Road: SR 50
Data By: Ron / Ryan
Count Date: 1320 / 1321

City: Ridge Manor
County: Hernando
Completed By:
Date:



Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ron / Ryan
Board # : 1320 / 1321
Weather : cool /rainy

File Name : NB I-75 Ramps@ SR 50
Site Code : 00000000
Start Date : 03/17/2005

Groups Printed- Passenger Vehicles

	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	0	0	0	0	0	73	20	93	10	0	11	21	24	66	0	90	204
06:15	0	0	0	0	0	122	23	145	14	0	19	33	25	87	0	112	290
06:30	0	0	0	0	0	116	31	147	14	0	25	39	34	70	0	104	290
06:45	0	0	0	0	0	97	21	118	10	0	32	42	28	89	0	117	277
Total	0	0	0	0	0	408	95	503	48	0	87	135	111	312	0	423	1061
07:00	0	0	0	0	0	98	32	130	15	0	41	56	30	82	0	112	298
07:15	0	0	0	0	0	105	36	141	15	0	32	47	30	95	0	125	313
07:30	0	0	0	0	0	139	31	170	9	0	32	41	31	120	0	151	362
07:45	0	0	0	0	0	143	36	179	24	1	32	57	23	108	0	131	367
Total	0	0	0	0	0	485	135	620	63	1	137	201	114	405	0	519	1340
08:00	0	0	0	0	0	117	29	146	22	0	32	54	28	87	0	115	315
08:15	0	0	0	0	0	128	22	150	25	0	39	64	32	99	0	131	345
08:30	0	0	0	0	0	126	18	144	19	0	43	62	28	104	0	132	338
08:45	0	0	0	0	0	123	33	156	16	0	58	74	26	110	0	136	366
Total	0	0	0	0	0	494	102	596	82	0	172	254	114	400	0	514	1364
16:00	0	0	0	0	0	168	34	202	34	0	50	84	24	179	0	203	489
16:15	0	0	0	0	0	134	31	165	26	0	47	73	23	152	0	175	413
16:30	0	0	0	0	0	159	25	184	21	0	65	86	19	168	0	187	457
16:45	0	0	0	0	0	157	29	186	31	0	51	82	26	137	0	163	431
Total	0	0	0	0	0	618	119	737	112	0	213	325	92	636	0	728	1790
17:00	0	0	0	0	0	150	21	171	30	0	60	90	27	138	0	165	426
17:15	0	0	0	0	0	132	30	162	23	0	56	79	26	163	0	189	430
17:30	0	0	0	0	0	155	29	184	19	0	67	86	15	117	0	132	402
17:45	0	0	0	0	0	136	30	166	23	0	51	74	19	109	0	128	368
Total	0	0	0	0	0	573	110	683	95	0	234	329	87	527	0	614	1626
18:00	0	0	0	0	0	119	25	144	23	0	52	75	17	120	0	137	356
18:15	0	0	0	0	0	112	21	133	17	0	39	56	13	104	0	117	306
18:30	0	0	0	0	0	143	27	170	16	0	49	65	9	89	0	98	333
18:45	0	0	0	0	0	107	25	132	16	0	56	72	17	105	0	122	326
Total	0	0	0	0	0	481	98	579	72	0	196	268	56	418	0	474	1321
Grand Total	0	0	0	0	0	3059	659	3718	472	1	1039	1512	574	2698	0	3272	8502
Apprch %	0.0	0.0	0.0		0.0	82.3	17.7		31.2	0.1	68.7		17.5	82.5	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	36.0	7.8	43.7	5.6	0.0	12.2	17.8	6.8	31.7	0.0	38.5	

	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	07:30																
Volume	0	0	0	0	0	527	118	645	80	1	135	216	114	414	0	528	1389
Percent	0.0	0.0	0.0		0.0	81.7	18.3		37.0	0.5	62.5		21.6	78.4	0.0		
Volume	0	0	0	0	0	527	118	645	80	1	135	216	114	414	0	528	1389
Volume	0	0	0	0	0	143	36	179	24	1	32	57	23	108	0	131	367
Peak Factor																	0.946
High Int.	5:45:00				07:45				08:15				07:30				
Volume	0	0	0	0	0	143	36	179	25	0	39	64	31	120	0	151	
Peak Factor								0.901				0.844				0.874	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : NB I-75 Ramps@ SR 50
Site Code : 00000000
Start Date : 03/17/2005
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	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection	16:00																
Volume	0	0	0	0	0	618	119	737	112	0	213	325	92	636	0	728	1790
Percent	0.0	0.0	0.0		0.0	83.9	16.1		34.5	0.0	65.5		12.6	87.4	0.0		
Volume	0	0	0	0	0	618	119	737	112	0	213	325	92	636	0	728	1790
Volume	0	0	0	0	0	168	34	202	34	0	50	84	24	179	0	203	489
Peak Factor																	0.915
High Int.					16:00				16:30				16:00				
Volume	0	0	0	0	0	168	34	202	21	0	65	86	24	179	0	203	
Peak Factor								0.912				0.945				0.897	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ron / Ryan
Board # : 1320 / 1321
Weather : cool /rainy

File Name : NB I-75 Ramps@ SR 50
Site Code : 00000000
Start Date : 03/17/2005
Page No : 1

Groups Printed- Trucks & Buses

	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	0	0	0	0	0	12	1	13	2	0	4	6	2	20	0	22	41
06:15	0	0	0	0	0	14	7	21	4	0	5	9	10	28	0	38	68
06:30	0	0	0	0	0	9	2	11	6	0	4	10	6	28	0	34	55
06:45	0	0	0	0	0	20	7	27	5	0	6	11	12	36	0	48	86
Total	0	0	0	0	0	55	17	72	17	0	19	36	30	112	0	142	250
07:00	0	0	0	0	0	14	3	17	4	0	7	11	4	27	0	31	59
07:15	0	0	0	0	0	21	4	25	10	0	5	15	6	28	0	34	74
07:30	0	0	0	0	0	35	2	37	9	0	8	17	6	30	0	36	90
07:45	0	0	0	0	0	32	5	37	5	1	12	18	7	26	0	33	88
Total	0	0	0	0	0	102	14	116	28	1	32	61	23	111	0	134	311
08:00	0	0	0	0	0	31	7	38	4	0	5	9	1	21	0	22	69
08:15	0	0	0	0	0	25	5	30	2	0	4	6	7	41	0	48	84
08:30	0	0	0	0	0	35	7	42	4	0	6	10	13	27	0	40	92
08:45	0	0	0	0	0	37	9	46	8	0	13	21	19	28	0	47	114
Total	0	0	0	0	0	128	28	156	18	0	28	46	40	117	0	157	359
16:00	0	0	0	0	0	13	11	24	7	0	6	13	11	11	0	22	59
16:15	0	0	0	0	0	16	11	27	4	0	3	7	7	20	0	27	61
16:30	0	0	0	0	0	13	6	19	6	0	2	8	1	18	0	19	46
16:45	0	0	0	0	0	11	9	20	2	0	13	15	3	18	0	21	56
Total	0	0	0	0	0	53	37	90	19	0	24	43	22	67	0	89	222
17:00	0	0	0	0	0	11	11	22	2	0	7	9	2	14	0	16	47
17:15	0	0	0	0	0	10	7	17	3	0	8	11	4	17	0	21	49
17:30	0	0	0	0	0	9	9	18	4	0	5	9	5	11	0	16	43
17:45	0	0	0	0	0	9	10	19	1	0	5	6	3	8	0	11	36
Total	0	0	0	0	0	39	37	76	10	0	25	35	14	50	0	64	175
18:00	0	0	0	0	0	5	8	13	3	0	8	11	3	12	0	15	39
18:15	0	0	0	0	0	9	8	17	5	0	2	7	3	10	0	13	37
18:30	0	0	0	0	0	18	8	26	2	0	3	5	1	16	0	17	48
18:45	0	0	0	0	0	17	4	21	3	0	6	9	0	4	0	4	34
Total	0	0	0	0	0	49	28	77	13	0	19	32	7	42	0	49	158
Grand Total	0	0	0	0	0	426	161	587	105	1	147	253	136	499	0	635	1475
Apprch %	0.0	0.0	0.0		0.0	72.6	27.4		41.5	0.4	58.1		21.4	78.6	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	28.9	10.9	39.8	7.1	0.1	10.0	17.2	9.2	33.8	0.0	43.1	

	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	08:00																
Volume	0	0	0	0	0	128	28	156	18	0	28	46	40	117	0	157	359
Percent	0.0	0.0	0.0		0.0	82.1	17.9		39.1	0.0	60.9		25.5	74.5	0.0		
Volume	0	0	0	0	0	128	28	156	18	0	28	46	40	117	0	157	359
Volume	0	0	0	0	0	37	9	46	8	0	13	21	19	28	0	47	114
Peak Factor																	0.787
High Int.	5:45:00				08:45				08:45				08:15				
Volume	0	0	0	0	0	37	9	46	8	0	13	21	7	41	0	48	
Peak Factor								0.848				0.548				0.818	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : NB I-75 Ramps@ SR 50
Site Code : 00000000
Start Date : 03/17/2005
Page No : 2

	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 16:45 - Peak 1 of 1																	
Intersection	16:00																
Volume	0	0	0	0	0	53	37	90	19	0	24	43	22	67	0	89	222
Percent	0.0	0.0	0.0		0.0	58.9	41.1		44.2	0.0	55.8		24.7	75.3	0.0		
Volume	0	0	0	0	0	53	37	90	19	0	24	43	22	67	0	89	222
Volume	0	0	0	0	0	16	11	27	4	0	3	7	7	20	0	27	61
Peak Factor																	0.910
High Int.					16:15				16:45				16:15				
Volume	0	0	0	0	0	16	11	27	2	0	13	15	7	20	0	27	
Peak Factor								0.833				0.717				0.824	

Counted by Ron / Ryan
Board # : 1320 / 1321
Weather : cool /rainy

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : NB I-75 Ramps@ SR 50
Site Code : 00000000
Start Date : 03/17/2005
Page No : 1

Groups Printed- U-Turns

	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
08:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
17:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
18:30	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
18:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1	2
Grand Total	0	0	0	0	1	0	0	1	0	0	0	0	7	0	0	7	8
Apprch %	0.0	0.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	12.5	0.0	0.0	12.5	0.0	0.0	0.0	0.0	87.5	0.0	0.0	87.5	

	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	06:45																
Volume	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Percent	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
Volume	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Peak Factor																	0.500
High Int.	5:45:00				5:45:00				5:45:00				07:00				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
Peak Factor																0.500	
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection	17:00																
Volume	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
Percent	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
Volume	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Peak Factor																	0.750
High Int.													17:15				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
Peak Factor																0.750	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

Counted by : Ron / Ryan
Board # : 1320 / 1321
Weather : cool /rainy

File Name : NB I-75 Ramps@ SR 50
Site Code : 00O00000
Start Date : 03/17/2005
Page No : 1

Groups Printed- Passenger Vehicles - Trucks & Buses - U-Turns

	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00	0	0	0	0	0	85	21	106	12	0	15	27	26	86	0	112	245
06:15	0	0	0	0	0	136	30	166	18	0	24	42	35	115	0	150	358
06:30	0	0	0	0	0	125	33	158	20	0	29	49	40	98	0	138	345
06:45	0	0	0	0	0	117	28	145	15	0	38	53	40	125	0	165	363
Total	0	0	0	0	0	463	112	575	65	0	106	171	141	424	0	565	1311
07:00	0	0	0	0	0	112	35	147	19	0	48	67	35	109	0	144	358
07:15	0	0	0	0	0	126	40	166	25	0	37	62	36	123	0	159	387
07:30	0	0	0	0	0	174	33	207	18	0	40	58	38	150	0	188	453
07:45	0	0	0	0	0	175	41	216	29	2	44	75	30	134	0	164	455
Total	0	0	0	0	0	587	149	736	91	2	169	262	139	516	0	655	1653
08:00	0	0	0	0	0	148	36	184	26	0	37	63	29	108	0	137	384
08:15	0	0	0	0	0	153	27	180	27	0	43	70	39	140	0	179	429
08:30	0	0	0	0	0	161	25	186	23	0	49	72	42	131	0	173	431
08:45	0	0	0	0	0	160	42	202	24	0	71	95	45	138	0	183	480
Total	0	0	0	0	0	622	130	752	100	0	200	300	155	517	0	672	1724
16:00	0	0	0	0	0	181	45	226	41	0	56	97	35	190	0	225	548
16:15	0	0	0	0	0	150	42	192	30	0	50	80	30	172	0	202	474
16:30	0	0	0	0	0	172	31	203	27	0	67	94	20	186	0	206	503
16:45	0	0	0	0	0	168	38	206	33	0	64	97	29	155	0	184	487
Total	0	0	0	0	0	671	156	827	131	0	237	368	114	703	0	817	2012
17:00	0	0	0	0	0	161	32	193	32	0	67	99	29	152	0	181	473
17:15	0	0	0	0	0	142	37	179	26	0	64	90	31	180	0	211	480
17:30	0	0	0	0	0	164	38	202	23	0	72	95	21	128	0	149	446
17:45	0	0	0	0	0	145	40	185	24	0	56	80	23	117	0	140	405
Total	0	0	0	0	0	612	147	759	105	0	259	364	104	577	0	681	1804
18:00	0	0	0	0	0	124	33	157	26	0	60	86	20	132	0	152	395
18:15	0	0	0	0	0	121	29	150	22	0	41	63	16	114	0	130	343
18:30	0	0	0	0	1	161	35	197	18	0	52	70	10	105	0	115	382
18:45	0	0	0	0	0	124	29	153	19	0	62	81	18	109	0	127	361
Total	0	0	0	0	1	530	126	657	85	0	215	300	64	460	0	524	1481
Grand Total	0	0	0	0	1	3485	820	4306	577	2	1186	1765	717	3197	0	3914	9985
Apprch %	0.0	0.0	0.0		0.0	80.9	19.0		32.7	0.1	67.2		18.3	81.7	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	34.9	8.2	43.1	5.8	0.0	11.9	17.7	7.2	32.0	0.0	39.2	

	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 to 08:45 - Peak 1 of 1																	
Intersection	08:00																
Volume	0	0	0	0	0	622	130	752	100	0	200	300	155	517	0	672	1724
Percent	0.0	0.0	0.0		0.0	82.7	17.3		33.3	0.0	66.7		23.1	76.9	0.0		
Volume	0	0	0	0	0	622	130	752	100	0	200	300	155	517	0	672	1724
Volume	0	0	0	0	0	160	42	202	24	0	71	95	45	138	0	183	480
Peak Factor																	0.898
High Int.	5:45:00				08:45				08:45				08:45				
Volume	0	0	0	0	0	160	42	202	24	0	71	95	45	138	0	183	
Peak Factor								0.931				0.789				0.918	

Bayside Engineering, Inc.
1105 East Twiggs Street
Tampa, FL 33602

File Name : NB I-75 Ramps@ SR 50
Site Code : 00000000
Start Date : 03/17/2005
Page No : 2

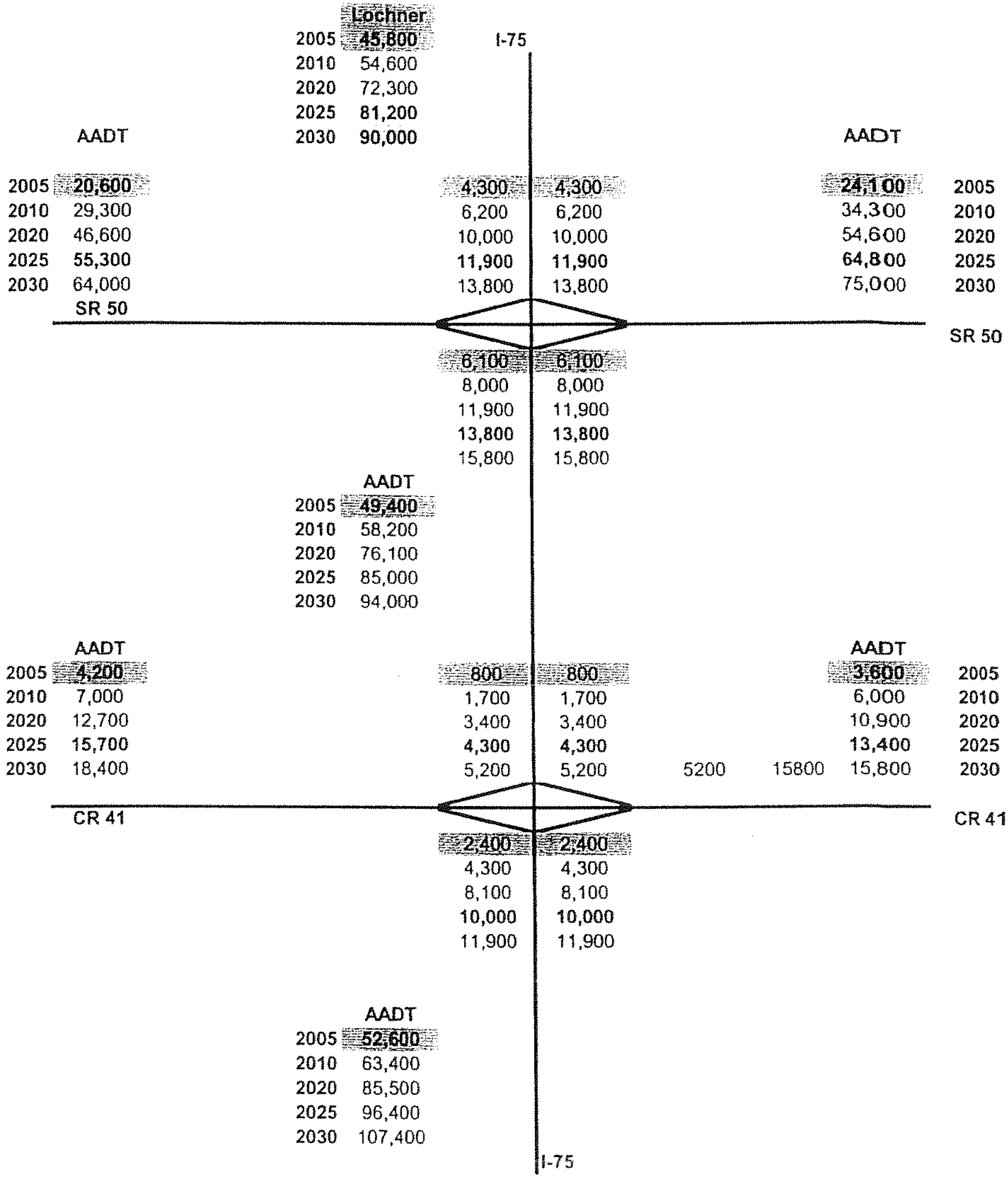
	Southbound				SR 50 Westbound				NB I-75 OFF RAMP Northbound				SR 50 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 18:45 - Peak 1 of 1																	
Intersection	16:00																
Volume	0	0	0	0	0	671	156	827	131	0	237	368	114	703	0	817	2012
Percent	0.0	0.0	0.0		0.0	81.1	18.9		35.6	0.0	64.4		14.0	86.0	0.0		
Volume	0	0	0	0	0	671	156	827	131	0	237	368	114	703	0	817	2012
Volume	0	0	0	0	0	181	45	226	41	0	56	97	35	190	0	225	548
Peak Factor																	0.918
High Int.					16:00				16:00				16:00				
Volume	0	0	0	0	0	181	45	226	41	0	56	97	35	190	0	225	
Peak Factor								0.915				0.948				0.908	

APPENDIX 'C'

TRAFFIC RELATED CORRESPONDENCE

Traffic Projection for I-75 / SR 50 / CR 41

Revised 2030 External volume = 90,000 AADT 4/11/06



; PD&E Lochner2.xls

Traffic Projection for I-75 / SR 50 / CR 41

I75 PD&E Lochner.xls
2/8/05

I-75 (north of SR 50)

	Lochner
2005	**45,800**
2010	55,700
2020	75,400
2025	**85,300**
2030	95,200

SR 50

AADT (west)		Ramps (NW)	Ramps (NE)	AADT (east)	
2005	**20,600**	**4,300**	**4,300**	**24,100**	2005
2010	29,400	6,400	6,400	34,400	2010
2020	47,100	10,500	10,500	55,100	2020
2025	**56,000**	**12,500**	**12,500**	**65,500**	2025
2030	64,800	14,600	14,600	75,800	2030

SR 50 — SR 50

Ramps (SW)	Ramps (SE)
6,100	**6,100**
8,000	8,000
11,900	11,900
13,800	**13,800**
15,800	15,800

I-75 (between SR 50 and CR 41)

	AADT
2005	**49,400**
2010	58,900
2020	78,200
2025	**87,900**
2030	97,600

CR 41

AADT (west)		Ramps (NW)	Ramps (NE)	AADT (east)	
2005	**4,200**	**800**	**800**	**3,600**	2005
2010	7,100	1,700	1,700	6,100	2010
2020	12,900	3,600	3,600	11,100	2020
2025	**15,800**	**4,500**	**4,500**	**13,600**	2025
2030	18,700	5,500	5,500	16,100	2030

CR 41 — CR 41

Ramps (SW)	Ramps (SE)
2,400	**2,400**
4,300	4,300
8,100	8,100
10,000	**10,000**
11,900	11,900

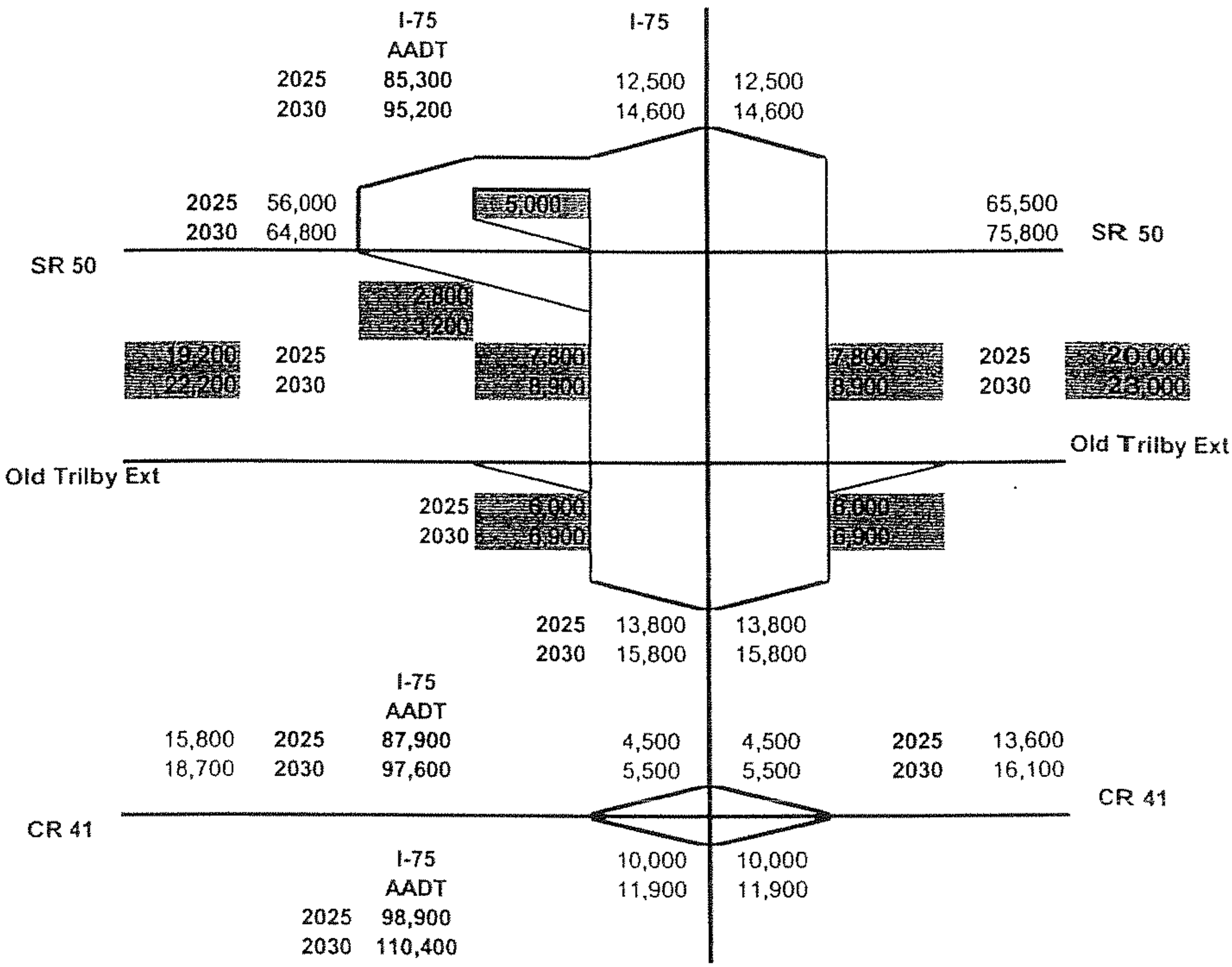
I-75 (south of CR 41)

	AADT
2005	**52,600**
2010	64,100
2020	87,200
2025	**98,900**
2030	110,400

I-75

12/8/05

Sketch I-75 with Parallel CD



LOCHNER

H. W. LOCHNER, INC., 13577 FEATHER SOUND DRIVE, SUITE 600, CLEARWATER, FLORIDA 33762 (727) 572-7111
FAX (727-571-3371

MEMORANDUM

TO: I-75 PD&E Study File
WPI Seg. No.: 4110141, FAP No.: 0751-120I

FROM: Herschel Conner

CC: Mark Clasgens, Frank DeLuca, Ed Bryant

DATE: 07/11/05

SUBJECT: Traffic Factors for I-75 PD&E Study Traffic Technical Memorandum

---

The Draft Traffic Technical Memorandum (TTM), dated May 2005, was developed using K, D, and T factors provided in F. Bitar's memo of April 18, 2005. After submission of the Draft TTM, we received a revised set of K, D, and T factors based on a review of 4-year historical factors for Pasco, Hernando, and Sumter Counties and recommended statewide values. The revised factors were included in memo received from F. Bitar on June 15, 2005 subsequent to submitting the Draft TTM to District VII for review.

We have reviewed the memo and the justification used for revising the factors used for traffic analysis. Although, we do not disagree with the revised D and T factors, we would like to review the K factor recommended. The K factor used in the Draft TTM and originally approved by F. Bitar was 8.76 while the revised K factor is significantly higher at 10.75. Reviewing the tables reporting historical data and statewide averages, we believe that the appropriate factor is somewhere in between the original and revised number.

Since over 90% of the project length is the southern counties of Pasco and Hernando counties, and there are no study interchanges in Sumter County, historical factors from Pasco and Hernando should be emphasized in determining an appropriate K-factor for this study. The observed K-factors from the 2001 to 2004 Florida Traffic Information CD range from 8.55 to 8.94 with an average of 8.81 in Pasco and from 8.76 to 9.52 with an average of 9.23 in Hernando. These factors are less than the statewide average for urban interstates is 9.7 and are instead closer to the minimum statewide recommended value of 9.4. By 2030, the study corridor should primarily be a commuter roadway during the peak hour periods and thus an urban factor is more appropriate than a rural factor.

We suggest a K-factor of 9.40 be used for traffic analysis in this study. At this K-factor, design year (2030) traffic volumes will operate at LOS C for the mainline and all ramps will operate at LOS C or D. LOS D will require substantially less ramp construction than LOS E (the LOS result with a K-factor of 10.75) in order to meet the level of service standard.. Also, the Highway Capacity Software analysis results show that at a K-factor of 10.75, the I-75 mainline with 6 lanes will operate at LOS D south of SR 50 and LOS C north of SR 50. Thus to meet the LOS standard of C, the lane call south of SR 50 will need to be 8 lanes and 6 lanes north of SR 50.

After you review the above, please provide us guidance regarding which factors to use in the Final TTM. Once we receive direction from you regarding traffic factors for use in this study, we will complete the Final TTM and submit it to your office. If you have any questions for us regarding our evaluation of this issue, please get in touch with us.

MEMORANDUM

Department of Transportation
District Seven Planning MS 7-500

DATE: June 15, 2005

TO: Mark Clasgen, PD&E Project Manager

FROM: Fawzi Bitar, Systems Planning Coordinator FB

COPIES: File

SUBJECT: **W.P.I.** : **411014-1**
State Road : **I-75 (SR 52 to CR 476B) PD&E Study**
County : **Pasco/Hernando/Sumter**

Per you request, I took a closer look the last four (4) years of K and D factors for I-75 for Pasco, Hernando and Sumter counties as well as the Recommended State factors and revised the factors. The recommended K and D factors are:

K = 10.75 %   D = 56.35 %

Please see enclosure.

/FKB
Enclosure

MEMORANDUM

Department of Transportation
District Seven Planning MS 7-500

DATE: April 18, 2005

TO: Mark Glasgens, PD&E Project Manager

FROM: Fawzi Bitar, Systems Planning Coordinator FB

COPIES: File

SUBJECT: **W.P.I. : 411014-1**
State Road : I-75 (SR 52 to CR 476B) PD&E Study
County : Pasco/Hernando/Sumter

Per your request dated February 11, 2005, enclosed is a sketch of the existing 2005 AADT and projected 2010, 2020, 2025 and 2030 AADT, the (K,D&T) factors, for the above referenced section.

K = 8.79 %
D = 53.67 %
24Hr T = 27.00 %
Design Hr T = 13.50 %

The projected traffic was developed after reviewing:

A) The January 2005 District Five PD&E Study prepared by Ghyabi & Associates. (I-75 Hernando/Sumter Co. Line to SR 44).
B) The 2000 Model outputs of the Tampa Bay Regional Planning Model (TBRPM).
C) The results of the 2025 TBRPM run using the 2025 socioeconomic data, and the Adopted 2025 Long Range Transportation Plan (LRTP) network.
D) The model traffic was smoothed and converted to AADT.
E) The projected 2010, and 2020 AADTs are interpolated and the 2030 extrapolated between 2005 and 2025 AADT.

I have followed The FDOT Project Traffic Forecasting Procedure.

/FKB
Enclosure

'orksheet

Traffic Projection for I-75 / SR 50 / CR 41

FDOT

PD&E Ghyabi D5

2003	42000
2005	**45800**
2010	51200
2020	62100
2025	67600
2030	**73000**

I-75 AADT

Lochner **43500** 2004

45800 AADT

73000 2030

AADT

2003	18000
2005	**20600**
2010	25600
2020	35700
2025	**40800**
2030	45800

4300	4300	***8500***	**24100**	**2005**
5500	5500		29800	**2010**
7800	7800		41100	**2020**
9000	**9000**		**46800**	**2025**
10200	10200		52500	**2030**

SR 50

37300

SR 50

6100	6100	***12100***
7800	7800	
11300	11300	
13000	**13000**	
14700	14700	

35500 2003

2005	**49400**
2010	55800
2020	69100
2025	**75600**
2030	82000

49400

AADT

2005	**4200**	800	800	***1600***	**3600**	**2005**
2010	6100	1100	1100		5200	**2010**
2020	10100	1700	1700		8600	**2020**
2025	**12000**	**2000**	**2000**		**10300**	**2025**
2030	14000	2300	2300		12000	**2030**

47800

CR 41

CR 41

2400	2400	***4800***
3300	3300	
5100	5100	
6000	**6000**	
6900	6900	

39500 2003 AADT

2005	**52600**
2010	60200
2020	75900
2025	**83600**
2030	91200

52600
AADT

LEGEND

FDOT
Lochner
Ghyabi

I-75

I-75 (SR 52 to CR 476B) PD&E Study

KD30.xls

	Pasco		Hernando		Sumter	
Year	K	D	K	D	K	D
2001	8.94	55.00	9.52	57.42	10.94	57.94
2002	8.99	56.15	8.99	56.15	11.69	54.81
2003	8.76	53.67	8.76	53.67	11.14	55.41
2004	8.55	55.03	9.83	56.22	10.60	57.12
4 Avg	8.81	54.96	9.23	55.87	11.09	56.32

	Pasco		Hernando		Sumter		Interstate Rural State		Interstate Urban State		Recommended	
	K	D	K	D	K	D	K	D	K	D	K	D
Min	8.55	53.67	8.76	53.67	10.6	54.81	9.6	52.3	9.4	50.4		
Max	8.99	56.15	9.83	57.42	11.69	57.94	14.6	57.3	10.0	67.1		
verage	8.81	54.96	9.23	55.87	11.09	56.32	11.8	54.8	9.7	57.9	10.75	56.35

APPENDIX 'D'

EXISTING YEAR (2005) INTERSECTION LOS ANALYSIS

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CRH	Intersection	I-75 NB Ramps/CR 41
Agency/Co.	HW Lochner, Inc.	Jurisdiction	Pasco County
Date Performed	10/26/06	Analysis Year	Existing Year
Analysis Time Period	DHV		

Project Description	
East/West Street: CR 41/Blanton Road	North/South Street: I-75 NB Ramp
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	54	89			162	26
Peak-Hour Factor, PHF	0.85	0.85	1.00	1.00	0.85	0.85
Hourly Flow Rate, HFR (veh/h)	63	104	0	0	190	30
Percent Heavy Vehicles	10	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				113		147
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.91	1.00	0.91
Hourly Flow Rate, HFR (veh/h)	0	0	0	124	0	161
Percent Heavy Vehicles	0	0	0	9	0	6
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	63					124		161
C (m) (veh/h)	1303					538		826
v/c	0.05					0.23		0.19
95% queue length	0.15					0.88		0.72
Control Delay (s/veh)	7.9					13.7		10.4
LOS	A					B		B
Approach Delay (s/veh)	--	--				11.8		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information / Site Information

Analyst	CRH	Intersection	I-75 SB Ramps/CR 41
Agency/Co.	HW Lochner, Inc.	Jurisdiction	Pasco County
Date Performed	10/26/06	Analysis Year	Existing Year
Analysis Time Period	DHV		

Project Description I-75 PD&E Study - 2005 CR41 SB Ramps - Existing Conditions

East/West Street: CR 41/Blanton Road — North/South Street: I-75 Ramp

Intersection Orientation: East-West — Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		110	110	90	219	
Peak-Hour Factor, PHF	1.00	0.88	0.88	0.95	0.95	1.00
Hourly Flow Rate, HFR (veh/h)	0	125	125	94	230	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	38		32			
Peak-Hour Factor, PHF	0.89	1.00	0.89	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	42	0	35	0	0	0
Percent Heavy Vehicles	10	0	10	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	L		R			
v (veh/h)		94	42		35			
C (m) (veh/h)		1310	415		834			
v/c		0.07	0.10		0.04			
95% queue length		0.23	0.34		0.13			
Control Delay (s/veh)		8.0	14.6		9.5			
LOS		A	B		A			
Approach Delay (s/veh)	--	--	12.3					
Approach LOS	--	--	B					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	10/26/06	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	I-75 PD&E Study - 2005 SR50 NB Ramps

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	3			3	1	1		1			
Lane Group	L	T			T	R	L		R			
Volume, V (vph)	230	839			1042	220	256		384			
% Heavy Vehicles, %HV	11	11			12	12	12		12			
Peak-Hour Factor, PHF	0.90	0.90			0.91	0.91	0.95		0.95			
Pretimed (P) or Actuated (A)	A	A			A	A	A		A			
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0		2.0			
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0		2.0			
Arrival Type, AT	3	3			3	3	3		3			
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0		3.0			
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000		1.000			
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0		0.0			
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0	220			
Lane Width	12.0	12.0			12.0	12.0	12.0		12.0			
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0		0			
Min. Time for Pedestrians, G_p		3.2			3.2			3.2				

Phasing	EW Perm	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 11.0	G = 21.3	G =	G =	G = 12.7	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	256	932			1145	242	269		173			
Lane Group Capacity, c	298	2899			1640	1442	341		305			
v/c Ratio, X	0.86	0.32			0.70	0.17	0.79		0.57			
Total Green Ratio, g/C	0.18	0.62			0.35	1.00	0.21		0.21			
Uniform Delay, d_1	23.7	5.4			16.6	0.0	22.4		21.2			
Progression Factor, PF	1.000	1.000			1.000	0.950	1.000		1.000			
Delay Calibration, k	0.39	0.11			0.26	0.11	0.34		0.16			
Incremental Delay, d_2	21.5	0.1			1.3	0.1	11.8		2.5			
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay	45.2	5.4			17.9	0.1	34.1		23.7			
Lane Group LOS	D	A			B	A	C		C			
Approach Delay		14.0			14.8			30.0				
		B			B			C				

Approach LOS				
Intersection Delay	16.7	$X_c = 0.76$	Intersection LOS	B

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*CRH*	Intersection	*I-75 SB Ramps @ SR 50*
gency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*10/26//06*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*I-75 PD&E Study - 2005 SR 50 SB Ramps*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1	1	3					1		1
Lane Group		T	R	L	T					L		R
Volume, V (vph)		859	220	290	1008					140		210
% Heavy Vehicles, %HV		9	9	13	13					13		13
Peak-Hour Factor, PHF		0.88	0.88	0.95	0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A	A	A					A		A
Start-up Lost Time, l_1		2.0	2.0	2.0	2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0		2.0
Arrival Type, AT		3	3	3	3					3		3
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0	0.0	0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0					0	0	70
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
arking Maneuvers, N_m												
uses Stopping, N_B		0	0	0	0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	EW Perm	EW Perm	03	04	SB Only	06	07	08
Timing	G = 7.3	G = 28.0	G =	G =	G = 9.7	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 60.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		976	250	305	1061					157		157
Lane Group Capacity, c		2216	1482	391	3076					258		231
v/c Ratio, X		0.44	0.17	0.78	0.34					0.61		0.68
Total Green Ratio, g/C		0.47	1.00	0.67	0.67					0.16		0.16
Uniform Delay, d_1		10.7	0.0	5.5	4.2					23.4		23.7
Progression Factor, PF		1.000	0.950	1.000	1.000					1.000		1.000
Delay Calibration, k		0.11	0.11	0.33	0.11					0.19		0.25
Incremental Delay, d_2		0.1	0.1	9.8	0.1					4.1		7.8
Initial Queue Delay, d_3		0.0	0.0	0.0	0.0					0.0		0.0
Control Delay		10.9	0.1	15.3	4.3					27.5		31.5
ane Group LOS		B	A	B	A					C		C
Approach Delay		8.7			6.7						29.5	
		A			A						C	

Approach LOS				
Intersection Delay	*10.0*	$X_c = 0.65$	Intersection LOS	*B*

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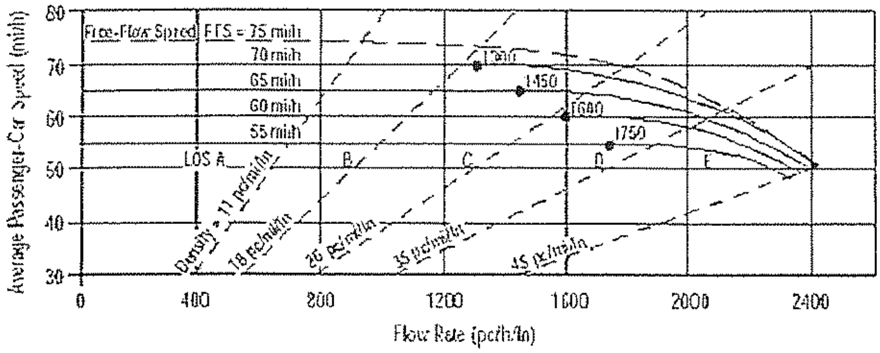
APPENDIX 'E'

EXISTING YEAR (2005) FREEWAY SEGMENT AND RAMP LOS

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Highway/Direction of Travel	I-75 Northbound
From/To	South of CR 41
Jurisdiction	Pasco County
Analysis Year	2005

Project Description I-75 PD&E - 2005 NB South of CR 41 (I-75 = 4 Lanes)

☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2790	veh/h	Peak-Hour Factor, PHF	0.94
AADT		veh/day	%Trucks and Buses, P_T	14
Peak-Hr Prop. of AADT, K			%RVs, P_R	1
Peak-Hr Direction Prop, D			General Terrain:	Level
DDHV = AADT x K x D		veh/h	Grade % Length	mi
Driver type adjustment	0.95		Up/Down %	

Calculate Flow Adjustments

f_p	0.95	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.933

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	75.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	0.0	mi/h
FFS	75.0	mi/h

LOS and Performance Measures

Operational (LOS)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1675	pc/h/ln
S	72.7	mi/h
D = v_p / S	23.0	pc/mi/ln
LOS	C	

Design (N)

Design (N)		
Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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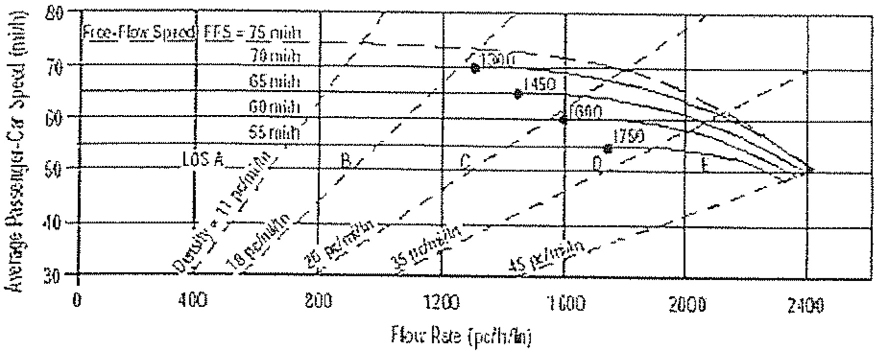
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*Existing Year*

Project Description I-75 PD&E - 2005 NB CR 41 to SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2610*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T-1)+P_R(E_R-1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1586*	pc/h/ln
S	*73.6*	mi/h
D = v_p / S	*21.5*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3 f_{ID} - Exhibit 23-7

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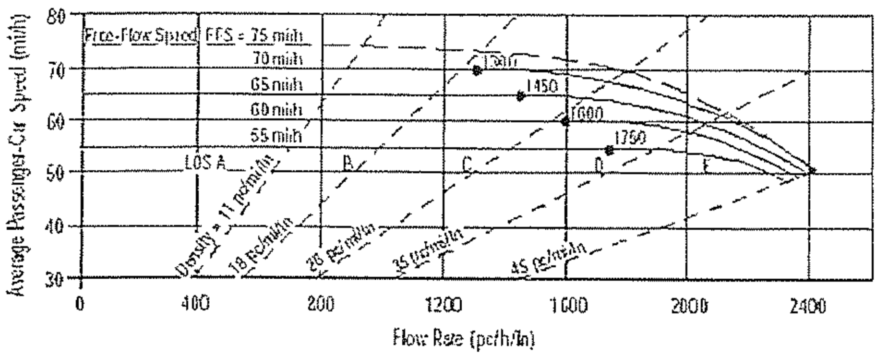
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*EJB*	Highway/Direction of Travel	*I-75 Northbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*North of SR 50*
Date Performed	*7/28/2005*	Jurisdiction	*Hernando County*
Analysis Time Period	*DHV*	Analysis Year	*2005*

Project Description I-75 PD&E - 2005 NB North of SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2430*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}	*0.0*	mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}	*0.0*	mi/h
Interchange Density	*0.50*	I/mi	f_{ID}	*0.0*	mi/h
Number of Lanes, N	*2*		f_N	*0.0*	mi/h
FFS (measured)		mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1461*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*74.4*	mi/h	S	mi/h
D = v_p / S	*19.6*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*C*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed		

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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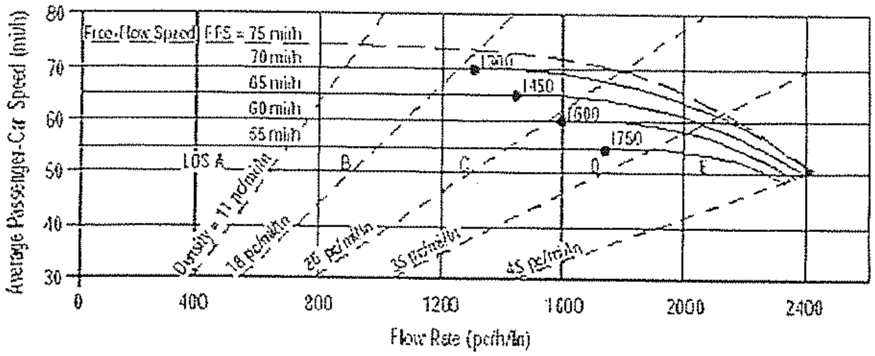
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Highway/Direction of Travel	I-75 Southbound
From/To	North of SR 50
Jurisdiction	Hernando County
Analysis Year	2005

Project Description I-75 PD&E -2005 SB North of SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	1880	veh/h	Peak-Hour Factor, PHF	0.93
AADT		veh/day	%Trucks and Buses, P_T	14
Peak-Hr Prop. of AADT, K			%RVs, P_R	2
Peak-Hr Direction Prop, D			General Terrain:	Level
DDHV = AADT x K x D		veh/h	Grade % Length	mi
Driver type adjustment	0.95		Up/Down %	

Calculate Flow Adjustments

f_p	0.95	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.931

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	75.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	0.0	mi/h
FFS	75.0	mi/h

LOS and Performance Measures

Operational (LOS)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1143	pc/h/ln
S	75.0	mi/h
D = v_p / S	15.2	pc/mi/ln
LOS	B	

Design (N)

Design (N)	
Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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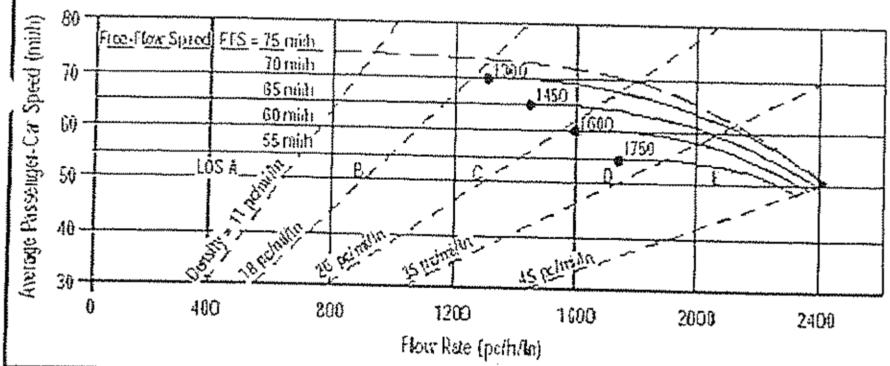
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*SR 50 to CR 41*
Jurisdiction	*Hernando County*
Analysis Year	*2005*

Project Description I-75 PD&E - 2005 SB SR 50 to CR 41 (I-75 = 4 Lanes)

☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2020*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1215*	pc/h/ln
S	*75.0*	mi/h
$D = v_p / S$	*16.2*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
$D = v_p / S$		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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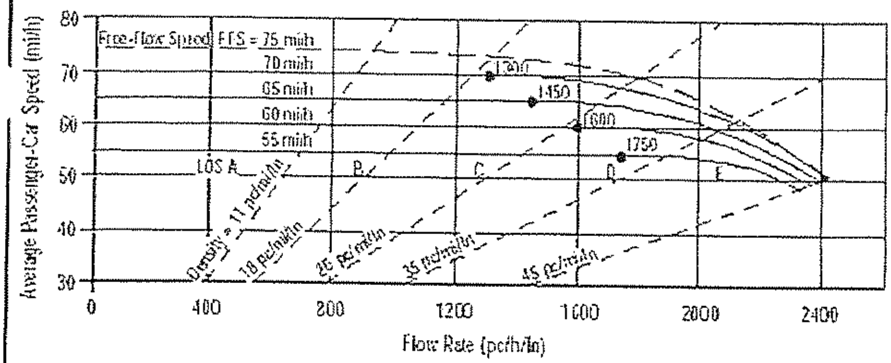
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2005*

Project Description I-75 PD&E - 2005 SB South of CR 41 (I-75 = 4 Lanes)

☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2160*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1296*	pc/h/ln
S	*74.9*	mi/h
D = v_p / S	*17.3*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	EJB	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Road Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2005

Project Description I-75 PD&E Study - 2005 NB Off Ramp at CR 41

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft		L_{down} = 620 ft
V_u = veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 80 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2790	0.94	Level	14	1	0.933	0.95	3349
Ramp	260	0.91	Level	10	1	0.951	0.95	316
UpStream								
DownStream	80	0.91	Level	10	1	0.951	0.95	97

Merge Areas	Diverge Areas

Estimation of v_{12}

Merge Areas

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Diverge Areas

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 3349 pc/h

Capacity Checks

Merge Areas

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Diverge Areas

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	3349	4800	No
V_{12}	3349	4400:All	No
$V_{FO} = V_F - V_R$	3033	4800	No
V_R	316	2000	No

Level of Service Determination (if not F)

Merge Areas

$$D_R = 5.475 + 0.00734\,v_R + 0.0078\,V_{12} - 0.00627\,L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Diverge Areas

$$D_R = 4.252 + 0.0086\,V_{12} - 0.0009\,L_D$$

D_R = 31.3 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

Merge Areas

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

D_s = 0.456 (Exhibit 25-19)

S_R= 57.2 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 57.2 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd On-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2005

Project Description I-75 FD&E Study - 2005 NB On Ramp at CR 41

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 620 ft

Vu = 260 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2530	0.94	Level	14	1	0.933	0.95	3037
Ramp	80	0.91	Level	10	1	0.951	0.95	97
UpStream	260	0.91	Level	10	1	0.951	0.95	316
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 3037 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3134	See Exhibit 25-7	No
V_{R12}	3134	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$$

D_R = 26.7 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.376 (Exibit 25-19)

S_R= 59.5 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 59.5 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2005

Project Description I-75 PD&E Study - SB Off Ramp at CR 41

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 700 ft

V_D = 200 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	2030	0.94	Level	14	1	0.933	0.95	2437
Ramp	70	0.89	Level	10	1	0.951	0.95	87
UpStream								
DownStream	200	0.89	Level	10	1	0.951	0.95	249

Merge Areas / Diverge Areas

Estimation of v_{12} (Merge Areas)

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Estimation of v_{12} (Diverge Areas)

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 2437 pc/h

Capacity Checks (Merge Areas)

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Capacity Checks (Diverge Areas)

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	2437	4800	No
V_{12}	2437	4400:All	No
$V_{FO} = V_F - V_R$	2350	4800	No
V_R	87	2000	No

Level of Service Determination (if not F) (Merge Areas)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Level of Service Determination (if not F) (Diverge Areas)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 24.0 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation (Merge Areas)

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Speed Estimation (Diverge Areas)

D_s = 0.436 (Exhibit 25-19)

S_R= 57.8 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 57.8 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	JAS	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd On-Ramp
Date Performed	4/20/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2005

Project Description I-75 PD&E Study - 2005 SB On Ramp at CR 41

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 700 ft

V_u = 70 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1960	0.94	Level	14	1	0.933	0.95	2353
Ramp	200	0.89	Level	10	1	0.951	0.95	249
UpStream	70	0.89	Level	10	1	0.951	0.95	87
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 2353 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2602	See Exhibit 25-7	No
V_{R12}	2602	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 20.6 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.318 (Exibit 25-19)

S_R= 61.1 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 61.1 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	SR 50/Cortez Blvd. Off-Ramp
Jurisdiction	Hernando County
Analysis Year	2005

Project Description I-75 PD&E Study - 2005 NB Off Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 450 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2610	0.93	Level	14	2	0.931	0.95	3173
Ramp	640	0.95	Level	19	2	0.910	0.95	779
UpStream								
DownStream	450	0.95	Level	19	2	0.910	0.95	548

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 3173 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	3173	4800	No
V_{12}	3173	4400:All	No
$V_{FO} = V_F - V_R$	2394	4800	No
V_R	779	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 31.5 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

D_s = 0.498 (Exhibit 25-19)

S_R= 56.1 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 56.1 mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	7/28/2005	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2005

Project Description I-75 PD&E Study - 2005 NB On Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

V_u = 640 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1980	0.94	Level	14	2	0.931	0.95	2381
Ramp	450	0.95	Level	19	2	0.910	0.95	548
UpStream	640	0.95	Level	19	2	0.910	0.95	779
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 2381 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2929	See Exhibit 25-7	No
V_{R12}	2929	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 24.2 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.351 (Exibit 25-19)

S_R= 60.2 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 60.2 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2005

Project Description I-75 PD&E Study - 2005 SB Off Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 510 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1880	0.93	Level	14	2	0.931	0.95	2285
Ramp	350	0.89	Level	19	2	0.910	0.95	455
UpStream								
DownStream	510	0.89	Level	19	2	0.910	0.95	663

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 2285 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	2285	4800	No
V_{12}	2285	4400:All	No
$V_{FO} = V_F - V_R$	1830	4800	No
V_R	455	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 23.9 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.469 (Exhibit 25-19)

S_R= 56.9 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 56.9 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	SR 50/Cortez Blvd. On-Ramp
Jurisdiction	Hernando County
Analysis Year	2005

Project Description I-75 PD&E Study - 2005 SB On Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

V_u = 350 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1520	0.94	Level	14	2	0.931	0.95	1828
Ramp	510	0.89	Level	19	2	0.910	0.95	663
UpStream	350	0.89	Level	19	2	0.910	0.95	455
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 1828 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2491	See Exhibit 25-7	No
V_{R12}	2491	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 20.6 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.324 (Exibit 25-19)

S_R= 60.9 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 60.9 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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APPENDIX 'F'

OPENING YEAR (2010) NO-BUILD INTERSECTION LOS

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps/CR 41
Agency/Co.	HW Lochner, Inc.	Jurisdiction	Pasco County
Date Performed	11/03/2006	Analysis Year	Opening Year
Analysis Time Period	DHV_Revised 9.4K		

Project Description No Build Alternative - 2010

East/West Street: CR 41/Blanton Road	North/South Street: I-75 NB Ramp
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	136	113			273	44
Peak-Hour Factor, PHF	0.85	0.85	1.00	1.00	0.85	0.85
Hourly Flow Rate, HFR (veh/h)	159	132	0	0	321	51
Percent Heavy Vehicles	10	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				199		261
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.91	1.00	0.91
Hourly Flow Rate, HFR (veh/h)	0	0	0	218	0	286
Percent Heavy Vehicles	0	0	0	9	0	6
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	159					218		286
C (m) (veh/h)	1144					299		688
v/c	0.14					0.73		0.42
95% queue length	0.48					5.30		2.05
Control Delay (s/veh)	8.7					43.6		13.9
LOS	A					E		B
Approach Delay (s/veh)	--	--				26.8		
Approach LOS	--	--				D		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JAS
Agency/Co.	HW Lochner, Inc.
Date Performed	11/03/2006
Analysis Time Period	DHV

Site Information

Intersection	I-75 SB Ramps/CR 41
Jurisdiction	Pasco County
Analysis Year	Opening Year

Project Description: No Build Alternative - 2010

East/West Street: CR 41/Blanton Road | North/South Street: I-75 SB Ramp

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		185	184	176	357	
Peak-Hour Factor, PHF	1.00	0.88	0.88	0.95	0.95	1.00
Hourly Flow Rate, HFR (veh/h)	0	210	209	185	375	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	75		65			
Peak-Hour Factor, PHF	0.89	1.00	0.89	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	84	0	73	0	0	0
Percent Heavy Vehicles	10	0	10	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	L		R			
v (veh/h)		185	84		73			
C (m) (veh/h)		1135	201		708			
v/c		0.16	0.42		0.10			
95% queue length		0.58	1.91		0.34			
Control Delay (s/veh)		8.8	35.2		10.7			
LOS		A	E		B			
Approach Delay (s/veh)	--	--	23.8					
Approach LOS	--	--	C					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	No Build Alternative - 2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	3			3	1	1		1			
Lane Group	L	T			T	R	L		R			
Volume, V (vph)	346	1186			1482	314	340		510			
% Heavy Vehicles, %HV	6	6			6	6	6		6			
Peak-Hour Factor, PHF	0.90	0.90			0.91	0.91	0.95		0.95			
Pretimed (P) or Actuated (A)	A	A			A	A	A		A			
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0		2.0			
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0		2.0			
Arrival Type, AT	3	3			3	3	3		3			
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0		3.0			
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000		1.000			
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0		0.0			
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0	220			
Lane Width	12.0	12.0			12.0	12.0	12.0		12.0			
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0		0			
Min. Time for Pedestrians, G_p	3.2			3.2			3.2					

Phasing	EW Perm	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 27.5	G = 70.4	G =	G =	G = 37.1	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	384	1318			1629	345	358		305			
Lane Group Capacity, c	312	3350			2292	1524	421		377			
v/c Ratio, X	1.23	0.39			0.71	0.23	0.85		0.81			
Total Green Ratio, g/C	0.18	0.69			0.47	1.00	0.25		0.25			
Uniform Delay, d_1	61.3	10.1			31.7	0.0	53.8		53.1			
Progression Factor, PF	1.000	1.000			1.000	0.950	1.000		1.000			
Delay Calibration, k	0.50	0.11			0.27	0.11	0.38		0.35			
Incremental Delay, d_2	128.7	0.1			1.1	0.1	15.2		12.4			
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay	189.9	10.2			32.7	0.1	69.0		65.5			
Lane Group LOS	F	B			C	A	E		E			

Approach Delay	50.8	27.0	67.4	
Approach LOS	D	C	E	
Intersection Delay	42.5	$X_c = 0.85$	Intersection LOS	D

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 SB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	No Build Alternative - 2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1	1	3					1		1
Lane Group		T	R	L	T					L		R
Volume, V (vph)		1221	312	358	1464					311		209
% Heavy Vehicles, %HV		6	6	6	6					6		6
Peak-Hour Factor, PHF		0.88	0.88	0.95	0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A	A	A					A		A
Start-up Lost Time, l_1		2.0	2.0	2.0	2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0		2.0
Arrival Type, AT		3	3	3	3					3		3
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0	0.0	0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0	0	0					0		0
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	EW Perm	EW Perm	03	04	SB Only	06	07	08
Timing	G = 23.3	G = 81.0	G =	G =	G = 30.7	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		1388	70	377	1541					349		156
Lane Group Capacity, c		2637	1524	393	3558					349		312
v/c Ratio, X		0.53	0.05	0.96	0.43					1.00		0.50
Total Green Ratio, g/C		0.54	1.00	0.73	0.73					0.20		0.20
Uniform Delay, d_1		22.2	0.0	35.2	8.1					59.6		52.8
Progression Factor, PF		1.000	0.950	1.000	1.000					1.000		1.000
Delay Calibration, k		0.13	0.11	0.47	0.11					0.50		0.11
Incremental Delay, d_2		0.2	0.0	34.8	0.1					48.2		1.3
Initial Queue Delay, d_3		0.0	0.0	0.0	0.0					0.0		0.0
Control Delay		22.4	0.0	70.0	8.2					107.8		54.1
Lane Group LOS		C	A	E	A					F		D

Approach Delay	*21.3*	*20.3*		*91.2*
Approach LOS	*C*	*C*		*F*
Intersection Delay	*29.9*	$X_c = 0.92$	Intersection LOS	*C*

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APPENDIX 'G'

INTERIM YEAR (2020) NO-BUILD INTERSECTION LOS

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps/CR 41
Agency/Co.	HW Lochner, Inc.	Jurisdiction	Pasco County
Date Performed	11/03/2006	Analysis Year	Interim Year
Analysis Time Period	DHV_Revised 9.4K		

Project Description No Build Alternative - 2020

East/West Street: CR 41/Blanton Road	North/South Street: I-75 NB Ramp
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	291	177			493	79
Peak-Hour Factor, PHF	0.85	0.85	1.00	1.00	0.85	0.85
Hourly Flow Rate, HFR (veh/h)	342	208	0	0	579	92
Percent Heavy Vehicles	10	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				372		488
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.91	1.00	0.91
Hourly Flow Rate, HFR (veh/h)	0	0	0	408	0	536
Percent Heavy Vehicles	0	0	0	9	0	6
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	342					408		536
C (m) (veh/h)	883					77		478
v/c	0.39					5.30		1.12
95% queue length	1.85					44.79		18.26
Control Delay (s/veh)	11.6					2042		107.3
LOS	B					F		F
Approach Delay (s/veh)	--	--				943.5		
Approach LOS	--	--				F		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JAS
Agency/Co.	HW Lochner, Inc.
Date Performed	11/03/2006
Analysis Time Period	DHV

Site Information

Intersection	I-75 SB Ramps/CR 41
Jurisdiction	Pasco County
Analysis Year	Interim Year

Project Description *No Build Alternative - 2020*

East/West Street: *CR 41/Blanton Road* | North/South Street: *I-75 SB Ramp*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		334	332	338	642	
Peak-Hour Factor, PHF	1.00	0.88	0.88	0.95	0.95	1.00
Hourly Flow Rate, HFR (veh/h)	0	379	377	355	675	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	156		134			
Peak-Hour Factor, PHF	0.89	1.00	0.89	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	175	0	150	0	0	0
Percent Heavy Vehicles	10	0	10	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	L		R			
v (veh/h)		355	175		150			
C (m) (veh/h)		850	39		507			
v/c		0.42	4.49		0.30			
95% queue length		2.08	20.24		1.23			
Control Delay (s/veh)		12.2	1777		15.1			
LOS		B	F		C			
Approach Delay (s/veh)	--	--	964.1					
Approach LOS	--	--	F					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*JAS*	Intersection	*I-75 NB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*No Build Alternative - 2020*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	3			3	1	1		1			
Lane Group	L	T			T	R	L		R			
Volume, V (vph)	560	1882			2362	500	504		756			
% Heavy Vehicles, %HV	6	6			6	6	6		6			
Peak-Hour Factor, PHF	0.90	0.90			0.91	0.91	0.95		0.95			
Pretimed (P) or Actuated (A)	A	A			A	A	A		A			
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0		2.0			
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0		2.0			
Arrival Type, AT	3	3			3	3	3		3			
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0		3.0			
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000		1.000			
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0		0.0			
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0	220			
Lane Width	12.0	12.0			12.0	12.0	12.0		12.0			
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0		0			
Min. Time for Pedestrians, G_p	3.2			3.2			3.2					

Phasing	EW Perm	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 27.5	G = 70.4	G =	G =	G = 37.1	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	622	2091			2596	549	531		564			
Lane Group Capacity, c	312	3350			2292	1524	421		377			
v/c Ratio, X	1.99	0.62			1.13	0.36	1.26		1.50			
Total Green Ratio, g/C	0.18	0.69			0.47	1.00	0.25		0.25			
Uniform Delay, d_1	61.3	12.9			39.8	0.0	56.5		56.5			
Progression Factor, PF	1.000	1.000			1.000	0.950	1.000		1.000			
Delay Calibration, k	0.50	0.21			0.50	0.11	0.50		0.50			
Incremental Delay, d_2	458.4	0.4			65.8	0.1	135.5		236.8			
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay	519.7	13.3			105.6	0.1	191.9		293.2			
Lane Group LOS	F	B			F	A	F		F			

Approach Delay	129.4	87.2	244.1	
Approach LOS	F	F	F	
Intersection Delay	128.4	X_c = 1.41	Intersection LOS	F

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 SB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	No Build Alternative - 2020

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1	1	3					1		1
Lane Group		T	R	L	T					L		R
Volume, V (vph)		1945	489	492	2374					497		333
% Heavy Vehicles, %HV		6	6	6	6					6		6
Peak-Hour Factor, PHF		0.88	0.88	0.95	0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A	A	A					A		A
Start-up Lost Time, l_1		2.0	2.0	2.0	2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0		2.0
Arrival Type, AT		3	3	3	3					3		3
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0	0.0	0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0	0	0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	EW Perm	EW Perm	03	04	SB Only	06	07	08
Timing	G = 23.3	G = 81.0	G =	G =	G = 30.7	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		2210	272	518	2499					558		296
Lane Group Capacity, c		2637	1524	313	3558					349		312
v/c Ratio, X		0.84	0.18	1.65	0.70					1.60		0.95
Total Green Ratio, g/C		0.54	1.00	0.73	0.73					0.20		0.20
Uniform Delay, d_1		29.0	0.0	53.2	11.3					59.6		58.9
Progression Factor, PF		1.000	0.950	1.000	1.000					1.000		1.000
Delay Calibration, k		0.37	0.11	0.50	0.27					0.50		0.46
Incremental Delay, d_2		2.6	0.1	308.6	0.6					282.6		37.4
Initial Queue Delay, d_3		0.0	0.0	0.0	0.0					0.0		0.0
Control Delay		31.5	0.1	361.8	11.9					342.3		96.3
Lane Group LOS		C	A	F	B					F		F

Approach Delay	28.1	72.0		257.0
Approach LOS	C	E		F
Intersection Delay	79.7	X_c = 3.78	Intersection LOS	E

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APPENDIX 'H'

DESIGN YEAR (2030) NO-BUILD INTERSECTION LOS

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JAS
Agency/Co.	HW Lochner, Inc.
Date Performed	11/03/2006
Analysis Time Period	DHV_Revised 9.4K

Site Information

Intersection	I-75 NB Ramps/CR 41
Jurisdiction	Pasco County
Analysis Year	Design Year

Project Description *No Build Alternative - 2030*

East/West Street: *CR 41/Blanton Road* | North/South Street: *I-75 NB Ramp*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	436	246			713	114
Peak-Hour Factor, PHF	0.85	0.85	1.00	1.00	0.85	0.85
Hourly Flow Rate, HFR (veh/h)	512	289	0	0	838	134
Percent Heavy Vehicles	10	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				546		714
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.91	1.00	0.91
Hourly Flow Rate, HFR (veh/h)	0	0	0	599	0	784
Percent Heavy Vehicles	0	0	0	9	0	6
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	512					599		784
C (m) (veh/h)	678					11		329
v/c	0.76					54.45		2.38
95% queue length	6.94					76.44		61.64
Control Delay (s/veh)	24.8					24716		656.6
LOS	C					F		F
Approach Delay (s/veh)	--	--				11077		
Approach LOS	--	--				F		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	JAS
Agency/Co.	HW Lochner, Inc.
Date Performed	11/03/2006
Analysis Time Period	DHV

Site Information

Intersection	I-75 SB Ramps/CR 41
Jurisdiction	Pasco County
Analysis Year	Design Year

Project Description No Build Alternative - 2030

East/West Street: CR 41/Blanton Road

North/South Street: I-75 SB Ramp

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		484	480	510	918	
Peak-Hour Factor, PHF	1.00	0.88	0.88	0.95	0.95	1.00
Hourly Flow Rate, HFR (veh/h)	0	550	545	536	966	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	1	1	0
Configuration			TR	L	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	232		198			
Peak-Hour Factor, PHF	0.89	1.00	0.89	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	260	0	222	0	0	0
Percent Heavy Vehicles	10	0	10	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	L		R			
v (veh/h)		536	260		222			
C (m) (veh/h)		634	3		362			
v/c		0.85	86.67		0.61			
95% queue length		9.32	34.92		3.89			
Control Delay (s/veh)		33.9	40933		29.5			
LOS		D	F		D			
Approach Delay (s/veh)	--	--	22094					
Approach LOS	--	--	F					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*JAS*	Intersection	*I-75 NB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*10/26/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*No Build Alternative - 2030*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	3			3	1	1		1			
Lane Group	L	T			T	R	L		R			
Volume, V (vph)	774	2584			3242	686	672		1008			
% Heavy Vehicles, %HV	6	6			6	6	6		6			
Peak-Hour Factor, PHF	0.90	0.90			0.91	0.91	0.95		0.95			
Pretimed (P) or Actuated (A)	A	A			A	A	A		A			
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0		2.0			
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0		2.0			
Arrival Type, AT	3	3			3	3	3		3			
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0		3.0			
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000		1.000			
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0		0.0			
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0	220			
Lane Width	12.0	12.0			12.0	12.0	12.0		12.0			
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0		0			
Min. Time for Pedestrians, G_p		3.2			3.2			3.2				

Phasing	EW Perm	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 27.5	G = 70.4	G =	G =	G = 37.1	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	860	2871			3563	754	707		829			
Lane Group Capacity, c	312	3350			2292	1524	421		377			
v/c Ratio, X	2.76	0.86			1.55	0.49	1.68		2.20			
Total Green Ratio, g/C	0.18	0.69			0.47	1.00	0.25		0.25			
Uniform Delay, d_1	61.3	17.9			39.8	0.0	56.5		56.5			
Progression Factor, PF	1.000	1.000			1.000	0.950	1.000		1.000			
Delay Calibration, k	0.50	0.39			0.50	0.11	0.50		0.50			
Incremental Delay, d_2	799.3	2.4			251.7	0.3	315.9		548.1			
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay	860.6	20.4			291.5	0.3	372.4		604.6			
Lane Group LOS	F	C			F	A	F		F			

Approach Delay	214.0	240.7	497.7	
Approach LOS	F	F	F	
Intersection Delay	271.5	X_c = 1.98	Intersection LOS	F

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 SB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	4/19/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	No Build Alternative - 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1	1	3					1		1
Lane Group		T	R	L	T					L		R
Volume, V (vph)		2669	683	627	3287					689		461
% Heavy Vehicles, %HV		6	6	6	6					6		6
Peak-Hour Factor, PHF		0.88	0.88	0.95	0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A	A	A					A		A
Start-up Lost Time, l_1		2.0	2.0	2.0	2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0		2.0
Arrival Type, AT		3	3	3	3					3		3
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0	0.0	0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0	0	0					0		0
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	EW Perm	EW Perm	03	04	SB Only	06	07	08
Timing	G = 23.3	G = 81.0	G =	G =	G = 30.7	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		3033	492	660	3460					774		439
Lane Group Capacity, c		2637	1524	313	3558					349		312
v/c Ratio, X		1.15	0.32	2.11	0.97					2.22		1.41
Total Green Ratio, g/C		0.54	1.00	0.73	0.73					0.20		0.20
Uniform Delay, d_1		34.5	0.0	55.1	18.9					59.6		59.6
Progression Factor, PF		1.000	0.950	1.000	1.000					1.000		1.000
Delay Calibration, k		0.50	0.11	0.50	0.48					0.50		0.50
Incremental Delay, d_2		72.5	0.1	509.6	9.6					557.2		201.3
Initial Queue Delay, d_3		0.0	0.0	0.0	0.0					0.0		0.0
Control Delay		107.0	0.1	564.7	28.6					616.9		261.0
Lane Group LOS		F	A	F	C					F		F

Approach Delay	92.0	114.5		488.1
Approach LOS	F	F		F
Intersection Delay	156.7	X_c = 5.75	Intersection LOS	F

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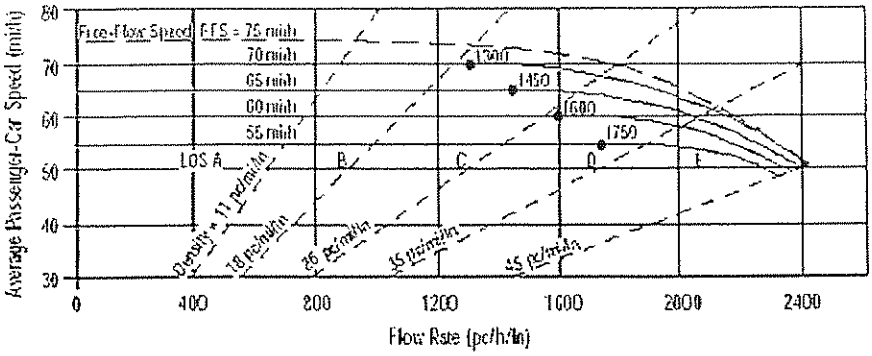
APPENDIX 'I'

OPENING YEAR (2010) NO BUILD FREEWAY SEGMENT AND RAMP LOS

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2010*

Project Description I-75 PD&E - 2010 NB South of CR 41 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3370*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2023*	pc/h/ln
S	*66.5*	mi/h
D = v_p / S	*30.4*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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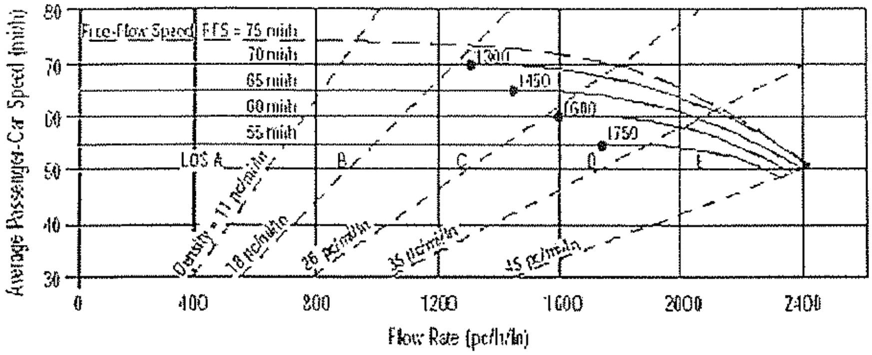
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2010*

Project Description I-75 PD&E Study - 2010 NB CR 41 to SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3090*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	2
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1878*	pc/h/ln
S	*69.7*	mi/h
D = v_p / S	*26.9*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes; S - Speed
V - Hourly volume; D - Density
v_p - Flow rate; FFS - Free-flow speed
LOS - Level of service; BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10; f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11; f_{LC} - Exhibit 23-5
f_p - Page 23-12; f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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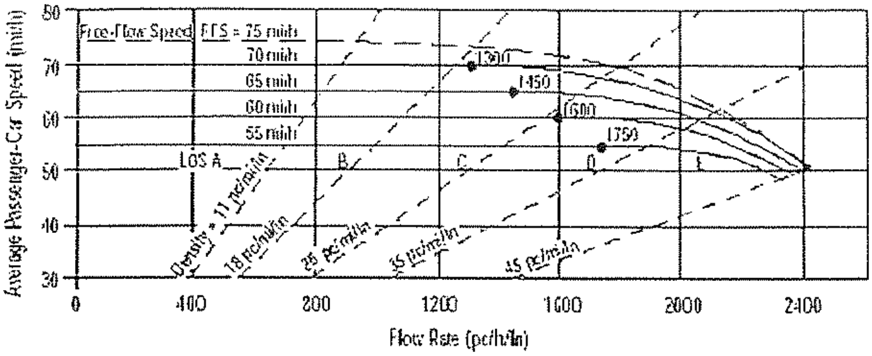
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*North of SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2010*

Project Description I-75 PD&E - 2010 NB North of SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2900*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1744*	pc/h/ln
S	*71.9*	mi/h
D = v_p / S	*24.3*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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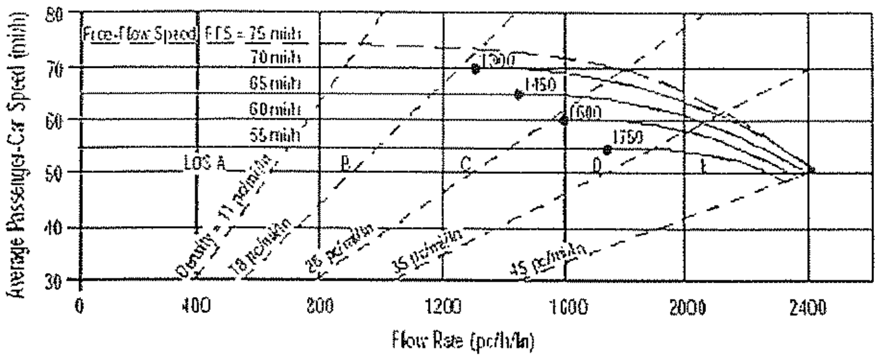
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*	Highway/Direction of Travel	*I-75 Southbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*North of SR 50*
Date Performed	*10/26/06*	Jurisdiction	*Hernando County*
Analysis Time Period	*DHV*	Analysis Year	*2010*

(General Information | Site Information)

Project Description I-75 PD&E - 2010 SB North of SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2240*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1361*	pc/h/ln
S	*74.8*	mi/h
D = v_p / S	*18.2*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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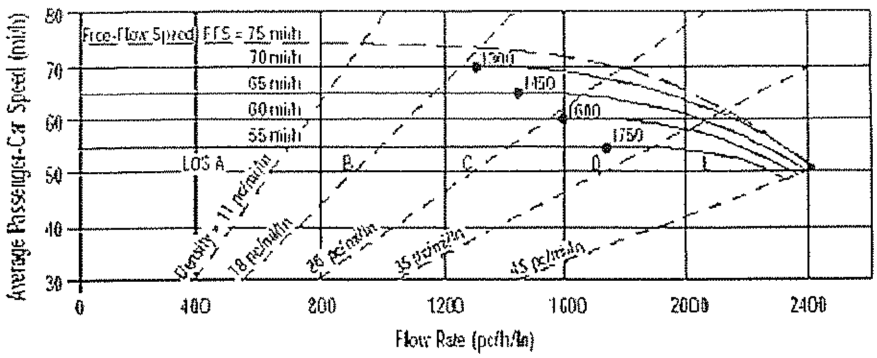
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*		
Agency or Company	*HW Lochner, Inc.*		
Date Performed	*10/26/06*		
Analysis Time Period	*DHV*		

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2010*

Project Description I-75 PD&E Study - 2010 SB CR 41 to SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2390*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T-1)+P_R(E_R-1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1435*	pc/h/ln
S	*74.5*	mi/h
D = v_p / S	*19.3*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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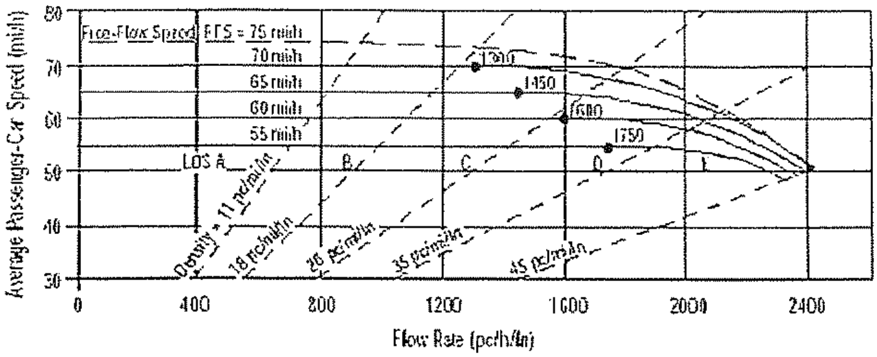
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2010*

Project Description I-75 PD&E - 2030 SB South of CR 41 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2610*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1567*	pc/h/ln
S	*73.8*	mi/h
D = v_p / S	*21.2*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Road Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 NB Off Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft	S_{FF} = 70.0 mph S_{FR} = 35.0 mph	L_{down} = 620 ft
V_u = veh/h	Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 180 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3370	0.94	Level	14	1	0.933	0.95	4046
Ramp	460	0.91	Level	10	1	0.951	0.95	560
UpStream								
DownStream	180	0.91	Level	10	1	0.951	0.95	219

Merge Areas	Diverge Areas

Estimation of v_{12} (Merge Areas)

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Estimation of v_{12} (Diverge Areas)

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 4046 pc/h

Capacity Checks (Merge Areas)

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Capacity Checks (Diverge Areas)

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4046	4800	No
V_{12}	4046	4400:All	No
$V_{FO} = V_F - V_R$	3486	4800	No
V_R	560	2000	No

Level of Service Determination (if not F) (Merge Areas)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Level of Service Determination (if not F) (Diverge Areas)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 37.2 (pc/mi/ln)

LOS = E (Exhibit 25-4)

Speed Estimation (Merge Areas)

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Speed Estimation (Diverge Areas)

D_s = 0.478 (Exhibit 25-19)

S_R= 56.6 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 56.6 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2010

Project Description I-75 FD&E Study - 2010 NB On Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 620 ft

V_u = 460 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2910	0.94	Level	14	1	0.933	0.95	3493
Ramp	180	0.91	Level	10	1	0.951	0.95	219
UpStream	460	0.91	Level	10	1	0.951	0.95	560
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F \,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 3493 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3712	See Exhibit 25-7	No
V_{R12}	3712	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 31.2 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.446 (Exibit 25-19)

S_R= 57.5 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 57.5 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{Fi} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB Off Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☑ Off		☐ No ☐ Off
L_{up} = ft	S_{FF} = 70.0 mph S_{FR} = 35.0 mph	L_{down} = 700 ft
V_u = veh/h	Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 360 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2390	0.94	Level	14	1	0.933	0.95	2869
Ramp	140	0.89	Level	10	1	0.951	0.95	174
UpStream								
DownStream	360	0.89	Level	10	1	0.951	0.95	448

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 2869 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	2869	4800	No
V_{12}	2869	4400:All	No
$V_{FO} = V_F - V_R$	2695	4800	No
V_R	174	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 27.8 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.444 (Exhibit 25-19)

S_R= 57.6 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 57.6 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd On-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2010

Site Information

Project Description I-75 PD&E Study - 2010 SB On Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 700 ft

V_u = 140 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2250	0.94	Level	14	1	0.933	0.95	2701
Ramp	360	0.89	Level	10	1	0.951	0.95	448
UpStream	140	0.89	Level	10	1	0.951	0.95	174
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 2701 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3149	See Exhibit 25-7	No
V_{R12}	3149	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\,v_R + 0.0078\,V_{12} - 0.00627\,L_A$$

D_R = 24.8 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.356 (Exibit 25-19)

S_R= 60.0 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 60.0 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\,V_{12} - 0.0009\,L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	SR 50/Cortez Blvd. Off-Ramp
Jurisdiction	Hernando County
Analysis Year	2010

Project Description I-75 PD&E Study - 2010 NB Off Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 660 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3090	0.93	Level	14	2	0.931	0.95	3756
Ramp	850	0.95	Level	19	2	0.910	0.95	1035
UpStream								
DownStream	660	0.95	Level	19	2	0.910	0.95	804

Merge Areas

Estimation of v_{12}

$V_{12} = V_F\,(P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 3756 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	3756	4800	No
V_{12}	3756	4400:All	No
$V_{FO} = V_F - V_R$	2721	4800	No
V_R	1035	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 36.6 (pc/mi/ln)

LOS = E (Exhibit 25-4)

Speed Estimation

D_s = 0.521 (Exhibit 25-19)

S_R= 55.4 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 55.4 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 NB On Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

Vu = 850 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2240	0.94	Level	14	2	0.931	0.95	2694
Ramp	660	0.95	Level	19	2	0.910	0.95	804
UpStream	850	0.95	Level	19	2	0.910	0.95	1035
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 2694 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3498	See Exhibit 25-7	No
V_{R12}	3498	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 28.5 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.406 (Exibit 25-19)

S_R= 58.6 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 58.6 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB Off Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft	S_{FF} = 70.0 mph S_{FR} = 35.0 mph	L_{down} = 2360 ft
V_u = veh/h	Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 670 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2240	0.93	Level	14	2	0.931	0.95	2723
Ramp	520	0.89	Level	19	2	0.910	0.95	676
UpStream								
DownStream	670	0.89	Level	19	2	0.910	0.95	871

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\,v_R + 0.0078\,V_{12} - 0.00627\,L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 2723 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	2723	4800	No
V_{12}	2723	4400:All	No
$V_{FO} = V_F - V_R$	2047	4800	No
V_R	676	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\,V_{12} - 0.0009\,L_D$$

D_R = 27.7 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.489 (Exhibit 25-19)

S_R= 56.3 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 56.3 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		*Site Information*	
Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB On Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☑ Yes ☐ On		☐ Yes ☐ On
☐ No ☑ Off		☑ No ☐ Off
L_{up} = 2360 ft		L_{down} = ft
V_u = 520 veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1720	0.94	Level	14	2	0.931	0.95	2069
Ramp	670	0.89	Level	19	2	0.910	0.95	871
UpStream	520	0.89	Level	19	2	0.910	0.95	676
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 2069 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2940	See Exhibit 25-7	No
V_{R12}	2940	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\,v_R + 0.0078\,V_{12} - 0.00627\,L_A$$

D_R = 24.1 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.351 (Exibit 25-19)

S_R= 60.2 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 60.2 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\,V_{12} - 0.0009\,L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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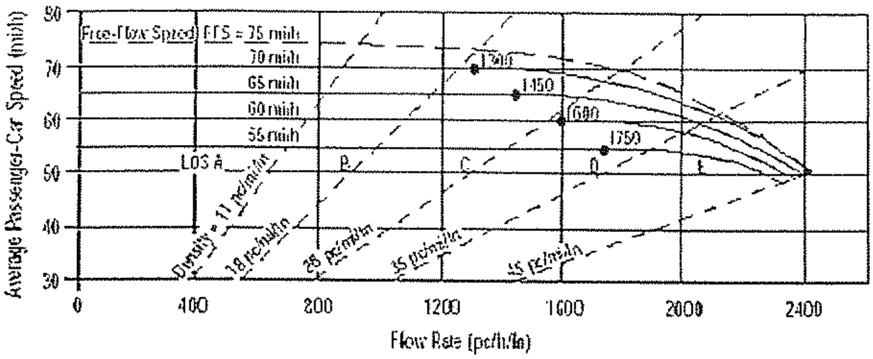
APPENDIX 'J'

INTERIM YEAR (2020) NO BUILD FREEWAY SEGMENT AND RAMP LOS

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2020*

Project Description I-75 PD&E - 2020 NB South of CR 41 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4530*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2719*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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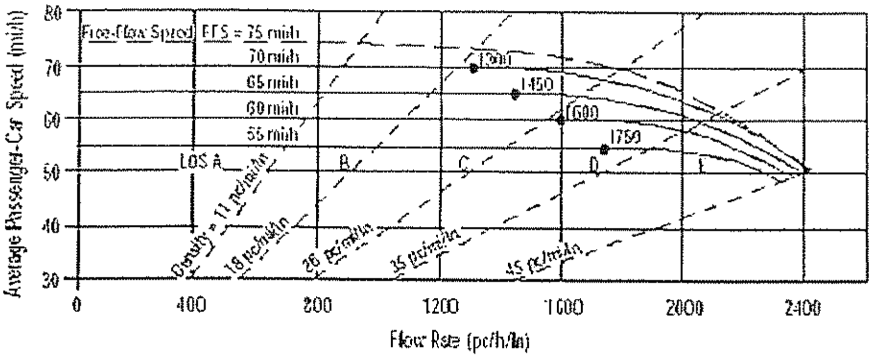
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2020*

Project Description I-75 PD&E Study - 2020 NB CR 41 to SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4040*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	2	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2456*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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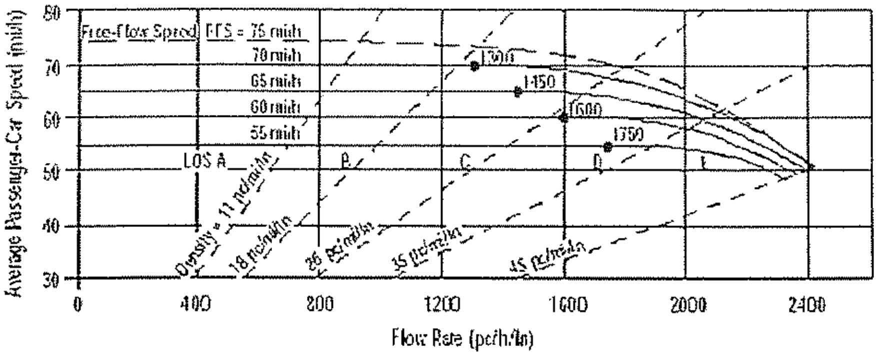
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*North of SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2020*

Project Description I-75 PD&E - 2020 NB North of SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3830*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2303*	pc/h/ln
S	*57.4*	mi/h
D = v_p / S	*40.1*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

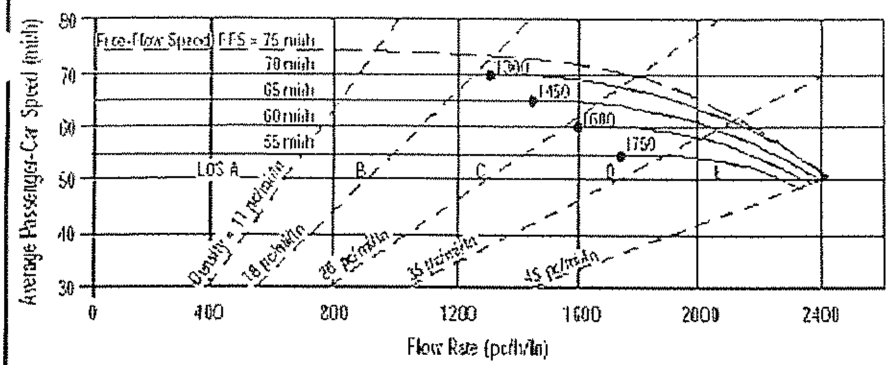
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*North of SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2020*

Project Description I-75 PD&E - 2020 SB North of SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3040*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1848*	pc/h/ln
S	*70.2*	mi/h
D = v_p / S	*26.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

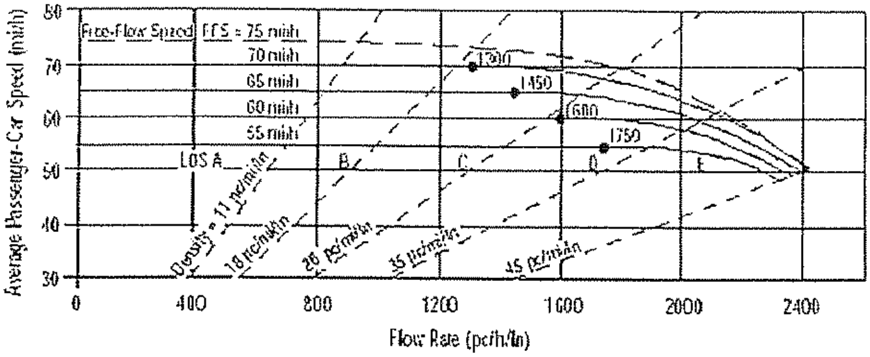
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*CRH*	Highway/Direction of Travel	*I-75 Southbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*CR 41 to SR 50*
Date Performed	*10/26/06*	Jurisdiction	*Hernando County*
Analysis Time Period	*DHV*	Analysis Year	*2020*

Project Description I-75 PD&E Study - 2020 SB CR 41 to SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3200*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

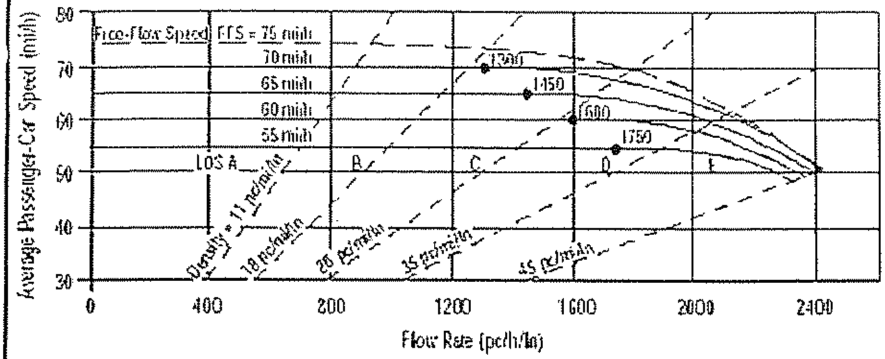
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}	*0.0*	mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}	*0.0*	mi/h
Interchange Density	*0.50*	I/mi	f_{ID}	*0.0*	mi/h
Number of Lanes, N	*2*		f_N	*0.0*	mi/h
FFS (measured)		mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1921*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*68.8*	mi/h	S	mi/h
D = v_p / S	*27.9*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*D*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed		

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2020*

Project Description I-75 PD&E - 2020 SB South of CR 41 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3590*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2155*	pc/h/ln
S	*62.7*	mi/h
D = v_p / S	*34.4*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Road Off-Ramp
Date Performed	10/26/06	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 NB Off Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ☑ Yes ☑ On ☐ No ☐ Off

L_{down} = 620 ft

V_D = 370 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	4530	0.94	Level	14	1	0.933	0.95	5438
Ramp	860	0.91	Level	10	1	0.951	0.95	1047
UpStream								
DownStream	370	0.91	Level	10	1	0.951	0.95	450

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 5438 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	5438	4800	Yes
V_{12}	5438	4400:All	Yes
$V_{FO} = V_F - V_R$	4391	4800	No
V_R	1047	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$$

D_R = 49.2 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Estimation

D_s = 0.522 (Exhibit 25-19)

S_R= 55.4 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 55.4 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd On-Ramp
Date Performed	10/26/06	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 FD&E Study - 2020 NB On Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 620 ft

V_u = 860 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3670	0.94	Level	14	1	0.933	0.95	4406
Ramp	370	0.91	Level	10	1	0.951	0.95	450
UpStream	860	0.91	Level	10	1	0.951	0.95	1047
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F\,(P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 4406 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4856	See Exhibit 25-7	Yes
V_{R12}	4856	4600:All	Yes

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 40.0 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Estimation

M_S = 0.787 (Exibit 25-19)

S_R= 48.0 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 48.0 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd Off-Ramp
Jurisdiction	Pasco County
Analysis Year	2020

Project Description I-75 PD&E Study - 2020 SB Off Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 700 ft

V_D = 670 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3200	0.94	Level	14	1	0.933	0.95	3841
Ramp	290	0.89	Level	10	1	0.951	0.95	361
UpStream								
DownStream	670	0.89	Level	10	1	0.951	0.95	834

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 3841 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	3841	4800	No
V_{12}	3841	4400:All	No
$V_{FO} = V_F - V_R$	3480	4800	No
V_R	361	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$$

D_R = 36.1 (pc/mi/ln)

LOS = E (Exhibit 25-4)

Speed Estimation

D_s = 0.460 (Exhibit 25-19)

S_R= 57.1 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 57.1 mph (Exhibit 25-15)

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Florida Department of Transportation

JEB BUSH
GOVERNOR

605 Suwannee Street
Tallahassee FL 32399-0450

DENVER J. STUTLER, JR
SECRETARY

October 20, 2006

Thomas Neyer, P E.
Regional Vice President
H W LOCHNER, INC
5850 T. G. Lee Blvd., Suite 320
Orlando, Florida 32822

Dear Mr Neyer

The Florida Department of Transportation has reviewed your application for qualification package and determined that the data submitted is adequate to qualify your firm for the following types of work:

Group 2 - Project Development and Environmental (PD&E) Studies

Group 3 - Highway Design - Roadway

- 3 1 - Minor Highway Design
- 3 2 - Major Highway Design
- 3 3 - Complex Highway Design

Group 4 - Highway Design - Bridges

- 4 1 1 - Miscellaneous Structures
- 4 1 2 - Minor Bridge Design
- 4 2 1 - Major Bridge Design - Concrete
- 4 2 2 - Major Bridge Design - Steel

Group 5 - Bridge Inspection

- 5 1 - Conventional Bridge Inspection
- 5 2 - Movable Bridge Inspection
- 5 3 - Complex Bridge Inspection
- 5 4 - Bridge Load Rating

Group 6 - Traffic Engineering and Operations Studies

- 6 1 - Traffic Engineering Studies
- 6 2 - Traffic Signal Timing
- 6 3 1 - Intelligent Transportation Systems Analysis and Design
- 6 3 2 - Intelligent Transportation Systems Implementation

Group 7 - Traffic Operations Design

- 7 1 - Signing, Pavement Marking and Channelization
- 7 2 Lighting
- 7 3 - Signalization

Group 10 - Construction Engineering Inspection

10 1 - Roadway Construction Engineering Inspection
10 3 - Construction Materials Inspection
10 4 - Minor Bridge & Miscellaneous Structures CEI

Group 11 - Engineering Contract Administration and Management

Group 13 - Planning

13 3 - Policy Planning
13 4 - Systems Planning
13 5 - Subarea/Corridor Planning
13.6 - Land Planning/Engineering
13 7 - Transportation Statistics

Your Unlimited Notice of Qualification shall be valid until October 31, 2007 at such time as your April 30, 2007 overhead audit will be due to comply with the Department's requirement on overhead audits. We will automatically notify your firm 45 to 60 days prior to your update deadline

On the basis of data submitted the Department has approved your accounting system and considers the rates listed below as acceptable rates for qualification purposes

	Home/Branch Office	Field Office	Facilities Capital Cost of Money	Direct Expense
Overhead Rate	165 55%	127.94%	0.396%	13.47%(Home) 20.44%(Field)

Should you have any questions, please feel free to contact me at 850/414-4485.

Sincerely,

Lorraine E. Odom

Lorraine E. Odom
Professional Services
Qualification Administrator

LEO/smr

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd On-Ramp
Date Performed	10/26/06	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2020

Site Information

Project Description I-75 PD&E Study - 2020 SB On Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 700 ft

V_u = 290 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2910	0.94	Level	14	1	0.933	0.95	3493
Ramp	670	0.89	Level	10	1	0.951	0.95	834
UpStream	290	0.89	Level	10	1	0.951	0.95	361
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 3493 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4327	See Exhibit 25-7	No
V_{R12}	4327	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$$

D_R = 33.8 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.560 (Exibit 25-19)

S_R= 54.3 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 54.3 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 NB Off Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 1060 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	4040	0.93	Level	14	2	0.931	0.95	4911
Ramp	1260	0.95	Level	19	2	0.910	0.95	1534
UpStream								
DownStream	1060	0.95	Level	19	2	0.910	0.95	1291

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 4911 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4911	4800	Yes
V_{12}	4911	4400:All	Yes
$V_{FO} = V_F - V_R$	3377	4800	No
V_R	1534	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 42.0 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Estimation

D_s = 0.566 (Exhibit 25-19)

S_R= 54.2 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 54.2 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 NB On Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☑ Yes ☐ On		☐ Yes ☐ On
☐ No ☑ Off		☑ No ☐ Off
L_{up} = 2360 ft		L_{down} = ft
V_u = 1260 veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2780	0.94	Level	14	2	0.931	0.95	3343
Ramp	1060	0.95	Level	19	2	0.910	0.95	1291
UpStream	1260	0.95	Level	19	2	0.910	0.95	1534
DownStream								

Merge Areas	Diverge Areas

Estimation of v_{12} (Merge Areas)

$V_{12} = V_F\,(P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 3343 pc/h

Estimation of v_{12} (Diverge Areas)

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks (Merge Areas)

	Actual	Maximum	LOS F?
V_{FO}	4634	See Exhibit 25-7	No
V_{R12}	4634	4600:All	Yes

Capacity Checks (Diverge Areas)

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F) (Merge Areas)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 37.1 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Level of Service Determination (if not F) (Diverge Areas)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation (Merge Areas)

M_S = 0.679 (Exibit 25-19)

S_R= 51.0 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 51.0 mph (Exhibit 25-14)

Speed Estimation (Diverge Areas)

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 SB Off Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft		L_{down} = 2360 ft
V_u = veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 990 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3040	0.93	Level	14	2	0.931	0.95	3695
Ramp	830	0.89	Level	19	2	0.910	0.95	1079
UpStream								
DownStream	990	0.89	Level	19	2	0.910	0.95	1287

Merge Areas	Diverge Areas
Estimation of v_{12}	**Estimation of v_{12}**
$V_{12} = V_F\,(P_{FM})$	$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-2 or 25-3)	L_{EQ} = (Equation 25-8 or 25-9)
P_{FM} = using Equation (Exhibit 25-5)	P_{FD} = 1.000 using Equation (Exhibit 25-11)
V_{12} = pc/h	V_{12} = 3695 pc/h

Capacity Checks (Merge)

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Capacity Checks (Diverge)

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	3695	4800	No
V_{12}	3695	4400:All	No
$V_{FO} = V_F - V_R$	2616	4800	No
V_R	1079	2000	No

Level of Service Determination (if not F)	Level of Service Determination (if not F)
$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$	$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$
D_R = (pc/mi/ln)	D_R = 36.0 (pc/mi/ln)
LOS = (Exhibit 25-4)	LOS = E (Exhibit 25-4)

Speed Estimation	Speed Estimation
M_S = (Exibit 25-19)	D_s = 0.525 (Exhibit 25-19)
S_R= mph (Exhibit 25-19)	S_R= 55.3 mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)	S_0= N/A mph (Exhibit 25-19)
S = mph (Exhibit 25-14)	S = 55.3 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 SB On Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☑ Yes ☐ On		☐ Yes ☐ On
☐ No ☑ Off		☑ No ☐ Off
L_{up} = 2360 ft		L_{down} = ft
V_u = 830 veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph	V_D = veh/h
	Sketch (show lanes, L_A, L_D, V_R, V_f)	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	2210	0.94	Level	14	2	0.931	0.95	2658
Ramp	990	0.89	Level	19	2	0.910	0.95	1287
UpStream	830	0.89	Level	19	2	0.910	0.95	1079
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 2658 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3945	See Exhibit 25-7	No
V_{R12}	3945	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$$

D_R = 31.7 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.478 (Exibit 25-19)

S_R= 56.6 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 56.6 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{Fi} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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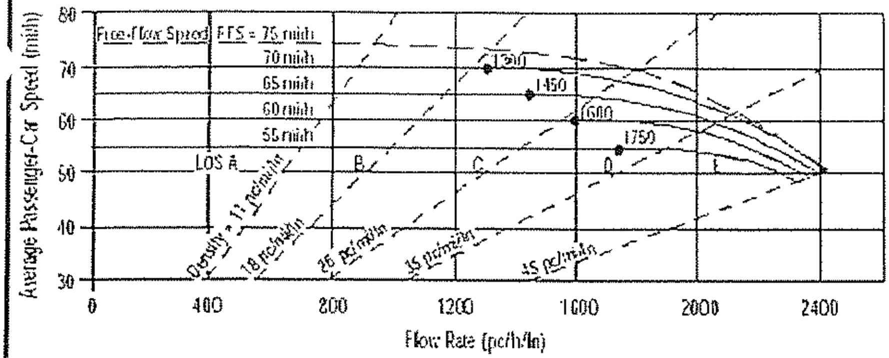
APPENDIX 'K'

DESIGN YEAR (2030) NO BUILD FREEWAY SEGMENT AND RAMP LOS

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2030*

Project Description I-75 PD&E - 2030 NB South of CR 41 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*5690*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T-1)+P_R(E_R-1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3415*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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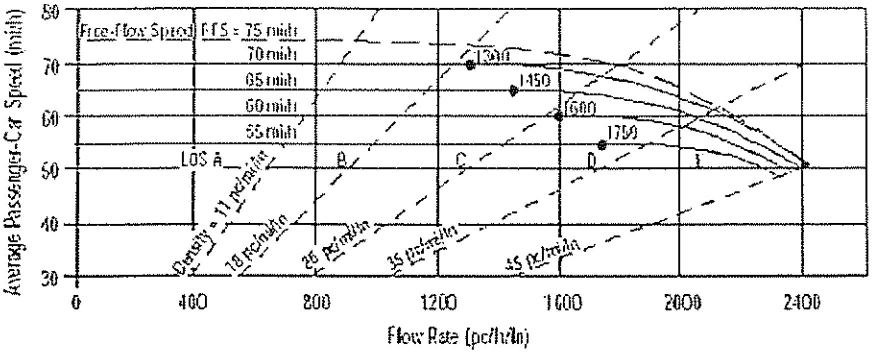
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2030*

Project Description I-75 PD&E Study - 2030 NB CR 41 to SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4980*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*3027*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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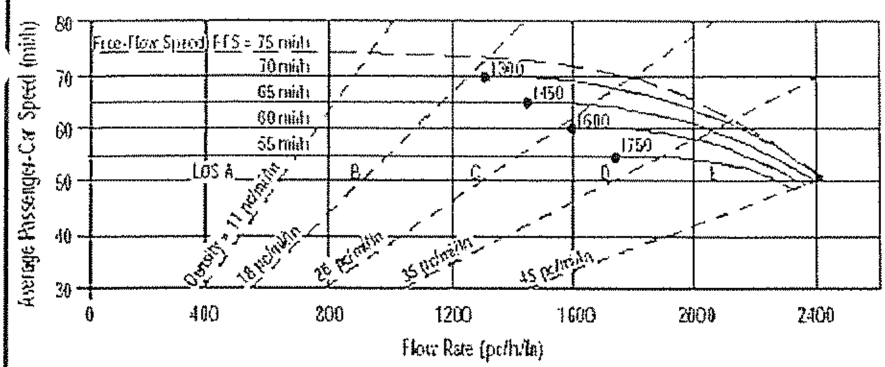
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

General Information		Site Information	
Analyst	*EJB*	Highway/Direction of Travel	*I-75 Northbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*North of SR 50*
Date Performed	*7/28/2005*	Jurisdiction	*Hernando County*
Analysis Time Period	*DHV*	Analysis Year	*2030*

Project Description

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4770*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T-1)+P_R(E_R-1)]$	*0.931*

Speed Inputs / Calc Speed Adj and FFS

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}	*0.0*	mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}	*0.0*	mi/h
Interchange Density	*0.50*	I/mi	f_{ID}	*0.0*	mi/h
Number of Lanes, N	*2*		f_N	*0.0*	mi/h
FFS (measured)		mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h			

LOS and Performance Measures / Design (N)

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2868*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S		mi/h	S	mi/h
D = v_p / S		pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*F*		Required Number of Lanes, N	

Glossary / Factor Location

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed		

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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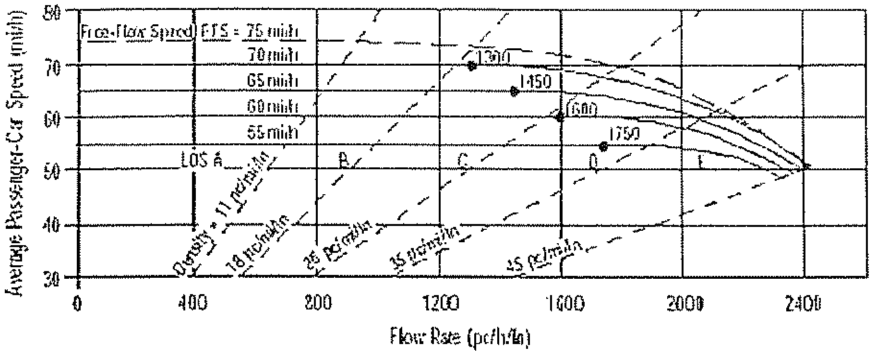
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*4/20/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*North of SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2030*

Project Description I-75 PD&E - 2030 SB North of SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3780*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2298*	pc/h/ln
S	*57.6*	mi/h
D = v_p / S	*39.9*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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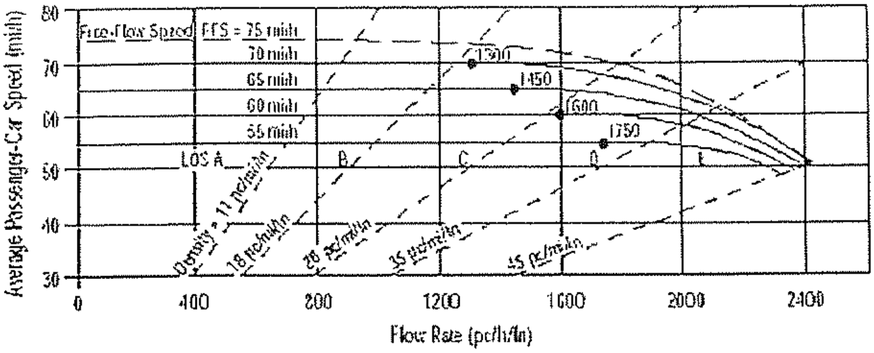
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2030*

Project Description I-75 PD&E Study - 2030 SB CR 41 to SR 50 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3950*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2371*	pc/h/ln
S	*54.6*	mi/h
D = v_p / S	*43.4*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

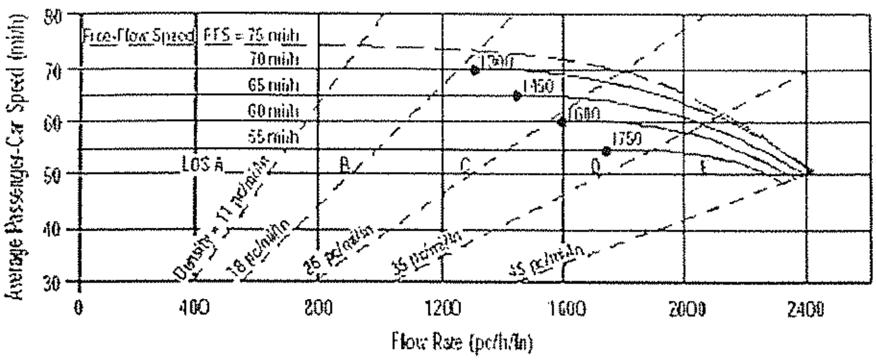
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV - Dec Traffic*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2030*

Project Description I-75 PD&E - 2030 SB South of CR 41 (I-75 = 4 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4510*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*2*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2707*	pc/h/ln
S		mi/h
D = v_p / S		pc/mi/ln
LOS	*F*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Road Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 NB Off Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 620 ft

V_D = 550 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	5690	0.94	Level	14	1	0.933	0.95	6831
Ramp	1260	0.91	Level	10	1	0.951	0.95	1533
UpStream								
DownStream	550	0.91	Level	10	1	0.951	0.95	669

Merge Areas

Estimation of v_{12}

$V_{12} = V_F\,(P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 6831 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{Fi} = V_F$	6831	4800	Yes
V_{12}	6831	4400:All	Yes
$V_{FO} = V_F - V_R$	5298	4800	Yes
V_R	1533	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 61.2 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Estimation

D_s = 0.566 (Exhibit 25-19)

S_R= 54.2 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 54.2 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2030

Project Description I-75 FD&E Study - 2030 NB On Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 620 ft

V_u = 1260 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	4430	0.94	Level	14	1	0.933	0.95	5318
Ramp	550	0.91	Level	10	1	0.951	0.95	669
UpStream	1260	0.91	Level	10	1	0.951	0.95	1533
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 5318 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5987	See Exhibit 25-7	Yes
V_{R12}	5987	4600:All	Yes

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$$

D_R = 48.7 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Estimation

M_S = 1.839 (Exibit 25-19)

S_R= 18.5 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 18.5 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 SB Off Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 700 ft

V_D = 990 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3950	0.94	Level	14	1	0.933	0.95	4742
Ramp	430	0.89	Level	10	1	0.951	0.95	535
UpStream								
DownStream	990	0.89	Level	10	1	0.951	0.95	1232

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 4742 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4742	4800	No
V_{12}	4742	4400:All	Yes
$V_{FO} = V_F - V_R$	4207	4800	No
V_R	535	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 43.9 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Estimation

D_s = 0.476 (Exhibit 25-19)

S_R= 56.7 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 56.7 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd On-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - SB On Ramp at CR 41 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 700 ft

V_u = 430 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3520	0.94	Level	14	1	0.933	0.95	4226
Ramp	990	0.89	Level	10	1	0.951	0.95	1232
UpStream	430	0.89	Level	10	1	0.951	0.95	535
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 4226 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5458	See Exhibit 25-7	Yes
V_{R12}	5458	4600:All	Yes

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 42.5 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Estimation

M_S = 1.180 (Exibit 25-19)

S_R= 37.0 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 37.0 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	4/19/2005	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 NB Off Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 1460 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	4980	0.93	Level	14	2	0.931	0.95	6054
Ramp	1680	0.95	Level	19	2	0.910	0.95	2046
UpStream								
DownStream	1460	0.95	Level	19	2	0.910	0.95	1778

Merge Areas	Diverge Areas

Estimation of v_{12} (Merge Areas)

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Estimation of v_{12} (Diverge Areas)

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 6054 pc/h

Capacity Checks (Merge Areas)

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Capacity Checks (Diverge Areas)

	Actual	Maximum	LOS F?
$V_{Fi} = V_F$	6054	4800	Yes
V_{12}	6054	4400:All	Yes
$V_{FO} = V_F - V_R$	4008	4800	No
V_R	2046	2000	Yes

Level of Service Determination (if not F) (Merge Areas)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Level of Service Determination (if not F) (Diverge Areas)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 56.3 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Estimation (Merge Areas)

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Speed Estimation (Diverge Areas)

D_s = 0.612 (Exhibit 25-19)

S_R= 52.9 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 52.9 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	7/28/2005	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 NB On Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☑ Yes ☐ On		☐ Yes ☐ On
☐ No ☑ Off		☑ No ☐ Off
L_{up} = 2360 ft		L_{down} = ft
V_u = 1680 veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3310	0.94	Level	14	2	0.931	0.95	3981
Ramp	1460	0.95	Level	19	2	0.910	0.95	1778
UpStream	1680	0.95	Level	19	2	0.910	0.95	2046
DownStream								

Merge Areas	Diverge Areas

Estimation of v_{12} (Merge Areas)

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 3981 pc/h

Estimation of v_{12} (Diverge Areas)

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks (Merge Areas)

	Actual	Maximum	LOS F?
V_{FO}	5759	See Exhibit 25-7	Yes
V_{R12}	5759	4600:All	Yes

Capacity Checks (Diverge Areas)

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F) (Merge Areas)

$$D_R = 5.475 + 0.00734\,v_R + 0.0078\,V_{12} - 0.00627\,L_A$$

D_R = 45.7 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Level of Service Determination (if not F) (Diverge Areas)

$$D_R = 4.252 + 0.0086\,V_{12} - 0.0009\,L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation (Merge Areas)

M_S = 1.514 (Exibit 25-19)

S_R= 27.6 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 27.6 mph (Exhibit 25-14)

Speed Estimation (Diverge Areas)

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 SB Off Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 1310 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3780	0.93	Level	14	2	0.931	0.95	4595
Ramp	1150	0.89	Level	19	2	0.910	0.95	1495
UpStream								
DownStream	1310	0.89	Level	19	2	0.910	0.95	1703

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 4595 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4595	4800	No
V_{12}	4595	4400:All	Yes
$V_{FO} = V_F - V_R$	3100	4800	No
V_R	1495	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 43.8 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Estimation

D_s = 0.563 (Exhibit 25-19)

S_R= 54.2 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 54.2 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	EJB	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	7/28/2005	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 SB On Ramp at SR 50 (I-75 = 4 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☑ Yes ☐ On		☐ Yes ☐ On
☐ No ☑ Off		☑ No ☐ Off
L_{up} = 2360 ft		L_{down} = ft
V_u = 1150 veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2640	0.94	Level	14	2	0.931	0.95	3175
Ramp	1310	0.89	Level	19	2	0.910	0.95	1703
UpStream	1150	0.89	Level	19	2	0.910	0.95	1495
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 3175 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4878	See Exhibit 25-7	Yes
V_{R12}	4878	4600:All	Yes

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$$

D_R = 38.8 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Estimation

M_S = 0 789 (Exibit 25-19)

S_R= 47.9 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 47.9 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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APPENDIX 'L'

OPENING YEAR (2010) BUILD INTERSECTION LOS

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*JAS*	Intersection	*I-75 NB Ramps @ CR 41*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/03/2006*	Jurisdiction	*Pasco County*
Time Period		Analysis Year	
		Project ID	*NB Loop Ramp Alternative - 2010 (WBT=2, SBLT=2)*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	2			2					2		2
Lane Group	L	T			T					L		R
Volume, V (vph)	136	113			273					199		261
% Heavy Vehicles, %HV	10	5			4					9		6
Peak-Hour Factor, PHF	0.85	0.85			0.85					0.91		0.91
Pretimed (P) or Actuated (A)	A	A			A					A		A
Start-up Lost Time, l_1	2.0	2.0			2.0					2.0		2.0
Extension of Effective Green, e	2.0	2.0			2.0					2.0		2.0
Arrival Type, AT	3	3			3					3		3
Unit Extension, UE	3.0	3.0			3.0					3.0		3.0
Filtering/Metering, I	1.000	1.000			1.000					1.000		1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	0
Lane Width	12.0	12.0			12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0					0		0
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 6.2	G = 24.0	G =	G =	G = 14.8	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 60.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	160	133			321					219		287
Lane Group Capacity, c	576	2021			1391					793		1169
v/c Ratio, X	0.28	0.07			0.23					0.28		0.25
Total Green Ratio, g/C	0.59	0.59			0.40					0.25		0.43
Uniform Delay, d_1	5.8	5.3			11.9					18.3		10.8
Progression Factor, PF	1.000	1.000			1.000					1.000		1.000
Delay Calibration, k	0.11	0.11			0.11					0.11		0.11
Incremental Delay, d_2	0.3	0.0			0.1					0.2		0.1
Initial Queue Delay, d_3	0.0	0.0			0.0					0.0		0.0
Control Delay	6.1	5.3			12.0					18.5		10.9
Lane Group LOS	A	A			B					B		B

Approach Delay	5.7	12.0		14.2
Approach LOS	A	B		B
Intersection Delay	11.3	$X_c = 0.34$	Intersection LOS	B

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/03/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	NB Loop Ramp Alternative - 2010 (WBT=2, SBLT=1)

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	2			2					1		2
Lane Group	L	T			T					L		R
Volume, V (vph)	136	113			273					199		261
% Heavy Vehicles, %HV	10	5			4					9		6
Peak-Hour Factor, PHF	0.85	0.85			0.85					0.91		0.91
Pretimed (P) or Actuated (A)	A	A			A					A		A
Start-up Lost Time, l_1	2.0	2.0			2.0					2.0		2.0
Extension of Effective Green, e	2.0	2.0			2.0					2.0		2.0
Arrival Type, AT	3	3			3					3		3
Unit Extension, UE	3.0	3.0			3.0					3.0		3.0
Filtering/Metering, I	1.000	1.000			1.000					1.000		1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	0
Lane Width	12.0	12.0			12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 5.9	G = 49.6	G =	G =	G = 39.5	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 110.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	160	133			321					219		287
Lane Group Capacity, c	511	1895			1568					595		1236
v/c Ratio, X	0.31	0.07			0.20					0.37		0.23
Total Green Ratio, g/C	0.55	0.55			0.45					0.36		0.46
Uniform Delay, d_1	12.6	11.6			18.3					26.0		18.1
Progression Factor, PF	1.000	1.000			1.000					1.000		1.000
Delay Calibration, k	0.11	0.11			0.11					0.11		0.11
Incremental Delay, d_2	0.4	0.0			0.1					0.4		0.1
Initial Queue Delay, d_3	0.0	0.0			0.0					0.0		0.0
Control Delay	12.9	11.6			18.3					26.4		18.2
Lane Group LOS	B	B			B					C		B

Approach Delay	12.3	18.3		21.7
Approach LOS	B	B		C
Intersection Delay	18.3	X_c = 0.32	Intersection LOS	B

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	NB Loop Ramp Alternative - 2010 (WBT=1, SBLT=1, SBRT=FF)

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1			1					1		
Lane Group	L	T			T					L		
Volume, V (vph)	136	113			273					199		
% Heavy Vehicles, %HV	10	5			4					9		
Peak-Hour Factor, PHF	0.85	0.85			0.85					0.91		
Pretimed (P) or Actuated (A)	A	A			A					A		
Start-up Lost Time, l_1	2.0	2.0			2.0					2.0		
Extension of Effective Green, e	2.0	2.0			2.0					2.0		
Arrival Type, AT	3	3			3					3		
Unit Extension, UE	3.0	3.0			3.0					3.0		
Filtering/Metering, I	1.000	1.000			1.000					1.000		
Initial Unmet Demand, Q_b	0.0	0.0			0.0					0.0		
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	
Lane Width	12.0	12.0			12.0					12.0		
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0					0		
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 35.1	G = 59.9	G =	G =	G = 40.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	160	133			321					219		
Lane Group Capacity, c	672	1207			730					442		
v/c Ratio, X	0.24	0.11			0.44					0.50		
Total Green Ratio, g/C	0.67	0.67			0.40					0.27		
Uniform Delay, d_1	11.0	9.0			32.8					46.5		
Progression Factor, PF	1.000	1.000			1.000					1.000		
Delay Calibration, k	0.11	0.11			0.11					0.11		
Incremental Delay, d_2	0.2	0.0			0.4					0.9		
Initial Queue Delay, d_3	0.0	0.0			0.0					0.0		
Control Delay	11.1	9.0			33.2					47.4		
	B	A			C					D		

Lane Group LOS												
Approach Delay	*10.2*			*33.2*						*47.4*		
Approach LOS	*B*			*C*						*D*		
Intersection Delay	*28.8*			X_c = *0.45*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	*I-75 NB Ramps @ CR 41*
Agency or Co.	FDOT	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Pasco County*
Time Period		Analysis Year	
		Project ID	*NB Slip Ramp Alternative - 2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	2			2	1	2					
Lane Group	L	T			T	R	L					
Volume, V (vph)	136	113			273	44	261					
% Heavy Vehicles, %HV	10	5			4	10	6					
Peak-Hour Factor, PHF	0.85	0.85			0.85	0.85	0.90					
Pretimed (P) or Actuated (A)	A	A			A	A	A					
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0					
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0					
Arrival Type, AT	3	3			3	3	3					
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0					
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000					
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0					
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0				
Lane Width	12.0	12.0			12.0	12.0	12.0					
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0					
Min. Time for Pedestrians, G_p	3.2			3.2			3.2					

Phasing	EB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 12.4	G = 16.5	G =	G =	G = 16.1	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	160	133			321	52	290					
Lane Group Capacity, c	612	1946			956	920	887					
v/c Ratio, X	0.26	0.07			0.34	0.06	0.33					
Total Green Ratio, g/C	0.56	0.56			0.28	0.63	0.27					
Uniform Delay, d_1	6.5	5.9			17.4	4.3	17.6					
Progression Factor, PF	1.000	1.000			1.000	1.000	1.000					
Delay Calibration, k	0.11	0.11			0.11	0.11	0.11					
Incremental Delay, d_2	0.2	0.0			0.2	0.0	0.2					
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0					
Control Delay	6.7	5.9			17.6	4.4	17.8					
Lane Group LOS	A	A			B	A	B					

Approach Delay	6.4	15.7	17.8	
Approach LOS	A	B	B	
Intersection Delay	13.5	$X_c = 0.37$	Intersection LOS	B

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 SB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	SB Ramps - 2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		2		1	2		1		1			
Lane Group		T		L	T		L		R			
Volume, V (vph)		185		176	357		75		65			
% Heavy Vehicles, %HV		4		3	6		10		10			
Peak-Hour Factor, PHF		0.88		0.95	0.95		0.89		0.89			
Pretimed (P) or Actuated (A)		A		A	A		A		A			
Start-up Lost Time, l_1		2.0		2.0	2.0		2.0		2.0			
Extension of Effective Green, e		2.0		2.0	2.0		2.0		2.0			
Arrival Type, AT		3		3	3		3		3			
Unit Extension, UE		3.0		3.0	3.0		3.0		3.0			
Filtering/Metering, I		1.000		1.000	1.000		1.000		1.000			
Initial Unmet Demand, Q_b		0.0		0.0	0.0		0.0		0.0			
Ped / Bike / RTOR Volumes	0	0		0	0		0	0	15			
Lane Width		12.0		12.0	12.0		12.0		12.0			
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B		0		0	0		0		0			
Min. Time for Pedestrians, G_p		3.2			3.2			3.2				

Phasing	WB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 5.0	G = 33.9	G =	G =	G = 6.1	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		210		185	376		84		56			
Lane Group Capacity, c		1965		855	2497		167		394			
v/c Ratio, X		0.11		0.22	0.15		0.50		0.14			
Total Green Ratio, g/C		0.56		0.73	0.73		0.10		0.27			
Uniform Delay, d_1		6.0		2.4	2.4		25.5		16.7			
Progression Factor, PF		1.000		1.000	1.000		1.000		1.000			
Delay Calibration, k		0.11		0.11	0.11		0.11		0.11			
Incremental Delay, d_2		0.0		0.1	0.0		2.4		0.2			
Initial Queue Delay, d_3		0.0		0.0	0.0		0.0		0.0			
Control Delay		6.1		2.6	2.5		27.9		16.9			
Lane Group LOS		A		A	A		C		B			
		6.1			2.5			23.5				

Approach Delay				
Approach LOS	A	A	C	
Intersection Delay	6.5	$X_c = 0.26$	Intersection LOS	A

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*JAS*	Intersection	*I-75 NB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*Lane Improvement Alternative - 2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3	1	2		2			
Lane Group	L	T			T	R	L		R			
Volume, V (vph)	346	1186			1482	314	340		510			
% Heavy Vehicles, %HV	6	6			6	6	6		6			
Peak-Hour Factor, PHF	0.90	0.90			0.91	0.91	0.95		0.95			
Pretimed (P) or Actuated (A)	A	A			A	A	A		A			
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0		2.0			
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0		2.0			
Arrival Type, AT	3	3			3	3	3		3			
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0		3.0			
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000		1.000			
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0		0.0			
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0	220			
Lane Width	12.0	12.0			12.0	12.0	12.0		12.0			
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0		0			
Min. Time for Pedestrians, G_p	3.2			3.2			3.2					

Phasing	EW Perm	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 24.3	G = 87.3	G =	G =	G = 33.4	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 160.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	384	1318			1629	345	358		305			
Lane Group Capacity, c	502	3558			2664	1524	690		563			
v/c Ratio, X	0.76	0.37			0.61	0.23	0.52		0.54			
Total Green Ratio, g/C	0.15	0.73			0.55	1.00	0.21		0.21			
Uniform Delay, d_1	65.1	8.1			24.8	0.0	56.2		56.5			
Progression Factor, PF	1.000	1.000			1.000	0.950	1.000		1.000			
Delay Calibration, k	0.32	0.11			0.20	0.11	0.12		0.14			
Incremental Delay, d_2	6.9	0.1			0.4	0.1	0.7		1.1			
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay	72.0	8.1			25.2	0.1	56.9		57.5			
	E	A			C	A	E		E			

Lane Group LOS												
Approach Delay	22.5			20.8			57.2					
Approach LOS	C			C			E					
Intersection Delay	27.1			X_c = 0.62			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	SPUI Alternative - 2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3	1	2	3	1	3		2	3		2
Lane Group	L	T	R	L	T	R	L		R	L		R
Volume, V (vph)	346	875	312	358	1124	314	340		510	311		209
% Heavy Vehicles, %HV	6	6	6	6	6	6	6		6	6		6
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.95		0.95	0.90		0.90
Pretimed (P) or Actuated (A)	A	A	A	A	A	A	A		A	A		A
Start-up Lost Time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Extension of Effective Green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Arrival Type, AT	3	3	3	3	3	3	3		3	3		3
Unit Extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Filtering/Metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000
Initial Unmet Demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	220	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0	0	0	0	0	0		0	0		0
Min. Time for Pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	Excl. Left	Thru & RT	03	04	NS Perm	06	07	08
Timing	G = 29.0	G = 73.6	G =	G =	G = 30.4	G =	G =	G =
	Y = 5	Y = 7	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	384	972	347	393	1235	345	358		305	346		232
Lane Group Capacity, c	639	2396	1128	639	2396	1128	940		547	940		547
v/c Ratio, X	0.60	0.41	0.31	0.62	0.52	0.31	0.38		0.56	0.37		0.42
Total Green Ratio, g/C	0.19	0.49	0.74	0.19	0.49	0.74	0.20		0.20	0.20		0.20
Uniform Delay, d_1	55.2	24.3	6.6	55.4	26.0	6.6	51.7		53.8	51.5		52.2
Progression Factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000
Delay Calibration, k	0.19	0.11	0.11	0.20	0.12	0.11	0.11		0.15	0.11		0.11
Incremental Delay, d_2	1.6	0.1	0.2	1.8	0.2	0.2	0.3		1.3	0.2		0.5
Initial Queue Delay, d_3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Control Delay	56.8	24.4	6.7	57.2	26.2	6.7	51.9		55.0	51.8		52.7
Lane Group LOS	E	C	A	E	C	A	D		E	D		D

Approach Delay	28.1	29.0	53.4	52.1
Approach LOS	C	C	D	D
Intersection Delay	34.7	X_c = 0.55	Intersection LOS	C

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/09/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	WB to SB Loop Ramp Alternative (WB Thru Only) - 2010 NB=FF

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3		3					
Lane Group	L	T			T		L					
Volume, V (vph)	346	1186			1124		340					
% Heavy Vehicles, %HV	6	6			6		6					
Peak-Hour Factor, PHF	0.90	0.90			0.91		0.95					
Pretimed (P) or Actuated (A)	A	A			A		A					
Start-up Lost Time, l_1	2.0	2.0			2.0		2.0					
Extension of Effective Green, e	2.0	2.0			2.0		2.0					
Arrival Type, AT	3	3			3		3					
Unit Extension, UE	3.0	3.0			3.0		3.0					
Filtering/Metering, I	1.000	1.000			1.000		1.000					
Initial Unmet Demand, Q_b	0.0	0.0			0.0		0.0					
Ped / Bike / RTOR Volumes	0	0		0	0		0	0				
Lane Width	12.0	12.0			12.0		12.0					
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0		0					
Min. Time for Pedestrians, G_p		3.2			3.2			3.2				

Phasing	EB Only	Thru Only	03	04	NB Only	06	07	08
Timing	G = 27.3	G = 72.3	G =	G =	G = 15.4	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 130.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	384	1318			1235		358					
Lane Group Capacity, c	694	3929			2716		550					
v/c Ratio, X	0.55	0.34			0.45		0.65					
Total Green Ratio, g/C	0.21	0.80			0.56		0.12					
Uniform Delay, d_1	45.9	3.4			17.1		54.7					
Progression Factor, PF	1.000	1.000			1.000		1.000					
Delay Calibration, k	0.15	0.11			0.11		0.23					
Incremental Delay, d_2	1.0	0.1			0.1		2.7					
Initial Queue Delay, d_3	0.0	0.0			0.0		0.0					
Control Delay	46.9	3.4			17.3		57.5					
	D	A			B		E					

Lane Group LOS												
Approach Delay	13.2			17.3			57.5					
Approach LOS	B			B			E					
Intersection Delay	19.6			$X_c = 0.50$			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*JAS*	Intersection	*I-75 NB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/09/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*WB to SB Loop Ramp Alternative (WB Lane to Ramp Only)- 2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*2*				*1*	*1*						
Lane Group	*L*				*T*	*R*						
Volume, V (vph)	*346*				*358*	*314*						
% Heavy Vehicles, %HV	*6*				*6*	*6*						
Peak-Hour Factor, PHF	*0.90*				*0.91*	*0.91*						
Pretimed (P) or Actuated (A)	*A*				*A*	*A*						
Start-up Lost Time, l_1	*2.0*				*2.0*	*2.0*						
Extension of Effective Green, e	*2.0*				*2.0*	*2.0*						
Arrival Type, AT	*3*				*3*	*3*						
Unit Extension, UE	*3.0*				*3.0*	*3.0*						
Filtering/Metering, I	*1.000*				*1.000*	*1.000*						
Initial Unmet Demand, Q_b	*0.0*				*0.0*	*0.0*						
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*						
Lane Width	*12.0*				*12.0*	*12.0*						
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*						
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*				*0*	*0*						
Min. Time for Pedestrians, G_p		*3.2*			*3.2*							

Phasing	EB Only	WB Only	03	04	05	06	07	08
Timing	G = *27.3*	G = *92.7*	G =	G =	G =	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y =	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *130.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*384*				*393*	*345*						
Lane Group Capacity, c	*694*				*1278*	*1087*						
v/c Ratio, X	*0.55*				*0.31*	*0.32*						
Total Green Ratio, g/C	*0.21*				*0.71*	*0.71*						
Uniform Delay, d_1	*45.9*				*6.9*	*6.9*						
Progression Factor, PF	*1.000*				*1.000*	*1.000*						
Delay Calibration, k	*0.15*				*0.11*	*0.11*						
Incremental Delay, d_2	*1.0*				*0.1*	*0.2*						
Initial Queue Delay, d_3	*0.0*				*0.0*	*0.0*						
Control Delay	*46.9*				*7.0*	*7.1*						
	D				*A*	*A*						

Lane Group LOS												
Approach Delay	*46.9*			*7.0*								
Approach LOS	*D*			*A*								
Intersection Delay	*20.7*			$X_c = 0.37$			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*JAS*	Intersection	*I-75 NB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*WB to SB Flyover Alternative - 2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3	1	3					
Lane Group	L	T			T	R	L					
Volume, V (vph)	346	1186			1124	314	340					
% Heavy Vehicles, %HV	6	6			6	6	6					
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90	0.90					
Pretimed (P) or Actuated (A)	A	A			A	A	A					
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0					
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0					
Arrival Type, AT	3	3			3	3	3					
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0					
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000					
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0					
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0				
Lane Width	12.0	12.0			12.0	12.0	12.0					
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0					
Min. Time for Pedestrians, G_p	3.2			3.2			3.2					

Phasing	EB Only	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 27.1	G = 78.2	G =	G =	G = 29.7	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	384	1318			1249	349	378					
Lane Group Capacity, c	597	3591			2546	1147	919					
v/c Ratio, X	0.64	0.37			0.49	0.30	0.41					
Total Green Ratio, g/C	0.18	0.74			0.52	0.75	0.20					
Uniform Delay, d_1	57.0	7.2			23.1	6.0	52.5					
Progression Factor, PF	1.000	1.000			1.000	1.000	1.000					
Delay Calibration, k	0.22	0.11			0.11	0.11	0.11					
Incremental Delay, d_2	2.4	0.1			0.1	0.2	0.3					
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0					
Control Delay	59.3	7.3			23.2	6.1	52.8					
Lane Group LOS	E	A			C	A	D					

Approach Delay	*19.0*	*19.5*	*52.8*	
Approach LOS	*B*	*B*	*D*	
Intersection Delay	*22.7*	X_c = *0.50*	Intersection LOS	*C*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	NB to WB Flyover Alternative - 2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3	1						
Lane Group	L	T			T	R						
Volume, V (vph)	346	1186			1124	314						
% Heavy Vehicles, %HV	6	6			6	6						
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90						
Pretimed (P) or Actuated (A)	A	A			A	A						
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0						
Extension of Effective Green, e	2.0	2.0			2.0	2.0						
Arrival Type, AT	3	3			3	3						
Unit Extension, UE	3.0	3.0			3.0	3.0						
Filtering/Metering, I	1.000	1.000			1.000	1.000						
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0						
Ped / Bike / RTOR Volumes	0	0		0	0	0						
Lane Width	12.0	12.0			12.0	12.0						
Parking / Grade / Parking	N	0	N	N	0	N						
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0						
Min. Time for Pedestrians, G_p		3.2			3.2							

Phasing	EB Only	Thru & RT	03	04	05	06	07	08
Timing	G = 32.0	G = 108.0	G =	G =	G =	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y =	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	384	1318			1249	349						
Lane Group Capacity, c	705	4883			3516	1097						
v/c Ratio, X	0.54	0.27			0.36	0.32						
Total Green Ratio, g/C	0.21	1.00			0.72	0.72						
Uniform Delay, d_1	52.5	0.0			7.9	7.6						
Progression Factor, PF	1.000	0.950			1.000	1.000						
Delay Calibration, k	0.14	0.11			0.11	0.11						
Incremental Delay, d_2	0.9	0.0			0.1	0.2						
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0						
Control Delay	53.4	0.0			8.0	7.8						
	D	A			A	A						

Lane Group LOS				
Approach Delay	*12.1*	*7.9*		
Approach LOS	*B*	*A*		
Intersection Delay	*10.1*	$X_c = 0.40$	Intersection LOS	*B*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*JAS*	Intersection	*I-75 SB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*Lane Improvement Alternative - 2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1	2	3					2		2
Lane Group		T	R	L	T					L		R
Volume, V (vph)		1221	312	358	1464					311		209
% Heavy Vehicles, %HV		6	6	6	6					6		6
Peak-Hour Factor, PHF		0.88	0.88	0.95	0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A	A	A					A		A
Start-up Lost Time, l_1		2.0	2.0	2.0	2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0		2.0
Arrival Type, AT		3	3	3	3					3		3
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0	0.0	0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0	0	0					0		0
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	EW Perm	Thru & RT	03	04	SB Only	06	07	08
Timing	G = 21.0	G = 90.2	G =	G =	G = 33.8	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 160.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		1388	70	377	1541					349		156
Lane Group Capacity, c		2753	1524	434	3546					699		570
v/c Ratio, X		0.50	0.05	0.87	0.43					0.50		0.27
Total Green Ratio, g/C		0.56	1.00	0.13	0.73					0.21		0.21
Uniform Delay, d_1		21.3	0.0	68.1	8.8					55.6		52.8
Progression Factor, PF		1.000	0.950	1.000	1.000					1.000		1.000
Delay Calibration, k		0.11	0.11	0.40	0.11					0.11		0.11
Incremental Delay, d_2		0.2	0.0	17.0	0.1					0.6		0.3
Initial Queue Delay, d_3		0.0	0.0	0.0	0.0					0.0		0.0
Control Delay		21.4	0.0	85.1	8.8					56.2		53.1
		C	A	F	A					E		D

Lane Group LOS				
Approach Delay	*20.4*	*23.8*		*55.2*
Approach LOS	*C*	*C*		*E*
Intersection Delay	*26.6*	X_c = *0.56*	Intersection LOS	*C*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*JAS*	Intersection	*I-75 SB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/09/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*WB to SB Loop Ramp Alternative - 2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1		3					2		2
Lane Group		T	R		T					L		R
Volume, V (vph)		1221	312		1464					311		209
% Heavy Vehicles, %HV		6	6		6					6		6
Peak-Hour Factor, PHF		0.88	0.88		0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A		A					A		A
Start-up Lost Time, l_1		2.0	2.0		2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0		2.0					2.0		2.0
Arrival Type, AT		3	3		3					3		3
Unit Extension, UE		3.0	3.0		3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000		1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0		0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0		12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0		0					0		0
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	Thru & RT	02	03	04	SB Only	06	07	08
Timing	G = 89.2	G =	G =	G =	G = 30.8	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 130.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		1388	70		1541					349		156
Lane Group Capacity, c		3350	1524		3350					784		639
v/c Ratio, X		0.41	0.05		0.46					0.45		0.24
Total Green Ratio, g/C		0.69	1.00		0.69					0.24		0.24
Uniform Delay, d_1		8.9	0.0		9.4					42.3		40.2
Progression Factor, PF		1.000	0.950		1.000					1.000		1.000
Delay Calibration, k		0.11	0.11		0.11					0.11		0.11
Incremental Delay, d_2		0.1	0.0		0.1					0.4		0.2
Initial Queue Delay, d_3		0.0	0.0		0.0					0.0		0.0
Control Delay		9.0	0.0		9.5					42.7		40.4
Lane Group LOS		A	A		A					D		D

Approach Delay	8.6	9.5		42.0
Approach LOS	A	A		D
Intersection Delay	13.8	$X_c = 0.46$	Intersection LOS	B

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HCS+™ DETAILED REPORT

General Information		*Site Information*	
Analyst	*JAS*	Intersection	*I-75 SB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*WB to SB Flyover Alternative - 2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3			3					3		2
Lane Group		T			T					L		R
Volume, V (vph)		875			1464					311		209
% Heavy Vehicles, %HV		6			6					6		6
Peak-Hour Factor, PHF		0.88			0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A			A					A		A
Start-up Lost Time, l_1		2.0			2.0					2.0		2.0
Extension of Effective Green, e		2.0			2.0					2.0		2.0
Arrival Type, AT		3			3					3		3
Unit Extension, UE		3.0			3.0					3.0		3.0
Filtering/Metering, I		1.000			1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0			0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	70
Lane Width		12.0			12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0			0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	Thru Only	02	03	04	SB Only	06	07	08
Timing	G = 97.3	G =	G =	G =	G = 42.7	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		994			1541					349		156
Lane Group Capacity, c		3167			3167					1321		768
v/c Ratio, X		0.31			0.49					0.26		0.20
Total Green Ratio, g/C		0.65			0.65					0.28		0.28
Uniform Delay, d_1		11.6			13.5					41.5		40.7
Progression Factor, PF		1.000			1.000					1.000		1.000
Delay Calibration, k		0.11			0.11					0.11		0.11
Incremental Delay, d_2		0.1			0.1					0.1		0.1
Initial Queue Delay, d_3		0.0			0.0					0.0		0.0
Control Delay		11.7			13.6					41.6		40.9
Lane Group LOS		B			B					D		D

Approach Delay	*11.7*	*13.6*		*41.4*
Approach LOS	*B*	*B*		*D*
Intersection Delay	*17.6*	$X_c = 0.42$	Intersection LOS	*B*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*JAS*	Intersection	*I-75 SB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*NB to WB Flyover Alternative - 2010*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1	2	3					3		2
Lane Group		T	R	L	T					L		R
Volume, V (vph)		875	312	358	1124					311		209
% Heavy Vehicles, %HV		6	6	0	6					6		6
Peak-Hour Factor, PHF		0.88	0.88	0.90	0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A	A	A					A		A
Start-up Lost Time, l_1		2.0	2.0	2.0	2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0		2.0
Arrival Type, AT		3	3	3	3					3		3
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0	0.0	0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0	0	0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	WB Only	Thru & RT	03	04	SB Only	06	07	08
Timing	G = 34.3	G = 71.1	G =	G =	G = 29.6	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		994	70	398	1183					349		156
Lane Group Capacity, c		2315	1074	801	3594					915		532
v/c Ratio, X		0.43	0.07	0.50	0.33					0.38		0.29
Total Green Ratio, g/C		0.47	0.70	0.23	0.74					0.20		0.20
Uniform Delay, d_1		26.1	6.9	50.3	6.9					52.3		51.3
Progression Factor, PF		1.000	1.000	1.000	1.000					1.000		1.000
Delay Calibration, k		0.11	0.11	0.11	0.11					0.11		0.11
Incremental Delay, d_2		0.1	0.0	0.5	0.1					0.3		0.3
Initial Queue Delay, d_3		0.0	0.0	0.0	0.0					0.0		0.0
Control Delay		26.2	6.9	50.8	7.0					52.5		51.6
		C	A	D	A					D		D

Lane Group LOS				
Approach Delay	24.9	18.0		52.2
Approach LOS	C	B		D
Intersection Delay	25.8	$X_c = 0.44$	Intersection LOS	C

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APPENDIX 'M'

INTERIM YEAR (2020) BUILD INTERSECTION LOS

HCS+™ DETAILED REPORT

General Information		**Site Information**	
Analyst	*JAS*	Intersection	*I-75 NB Ramps @ CR 41*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Pasco County*
Time Period		Analysis Year	
		Project ID	*NB Loop Ramp Alternative - 2020 (WBT=2, SBLT=2)*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	2			2					2		2
Lane Group	L	T			T					L		R
Volume, V (vph)	291	177			493					372		488
% Heavy Vehicles, %HV	10	5			4					9		6
Peak-Hour Factor, PHF	0.85	0.85			0.85					0.91		0.91
Pretimed (P) or Actuated (A)	A	A			A					A		A
Start-up Lost Time, l_1	2.0	2.0			2.0					2.0		2.0
Extension of Effective Green, e	2.0	2.0			2.0					2.0		2.0
Arrival Type, AT	3	3			3					3		3
Unit Extension, UE	3.0	3.0			3.0					3.0		3.0
Filtering/Metering, I	1.000	1.000			1.000					1.000		1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	0
Lane Width	12.0	12.0			12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0					0		0
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 12.5	G = 17.9	G =	G =	G = 14.6	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	342	208			580					409		536
Lane Group Capacity, c	521	2033			1038					783		1443
v/c Ratio, X	0.66	0.10			0.56					0.52		0.37
Total Green Ratio, g/C	0.59	0.59			0.30					0.24		0.53
Uniform Delay, d_1	7.5	5.4			17.7					19.7		8.1
Progression Factor, PF	1.000	1.000			1.000					1.000		1.000
Delay Calibration, k	0.23	0.11			0.16					0.13		0.11
Incremental Delay, d_2	3.0	0.0			0.7					0.6		0.2
Initial Queue Delay, d_3	0.0	0.0			0.0					0.0		0.0
Control Delay	10.5	5.4			18.4					20.3		8.3
Lane Group LOS	B	A			B					C		A

Approach Delay	*8.6*	*18.4*		*13.5*
Approach LOS	*A*	*B*		*B*
Intersection Delay	*13.6*	$X_c = 0.67$	Intersection LOS	*B*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	NB Loop Ramp Alternative - 2020 (WBT=2, SBLT=1)

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	2			2					1		2
Lane Group	L	T			T					L		R
Volume, V (vph)	291	177			493					372		488
% Heavy Vehicles, %HV	10	5			4					9		6
Peak-Hour Factor, PHF	0.85	0.85			0.85					0.91		0.91
Pretimed (P) or Actuated (A)	A	A			A					A		A
Start-up Lost Time, l_1	2.0	2.0			2.0					2.0		2.0
Extension of Effective Green, e	2.0	2.0			2.0					2.0		2.0
Arrival Type, AT	3	3			3					3		3
Unit Extension, UE	3.0	3.0			3.0					3.0		3.0
Filtering/Metering, I	1.000	1.000			1.000					1.000		1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	0
Lane Width	12.0	12.0			12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0					0		0
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 18.2	G = 44.1	G =	G =	G = 42.7	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 120.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	342	208			580					409		536
Lane Group Capacity, c	459	1932			1278					589		1481
v/c Ratio, X	0.75	0.11			0.45					0.69		0.36
Total Green Ratio, g/C	0.56	0.56			0.37					0.36		0.55
Uniform Delay, d_1	16.4	12.3			28.8					33.1		15.2
Progression Factor, PF	1.000	1.000			1.000					1.000		1.000
Delay Calibration, k	0.30	0.11			0.11					0.26		0.11
Incremental Delay, d_2	6.5	0.0			0.3					3.5		0.2
Initial Queue Delay, d_3	0.0	0.0			0.0					0.0		0.0
Control Delay	23.0	12.3			29.1					36.6		15.4
Lane Group LOS	C	B			C					D		B

Approach Delay	*19.0*	*29.1*		*24.6*
Approach LOS	*B*	*C*		*C*
Intersection Delay	*24.3*	$X_c = 0.63$	Intersection LOS	*C*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	mNB Loop Ramp Alternative - 2020 (WBT=1, SBLT=1, SBRT=FF)

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1			1					1		
Lane Group	L	T			T					L		
Volume, V (vph)	291	177			493					372		
% Heavy Vehicles, %HV	10	5			4					9		
Peak-Hour Factor, PHF	0.85	0.85			0.85					0.91		
Pretimed (P) or Actuated (A)	A	A			A					A		
Start-up Lost Time, l_1	2.0	2.0			2.0					2.0		
Extension of Effective Green, e	2.0	2.0			2.0					2.0		
Arrival Type, AT	3	3			3					3		
Unit Extension, UE	3.0	3.0			3.0					3.0		
Filtering/Metering, I	1.000	1.000			1.000					1.000		
Initial Unmet Demand, Q_b	0.0	0.0			0.0					0.0		
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	
Lane Width	12.0	12.0			12.0					12.0		
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0					0		
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 35.1	G = 59.9	G =	G =	G = 40.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	342	208			580					409		
Lane Group Capacity, c	550	1207			730					442		
v/c Ratio, X	0.62	0.17			0.79					0.93		
Total Green Ratio, g/C	0.67	0.67			0.40					0.27		
Uniform Delay, d_1	16.9	9.4			39.6					53.5		
Progression Factor, PF	1.000	1.000			1.000					1.000		
Delay Calibration, k	0.21	0.11			0.34					0.44		
Incremental Delay, d_2	2.2	0.1			6.1					25.4		
Initial Queue Delay, d_3	0.0	0.0			0.0					0.0		
Control Delay	19.1	9.5			45.7					78.9		
	B	A			D					E		

Lane Group LOS												
Approach Delay	15.5			45.7						78.9		
Approach LOS	B			D						E		
Intersection Delay	43.7			X_c = 0.86			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*JAS*	Intersection	*I-75 NB Ramps @ CR 41*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Pasco County*
Time Period		Analysis Year	
		Project ID	*NB Slip Ramp Alternative - 2020*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	2			2	1	2					
Lane Group	L	T			T	R	L					
Volume, V (vph)	291	177			493	79	488					
% Heavy Vehicles, %HV	10	5			4	10	6					
Peak-Hour Factor, PHF	0.85	0.85			0.85	0.85	0.90					
Pretimed (P) or Actuated (A)	A	A			A	A	A					
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0					
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0					
Arrival Type, AT	3	3			3	3	3					
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0					
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000					
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0					
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0				
Lane Width	12.0	12.0			12.0	12.0	12.0					
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0					
Min. Time for Pedestrians, G_p	3.2			3.2			3.2					

Phasing	EB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 12.4	G = 16.5	G =	G =	G = 16.1	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 60.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	342	208			580	93	542					
Lane Group Capacity, c	497	1946			956	920	887					
v/c Ratio, X	0.69	0.11			0.61	0.10	0.61					
Total Green Ratio, g/C	0.56	0.56			0.28	0.63	0.27					
Uniform Delay, d_1	8.4	6.0			18.9	4.5	19.2					
Progression Factor, PF	1.000	1.000			1.000	1.000	1.000					
Delay Calibration, k	0.26	0.11			0.19	0.11	0.20					
Incremental Delay, d_2	4.0	0.0			1.1	0.0	1.2					
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0					
Control Delay	12.4	6.1			20.0	4.5	20.5					
Lane Group LOS	B	A			C	A	C					

Approach Delay	*10.0*	*17.9*	*20.5*	
Approach LOS	*A*	*B*	*C*	
Intersection Delay	*16.2*	$X_c = 0.72$	Intersection LOS	*B*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 SB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	SB Ramps - 2020

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		2		1	2		1		1			
Lane Group		T		L	T		L		R			
Volume, V (vph)		334		338	642		156		134			
% Heavy Vehicles, %HV		4		3	6		10		10			
Peak-Hour Factor, PHF		0.88		0.95	0.95		0.89		0.89			
Pretimed (P) or Actuated (A)		A		A	A		A		A			
Start-up Lost Time, l_1		2.0		2.0	2.0		2.0		2.0			
Extension of Effective Green, e		2.0		2.0	2.0		2.0		2.0			
Arrival Type, AT		3		3	3		3		3			
Unit Extension, UE		3.0		3.0	3.0		3.0		3.0			
Filtering/Metering, I		1.000		1.000	1.000		1.000		1.000			
Initial Unmet Demand, Q_b		0.0		0.0	0.0		0.0		0.0			
Ped / Bike / RTOR Volumes	0	0		0	0		0	0	15			
Lane Width		12.0		12.0	12.0		12.0		12.0			
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B		0		0	0		0		0			
Min. Time for Pedestrians, G_p		3.2			3.2			3.2				

Phasing	WB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 5.5	G = 29.5	G =	G =	G = 10.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		380		356	676		175		134			
Lane Group Capacity, c		1710		658	2275		274		502			
v/c Ratio, X		0.22		0.54	0.30		0.64		0.27			
Total Green Ratio, g/C		0.49		0.67	0.67		0.17		0.34			
Uniform Delay, d_1		8.7		4.4	4.2		23.3		14.3			
Progression Factor, PF		1.000		1.000	1.000		1.000		1.000			
Delay Calibration, k		0.11		0.14	0.11		0.22		0.11			
Incremental Delay, d_2		0.1		0.9	0.1		4.9		0.3			
Initial Queue Delay, d_3		0.0		0.0	0.0		0.0		0.0			
Control Delay		8.8		5.3	4.2		28.2		14.6			
Lane Group LOS		A		A	A		C		B			
		8.8			4.6			22.3				

Approach Delay				
Approach LOS	A	A	C	
Intersection Delay	8.7	X_c = 0.51	Intersection LOS	A

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	Lane Improvement Alternative - 2020

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3	1	2		2			
Lane Group	L	T			T	R	L		R			
Volume, V (vph)	560	1882			2362	500	504		756			
% Heavy Vehicles, %HV	6	6			6	6	6		6			
Peak-Hour Factor, PHF	0.90	0.90			0.91	0.91	0.95		0.95			
Pretimed (P) or Actuated (A)	A	A			A	A	A		A			
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0		2.0			
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0		2.0			
Arrival Type, AT	3	3			3	3	3		3			
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0		3.0			
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000		1.000			
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0		0.0			
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0	220			
Lane Width	12.0	12.0			12.0	12.0	12.0		12.0			
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0		0			
Min. Time for Pedestrians, G_p		3.2			3.2			3.2				

Phasing	EW Perm	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 24.3	G = 87.3	G =	G =	G = 33.4	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 160.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	622	2091			2596	549	531		564			
Lane Group Capacity, c	502	3558			2664	1524	690		563			
v/c Ratio, X	1.24	0.59			0.97	0.36	0.77		1.00			
Total Green Ratio, g/C	0.15	0.73			0.55	1.00	0.21		0.21			
Uniform Delay, d_1	67.8	10.3			35.3	0.0	59.7		63.3			
Progression Factor, PF	1.000	1.000			1.000	0.950	1.000		1.000			
Delay Calibration, k	0.50	0.18			0.48	0.11	0.32		0.50			
Incremental Delay, d_2	123.7	0.3			12.1	0.1	5.3		38.4			
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay	191.6	10.6			47.3	0.1	65.0		101.7			
	F	B			D	A	E		F			

Lane Group LOS												
Approach Delay	52.1			39.1			83.9					
Approach LOS	D			D			F					
Intersection Delay	51.2			X_c = 1.02			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		**Site Information**	
Analyst	*JAS*	Intersection	*I-75 Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*SPUI Alternative - 2020*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3	1	2	3	1	3		2	3		2
Lane Group	L	T	R	L	T	R	L		R	L		R
Volume, V (vph)	560	1385	489	492	1870	500	504		756	497		333
% Heavy Vehicles, %HV	6	6	6	6	6	6	6		6	6		6
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.95		0.95	0.90		0.90
Pretimed (P) or Actuated (A)	A	A	A	A	A	A	A		A	A		A
Start-up Lost Time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Extension of Effective Green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Arrival Type, AT	3	3	3	3	3	3	3		3	3		3
Unit Extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Filtering/Metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000
Initial Unmet Demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	220	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0	0	0	0	0	0		0	0		0
Min. Time for Pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	Excl. Left	Thru & RT	03	04	NS Perm	06	07	08
Timing	G = 29.0	G = 73.6	G =	G =	G = 30.4	G =	G =	G =
	Y = 5	Y = 7	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	622	1539	543	541	2055	549	531		564	552		370
Lane Group Capacity, c	639	2396	1128	639	2396	1128	940		547	940		547
v/c Ratio, X	0.97	0.64	0.48	0.85	0.86	0.49	0.56		1.03	0.59		0.68
Total Green Ratio, g/C	0.19	0.49	0.74	0.19	0.49	0.74	0.20		0.20	0.20		0.20
Uniform Delay, d_1	60.1	28.4	7.9	58.4	33.6	7.9	53.8		59.8	54.1		55.3
Progression Factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000
Delay Calibration, k	0.48	0.22	0.11	0.38	0.39	0.11	0.16		0.50	0.18		0.25
Incremental Delay, d_2	28.9	0.6	0.3	10.3	3.3	0.3	0.8		46.7	1.0		3.3
Initial Queue Delay, d_3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Control Delay	89.0	29.0	8.2	68.6	36.9	8.3	54.6		106.5	55.1		58.6
Lane Group LOS	F	C	A	E	D	A	D		F	E		E

Approach Delay	*38.6*	*37.4*	*81.3*	*56.5*
Approach LOS	*D*	*D*	*F*	*E*
Intersection Delay	*46.2*	$X_c = 0.92$	Intersection LOS	*D*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/09/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	WB to SB Loop Ramp Alternative (WB Thru Only) - 2020 NB-FF

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3		3					
Lane Group	L	T			T		L					
Volume, V (vph)	560	1882			1870		504					
% Heavy Vehicles, %HV	6	6			6		6					
Peak-Hour Factor, PHF	0.90	0.90			0.91		0.95					
Pretimed (P) or Actuated (A)	A	A			A		A					
Start-up Lost Time, l_1	2.0	2.0			2.0		2.0					
Extension of Effective Green, e	2.0	2.0			2.0		2.0					
Arrival Type, AT	3	3			3		3					
Unit Extension, UE	3.0	3.0			3.0		3.0					
Filtering/Metering, I	1.000	1.000			1.000		1.000					
Initial Unmet Demand, Q_b	0.0	0.0			0.0		0.0					
Ped / Bike / RTOR Volumes	0	0		0	0		0	0				
Lane Width	12.0	12.0			12.0		12.0					
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0		0					
Min. Time for Pedestrians, G_p	3.2			3.2			3.2					

Phasing	EB Only	Thru Only	03	04	NB Only	06	07	08
Timing	G = 27.3	G = 72.3	G =	G =	G = 15.4	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 130.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	622	2091			2055		531					
Lane Group Capacity, c	694	3929			2716		550					
v/c Ratio, X	0.90	0.53			0.76		0.97					
Total Green Ratio, g/C	0.21	0.80			0.56		0.12					
Uniform Delay, d_1	50.0	4.3			22.1		57.0					
Progression Factor, PF	1.000	1.000			1.000		1.000					
Delay Calibration, k	0.42	0.14			0.31		0.47					
Incremental Delay, d_2	14.4	0.1			1.3		29.7					
Initial Queue Delay, d_3	0.0	0.0			0.0		0.0					
Control Delay	64.3	4.5			23.4		86.8					
	E	A			C		F					

Lane Group LOS												
Approach Delay	18.2			23.4			86.8					
Approach LOS	B			C			F					
Intersection Delay	27.1			$X_c = 0.82$			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/09/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	WB to SB Loop Ramp Alternative (WB Lane to Ramp Only)- 2020

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2				1	1						
Lane Group	L				T	R						
Volume, V (vph)	560				492	500						
% Heavy Vehicles, %HV	6				6	6						
Peak-Hour Factor, PHF	0.90				0.91	0.91						
Pretimed (P) or Actuated (A)	A				A	A						
Start-up Lost Time, l_1	2.0				2.0	2.0						
Extension of Effective Green, e	2.0				2.0	2.0						
Arrival Type, AT	3				3	3						
Unit Extension, UE	3.0				3.0	3.0						
Filtering/Metering, I	1.000				1.000	1.000						
Initial Unmet Demand, Q_b	0.0				0.0	0.0						
Ped / Bike / RTOR Volumes	0	0		0	0	0						
Lane Width	12.0				12.0	12.0						
Parking / Grade / Parking	N	0	N	N	0	N						
Parking Maneuvers, N_m												
Buses Stopping, N_B	0				0	0						
Min. Time for Pedestrians, G_p		3.2			3.2							

Phasing	EB Only	WB Only	03	04	05	06	07	08
Timing	G = 27.3	G = 92.7	G =	G =	G =	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y =	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 130.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	622				541	549						
Lane Group Capacity, c	694				1278	1087						
v/c Ratio, X	0.90				0.42	0.51						
Total Green Ratio, g/C	0.21				0.71	0.71						
Uniform Delay, d_1	50.0				7.7	8.4						
Progression Factor, PF	1.000				1.000	1.000						
Delay Calibration, k	0.42				0.11	0.11						
Incremental Delay, d_2	14.4				0.2	0.4						
Initial Queue Delay, d_3	0.0				0.0	0.0						
Control Delay	64.3				7.9	8.7						
	E				A	A						

Lane Group LOS				
Approach Delay	*64.3*	*8.3*		
Approach LOS	*E*	*A*		
Intersection Delay	*28.7*	$X_c = 0.59$	Intersection LOS	*C*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	WB to SB Flyover Alternative - 2020

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3	1	3					
Lane Group	L	T			T	R	L					
Volume, V (vph)	560	1882			1870	500	504					
% Heavy Vehicles, %HV	6	6			6	6	6					
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90	0.90					
Pretimed (P) or Actuated (A)	A	A			A	A	A					
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0					
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0					
Arrival Type, AT	3	3			3	3	3					
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0					
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000					
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0					
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0				
Lane Width	12.0	12.0			12.0	12.0	12.0					
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0					
Min. Time for Pedestrians, G_p	3.2			3.2			3.2					

Phasing	EB Only	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 27.1	G = 78.2	G =	G =	G = 29.7	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	622	2091			2078	556	560					
Lane Group Capacity, c	597	3591			2546	1147	919					
v/c Ratio, X	1.04	0.58			0.82	0.48	0.61					
Total Green Ratio, g/C	0.18	0.74			0.52	0.75	0.20					
Uniform Delay, d_1	61.5	9.2			29.9	7.2	54.9					
Progression Factor, PF	1.000	1.000			1.000	1.000	1.000					
Delay Calibration, k	0.50	0.17			0.36	0.11	0.20					
Incremental Delay, d_2	48.2	0.2			2.2	0.3	1.2					
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0					
Control Delay	109.6	9.4			32.1	7.5	56.0					
Lane Group LOS	F	A			C	A	E					

Approach Delay	*32.4*	*26.9*	*56.0*	
Approach LOS	*C*	*C*	*E*	
Intersection Delay	*32.2*	$X_c = 0.82$	Intersection LOS	*C*

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*JAS*	Intersection	*I-75 NB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/08/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*NB to WB Flyover Alternative - 2020*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3	1						
Lane Group	L	T			T	R						
Volume, V (vph)	560	1882			1870	500						
% Heavy Vehicles, %HV	6	6			6	6						
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90						
Pretimed (P) or Actuated (A)	A	A			A	A						
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0						
Extension of Effective Green, e	2.0	2.0			2.0	2.0						
Arrival Type, AT	3	3			3	3						
Unit Extension, UE	3.0	3.0			3.0	3.0						
Filtering/Metering, I	1.000	1.000			1.000	1.000						
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0						
Ped / Bike / RTOR Volumes	0	0		0	0	0						
Lane Width	12.0	12.0			12.0	12.0						
Parking / Grade / Parking	N	0	N	N	0	N						
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0						
Min. Time for Pedestrians, G_p	3.2			3.2								

Phasing	EB Only	Thru & RT	03	04	05	06	07	08
Timing	G = 32.0	G = 108.0	G =	G =	G =	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y =	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	622	2091			2078	556						
Lane Group Capacity, c	705	4883			3516	1097						
v/c Ratio, X	0.88	0.43			0.59	0.51						
Total Green Ratio, g/C	0.21	1.00			0.72	0.72						
Uniform Delay, d_1	57.2	0.0			10.2	9.3						
Progression Factor, PF	1.000	0.950			1.000	1.000						
Delay Calibration, k	0.41	0.11			0.18	0.12						
Incremental Delay, d_2	12.6	0.1			0.3	0.4						
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0						
Control Delay	69.8	0.1			10.5	9.6						
	E	A			B	A						

Lane Group LOS												
Approach Delay	*16.0*			*10.3*								
Approach LOS	*B*			*B*								
Intersection Delay	*13.2*			$X_c = 0.66$			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 SB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	Lane Improvement Alternative - 2020

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1	2	3					2		2
Lane Group		T	R	L	T					L		R
Volume, V (vph)		1945	489	492	2374					497		333
% Heavy Vehicles, %HV		6	6	6	6					6		6
Peak-Hour Factor, PHF		0.88	0.88	0.95	0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A	A	A					A		A
Start-up Lost Time, l_1		2.0	2.0	2.0	2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0		2.0
Arrival Type, AT		3	3	3	3					3		3
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0	0.0	0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0	0	0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	EW Perm	Thru & RT	03	04	SB Only	06	07	08
Timing	G = 21.0	G = 90.2	G =	G =	G = 33.8	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 160.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		2210	272	518	2499					558		296
Lane Group Capacity, c		2753	1524	434	3546					699		570
v/c Ratio, X		0.80	0.18	1.19	0.70					0.80		0.52
Total Green Ratio, g/C		0.56	1.00	0.13	0.73					0.21		0.21
Uniform Delay, d_1		27.8	0.0	69.5	12.3					59.9		55.9
Progression Factor, PF		1.000	0.950	1.000	1.000					1.000		1.000
Delay Calibration, k		0.35	0.11	0.50	0.27					0.34		0.13
Incremental Delay, d_2		1.8	0.1	107.8	0.7					6.5		0.8
Initial Queue Delay, d_3		0.0	0.0	0.0	0.0					0.0		0.0
Control Delay		29.6	0.1	177.3	12.9					66.4		56.8
		C	A	F	B					E		E

Lane Group LOS				
Approach Delay	26.4	41.1		63.0
Approach LOS	C	D		E
Intersection Delay	38.3	X_c = 0.86	Intersection LOS	D

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*JAS*	Intersection	*I-75 SB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/09/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*WB to SB Loop Ramp Alternative - 2020*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1		3					2		2
Lane Group		T	R		T					L		R
Volume, V (vph)		1945	489		2374					497		333
% Heavy Vehicles, %HV		6	6		6					6		6
Peak-Hour Factor, PHF		0.88	0.88		0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A		A					A		A
Start-up Lost Time, l_1		2.0	2.0		2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0		2.0					2.0		2.0
Arrival Type, AT		3	3		3					3		3
Unit Extension, UE		3.0	3.0		3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000		1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0		0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0		12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0		0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	Thru & RT	02	03	04	SB Only	06	07	08
Timing	G = 89.2	G =	G =	G =	G = 30.8	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 130.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		2210	272		2499					558		296
Lane Group Capacity, c		3350	1524		3350					784		639
v/c Ratio, X		0.66	0.18		0.75					0.71		0.46
Total Green Ratio, g/C		0.69	1.00		0.69					0.24		0.24
Uniform Delay, d_1		11.7	0.0		13.1					45.5		42.5
Progression Factor, PF		1.000	0.950		1.000					1.000		1.000
Delay Calibration, k		0.23	0.11		0.30					0.28		0.11
Incremental Delay, d_2		0.5	0.1		0.9					3.0		0.5
Initial Queue Delay, d_3		0.0	0.0		0.0					0.0		0.0
Control Delay		12.2	0.1		14.1					48.6		43.0
Lane Group LOS		B	A		B					D		D

Approach Delay	*10.9*	*14.1*		*46.7*
Approach LOS	*B*	*B*		*D*
Intersection Delay	*17.5*	$X_c = 0.74$	Intersection LOS	*B*

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HCS+™ DETAILED REPORT

General Information		**Site Information**	
Analyst	JAS	Intersection	I-75 SB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	WB to SB Flyover Alternative - 2020

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3			3					3		2
Lane Group		T			T					L		R
Volume, V (vph)		1385			2374					497		333
% Heavy Vehicles, %HV		6			6					6		6
Peak-Hour Factor, PHF		0.88			0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A			A					A		A
Start-up Lost Time, l_1		2.0			2.0					2.0		2.0
Extension of Effective Green, e		2.0			2.0					2.0		2.0
Arrival Type, AT		3			3					3		3
Unit Extension, UE		3.0			3.0					3.0		3.0
Filtering/Metering, I		1.000			1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0			0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	70
Lane Width		12.0			12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0			0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	Thru Only	02	03	04	SB Only	06	07	08
Timing	G = 97.3	G =	G =	G =	G = 42.7	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		1574			2499					558		296
Lane Group Capacity, c		3167			3167					1321		768
v/c Ratio, X		0.50			0.79					0.42		0.39
Total Green Ratio, g/C		0.65			0.65					0.28		0.28
Uniform Delay, d_1		13.7			19.0					43.6		43.1
Progression Factor, PF		1.000			1.000					1.000		1.000
Delay Calibration, k		0.11			0.34					0.11		0.11
Incremental Delay, d_2		0.1			1.4					0.2		0.3
Initial Queue Delay, d_3		0.0			0.0					0.0		0.0
Control Delay		13.8			20.4					43.8		43.4
Lane Group LOS		B			C					D		D

Approach Delay	13.8	20.4		43.7
Approach LOS	B	C		D
Intersection Delay	22.3	$X_c = 0.68$	Intersection LOS	C

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 SB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/08/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	NB to WB Flyover Alternative - 2020

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1	2	3					3		2
Lane Group		T	R	L	T					L		R
Volume, V (vph)		1385	489	492	1870					497		333
% Heavy Vehicles, %HV		6	6	0	6					6		6
Peak-Hour Factor, PHF		0.88	0.88	0.90	0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A	A	A					A		A
Start-up Lost Time, l_1		2.0	2.0	2.0	2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0		2.0
Arrival Type, AT		3	3	3	3					3		3
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0	0.0	0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0	0	0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	WB Only	Thru & RT	03	04	SB Only	06	07	08
Timing	G = 34.3	G = 71.1	G =	G =	G = 29.6	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		1574	272	547	1968					558		296
Lane Group Capacity, c		2315	1074	801	3594					915		532
v/c Ratio, X		0.68	0.25	0.68	0.55					0.61		0.56
Total Green Ratio, g/C		0.47	0.70	0.23	0.74					0.20		0.20
Uniform Delay, d_1		30.6	8.0	52.9	8.8					54.9		54.3
Progression Factor, PF		1.000	1.000	1.000	1.000					1.000		1.000
Delay Calibration, k		0.25	0.11	0.25	0.15					0.20		0.15
Incremental Delay, d_2		0.8	0.1	2.4	0.2					1.2		1.3
Initial Queue Delay, d_3		0.0	0.0	0.0	0.0					0.0		0.0
Control Delay		31.4	8.1	55.3	8.9					56.1		55.6
		C	A	E	A					E		E

Lane Group LOS				
Approach Delay	28.0	19.0		55.9
Approach LOS	C	B		E
Intersection Delay	28.2	X_c = 0.67	Intersection LOS	C

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APPENDIX 'N'

DESIGN YEAR (2030) BUILD INTERSECTION LOS

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 NB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/03/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	NB Loop Ramp Alternative - 2030 (WBT=2, SBLT=2)

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	2			2					2		2
Lane Group	L	T			T					L		R
Volume, V (vph)	436	246			713					546		714
% Heavy Vehicles, %HV	10	5			4					9		6
Peak-Hour Factor, PHF	0.85	0.85			0.85					0.91		0.91
Pretimed (P) or Actuated (A)	A	A			A					A		A
Start-up Lost Time, l_1	2.0	2.0			2.0					2.0		2.0
Extension of Effective Green, e	2.0	2.0			2.0					2.0		2.0
Arrival Type, AT	3	3			3					3		3
Unit Extension, UE	3.0	3.0			3.0					3.0		3.0
Filtering/Metering, I	1.000	1.000			1.000					1.000		1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	0
Lane Width	12.0	12.0			12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0					0		0
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 15.9	G = 16.4	G =	G =	G = 12.7	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	513	289			839					600		785
Lane Group Capacity, c	555	2142			951					681		1510
v/c Ratio, X	0.92	0.13			0.88					0.88		0.52
Total Green Ratio, g/C	0.62	0.62			0.27					0.21		0.56
Uniform Delay, d_1	13.8	4.7			20.9					22.9		8.2
Progression Factor, PF	1.000	1.000			1.000					1.000		1.000
Delay Calibration, k	0.44	0.11			0.41					0.41		0.13
Incremental Delay, d_2	21.4	0.0			9.8					12.9		0.3
Initial Queue Delay, d_3	0.0	0.0			0.0					0.0		0.0
Control Delay	35.3	4.7			30.6					35.8		8.5
Lane Group LOS	D	A			C					D		A

Approach Delay	*24.3*	*30.6*		*20.3*
Approach LOS	*C*	*C*		*C*
Intersection Delay	*24.2*	$X_c = 0.83$	Intersection LOS	*C*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 NB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/03/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	NB Loop Ramp Alternative - 2030 (WBT=2, SBLT=1)

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	2			2					1		2
Lane Group	L	T			T					L		R
Volume, V (vph)	436	246			713					546		714
% Heavy Vehicles, %HV	10	5			4					9		6
Peak-Hour Factor, PHF	0.85	0.85			0.85					0.91		0.91
Pretimed (P) or Actuated (A)	A	A			A					A		A
Start-up Lost Time, l_1	2.0	2.0			2.0					2.0		2.0
Extension of Effective Green, e	2.0	2.0			2.0					2.0		2.0
Arrival Type, AT	3	3			3					3		3
Unit Extension, UE	3.0	3.0			3.0					3.0		3.0
Filtering/Metering, I	1.000	1.000			1.000					1.000		1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	0
Lane Width	12.0	12.0			12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0					0		0
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 29.3	G = 37.9	G =	G =	G = 37.8	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 120.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	513	289			839					600		785
Lane Group Capacity, c	480	2073			1098					522		1620
v/c Ratio, X	1.07	0.14			0.76					1.15		0.48
Total Green Ratio, g/C	0.60	0.60			0.32					0.31		0.60
Uniform Delay, d_1	33.7	10.4			37.0					41.1		13.5
Progression Factor, PF	1.000	1.000			1.000					1.000		1.000
Delay Calibration, k	0.50	0.11			0.32					0.50		0.11
Incremental Delay, d_2	60.7	0.0			3.3					87.6		0.2
Initial Queue Delay, d_3	0.0	0.0			0.0					0.0		0.0
Control Delay	94.4	10.4			40.3					128.7		13.7
Lane Group LOS	F	B			D					F		B

Approach Delay	64.1	40.3		63.5
Approach LOS	E	D		E
Intersection Delay	57.2	X_c = 1.21	Intersection LOS	E

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 NB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/03/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	NB Loop Ramp Alternative - 2030 (WBT=1, SBLT=1, SBRT=FF)

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1			1					1		
Lane Group	L	T			T					L		
Volume, V (vph)	436	246			713					546		
% Heavy Vehicles, %HV	10	5			4					9		
Peak-Hour Factor, PHF	0.85	0.85			0.85					0.91		
Pretimed (P) or Actuated (A)	A	A			A					A		
Start-up Lost Time, l_1	2.0	2.0			2.0					2.0		
Extension of Effective Green, e	2.0	2.0			2.0					2.0		
Arrival Type, AT	3	3			3					3		
Unit Extension, UE	3.0	3.0			3.0					3.0		
Filtering/Metering, I	1.000	1.000			1.000					1.000		
Initial Unmet Demand, Q_b	0.0	0.0			0.0					0.0		
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	
Lane Width	12.0	12.0			12.0					12.0		
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0					0		
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 35.1	G = 59.9	G =	G =	G = 40.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	513	289			839					600		
Lane Group Capacity, c	472	1207			730					442		
v/c Ratio, X	1.09	0.24			1.15					1.36		
Total Green Ratio, g/C	0.67	0.67			0.40					0.27		
Uniform Delay, d_1	42.9	9.9			45.0					55.0		
Progression Factor, PF	1.000	1.000			1.000					1.000		
Delay Calibration, k	0.50	0.11			0.50					0.50		
Incremental Delay, d_2	66.9	0.1			82.6					175.1		
Initial Queue Delay, d_3	0.0	0.0			0.0					0.0		
Control Delay	109.8	10.0			127.7					230.1		
	F	B			F					F		

Lane Group LOS				
Approach Delay	73.9	127.7		230.1
Approach LOS	E	F		F
Intersection Delay	135.8	$X_c = 1.32$	Intersection LOS	F

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 NB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/03/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	NB Slip Ramp Alternative - 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	2			2	1	2					
Lane Group	L	T			T	R	L					
Volume, V (vph)	436	246			713	114	714					
% Heavy Vehicles, %HV	10	5			4	10	6					
Peak-Hour Factor, PHF	0.85	0.85			0.85	0.85	0.90					
Pretimed (P) or Actuated (A)	A	A			A	A	A					
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0					
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0					
Arrival Type, AT	3	3			3	3	3					
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0					
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000					
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0					
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0				
Lane Width	12.0	12.0			12.0	12.0	12.0					
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0					
Min. Time for Pedestrians, G_p		3.2			3.2			3.2				

Phasing	EB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 12.4	G = 16.5	G =	G =	G = 16.1	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	513	289			839	134	793					
Lane Group Capacity, c	459	1946			956	920	887					
v/c Ratio, X	1.12	0.15			0.88	0.15	0.89					
Total Green Ratio, g/C	0.56	0.56			0.28	0.63	0.27					
Uniform Delay, d_1	14.8	6.2			20.8	4.6	21.1					
Progression Factor, PF	1.000	1.000			1.000	1.000	1.000					
Delay Calibration, k	0.50	0.11			0.40	0.11	0.42					
Incremental Delay, d_2	78.2	0.0			9.3	0.1	11.5					
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0					
Control Delay	93.0	6.2			30.1	4.7	32.6					
Lane Group LOS	F	A			C	A	C					

Approach Delay	*61.7*	*26.6*	*32.6*	
Approach LOS	*E*	*C*	*C*	
Intersection Delay	*39.4*	$X_c = 1.19$	Intersection LOS	*D*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 SB Ramps @ CR 41
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	11/03/2006	Jurisdiction	Pasco County
Time Period		Analysis Year	
		Project ID	SB Ramps - 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		2		1	2		1		1			
Lane Group		T		L	T		L		R			
Volume, V (vph)		484		510	918		232		198			
% Heavy Vehicles, %HV		4		3	6		10		10			
Peak-Hour Factor, PHF		0.88		0.95	0.95		0.89		0.89			
Pretimed (P) or Actuated (A)		A		A	A		A		A			
Start-up Lost Time, l_1		2.0		2.0	2.0		2.0		2.0			
Extension of Effective Green, e		2.0		2.0	2.0		2.0		2.0			
Arrival Type, AT		3		3	3		3		3			
Unit Extension, UE		3.0		3.0	3.0		3.0		3.0			
Filtering/Metering, I		1.000		1.000	1.000		1.000		1.000			
Initial Unmet Demand, Q_b		0.0		0.0	0.0		0.0		0.0			
Ped / Bike / RTOR Volumes	0	0		0	0		0	0	15			
Lane Width		12.0		12.0	12.0		12.0		12.0			
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B		0		0	0		0		0			
Min. Time for Pedestrians, G_p		3.2			3.2			3.2				

Phasing	WB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 16.5	G = 16.9	G =	G =	G = 11.6	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 60.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		550		537	966		261		206			
Lane Group Capacity, c		980		670	2184		317		810			
v/c Ratio, X		0.56		0.80	0.44		0.82		0.25			
Total Green Ratio, g/C		0.28		0.64	0.64		0.19		0.55			
Uniform Delay, d_1		18.4		7.7	5.4		23.2		7.0			
Progression Factor, PF		1.000		1.000	1.000		1.000		1.000			
Delay Calibration, k		0.16		0.35	0.11		0.36		0.11			
Incremental Delay, d_2		0.7		6.9	0.1		16.0		0.2			
Initial Queue Delay, d_3		0.0		0.0	0.0		0.0		0.0			
Control Delay		19.1		14.7	5.6		39.2		7.2			
Lane Group LOS		B		B	A		D		A			
		19.1			8.8			25.1				

Approach Delay				
Approach LOS	*B*	*A*	*C*	
Intersection Delay	*14.1*	$X_c = 0.79$	Intersection LOS	*B*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	10/26/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	Lane Improvement Alternative - 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3	1	2		2			
Lane Group	L	T			T	R	L		R			
Volume, V (vph)	774	2584			3242	686	672		1008			
% Heavy Vehicles, %HV	6	6			6	6	6		6			
Peak-Hour Factor, PHF	0.90	0.90			0.91	0.91	0.95		0.95			
Pretimed (P) or Actuated (A)	A	A			A	A	A		A			
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0		2.0			
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0		2.0			
Arrival Type, AT	3	3			3	3	3		3			
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0		3.0			
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000		1.000			
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0		0.0			
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0	220			
Lane Width	12.0	12.0			12.0	12.0	12.0		12.0			
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0		0			
Min. Time for Pedestrians, G_p	3.2			3.2			3.2					

Phasing	EW Perm	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 24.3	G = 87.3	G =	G =	G = 33.4	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 160.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	860	2871			3563	754	707		829			
Lane Group Capacity, c	502	3558			2664	1524	690		563			
v/c Ratio, X	1.71	0.81			1.34	0.49	1.02		1.47			
Total Green Ratio, g/C	0.15	0.73			0.55	1.00	0.21		0.21			
Uniform Delay, d_1	67.8	14.3			36.3	0.0	63.3		63.3			
Progression Factor, PF	1.000	1.000			1.000	0.950	1.000		1.000			
Delay Calibration, k	0.50	0.35			0.50	0.11	0.50		0.50			
Incremental Delay, d_2	329.3	1.5			154.5	0.3	40.7		222.1			
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay	397.2	15.7			190.8	0.3	104.0		285.4			
	F	B			F	A	F		F			

Lane Group LOS				
Approach Delay	*103.7*	*157.6*	*201.9*	
Approach LOS	*F*	*F*	*F*	
Intersection Delay	*143.7*	$X_c = 1.43$	Intersection LOS	*F*

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HCS+™ DETAILED REPORT

General Information		**Site Information**	
Analyst	CRH	Intersection	I-75 Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	10/26/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	SPUI Alternative - 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3	1	2	3	1	3		2	3		2
Lane Group	L	T	R	L	T	R	L		R	L		R
Volume, V (vph)	774	1895	683	627	2615	686	672		1008	689		461
% Heavy Vehicles, %HV	6	6	6	6	6	6	6		6	6		6
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.95		0.95	0.90		0.90
Pretimed (P) or Actuated (A)	A	A	A	A	A	A	A		A	A		A
Start-up Lost Time, l_1	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Extension of Effective Green, e	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Arrival Type, AT	3	3	3	3	3	3	3		3	3		3
Unit Extension, UE	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0
Filtering/Metering, I	1.000	1.000	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000
Initial Unmet Demand, Q_b	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	220	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0	0	0	0	0	0		0	0		0
Min. Time for Pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	Excl. Left	Thru & RT	03	04	NS Perm	06	07	08
Timing	G = 29.0	G = 73.6	G =	G =	G = 30.4	G =	G =	G =
	Y = 5	Y = 7	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	860	2106	759	689	2874	754	707		829	766		512
Lane Group Capacity, c	639	2396	1128	639	2396	1128	940		547	940		547
v/c Ratio, X	1.35	0.88	0.67	1.08	1.20	0.67	0.75		1.52	0.81		0.94
Total Green Ratio, g/C	0.19	0.49	0.74	0.19	0.49	0.74	0.20		0.20	0.20		0.20
Uniform Delay, d_1	60.5	34.2	10.1	60.5	38.2	10.0	56.3		59.8	57.1		58.8
Progression Factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000
Delay Calibration, k	0.50	0.41	0.24	0.50	0.50	0.24	0.31		0.50	0.36		0.45
Incremental Delay, d_2	165.9	4.1	1.6	58.6	94.1	1.5	3.5		241.3	5.6		23.7
Initial Queue Delay, d_3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Control Delay	226.4	38.3	11.7	119.1	132.3	11.6	59.7		301.1	62.7		82.6
Lane Group LOS	F	D	B	F	F	B	E		F	E		F

Approach Delay	*76.3*	*109.1*	*190.0*	*70.7*
Approach LOS	*E*	*F*	*F*	*E*
Intersection Delay	*104.8*	$X_c = 1.30$	Intersection LOS	*F*

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HCS+™ DETAILED REPORT

General Information		**Site Information**	
Analyst	*JAS*	Intersection	*I-75 NB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*11/09/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*WB to SB Loop Ramp Alternative (WB Thru Only) - 2030 NB=FF*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*2*	*3*			*3*		*3*					
Lane Group	*L*	*T*			*T*		*L*					
Volume, V (vph)	*774*	*2584*			*2615*		*672*					
% Heavy Vehicles, %HV	*6*	*6*			*6*		*6*					
Peak-Hour Factor, PHF	*0.90*	*0.90*			*0.91*		*0.95*					
Pretimed (P) or Actuated (A)	*A*	*A*			*A*		*A*					
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*					
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*					
Arrival Type, AT	*3*	*3*			*3*		*3*					
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*					
Filtering/Metering, I	*1.000*	*1.000*			*1.000*		*1.000*					
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*					
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*				
Lane Width	*12.0*	*12.0*			*12.0*		*12.0*					
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*			
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*					
Min. Time for Pedestrians, G_p		*3.2*			*3.2*			*3.2*				

Phasing	EB Only	Thru Only	03	04	NB Only	06	07	08
Timing	G = *27.3*	G = *72.3*	G =	G =	G = *15.4*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *130.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*860*	*2871*			*2874*		*707*					
Lane Group Capacity, c	*694*	*3929*			*2716*		*550*					
v/c Ratio, X	*1.24*	*0.73*			*1.06*		*1.29*					
Total Green Ratio, g/C	*0.21*	*0.80*			*0.56*		*0.12*					
Uniform Delay, d_1	*51.4*	*6.0*			*28.8*		*57.3*					
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*					
Delay Calibration, k	*0.50*	*0.29*			*0.50*		*0.50*					
Incremental Delay, d_2	*119.7*	*0.7*			*35.2*		*141.8*					
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*		*0.0*					
Control Delay	*171.1*	*6.7*			*64.0*		*199.1*					
	F	*A*			*E*		*F*					

Lane Group LOS												
Approach Delay	*44.6*			*64.0*			*199.1*					
Approach LOS	*D*			*E*			*F*					
Intersection Delay	*67.2*			X_c = *1.13*			Intersection LOS			*E*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	10/26/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	WB to SB Loop Ramp Alternative (WB Lane to Ramp Only)- 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2				1	1						
Lane Group	L				T	R						
Volume, V (vph)	774				627	686						
% Heavy Vehicles, %HV	6				6	6						
Peak-Hour Factor, PHF	0.90				0.91	0.91						
Pretimed (P) or Actuated (A)	A				A	A						
Start-up Lost Time, l_1	2.0				2.0	2.0						
Extension of Effective Green, e	2.0				2.0	2.0						
Arrival Type, AT	3				3	3						
Unit Extension, UE	3.0				3.0	3.0						
Filtering/Metering, I	1.000				1.000	1.000						
Initial Unmet Demand, Q_b	0.0				0.0	0.0						
Ped / Bike / RTOR Volumes	0	0		0	0	0						
Lane Width	12.0				12.0	12.0						
Parking / Grade / Parking	N	0	N	N	0	N						
Parking Maneuvers, N_m												
Buses Stopping, N_B	0				0	0						
Min. Time for Pedestrians, G_p	3.2			3.2								

Phasing	EB Only	WB Only	03	04	05	06	07	08
Timing	G = 27.3	G = 92.7	G =	G =	G =	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y =	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 130.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	860				689	754						
Lane Group Capacity, c	694				1278	1087						
v/c Ratio, X	1.24				0.54	0.69						
Total Green Ratio, g/C	0.21				0.71	0.71						
Uniform Delay, d_1	51.4				8.7	10.6						
Progression Factor, PF	1.000				1.000	1.000						
Delay Calibration, k	0.50				0.14	0.26						
Incremental Delay, d_2	119.7				0.5	1.9						
Initial Queue Delay, d_3	0.0				0.0	0.0						
Control Delay	171.1				9.2	12.5						
	F				A	B						

Lane Group LOS				
Approach Delay	*171.1*	*10.9*		
Approach LOS	*F*	*B*		
Intersection Delay	*70.7*	$X_c = 0.82$	Intersection LOS	*E*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 NB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	10/26/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	WB to SB Flyover Alternative - 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3	1	3					
Lane Group	L	T			T	R	L					
Volume, V (vph)	774	2584			2615	686	672					
% Heavy Vehicles, %HV	6	6			6	6	6					
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90	0.90					
Pretimed (P) or Actuated (A)	A	A			A	A	A					
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0	2.0					
Extension of Effective Green, e	2.0	2.0			2.0	2.0	2.0					
Arrival Type, AT	3	3			3	3	3					
Unit Extension, UE	3.0	3.0			3.0	3.0	3.0					
Filtering/Metering, I	1.000	1.000			1.000	1.000	1.000					
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0	0.0					
Ped / Bike / RTOR Volumes	0	0		0	0	0	0	0				
Lane Width	12.0	12.0			12.0	12.0	12.0					
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N			
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0	0					
Min. Time for Pedestrians, G_p	3.2			3.2			3.2					

Phasing	EB Only	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 27.1	G = 78.2	G =	G =	G = 29.7	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	860	2871			2906	762	747					
Lane Group Capacity, c	597	3591			2546	1147	919					
v/c Ratio, X	1.44	0.80			1.14	0.66	0.81					
Total Green Ratio, g/C	0.18	0.74			0.52	0.75	0.20					
Uniform Delay, d_1	61.5	12.7			35.9	9.2	57.5					
Progression Factor, PF	1.000	1.000			1.000	1.000	1.000					
Delay Calibration, k	0.50	0.34			0.50	0.24	0.35					
Incremental Delay, d_2	207.7	1.4			68.9	1.5	5.6					
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0	0.0					
Control Delay	269.1	14.1			104.8	10.6	63.1					
Lane Group LOS	F	B			F	B	E					

Approach Delay	72.9	85.2	63.1	
Approach LOS	E	F	E	
Intersection Delay	77.6	$X_c = 1.13$	Intersection LOS	E

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*CRH*	Intersection	*I-75 NB Ramps @ SR 50*
Agency or Co.	*FDOT*	Area Type	*All other areas*
Date Performed	*10/26/2006*	Jurisdiction	*Hernando*
Time Period		Analysis Year	
		Project ID	*NB to WB Flyover Alternative - 2030*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	2	3			3	1						
Lane Group	L	T			T	R						
Volume, V (vph)	774	2584			2615	686						
% Heavy Vehicles, %HV	6	6			6	6						
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90						
Pretimed (P) or Actuated (A)	A	A			A	A						
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0						
Extension of Effective Green, e	2.0	2.0			2.0	2.0						
Arrival Type, AT	3	3			3	3						
Unit Extension, UE	3.0	3.0			3.0	3.0						
Filtering/Metering, I	1.000	1.000			1.000	1.000						
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0						
Ped / Bike / RTOR Volumes	0	0		0	0	0						
Lane Width	12.0	12.0			12.0	12.0						
Parking / Grade / Parking	N	0	N	N	0	N						
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0	0						
Min. Time for Pedestrians, G_p		3.2			3.2							

Phasing	EB Only	Thru & RT	03	04	05	06	07	08
Timing	G = 32.0	G = 108.0	G =	G =	G =	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y =	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	860	2871			2906	762						
Lane Group Capacity, c	705	4883			3516	1097						
v/c Ratio, X	1.22	0.59			0.83	0.69						
Total Green Ratio, g/C	0.21	1.00			0.72	0.72						
Uniform Delay, d_1	59.0	0.0			14.5	11.8						
Progression Factor, PF	1.000	0.950			1.000	1.000						
Delay Calibration, k	0.50	0.18			0.36	0.26						
Incremental Delay, d_2	111.5	0.2			1.7	1.9						
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0						
Control Delay	170.5	0.2			16.3	13.7						
	F	A			B	B						

Lane Group LOS				
Approach Delay	39.4	15.7		
Approach LOS	D	B		
Intersection Delay	27.7	$X_c = 0.92$	Intersection LOS	C

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 SB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	10/26/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	Lane Improvement Alternative - 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1	2	3					2		2
Lane Group		T	R	L	T					L		R
Volume, V (vph)		2669	683	627	3287					689		461
% Heavy Vehicles, %HV		6	6	6	6					6		6
Peak-Hour Factor, PHF		0.88	0.88	0.95	0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A	A	A					A		A
Start-up Lost Time, l_1		2.0	2.0	2.0	2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0		2.0
Arrival Type, AT		3	3	3	3					3		3
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0	0.0	0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0	0	0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	EW Perm	Thru & RT	03	04	SB Only	06	07	08
Timing	G = 21.0	G = 90.2	G =	G =	G = 33.8	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 160.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		3033	492	660	3460					774		439
Lane Group Capacity, c		2753	1524	434	3546					699		570
v/c Ratio, X		1.10	0.32	1.52	0.98					1.11		0.77
Total Green Ratio, g/C		0.56	1.00	0.13	0.73					0.21		0.21
Uniform Delay, d_1		34.9	0.0	69.5	20.6					63.1		59.4
Progression Factor, PF		1.000	0.950	1.000	1.000					1.000		1.000
Delay Calibration, k		0.50	0.11	0.50	0.48					0.50		0.32
Incremental Delay, d_2		52.0	0.1	245.9	10.2					67.3		6.4
Initial Queue Delay, d_3		0.0	0.0	0.0	0.0					0.0		0.0
Control Delay		86.9	0.1	315.4	30.7					130.4		65.8
		F	A	F	C					F		E

Lane Group LOS				
Approach Delay	*74.8*	*76.3*		*107.1*
Approach LOS	*E*	*E*		*F*
Intersection Delay	*79.9*	$X_c = 1.16$	Intersection LOS	*E*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 SB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	10/26/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	WB to SB Loop Ramp Alternative - 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1		3					2		2
Lane Group		T	R		T					L		R
Volume, V (vph)		2669	683		3287					689		461
% Heavy Vehicles, %HV		6	6		6					6		6
Peak-Hour Factor, PHF		0.88	0.88		0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A		A					A		A
Start-up Lost Time, l_1		2.0	2.0		2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0		2.0					2.0		2.0
Arrival Type, AT		3	3		3					3		3
Unit Extension, UE		3.0	3.0		3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000		1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0		0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0		12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0		0					0		0
Min. Time for Pedestrians, G_p	3.2			3.2						3.2		

Phasing	Thru & RT	02	03	04	SB Only	06	07	08
Timing	G = 89.2	G =	G =	G =	G = 30.8	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 130.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		3033	492		3460					774		439
Lane Group Capacity, c		3350	1524		3350					784		639
v/c Ratio, X		0.91	0.32		1.03					0.99		0.69
Total Green Ratio, g/C		0.69	1.00		0.69					0.24		0.24
Uniform Delay, d_1		16.9	0.0		20.4					49.4		45.2
Progression Factor, PF		1.000	0.950		1.000					1.000		1.000
Delay Calibration, k		0.43	0.11		0.50					0.49		0.26
Incremental Delay, d_2		4.0	0.1		24.8					28.9		3.1
Initial Queue Delay, d_3		0.0	0.0		0.0					0.0		0.0
Control Delay		20.9	0.1		45.2					78.3		48.3
Lane Group LOS		C	A		D					E		D

Approach Delay	*18.0*	*45.2*		*67.4*
Approach LOS	*B*	*D*		*E*
Intersection Delay	*36.8*	$X_c = 1.02$	Intersection LOS	*D*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	JAS	Intersection	I-75 SB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	10/26/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	WB to SB Flyover Alternative - 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3			3					3		2
Lane Group		T			T					L		R
Volume, V (vph)		1895			3287					689		461
% Heavy Vehicles, %HV		6			6					6		6
Peak-Hour Factor, PHF		0.88			0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A			A					A		A
Start-up Lost Time, l_1		2.0			2.0					2.0		2.0
Extension of Effective Green, e		2.0			2.0					2.0		2.0
Arrival Type, AT		3			3					3		3
Unit Extension, UE		3.0			3.0					3.0		3.0
Filtering/Metering, I		1.000			1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0			0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0		0	0					0	0	70
Lane Width		12.0			12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0			0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	Thru Only	02	03	04	SB Only	06	07	08
Timing	G = 97.3	G =	G =	G =	G = 42.7	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25					Cycle Length, C = 150.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		2153			3460					774		439
Lane Group Capacity, c		3167			3167					1321		768
v/c Ratio, X		0.68			1.09					0.59		0.57
Total Green Ratio, g/C		0.65			0.65					0.28		0.28
Uniform Delay, d_1		16.6			26.3					46.1		45.8
Progression Factor, PF		1.000			1.000					1.000		1.000
Delay Calibration, k		0.25			0.50					0.18		0.17
Incremental Delay, d_2		0.6			47.5					0.7		1.0
Initial Queue Delay, d_3		0.0			0.0					0.0		0.0
Control Delay		17.2			73.9					46.7		46.9
Lane Group LOS		B			E					D		D

Approach Delay	*17.2*	*73.9*		*46.8*
Approach LOS	*B*	*E*		*D*
Intersection Delay	*51.2*	$X_c = 0.94$	Intersection LOS	*D*

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	CRH	Intersection	I-75 SB Ramps @ SR 50
Agency or Co.	FDOT	Area Type	All other areas
Date Performed	10/26/2006	Jurisdiction	Hernando
Time Period		Analysis Year	
		Project ID	NB to WB Flyover Alternative - 2030

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		3	1	2	3					3		2
Lane Group		T	R	L	T					L		R
Volume, V (vph)		1895	683	627	2615					689		461
% Heavy Vehicles, %HV		6	6	0	6					6		6
Peak-Hour Factor, PHF		0.88	0.88	0.90	0.95					0.89		0.89
Pretimed (P) or Actuated (A)		A	A	A	A					A		A
Start-up Lost Time, l_1		2.0	2.0	2.0	2.0					2.0		2.0
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0		2.0
Arrival Type, AT		3	3	3	3					3		3
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0		3.0
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000		1.000
Initial Unmet Demand, Q_b		0.0	0.0	0.0	0.0					0.0		0.0
Ped / Bike / RTOR Volumes	0	0	250	0	0					0	0	70
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
Parking / Grade / Parking	N	0	N	N	0	N				N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0	0	0	0					0		0
Min. Time for Pedestrians, G_p		3.2			3.2						3.2	

Phasing	WB Only	Thru & RT	03	04	SB Only	06	07	08
Timing	G = 34.3	G = 71.1	G =	G =	G = 29.6	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		2153	492	697	2753					774		439
Lane Group Capacity, c		2315	1074	801	3594					915		532
v/c Ratio, X		0.93	0.46	0.87	0.77					0.85		0.83
Total Green Ratio, g/C		0.47	0.70	0.23	0.74					0.20		0.20
Uniform Delay, d_1		37.1	9.7	55.7	12.0					58.0		57.7
Progression Factor, PF		1.000	1.000	1.000	1.000					1.000		1.000
Delay Calibration, k		0.45	0.11	0.40	0.32					0.38		0.36
Incremental Delay, d_2		7.4	0.3	10.2	1.0					7.4		10.3
Initial Queue Delay, d_3		0.0	0.0	0.0	0.0					0.0		0.0
Control Delay		44.6	10.0	65.9	13.0					65.4		68.0
		D	A	E	B					E		E

Lane Group LOS				
Approach Delay	*38.1*	*23.7*		*66.3*
Approach LOS	*D*	*C*		*E*
Intersection Delay	*36.0*	$X_c = 0.90$	Intersection LOS	*D*

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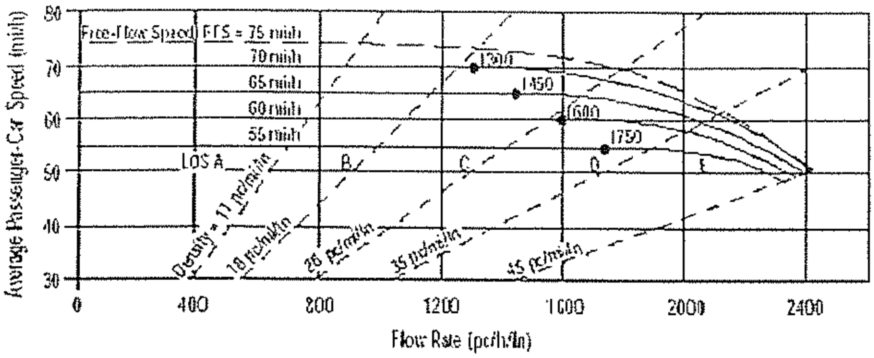
APPENDIX 'O'

OPENING YEAR (2010) BUILD FREEWAY SEGMENT AND RAMP LOS

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2010*

Project Description I-75 PD&E - 2010 NB South of CR 41 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3370*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1349*	pc/h/ln
S	*74.8*	mi/h
D = v_p / S	*18.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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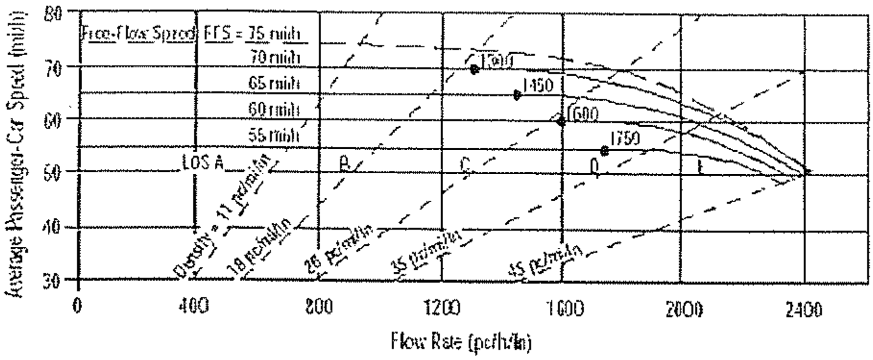
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2010*

Project Description I-75 PD&E - 2010 NB CR 41 to SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3090*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1252*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*16.7*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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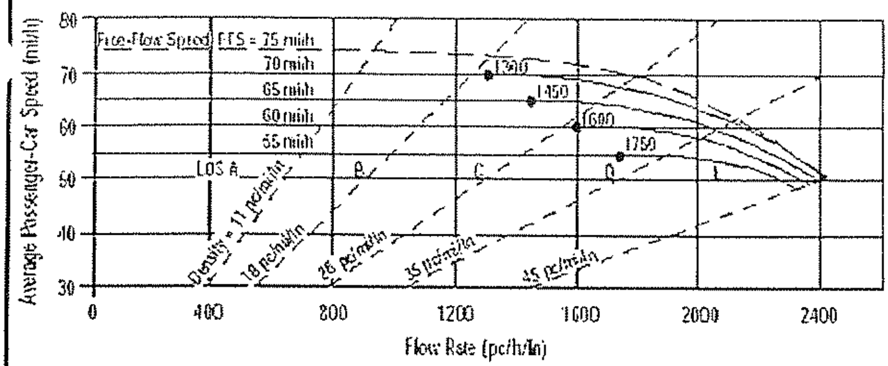
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*North of SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2010*

Project Description I-75 PD&E - 2010 NB North of SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2900*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T-1)+P_R(E_R-1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1163*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*15.5*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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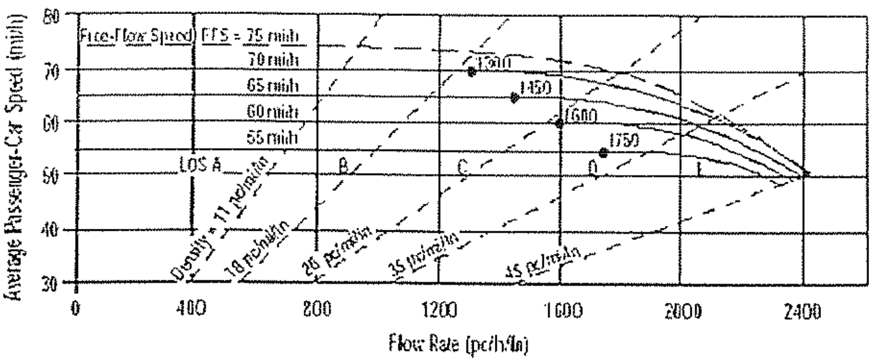
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	CRH	Highway/Direction of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	From/To	North of SR 50
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E - 2010 SB North of SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2240	veh/h	Peak-Hour Factor, PHF	0.93
AADT		veh/day	%Trucks and Buses, P_T	14
Peak-Hr Prop. of AADT, K			%RVs, P_R	2
Peak-Hr Direction Prop, D			General Terrain:	Level
DDHV = AADT x K x D		veh/h	Grade % Length	mi
Driver type adjustment	0.95		Up/Down %	

Calculate Flow Adjustments

f_p	0.95	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.931

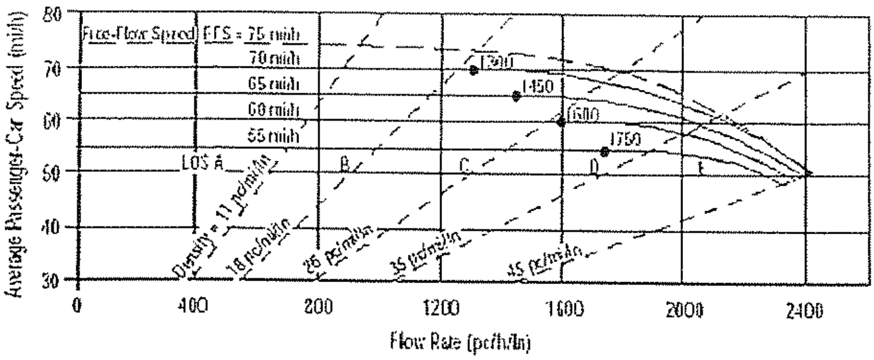
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	12.0	ft	f_{LW}	0.0	mi/h
Rt-Shoulder Lat. Clearance	6.0	ft	f_{LC}	0.0	mi/h
Interchange Density	0.50	I/mi	f_{ID}	0.0	mi/h
Number of Lanes, N	3		f_N	0.0	mi/h
FFS (measured)		mi/h	FFS	75.0	mi/h
Base free-flow Speed, BFFS	75.0	mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	908	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	75.0	mi/h	S	mi/h
D = v_p / S	12.1	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	B		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed		

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2010*

Project Description I-75 PD&E - 2010 SB CR 41 to SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2390*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*956*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*12.7*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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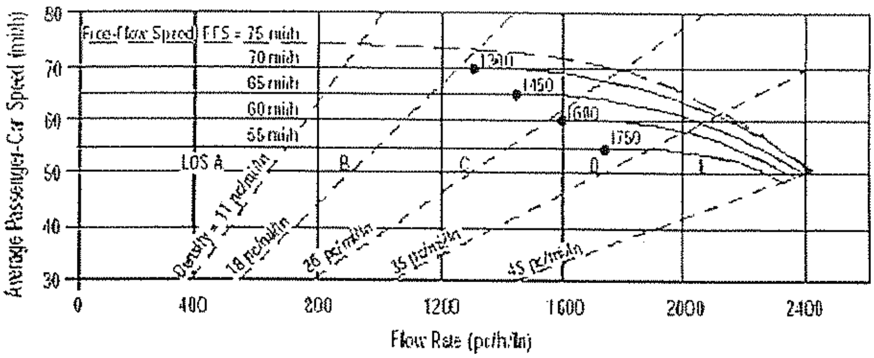
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2010*

Project Description I-75 PD&E - 2010 SB South of CR 41 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2610*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1044*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*13.9*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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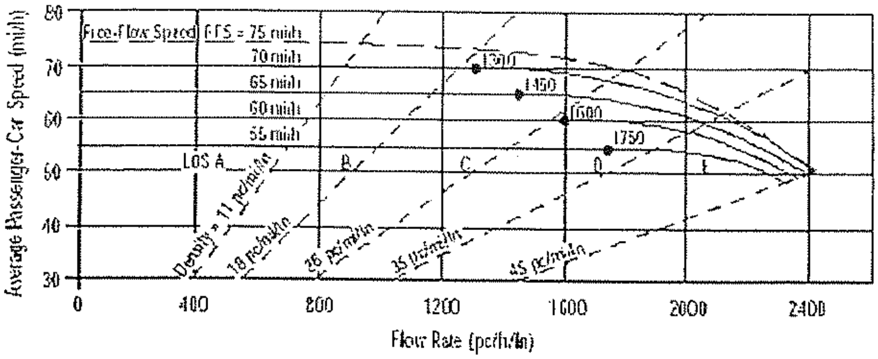
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2010*

Project Description I-75 PD&E Study - 2010 NB South of CR 41 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3370*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1011*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*13.5*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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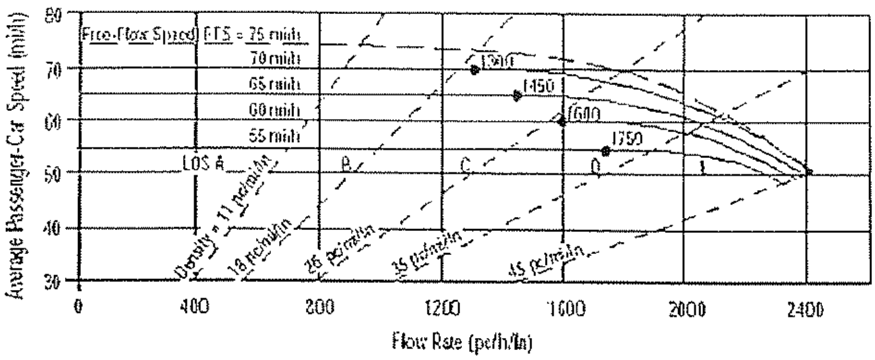
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2010*

Project Description I-75 PD&E - 2010 NB CR 41 to SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3090*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*939*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*12.5*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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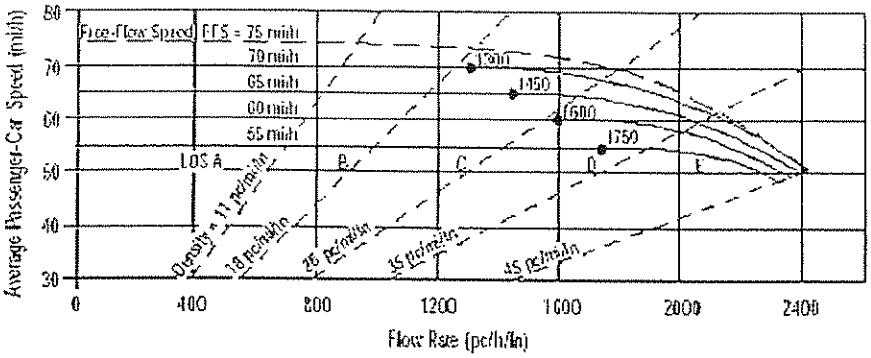

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*North of SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2010*

Project Description I-75 PD&E - 2010 NB North of SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2900*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*872*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*11.6*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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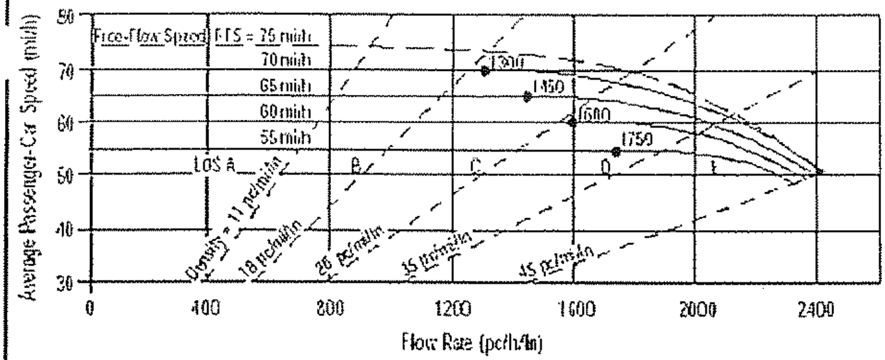
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*North of SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2010*

Project Description I-75 PD&E Study - 2010 SB North of SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2240*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
'river type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*681*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*9.1*	pc/mi/ln
LOS	*A*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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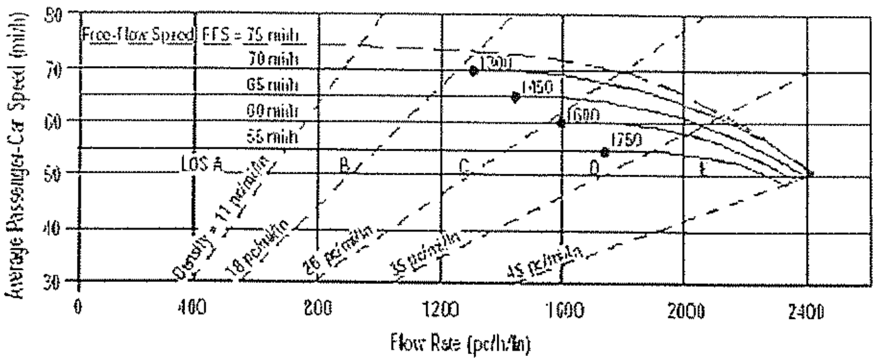
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Highway/Direction of Travel	I-75 Southbound
From/To	CR 41 to SR 50
Jurisdiction	Hernando County
Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB CR 41 to SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	2390	veh/h	Peak-Hour Factor, PHF	0.94
AADT		veh/day	%Trucks and Buses, P_T	14
Peak-Hr Prop. of AADT, K			%RVs, P_R	1
Peak-Hr Direction Prop, D			General Terrain:	Level
DDHV = AADT x K x D		veh/h	Grade % Length	mi
Driver type adjustment	0.95		Up/Down %	

Calculate Flow Adjustments

f_p	0.95	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.933

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	4	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	75.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	0.0	mi/h
FFS	75.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	717	pc/h/ln
S	75.0	mi/h
D = v_p / S	9.6	pc/mi/ln
LOS	A	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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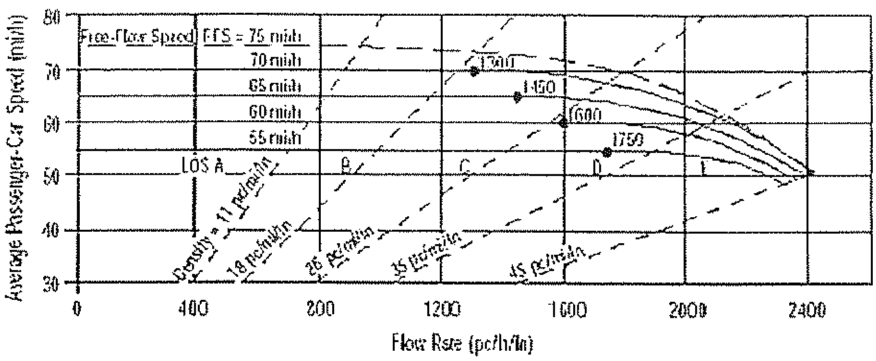

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*CRH*	Highway/Direction of Travel	*I-75 Southbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*South of CR 41*
Date Performed	*10/26/06*	Jurisdiction	*Pasco County*
Analysis Time Period	*DHV*	Analysis Year	*2010*

Project Description I-75 PD&E - 2010 SB South of CR 41 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2610*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}	*0.0*	mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}	*0.0*	mi/h
Interchange Density	*0.50*	I/mi	f_{ID}	*0.0*	mi/h
Number of Lanes, N	*4*		f_N	*0.0*	mi/h
FFS (measured)		mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*783*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*75.0*	mi/h	S	mi/h
D = v_p / S	*10.4*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*A*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed		

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	CR 41/Blanton Road Off-Ramp
Jurisdiction	Pasco County
Analysis Year	2010

Project Description I-75 PD&E Study - 2010 NB Off Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 620 ft

V_D = 180 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3370	0.94	Level	14	1	0.933	0.95	4046
Ramp	460	0.91	Level	10	1	0.951	0.95	560
UpStream								
DownStream	180	0.91	Level	10	1	0.951	0.95	219

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\,v_R + 0.0078\,V_{12} - 0.00627\,L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.633 using Equation (Exhibit 25-11)

V_{12} = 2767 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4046	7200	No
V_{12}	2767	4400:All	No
$V_{FO} = V_F - V_R$	3486	7200	No
V_R	560	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\,V_{12} - 0.0009\,L_D$$

D_R = 26.2 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.478 (Exhibit 25-19)

S_R= 56.6 mph (Exhibit 25-19)

S_0= 75.7 mph (Exhibit 25-19)

S = 61.5 mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Road Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 NB Off Ramp at CR 41 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft		L_{down} = 620 ft
V_u = veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 180 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3370	0.94	Level	14	1	0.933	0.95	4046
Ramp	460	0.91	Level	10	1	0.951	0.95	560
UpStream								
DownStream	180	0.91	Level	10	1	0.951	0.95	219

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 using Equation (Exhibit 25-11)

V_{12} = 2080 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4046	9600	No
V_{12}	2080	4400:All	No
$V_{FO} = V_F - V_R$	3486	9600	No
V_R	560	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 11.3 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

D_s = 0.478 (Exhibit 25-19)

S_R= 56.6 mph (Exhibit 25-19)

S_0= 76.8 mph (Exhibit 25-19)

S = 64.9 mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2010

Project Description I-75 FD&E Study - 2010 NB On Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 620 ft

V_u = 460 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2910	0.94	Level	14	1	0.933	0.95	3493
Ramp	180	0.91	Level	10	1	0.951	0.95	219
UpStream	460	0.91	Level	10	1	0.951	0.95	560
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = 444.57 (Equation 25-2 or 25-3)

P_{FM} = 0.591 using Equation (Exhibit 25-5)

V_{12} = 2066 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3712	See Exhibit 25-7	No
V_{R12}	2285	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 20.1 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.324 (Exibit 25-19)

S_R= 60.9 mph (Exhibit 25-19)

S_0= 66.7 mph (Exhibit 25-19)

S = 63.0 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2010

Project Description I-75 FD&E Study - 2010 NB On Ramp at CR 41 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 620 ft

V_u = 460 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2910	0.94	Level	14	1	0.933	0.95	3493
Ramp	180	0.91	Level	10	1	0.951	0.95	219
UpStream	460	0.91	Level	10	1	0.951	0.95	560
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.350 using Equation (Exhibit 25-5)

V_{12} = 1222 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3712	See Exhibit 25-7	No
V_{R12}	1441	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 13.5 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.302 (Exibit 25-19)

S_R= 61.5 mph (Exhibit 25-19)

S_0= 67.7 mph (Exhibit 25-19)

S = 65.2 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd Off-Ramp
Jurisdiction	Pasco County
Analysis Year	2030

Project Description I-75 PD&E Study - 2030 SB Off Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 700 ft

V_D = 360 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2390	0.94	Level	14	1	0.933	0.95	2869
Ramp	140	0.89	Level	10	1	0.951	0.95	174
UpStream								
DownStream	360	0.89	Level	10	1	0.951	0.95	448

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.680 using Equation (Exhibit 25-11)

V_{12} = 2007 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	2869	7200	No
V_{12}	2007	4400:All	No
$V_{FO} = V_F - V_R$	2695	7200	No
V_R	174	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 20.3 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.444 (Exhibit 25-19)

S_R= 57.6 mph (Exhibit 25-19)

S_0= 76.8 mph (Exhibit 25-19)

S = 62.3 mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB Off Ramp at CR 41 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 700 ft

V_D = 360 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	2390	0.94	Level	14	1	0.933	0.95	2869
Ramp	140	0.89	Level	10	1	0.951	0.95	174
UpStream								
DownStream	360	0.89	Level	10	1	0.951	0.95	448

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 using Equation (Exhibit 25-11)

V_{12} = 1349 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	2869	9600	No
V_{12}	1349	4400:All	No
$V_{FO} = V_F - V_R$	2695	9600	No
V_R	174	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 14.7 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

D_s = 0.444 (Exhibit 25-19)

S_R= 57.6 mph (Exhibit 25-19)

S_0= 76.8 mph (Exhibit 25-19)

S = 66.4 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB On Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 700 ft

V_u = 140 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2250	0.94	Level	14	1	0.933	0.95	2701
Ramp	360	0.89	Level	10	1	0.951	0.95	448
UpStream	140	0.89	Level	10	1	0.951	0.95	174
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = 457.29 (Equation 25-2 or 25-3)

P_{FM} = 0.600 using Equation (Exhibit 25-5)

V_{12} = 1620 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3149	See Exhibit 25-7	No
V_{R12}	2068	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 16.4 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.296 (Exibit 25-19)

S_R= 61.7 mph (Exhibit 25-19)

S_0= 67.9 mph (Exhibit 25-19)

S = 63.7 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB On Ramp (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 700 ft

V_u = 140 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2250	0.94	Level	14	1	0.933	0.95	2701
Ramp	360	0.89	Level	10	1	0.951	0.95	448
UpStream	140	0.89	Level	10	1	0.951	0.95	174
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.417 using Equation (Exhibit 25-5)

V_{12} = 1125 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3149	See Exhibit 25-7	No
V_{R12}	1573	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 12.5 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.284 (Exibit 25-19)

S_R= 62.1 mph (Exhibit 25-19)

S_0= 69.0 mph (Exhibit 25-19)

S = 65.3 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 NB Off Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft		L_{down} = 2360 ft
V_u = veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 660 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3090	0.93	Level	14	2	0.931	0.95	3756
Ramp	850	0.95	Level	19	2	0.910	0.95	1035
UpStream								
DownStream	660	0.95	Level	19	2	0.910	0.95	804

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.450 using Equation (Exhibit 25-11)

V_{12} = 2259 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{Fi} = V_F$	3756	7200	No
V_{12}	2259	4400:All	No
$V_{FO} = V_F - V_R$	2721	7200	No
V_R	1035	3800	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 5.7 (pc/mi/ln)

LOS = A (Exhibit 25-4)

Speed Estimation

D_s = 0.521 (Exhibit 25-19)

S_R= 55.4 mph (Exhibit 25-19)

S_0= 74.9 mph (Exhibit 25-19)

S = 61.8 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 NB Off Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft	S_{FF} = 70.0 mph S_{FR} = 35.0 mph	L_{down} = 2360 ft
V_u = veh/h	Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 660 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3090	0.93	Level	14	2	0.931	0.95	3756
Ramp	850	0.95	Level	19	2	0.910	0.95	1035
UpStream								
DownStream	660	0.95	Level	19	2	0.910	0.95	804

Merge Areas	Diverge Areas

Estimation of v_{12}

Merge Areas

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Diverge Areas

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.260 using Equation (Exhibit 25-11)

V_{12} = 1742 pc/h

Capacity Checks

Merge Areas

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Diverge Areas

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	3756	9600	No
V_{12}	1742	4400:All	No
$V_{FO} = V_F - V_R$	2721	9600	No
V_R	1035	3800	No

Level of Service Determination (if not F)

Merge Areas

$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Diverge Areas

$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$

D_R = 1.2 (pc/mi/ln)

LOS = A (Exhibit 25-4)

Speed Estimation

Merge Areas

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

D_s = 0.521 (Exhibit 25-19)

S_R= 55.4 mph (Exhibit 25-19)

S_0= 76.8 mph (Exhibit 25-19)

S = 65.1 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	SR 50/Cortez Blvd. On-Ramp
Jurisdiction	Hernando County
Analysis Year	2010

Project Description I-75 PD&E Study - 2010 NB On Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

Vu = 850 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2240	0.94	Level	14	2	0.931	0.95	2694
Ramp	660	0.95	Level	19	2	0.910	0.95	804
UpStream	850	0.95	Level	19	2	0.910	0.95	1035
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = 452.05 (Equation 25-2 or 25-3)

P_{FM} = 0.595 using Equation (Exhibit 25-5)

V_{12} = 1603 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3498	See Exhibit 25-7	No
V_{R12}	2407	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 20.0 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.321 (Exibit 25-19)

S_R= 61.0 mph (Exhibit 25-19)

S_0= 67.9 mph (Exhibit 25-19)

S = 63.0 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 NB On Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

V_u = 850 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2240	0.94	Level	14	2	0.931	0.95	2694
Ramp	660	0.95	Level	19	2	0.910	0.95	804
UpStream	850	0.95	Level	19	2	0.910	0.95	1035
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.315 using Equation (Exhibit 25-5)

V_{12} = 848 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3498	See Exhibit 25-7	No
V_{R12}	1652	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 14.1 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.298 (Exibit 25-19)

S_R= 61.7 mph (Exhibit 25-19)

S_0= 68.5 mph (Exhibit 25-19)

S = 65.1 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB Off Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 670 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	2240	0.93	Level	14	2	0.931	0.95	2723
Ramp	520	0.89	Level	19	2	0.910	0.95	676
UpStream								
DownStream	670	0.89	Level	19	2	0.910	0.95	871

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.661 using Equation (Exhibit 25-11)

V_{12} = 2029 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	2723	7200	No
V_{12}	2029	4400:All	No
$V_{FO} = V_F - V_R$	2047	7200	No
V_R	676	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 21.7 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.489 (Exhibit 25-19)

S_R= 56.3 mph (Exhibit 25-19)

S_0= 76.8 mph (Exhibit 25-19)

S = 60.4 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB Off Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft		L_{down} = 2360 ft
V_u = veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 670 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2240	0.93	Level	14	2	0.931	0.95	2723
Ramp	520	0.89	Level	19	2	0.910	0.95	676
UpStream								
DownStream	670	0.89	Level	19	2	0.910	0.95	871

Merge Areas	Diverge Areas
Estimation of v_{12}	**Estimation of v_{12}**
$V_{12} = V_F (P_{FM})$	$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-2 or 25-3)	L_{EQ} = (Equation 25-8 or 25-9)
P_{FM} = using Equation (Exhibit 25-5)	P_{FD} = 0.436 using Equation (Exhibit 25-11)
V_{12} = pc/h	V_{12} = 1568 pc/h

Capacity Checks

Merge Areas:

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Diverge Areas:

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	2723	9600	No
V_{12}	1568	4400:All	No
$V_{FO} = V_F - V_R$	2047	9600	No
V_R	676	2000	No

Level of Service Determination (if not F)

Merge Areas	Diverge Areas
$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$	$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$
D_R = (pc/mi/ln)	D_R = 13.2 (pc/mi/ln)
LOS = (Exhibit 25-4)	LOS = B (Exhibit 25-4)

Speed Estimation

Merge Areas	Diverge Areas
M_S = (Exibit 25-19)	D_s = 0.489 (Exhibit 25-19)
S_R= mph (Exhibit 25-19)	S_R= 56.3 mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)	S_0= 76.8 mph (Exhibit 25-19)
S = mph (Exhibit 25-14)	S = 63.5 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	SR 50/Cortez Blvd. On-Ramp
Jurisdiction	Hernando County
Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB On Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

V_u = 520 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1720	0.94	Level	14	2	0.931	0.95	2069
Ramp	670	0.89	Level	19	2	0.910	0.95	871
UpStream	520	0.89	Level	19	2	0.910	0.95	676
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = 337.08 (Equation 25-2 or 25-3)

P_{FM} = 0.595 using Equation (Exhibit 25-5)

V_{12} = 1231 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2940	See Exhibit 25-7	No
V_{R12}	2102	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 17.5 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.309 (Exibit 25-19)

S_R= 61.4 mph (Exhibit 25-19)

S_0= 68.8 mph (Exhibit 25-19)

S = 63.3 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	SR 50/Cortez Blvd. On-Ramp
Jurisdiction	Hernando County
Analysis Year	2010

Project Description I-75 PD&E Study - 2010 SB On Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

V_u = 520 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1720	0.94	Level	14	2	0.931	0.95	2069
Ramp	670	0.89	Level	19	2	0.910	0.95	871
UpStream	520	0.89	Level	19	2	0.910	0.95	676
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.310 using Equation (Exhibit 25-5)

V_{12} = 641 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2940	See Exhibit 25-7	No
V_{R12}	1512	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 12.9 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.295 (Exibit 25-19)

S_R= 61.8 mph (Exhibit 25-19)

S_0= 69.2 mph (Exhibit 25-19)

S = 65.2 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

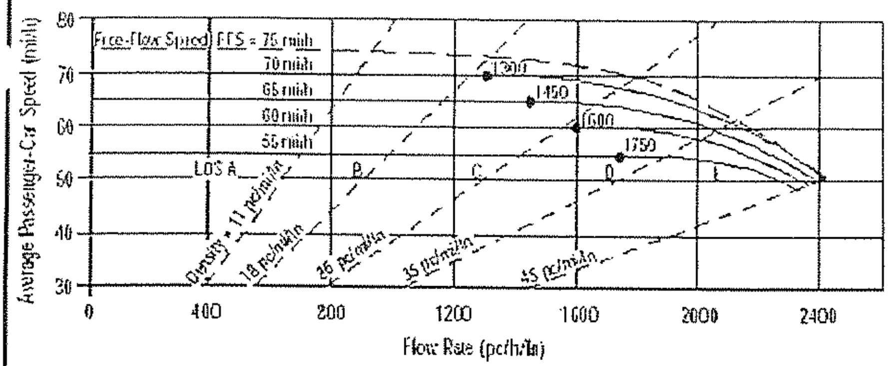
S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

APPENDIX 'P'

INTERIM YEAR (2020) BUILD FREEWAY SEGMENT AND RAMP LOS

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*CRH*	Highway/Direction of Travel	*I-75 Northbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*South of CR 41*
Date Performed	*10/26/06*	Jurisdiction	*Pasco County*
Analysis Time Period	*DHV*	Analysis Year	*2020*

Project Description I-75 PD&E - 2020 NB South of CR 41 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4530*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}	*0.0*	mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}	*0.0*	mi/h
Interchange Density	*0.50*	I/mi	f_{ID}	*0.0*	mi/h
Number of Lanes, N	*3*		f_N	*0.0*	mi/h
FFS (measured)		mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h			

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1813*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*70.8*	mi/h	S	mi/h
D = v_p / S	*25.6*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*C*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed		

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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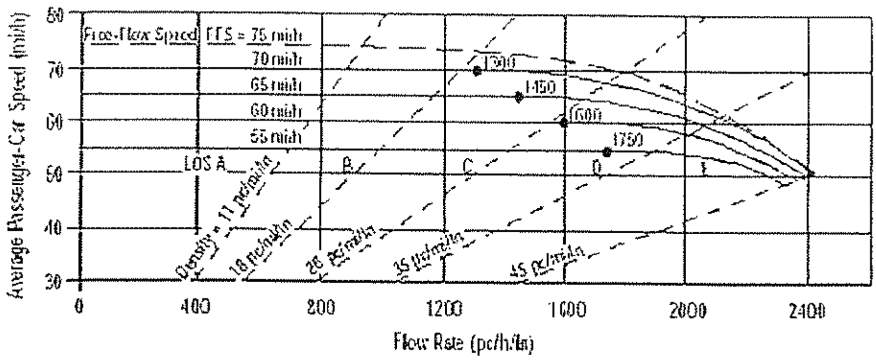
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2020*

Project Description I-75 PD&E - 2020 NB CR 41 to SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4040*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1637*	pc/h/ln
S	*73.1*	mi/h
D = v_p / S	*22.4*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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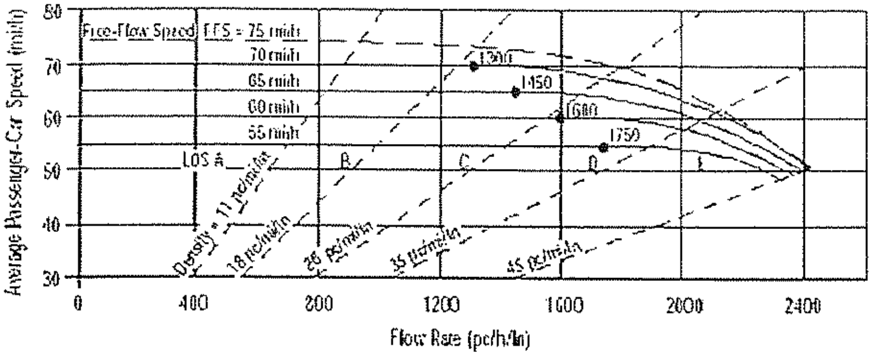
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*	Highway/Direction of Travel	*I-75 Northbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*North of SR 50*
Date Performed		Jurisdiction	*Hernando County*
Analysis Time Period	*DHV*	Analysis Year	*2020*

Site Information

Project Description I-75 PD&E - 2020 NB North of SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3830*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1535*	pc/h/ln
S	*74.0*	mi/h
D = v_p / S	*20.7*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes
V - Hourly volume
v_p - Flow rate
LOS - Level of service
S - Speed
D - Density
FFS - Free-flow speed
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
E_T - Exhibits 23-8, 23-10, 23-11
f_p - Page 23-12
f_{LW} - Exhibit 23-4
f_{LC} - Exhibit 23-5
f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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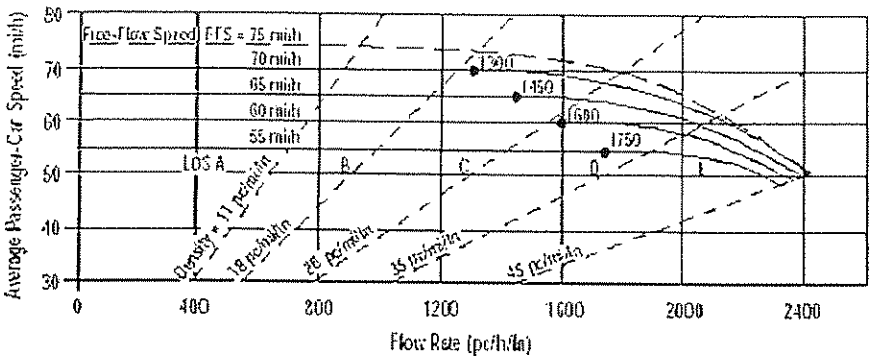
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	*CRH*	Highway/Direction of Travel	*I-75 Southbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*North of SR 50*
Date Performed	*10/26/06*	Jurisdiction	*Hernando County*
Analysis Time Period	*DHV*	Analysis Year	*2020*

Project Description I-75 PD&E - 2020 SB North of SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3040*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}	*0.0*	mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}	*0.0*	mi/h
Interchange Density	*0.50*	I/mi	f_{ID}	*0.0*	mi/h
Number of Lanes, N	*3*		f_N	*0.0*	mi/h
FFS (measured)		mi/h			
Base free-flow Speed, BFFS	*75.0*	mi/h	FFS	*75.0*	mi/h

LOS and Performance Measures			Design (N)	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1232*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*75.0*	mi/h	S	mi/h
D = v_p / S	*16.4*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*B*		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed		

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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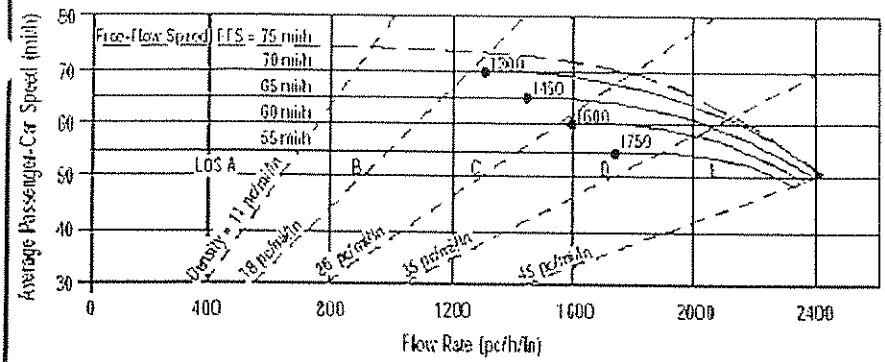
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2020*

Project Description I-75 PD&E - 2020 SB CR 41 to SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3200*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1280*	pc/h/ln
S	*74.9*	mi/h
D = v_p / S	*17.1*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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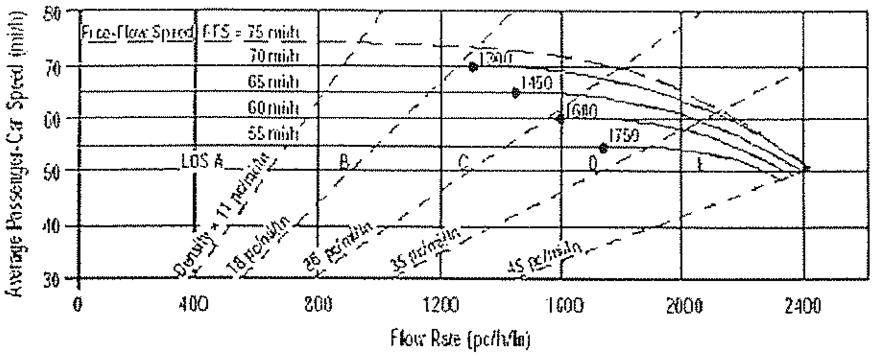
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2020*

Project Description I-75 PD&E - 2020 SB South of CR 41 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3590*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1437*	pc/h/ln
S	*74.5*	mi/h
D = v_p / S	*19.3*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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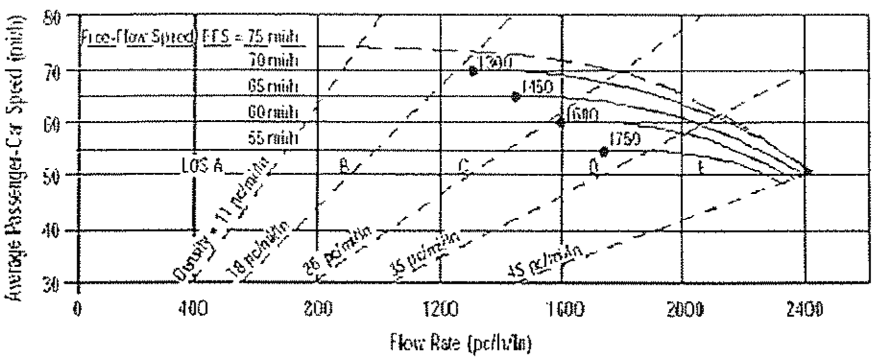
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2020*

Project Description I-75 PD&E Study - 2020 NB South of CR 41 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4530*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1360*	pc/h/ln
S	*74.8*	mi/h
D = v_p / S	*18.2*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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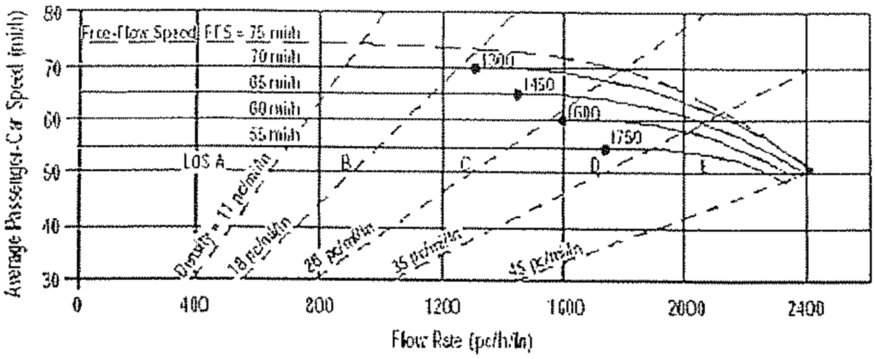
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2020*

Project Description I-75 PD&E - 2020 NB CR 41 to SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4040*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1228*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*16.4*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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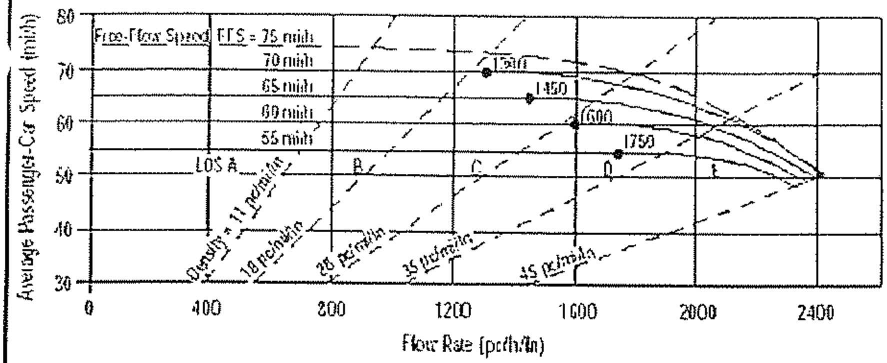
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*North of SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2020*

Project Description I-75 PD&E - 2020 NB North of SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3830*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1152*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*15.4*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

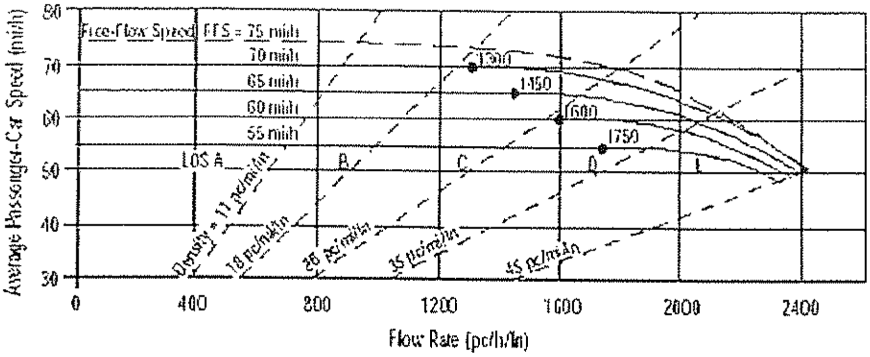
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*North of SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2020*

Project Description I-75 PD&E Study - 2020 SB North of SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3040*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*924*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*12.3*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3 f_{ID} - Exhibit 23-7

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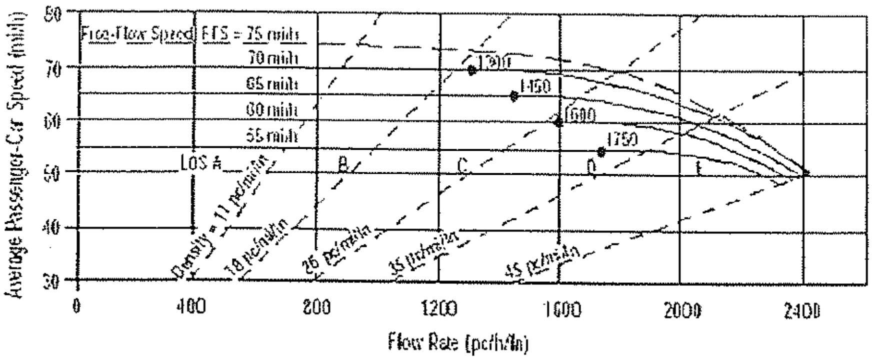

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2020*

Project Description I-75 PD&E Study - 2020 SB CR 41 to SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3200*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*960*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*12.8*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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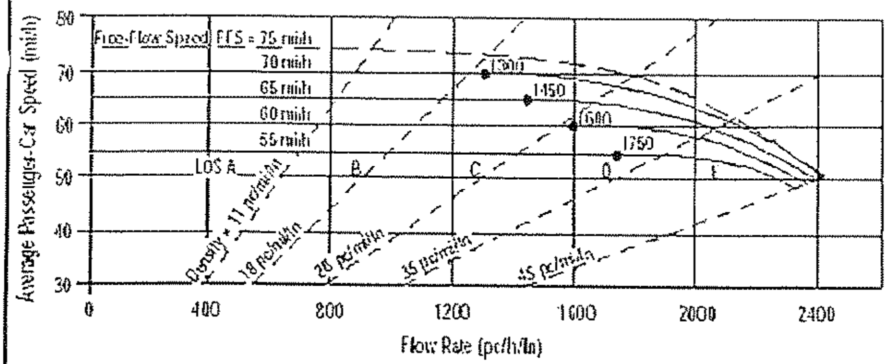

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*CRH*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*10/26/06*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2020*

Project Description I-75 PD&E - 2020 SB South of CR 41 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3590*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1077*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*14.4*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Road Off-Ramp
Date Performed	10/26/06	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2020

Site Information

Project Description I-75 PD&E Study - 2020 NB Off Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 620 ft

V_D = 370 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	4530	0.94	Level	14	1	0.933	0.95	5438
Ramp	860	0.91	Level	10	1	0.951	0.95	1047
UpStream								
DownStream	370	0.91	Level	10	1	0.951	0.95	450

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.576 using Equation (Exhibit 25-11)

V_{12} = 3576 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	5438	7200	No
V_{12}	3576	4400:All	No
$V_{FO} = V_F - V_R$	4391	7200	No
V_R	1047	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$$

D_R = 33.2 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

D_s = 0.522 (Exhibit 25-19)

S_R= 55.4 mph (Exhibit 25-19)

S_0= 73.4 mph (Exhibit 25-19)

S = 60.5 mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	CR 41/Blanton Road Off-Ramp
Jurisdiction	Pasco County
Analysis Year	2020

Project Description I-75 PD&E Study - 2020 NB Off Ramp at CR 41 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 620 ft

V_D = 370 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	4530	0.94	Level	14	1	0.933	0.95	5438
Ramp	860	0.91	Level	10	1	0.951	0.95	1047
UpStream								
DownStream	370	0.91	Level	10	1	0.951	0.95	450

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 using Equation (Exhibit 25-11)

V_{12} = 2961 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	5438	9600	No
V_{12}	2961	4400:All	No
$V_{FO} = V_F - V_R$	4391	9600	No
V_R	1047	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 18.9 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

D_s = 0.522 (Exhibit 25-19)

S_R= 55.4 mph (Exhibit 25-19)

S_0= 75.9 mph (Exhibit 25-19)

S = 63.1 mph (Exhibit 25-15)

 HCS+™ Version 5.2 Generated 11/9/2006 9:19 AM

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2020

Project Description I-75 PD&E Study - 2020 NB On Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 620 ft

V_u = 860 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3670	0.94	Level	14	1	0.933	0.95	4406
Ramp	370	0.91	Level	10	1	0.951	0.95	450
UpStream	860	0.91	Level	10	1	0.951	0.95	1047
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = 689.38 (Equation 25-2 or 25-3)

P_{FM} = 0.587 using Equation (Exhibit 25-5)

V_{12} = 2587 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4856	See Exhibit 25-7	No
V_{R12}	3037	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$$

D_R = 25.8 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.367 (Exibit 25-19)

S_R= 59.7 mph (Exhibit 25-19)

S_0= 65.3 mph (Exhibit 25-19)

S = 61.7 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2020

Project Description I-75 FD&E Study - 2020 NB On Ramp at CR 41 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 620 ft

V_u = 860 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3670	0.94	Level	14	1	0.933	0.95	4406
Ramp	370	0.91	Level	10	1	0.951	0.95	450
UpStream	860	0.91	Level	10	1	0.951	0.95	1047
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.321 using Equation (Exhibit 25-5)

V_{12} = 1414 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4856	See Exhibit 25-7	No
V_{R12}	1864	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 16.7 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.311 (Exibit 25-19)

S_R= 61.3 mph (Exhibit 25-19)

S_0= 66.4 mph (Exhibit 25-19)

S = 64.3 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

 HCS+™ Version 5.2 Generated: 11/9/2006 9:43 AM

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd Off-Ramp
Date Performed	10/26/06	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 SB Off Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 700 ft

V_D = 670 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3200	0.94	Level	14	1	0.933	0.95	3841
Ramp	290	0.89	Level	10	1	0.951	0.95	361
UpStream								
DownStream	670	0.89	Level	10	1	0.951	0.95	834

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.647 using Equation (Exhibit 25-11)

V_{12} = 2614 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	3841	7200	No
V_{12}	2614	4400:All	No
$V_{FO} = V_F - V_R$	3480	7200	No
V_R	361	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 25.6 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.460 (Exhibit 25-19)

S_R= 57.1 mph (Exhibit 25-19)

S_0= 75.9 mph (Exhibit 25-19)

S = 62.0 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd Off-Ramp
Jurisdiction	Pasco County
Analysis Year	2020

Project Description I-75 PD&E Study - 2020 SB Off Ramp at CR 41 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 700 ft

V_D = 670 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3200	0.94	Level	14	1	0.933	0.95	3841
Ramp	290	0.89	Level	10	1	0.951	0.95	361
UpStream								
DownStream	670	0.89	Level	10	1	0.951	0.95	834

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\,v_R + 0.0078\,V_{12} - 0.00627\,L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 using Equation (Exhibit 25-11)

V_{12} = 1878 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	3841	9600	No
V_{12}	1878	4400:All	No
$V_{FO} = V_F - V_R$	3480	9600	No
V_R	361	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\,V_{12} - 0.0009\,L_D$$

D_R = 19.2 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

D_s = 0.460 (Exhibit 25-19)

S_R= 57.1 mph (Exhibit 25-19)

S_0= 76.8 mph (Exhibit 25-19)

S = 65.7 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2020

Project Description I-75 PD&E Study - 2020 SB On Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 700 ft

V_u = 290 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2910	0.94	Level	14	1	0.933	0.95	3493
Ramp	670	0.89	Level	10	1	0.951	0.95	834
UpStream	290	0.89	Level	10	1	0.951	0.95	361
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = 709.38 (Equation 25-2 or 25-3)

P_{FM} = 0.599 using Equation (Exhibit 25-5)

V_{12} = 2093 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4327	See Exhibit 25-7	No
V_{R12}	2927	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$$

D_R = 22.9 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.338 (Exibit 25-19)

S_R= 60.5 mph (Exhibit 25-19)

S_0= 66.8 mph (Exhibit 25-19)

S = 62.4 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2020

Project Description I-75 PD&E Study - 2020 SB On Ramp (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 700 ft

V_u = 290 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2910	0.94	Level	14	1	0.933	0.95	3493
Ramp	670	0.89	Level	10	1	0.951	0.95	834
UpStream	290	0.89	Level	10	1	0.951	0.95	361
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.368 using Equation (Exhibit 25-5)

V_{12} = 1287 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4327	See Exhibit 25-7	No
V_{R12}	2121	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 16.6 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.298 (Exibit 25-19)

S_R= 61.7 mph (Exhibit 25-19)

S_0= 67.8 mph (Exhibit 25-19)

S = 64.7 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 NB Off Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 1060 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	4040	0.93	Level	14	2	0.931	0.95	4911
Ramp	1260	0.95	Level	19	2	0.910	0.95	1534
UpStream								
DownStream	1060	0.95	Level	19	2	0.910	0.95	1291

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.450 using Equation (Exhibit 25-11)

V_{12} = 3054 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4911	7200	No
V_{12}	3054	4400:All	No
$V_{FO} = V_F - V_R$	3377	7200	No
V_R	1534	3800	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 12.5 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

D_s = 0.566 (Exhibit 25-19)

S_R= 54.2 mph (Exhibit 25-19)

S_0= 73.4 mph (Exhibit 25-19)

S = 60.1 mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 NB Off Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 1060 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	4040	0.93	Level	14	2	0.931	0.95	4911
Ramp	1260	0.95	Level	19	2	0.910	0.95	1534
UpStream								
DownStream	1060	0.95	Level	19	2	0.910	0.95	1291

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.260 using Equation (Exhibit 25-11)

V_{12} = 2412 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4911	9600	No
V_{12}	2412	4400:All	No
$V_{FO} = V_F - V_R$	3377	9600	No
V_R	1534	3800	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 7.0 (pc/mi/ln)

LOS = A (Exhibit 25-4)

Speed Estimation

D_s = 0.566 (Exhibit 25-19)

S_R= 54.2 mph (Exhibit 25-19)

S_0= 75.8 mph (Exhibit 25-19)

S = 63.4 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 NB On Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

V_u = 1260 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2780	0.94	Level	14	2	0.931	0.95	3343
Ramp	1060	0.95	Level	19	2	0.910	0.95	1291
UpStream	1260	0.95	Level	19	2	0.910	0.95	1534
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = 695.16 (Equation 25-2 or 25-3)

P_{FM} = 0.595 using Equation (Exhibit 25-5)

V_{12} = 1989 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4634	See Exhibit 25-7	No
V_{R12}	3280	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 26.6 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.381 (Exibit 25-19)

S_R= 59.3 mph (Exhibit 25-19)

S_0= 66.9 mph (Exhibit 25-19)

S = 61.4 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 NB On Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

V_u = 1260 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2780	0.94	Level	14	2	0.931	0.95	3343
Ramp	1060	0.95	Level	19	2	0.910	0.95	1291
UpStream	1260	0.95	Level	19	2	0.910	0.95	1534
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.254 using Equation (Exhibit 25-5)

V_{12} = 849 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4634	See Exhibit 25-7	No
V_{R12}	2140	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 17.7 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.311 (Exibit 25-19)

S_R= 61.3 mph (Exhibit 25-19)

S_0= 67.3 mph (Exhibit 25-19)

S = 64.4 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{Fi} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Project Description I-75 PD&E Study - 2020 SB Off Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft	S_{FF} = 70.0 mph S_{FR} = 35.0 mph	L_{down} = 2360 ft
V_u = veh/h	Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 990 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3040	0.93	Level	14	2	0.931	0.95	3695
Ramp	830	0.89	Level	19	2	0.910	0.95	1079
UpStream								
DownStream	990	0.89	Level	19	2	0.910	0.95	1287

Merge Areas	Diverge Areas
Estimation of v_{12}	**Estimation of v_{12}**
$V_{12} = V_F (P_{FM})$	$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-2 or 25-3)	L_{EQ} = (Equation 25-8 or 25-9)
P_{FM} = using Equation (Exhibit 25-5)	P_{FD} = 0.618 using Equation (Exhibit 25-11)
V_{12} = pc/h	V_{12} = 2696 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	3695	7200	No
V_{12}	2696	4400:All	No
$V_{FO} = V_F - V_R$	2616	7200	No
V_R	1079	2000	No

Level of Service Determination (if not F)	Level of Service Determination (if not F)
$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$	$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$
D_R = (pc/mi/ln)	D_R = 27.4 (pc/mi/ln)
LOS = (Exhibit 25-4)	LOS = C (Exhibit 25-4)

Speed Estimation	Speed Estimation
M_S = (Exibit 25-19)	D_s = 0.525 (Exhibit 25-19)
S_R= mph (Exhibit 25-19)	S_R= 55.3 mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)	S_0= 76.8 mph (Exhibit 25-19)
S = mph (Exhibit 25-14)	S = 59.8 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Site Information

Project Description I-75 PD&E Study - 2020 SB Off Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

Yes On

☑ No Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

No Off

L_{down} = 2360 ft

V_D = 990 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3040	0.93	Level	14	2	0.931	0.95	3695
Ramp	830	0.89	Level	19	2	0.910	0.95	1079
UpStream								
DownStream	990	0.89	Level	19	2	0.910	0.95	1287

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 using Equation (Exhibit 25-11)

V_{12} = 2220 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	3695	9600	No
V_{12}	2220	4400:All	No
$V_{FO} = V_F - V_R$	2616	9600	No
V_R	1079	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 18.8 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

D_s = 0.525 (Exhibit 25-19)

S_R= 55.3 mph (Exhibit 25-19)

S_0= 76.8 mph (Exhibit 25-19)

S = 62.3 mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2020

Site Information

Project Description I-75 PD&E Study - 2020 SB On Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

V_u = 830 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	2210	0.94	Level	14	2	0.931	0.95	2658
Ramp	990	0.89	Level	19	2	0.910	0.95	1287
UpStream	830	0.89	Level	19	2	0.910	0.95	1079
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = 552.15 (Equation 25-2 or 25-3)

P_{FM} = 0.595 using Equation (Exhibit 25-5)

V_{12} = 1582 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3945	See Exhibit 25-7	No
V_{R12}	2869	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$$

D_R = 23.3 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.346 (Exibit 25-19)

S_R= 60.3 mph (Exhibit 25-19)

S_0= 67.9 mph (Exhibit 25-19)

S = 62.2 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	CRH
Agency or Company	HW Lochner, Inc.
Date Performed	10/26/06
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	SR 50/Cortez Blvd. On-Ramp
Jurisdiction	Hernando County
Analysis Year	2020

Project Description I-75 PD&E Study - 2020 SB On Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

Vu = 830 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2210	0.94	Level	14	2	0.931	0.95	2658
Ramp	990	0.89	Level	19	2	0.910	0.95	1287
UpStream	830	0.89	Level	19	2	0.910	0.95	1079
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.258 using Equation (Exhibit 25-5)

V_{12} = 685 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3945	See Exhibit 25-7	No
V_{R12}	1972	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$$

D_R = 16.3 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.305 (Exibit 25-19)

S_R= 61.5 mph (Exhibit 25-19)

S_0= 68.3 mph (Exhibit 25-19)

S = 64.7 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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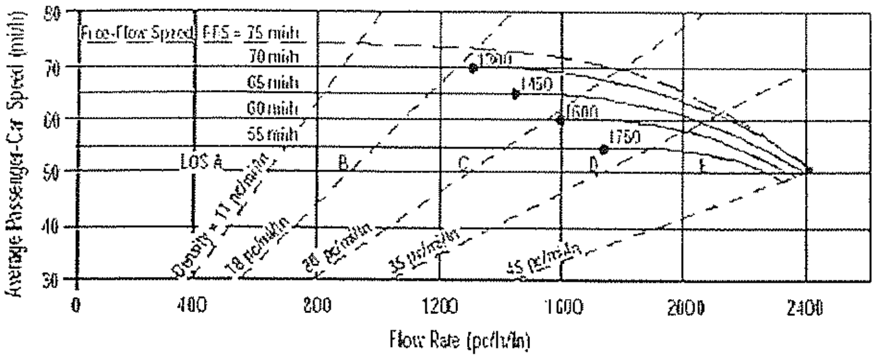
APPENDIX 'Q'

DESIGN YEAR (2030) BUILD FREEWAY SEGMENT AND RAMP LOS

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Highway/Direction of Travel	I-75 Northbound
From/To	South of CR 41
Jurisdiction	Pasco County
Analysis Year	2030

Project Description I-75 PD&E - 2030 NB South of CR 41 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	5690	veh/h	Peak-Hour Factor, PHF	0.94
AADT		veh/day	%Trucks and Buses, P_T	14
Peak-Hr Prop. of AADT, K			%RVs, P_R	1
Peak-Hr Direction Prop, D			General Terrain:	Level
DDHV = AADT x K x D		veh/h	Grade % Length	mi
Driver type adjustment	0.95		Up/Down %	

Calculate Flow Adjustments

f_p	0.95	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.933

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	75.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	0.0	mi/h
FFS	75.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	2277	pc/h/ln
S	58.4	mi/h
D = v_p / S	39.0	pc/mi/ln
LOS	E	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes
S - Speed
V - Hourly volume
D - Density
v_p - Flow rate
FFS - Free-flow speed
LOS - Level of service
BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10
f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11
f_{LC} - Exhibit 23-5
f_p - Page 23-12
f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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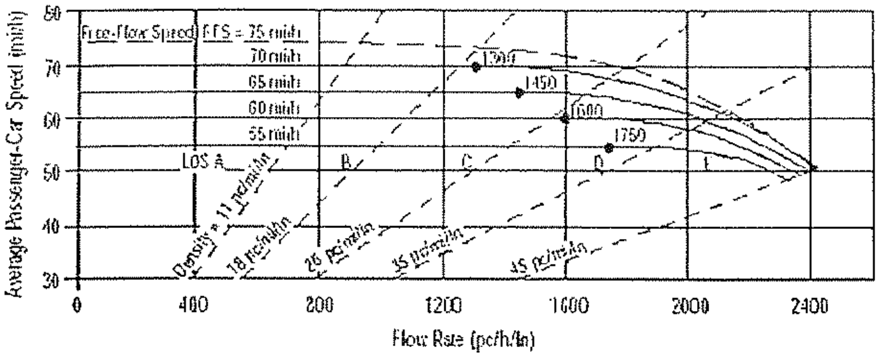
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2030*

Project Description I-75 PD&E - 2030 NB CR 41 to SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4980*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2018*	pc/h/ln
S	*66.6*	mi/h
D = v_p / S	*30.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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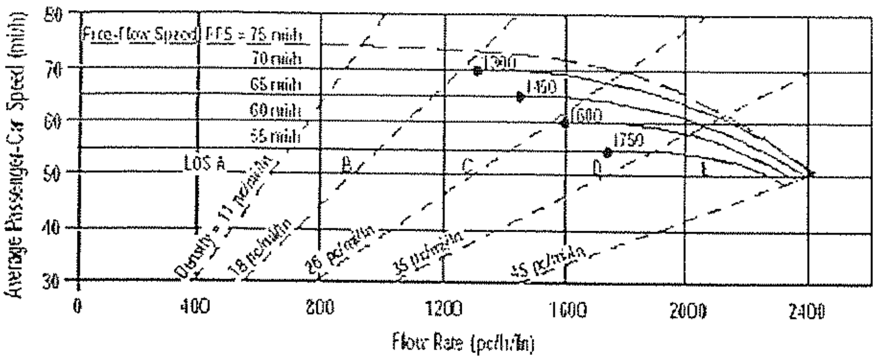
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	4/28/2005
Analysis Time Period	DHV

Site Information

Highway/Direction of Travel	I-75 Northbound
From/To	North of SR 50
Jurisdiction	Hernando County
Analysis Year	2030

Project Description I-75 PD&E - 2030 NB North of SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	4770	veh/h	Peak-Hour Factor, PHF	0.94
AADT		veh/day	%Trucks and Buses, P_T	14
Peak-Hr Prop. of AADT, K			%RVs, P_R	2
Peak-Hr Direction Prop, D			General Terrain:	Level
DDHV = AADT x K x D		veh/h	Grade % Length	mi
Driver type adjustment	0.95		Up/Down %	

Calculate Flow Adjustments

f_p	0.95	E_R	1.2
E_T	1.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.931

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	75.0	mi/h

Calc Speed Adj and FFS

f_{LW}	0.0	mi/h
f_{LC}	0.0	mi/h
f_{ID}	0.0	mi/h
f_N	0.0	mi/h
FFS	75.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1912	pc/h/ln
S	69.0	mi/h
D = v_p / S	27.7	pc/mi/ln
LOS	D	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

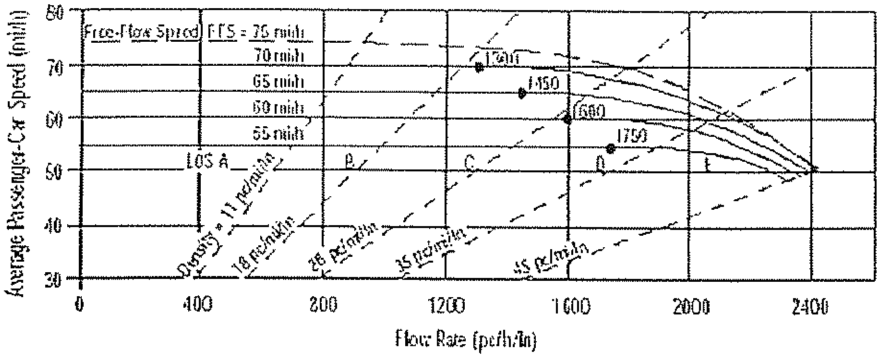
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information / Site Information

Analyst	*EJB*	Highway/Direction of Travel	*I-75 Southbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*North of SR 50*
Date Performed	*4/20/2005*	Jurisdiction	*Hernando County*
Analysis Time Period	*DHV*	Analysis Year	*2030*

Project Description I-75 PD&E - 2030 SB North of SR 50 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3780*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs / Calc Speed Adj and FFS

Lane Width	*12.0*	ft	f_{LW}	*0.0*	mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}	*0.0*	mi/h
Interchange Density	*0.50*	I/mi	f_{ID}	*0.0*	mi/h
Number of Lanes, N	*3*		f_N	*0.0*	mi/h
FFS (measured)		mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h			

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1532*	pc/h/ln
S	*74.0*	mi/h
D = v_p / S	*20.7*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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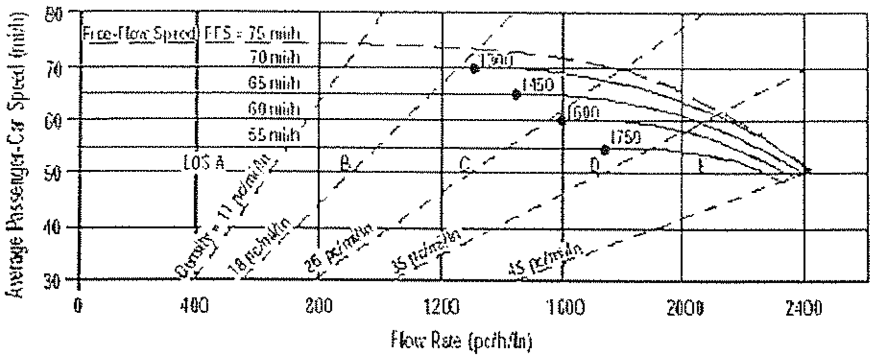
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2030*

Project Description I-75 PD&E - 2030 SB SR 50 to CR 41 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3950*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1581*	pc/h/ln
S	*73.6*	mi/h
D = v_p / S	*21.5*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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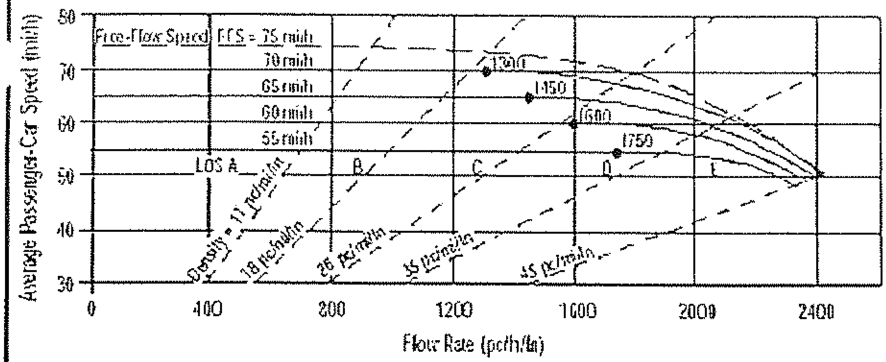
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2030*

Project Description I-75 PD&E - 2030 SB South of CR 41 (I-75 = 6 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4510*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*3*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1805*	pc/h/ln
S	*71.0*	mi/h
D = v_p / S	*25.4*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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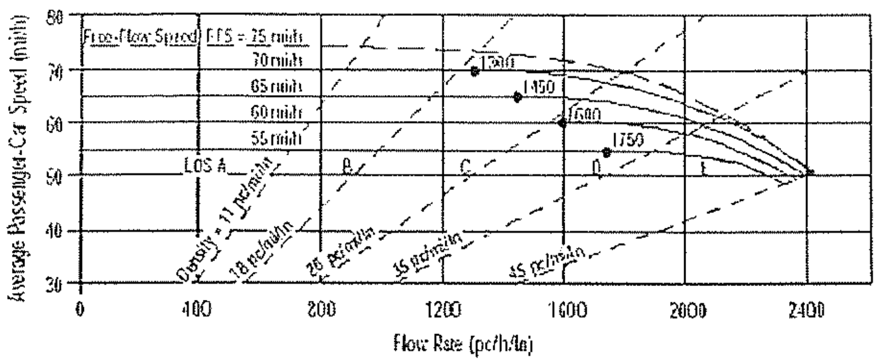
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV - Dec Traffic*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2030*

Project Description I-75 PD&E Study - 2030 NB South of CR 41 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*5690*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1708*	pc/h/ln
S	*72.3*	mi/h
D = v_p / S	*23.6*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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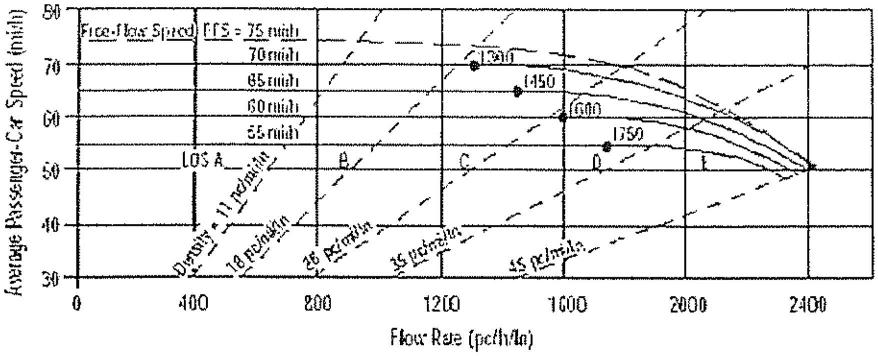
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Northbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2030*

Project Description I-75 PD&E - 2030 NB CR 41 to SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4980*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1513*	pc/h/ln
S	*74.1*	mi/h
D = v_p / S	*20.4*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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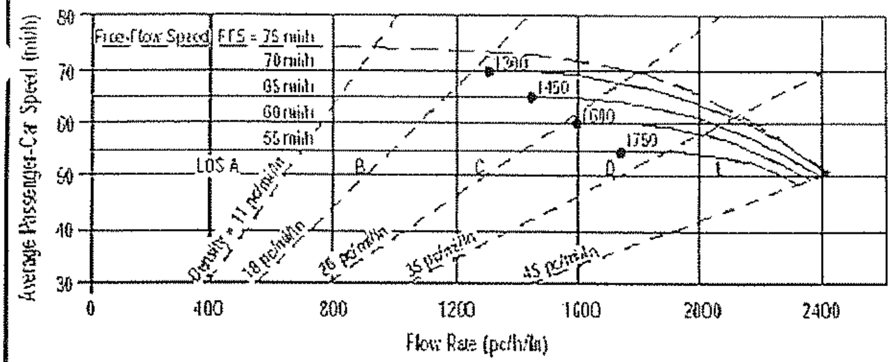
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*EJB*	Highway/Direction of Travel	*I-75 Northbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*North of SR 50*
Date Performed	*4/28/2005*	Jurisdiction	*Hernando County*
Analysis Time Period	*DHV*	Analysis Year	*2030*

Project Description I-75 PD&E - 2030 NB North of SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4770*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}	*0.0*	mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}	*0.0*	mi/h
Interchange Density	*0.50*	I/mi	f_{ID}	*0.0*	mi/h
Number of Lanes, N	*4*		f_N	*0.0*	mi/h
FFS (measured)		mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
			Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1434*	pc/h/ln	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	*74.5*	mi/h	S	mi/h
D = v_p / S	*19.2*	pc/mi/ln	D = v_p / S	pc/mi/ln
LOS	*C*		Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed		

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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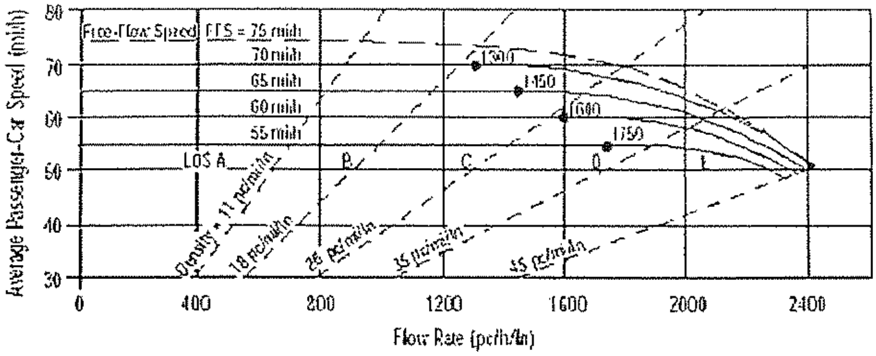
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*	Highway/Direction of Travel	*I-75 Southbound*
Agency or Company	*HW Lochner, Inc.*	From/To	*North of SR 50*
Date Performed	*4/20/2005*	Jurisdiction	*Hernando County*
Analysis Time Period	*DHV*	Analysis Year	*2030*

(Site Information in columns 3–4)

Project Description I-75 PD&E Study - 2030 SB North of SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3780*	veh/h	Peak-Hour Factor, PHF	*0.93*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*2*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.931*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1149*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*15.3*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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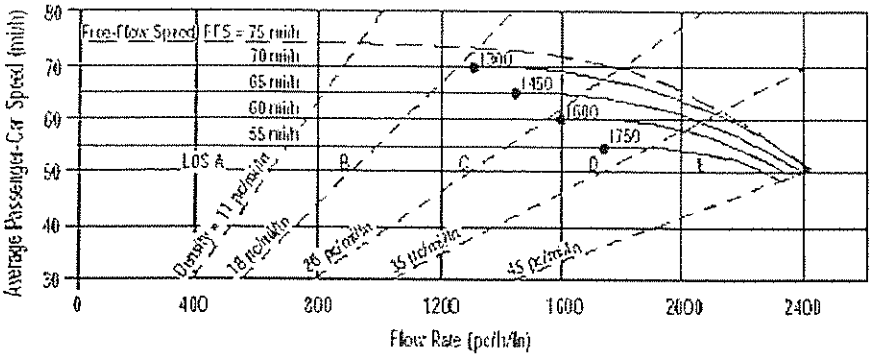
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*CR 41 to SR 50*
Jurisdiction	*Hernando County*
Analysis Year	*2030*

Project Description I-75 PD&E Study - 2030 SB CR 41 to SR 50 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3950*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1185*	pc/h/ln
S	*75.0*	mi/h
D = v_p / S	*15.8*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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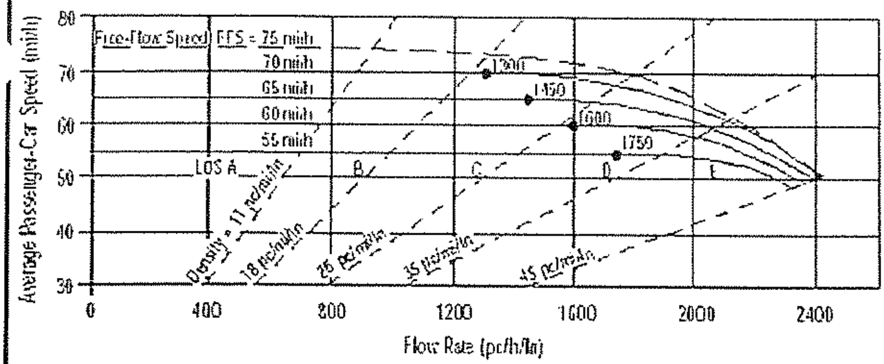
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	*EJB*
Agency or Company	*HW Lochner, Inc.*
Date Performed	*7/28/2005*
Analysis Time Period	*DHV*

Site Information

Highway/Direction of Travel	*I-75 Southbound*
From/To	*South of CR 41*
Jurisdiction	*Pasco County*
Analysis Year	*2030*

Project Description I-75 PD&E - 2030 SB South of CR 41 (I-75 = 8 Lanes)

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*4510*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*1*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*0.95*		Up/Down %	

Calculate Flow Adjustments

f_p	*0.95*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.933*

Speed Inputs

Lane Width	*12.0*	ft
Rt-Shoulder Lat. Clearance	*6.0*	ft
Interchange Density	*0.50*	I/mi
Number of Lanes, N	*4*	
FFS (measured)		mi/h
Base free-flow Speed, BFFS	*75.0*	mi/h

Calc Speed Adj and FFS

f_{LW}	*0.0*	mi/h
f_{LC}	*0.0*	mi/h
f_{ID}	*0.0*	mi/h
f_N	*0.0*	mi/h
FFS	*75.0*	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1354*	pc/h/ln
S	*74.8*	mi/h
D = v_p / S	*18.1*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6

DDHV - Directional design hour volume	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Road Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 NB Off Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft		L_{down} = 620 ft
V_u = veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 550 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	5690	0.94	Level	14	1	0.933	0.95	6831
Ramp	1260	0.91	Level	10	1	0.951	0.95	1533
UpStream								
DownStream	550	0.91	Level	10	1	0.951	0.95	669

Merge Areas	Diverge Areas

Estimation of v_{12} (Merge Areas)

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Estimation of v_{12} (Diverge Areas)

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.519 using Equation (Exhibit 25-11)

V_{12} = 4281 pc/h

Capacity Checks (Merge Areas)

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Capacity Checks (Diverge Areas)

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	6831	7200	No
V_{12}	4281	4400:All	No
$V_{FO} = V_F - V_R$	5298	7200	No
V_R	1533	2000	No

Level of Service Determination (if not F) (Merge Areas)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Level of Service Determination (if not F) (Diverge Areas)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 39.3 (pc/mi/ln)

LOS = E (Exhibit 25-4)

Speed Estimation (Merge Areas)

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Speed Estimation (Diverge Areas)

D_s = 0.566 (Exhibit 25-19)

S_R= 54.2 mph (Exhibit 25-19)

S_0= 70.7 mph (Exhibit 25-19)

S = 59.3 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Road Off-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 NB Off Ramp at CR 41 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft		L_{down} = 620 ft
V_u = veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = 550 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	5690	0.94	Level	14	1	0.933	0.95	6831
Ramp	1260	0.91	Level	10	1	0.951	0.95	1533
UpStream								
DownStream	550	0.91	Level	10	1	0.951	0.95	669

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 using Equation (Exhibit 25-11)

V_{12} = 3843 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	6831	9600	No
V_{12}	3843	4400:All	No
$V_{FO} = V_F - V_R$	5298	9600	No
V_R	1533	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 26.5 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.566 (Exhibit 25-19)

S_R= 54.2 mph (Exhibit 25-19)

S_0= 74.9 mph (Exhibit 25-19)

S = 61.6 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd On-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 FD&E Study - 2030 NB On Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 620 ft

V_u = 1260 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	4430	0.94	Level	14	1	0.933	0.95	5318
Ramp	550	0.91	Level	10	1	0.951	0.95	669
UpStream	1260	0.91	Level	10	1	0.951	0.95	1533
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = 931.42 (Equation 25-2 or 25-3)

P_{FM} = 0.572 using Equation (Exhibit 25-5)

V_{12} = 3041 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5987	See Exhibit 25-7	No
V_{R12}	3710	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 31.0 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.445 (Exibit 25-19)

S_R= 57.5 mph (Exhibit 25-19)

S_0= 63.6 mph (Exhibit 25-19)

S = 59.7 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	CR 41/Blanton Rd On-Ramp
Date Performed	7/28/2005	Jurisdiction	Pasco County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 FD&E Study - 2030 NB On Ramp at CR 41 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 620 ft

V_u = 1260 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	4430	0.94	Level	14	1	0.933	0.95	5318
Ramp	550	0.91	Level	10	1	0.951	0.95	669
UpStream	1260	0.91	Level	10	1	0.951	0.95	1533
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.293 using Equation (Exhibit 25-5)

V_{12} = 1561 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5987	See Exhibit 25-7	No
V_{R12}	2230	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 19.4 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.322 (Exibit 25-19)

S_R= 61.0 mph (Exhibit 25-19)

S_0= 65.0 mph (Exhibit 25-19)

S = 63.5 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{Fi} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

 HCS+™ Version 5.2 Generated: 11/8/2006 9:10 AM

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd Off-Ramp
Jurisdiction	Pasco County
Analysis Year	2030

Project Description I-75 PD&E Study - 2030 SB Off Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 700 ft

V_D = 990 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3950	0.94	Level	14	1	0.933	0.95	4742
Ramp	430	0.89	Level	10	1	0.951	0.95	535
UpStream								
DownStream	990	0.89	Level	10	1	0.951	0.95	1232

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.617 using Equation (Exhibit 25-11)

V_{12} = 3130 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4742	7200	No
V_{12}	3130	4400:All	No
$V_{FO} = V_F - V_R$	4207	7200	No
V_R	535	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 30.0 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

D_s = 0.476 (Exhibit 25-19)

S_R= 56.7 mph (Exhibit 25-19)

S_0= 74.4 mph (Exhibit 25-19)

S = 61.7 mph (Exhibit 25-15)

 HCS+™ Version 5.2 Generated: 11/8/2006 9:29 AM

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd Off-Ramp
Jurisdiction	Pasco County
Analysis Year	2030

Project Description I-75 PD&E Study - 2030 SB Off Ramp at CR 41 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 700 ft

V_D = 990 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3950	0.94	Level	14	1	0.933	0.95	4742
Ramp	430	0.89	Level	10	1	0.951	0.95	535
UpStream								
DownStream	990	0.89	Level	10	1	0.951	0.95	1232

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 using Equation (Exhibit 25-11)

V_{12} = 2369 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4742	9600	No
V_{12}	2369	4400:All	No
$V_{FO} = V_F - V_R$	4207	9600	No
V_R	535	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$$

D_R = 23.5 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.476 (Exhibit 25-19)

S_R= 56.7 mph (Exhibit 25-19)

S_0= 76.1 mph (Exhibit 25-19)

S = 65.0 mph (Exhibit 25-15)

 HCS+TM Version 5.2 Generated: 11/8/2006 9:29 AM

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2030

Project Description I-75 PD&E Study - SB On Ramp at CR 41 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 700 ft

V_u = 430 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3520	0.94	Level	14	1	0.933	0.95	4226
Ramp	990	0.89	Level	10	1	0.951	0.95	1232
UpStream	430	0.89	Level	10	1	0.951	0.95	535
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = 951.41 (Equation 25-2 or 25-3)

P_{FM} = 0.584 using Equation (Exhibit 25-5)

V_{12} = 2468 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5458	See Exhibit 25-7	No
V_{R12}	3700	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 28.8 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.423 (Exibit 25-19)

S_R= 58.2 mph (Exhibit 25-19)

S_0= 65.5 mph (Exhibit 25-19)

S = 60.3 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	CR 41/Blanton Rd On-Ramp
Jurisdiction	Pasco County
Analysis Year	2030

Project Description I-75 PD&E Study - 2030 SB On Ramp (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 700 ft

V_u = 430 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3520	0.94	Level	14	1	0.933	0.95	4226
Ramp	990	0.89	Level	10	1	0.951	0.95	1232
UpStream	430	0.89	Level	10	1	0.951	0.95	535
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F \, (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.319 using Equation (Exhibit 25-5)

V_{12} = 1347 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5458	See Exhibit 25-7	No
V_{R12}	2579	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 20.0 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.316 (Exibit 25-19)

S_R= 61.1 mph (Exhibit 25-19)

S_0= 66.6 mph (Exhibit 25-19)

S = 63.9 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 NB Off Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 1460 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	4980	0.93	Level	14	2	0.931	0.95	6054
Ramp	1680	0.95	Level	19	2	0.910	0.95	2046
UpStream								
DownStream	1460	0.95	Level	19	2	0.910	0.95	1778

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.450 using Equation (Exhibit 25-11)

V_{12} = 3850 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	6054	7200	No
V_{12}	3850	4400:All	No
$V_{FO} = V_F - V_R$	4008	7200	No
V_R	2046	3800	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 27.5 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.612 (Exhibit 25-19)

S_R= 52.9 mph (Exhibit 25-19)

S_0= 72.1 mph (Exhibit 25-19)

S = 58.5 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CRH	Freeway/Dir of Travel	I-75 Northbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. Off-Ramp
Date Performed	10/26/06	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 NB Off Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 1460 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	4980	0.93	Level	14	2	0.931	0.95	6054
Ramp	1680	0.95	Level	19	2	0.910	0.95	2046
UpStream								
DownStream	1460	0.95	Level	19	2	0.910	0.95	1778

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.260 using Equation (Exhibit 25-11)

V_{12} = 3088 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	6054	9600	No
V_{12}	3088	4400:All	No
$V_{FO} = V_F - V_R$	4008	9600	No
V_R	2046	3800	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 12.8 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

D_s = 0.612 (Exhibit 25-19)

S_R= 52.9 mph (Exhibit 25-19)

S_0= 74.9 mph (Exhibit 25-19)

S = 61.8 mph (Exhibit 25-15)

 HCS+™ Version 5.2 Generated: 11/9/2006 9:03 AM

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	SR 50/Cortez Blvd. On-Ramp
Jurisdiction	Hernando County
Analysis Year	2030

Project Description I-75 PD&E Study - 2030 NB On Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

V_u = 1680 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3310	0.94	Level	14	2	0.931	0.95	3981
Ramp	1460	0.95	Level	19	2	0.910	0.95	1778
UpStream	1680	0.95	Level	19	2	0.910	0.95	2046
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = 935.91 (Equation 25-2 or 25-3)

P_{FM} = 0.595 using Equation (Exhibit 25-5)

V_{12} = 2368 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5759	See Exhibit 25-7	No
V_{R12}	4146	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$$

D_R = 33.1 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.524 (Exibit 25-19)

S_R= 55.3 mph (Exhibit 25-19)

S_0= 66.0 mph (Exhibit 25-19)

S = 58.0 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Northbound
Junction	SR 50/Cortez Blvd. On-Ramp
Jurisdiction	Hernando County
Analysis Year	2030

Project Description I-75 PD&E Study - 2030 NB On Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

V_u = 1680 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3310	0.94	Level	14	2	0.931	0.95	3981
Ramp	1460	0.95	Level	19	2	0.910	0.95	1778
UpStream	1680	0.95	Level	19	2	0.910	0.95	2046
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.193 using Equation (Exhibit 25-5)

V_{12} = 769 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5759	See Exhibit 25-7	No
V_{R12}	2547	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 20.6 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.327 (Exibit 25-19)

S_R= 60.8 mph (Exhibit 25-19)

S_0= 66.0 mph (Exhibit 25-19)

S = 63.6 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	SR 50/Cortez Blvd. Off-Ramp
Jurisdiction	Hernando County
Analysis Year	2030

Project Description I-75 PD&E Study - SB Off Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 1310 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3780	0.93	Level	14	2	0.931	0.95	4595
Ramp	1150	0.89	Level	19	2	0.910	0.95	1495
UpStream								
DownStream	1310	0.89	Level	19	2	0.910	0.95	1703

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.576 using Equation (Exhibit 25-11)

V_{12} = 3282 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4595	7200	No
V_{12}	3282	4400:All	No
$V_{FO} = V_F - V_R$	3100	7200	No
V_R	1495	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 32.5 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

D_s = 0.563 (Exhibit 25-19)

S_R= 54.2 mph (Exhibit 25-19)

S_0= 75.6 mph (Exhibit 25-19)

S = 59.0 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst	EJB
Agency or Company	HW Lochner, Inc.
Date Performed	7/28/2005
Analysis Time Period	DHV

Site Information

Freeway/Dir of Travel	I-75 Southbound
Junction	SR 50/Cortez Blvd. Off-Ramp
Jurisdiction	Hernando County
Analysis Year	2030

Project Description I-75 PD&E Study - 2030 SB Off Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☑ Yes ☑ On

☐ No ☐ Off

L_{down} = 2360 ft

V_D = 1310 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3780	0.93	Level	14	2	0.931	0.95	4595
Ramp	1150	0.89	Level	19	2	0.910	0.95	1495
UpStream								
DownStream	1310	0.89	Level	19	2	0.910	0.95	1703

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = using Equation (Exhibit 25-5)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 using Equation (Exhibit 25-11)

V_{12} = 2847 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$	4595	9600	No
V_{12}	2847	4400:All	No
$V_{FO} = V_F - V_R$	3100	9600	No
V_R	1495	2000	No

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = 24.2 (pc/mi/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

D_s = 0.563 (Exhibit 25-19)

S_R= 54.2 mph (Exhibit 25-19)

S_0= 76.8 mph (Exhibit 25-19)

S = 61.1 mph (Exhibit 25-15)

 HCS+™ Version 5.2 Generated: 11/8/2006 10:05 AM

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	7/28/2005	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 SB On Ramp at SR 50 (I-75 = 6 Lanes)

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☑ Yes ☐ On		☐ Yes ☐ On
☐ No ☑ Off		☑ No ☐ Off
L_{up} = 2360 ft		L_{down} = ft
Vu = 1150 veh/h	S_{FF} = 70.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2640	0.94	Level	14	2	0.931	0.95	3175
Ramp	1310	0.89	Level	19	2	0.910	0.95	1703
UpStream	1150	0.89	Level	19	2	0.910	0.95	1495
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F (P_{FM})$$

L_{EQ} = 751.81 (Equation 25-2 or 25-3)

P_{FM} = 0.595 using Equation (Exhibit 25-5)

V_{12} = 1890 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4878	See Exhibit 25-7	No
V_{R12}	3593	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 28.8 (pc/mi/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.419 (Exibit 25-19)

S_R= 58.3 mph (Exhibit 25-19)

S_0= 67.2 mph (Exhibit 25-19)

S = 60.4 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	EJB	Freeway/Dir of Travel	I-75 Southbound
Agency or Company	HW Lochner, Inc.	Junction	SR 50/Cortez Blvd. On-Ramp
Date Performed	7/28/2005	Jurisdiction	Hernando County
Analysis Time Period	DHV	Analysis Year	2030

Project Description I-75 PD&E Study - 2030 SB On Ramp at SR 50 (I-75 = 8 Lanes)

Inputs

Upstream Adj Ramp

☑ Yes ☐ On

☐ No ☑ Off

L_{up} = 2360 ft

Vu = 1150 veh/h

Terrain: Level

S_{FF} = 70.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp

☐ Yes ☐ On

☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2640	0.94	Level	14	2	0.931	0.95	3175
Ramp	1310	0.89	Level	19	2	0.910	0.95	1703
UpStream	1150	0.89	Level	19	2	0.910	0.95	1495
DownStream								

Merge Areas

Estimation of v_{12}

$$V_{12} = V_F\,(P_{FM})$$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.206 using Equation (Exhibit 25-5)

V_{12} = 653 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4878	See Exhibit 25-7	No
V_{R12}	2356	4600:All	No

Level of Service Determination (if not F)

$$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$$

D_R = 19.1 (pc/mi/ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.318 (Exibit 25-19)

S_R= 61.1 mph (Exhibit 25-19)

S_0= 67.3 mph (Exhibit 25-19)

S = 64.1 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$$V_{12} = V_R + (V_F - V_R)P_{FD}$$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI} = V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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APPENDIX 'R'

AIR QUALITY AND NOISE TRAFFIC

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red".

TRAFFIC DATA FOR NOISE STUDIES

Project:	I-75 PD&E Study from north of SR 52 to south of CR 476B	Date:	4/5/2006
State Project Number(s)		Prepared By:	EJB
Work Program Number(s)			
Federal Aid Number(s):			
Segment Description:	Site 1: South of CR 41 (Blanton Road)		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less.

	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	4	4	8
Year:	2005	2030	2030
ADT: LOS (C)	52,500	52,500	109,600
Demand	52,600	107,400	107,400
Speed: mph	70	70	70
Speed: kmh	113	113	113
K= %	9.4	9.4	9.4
D= %	56	56	56
T= % for 24 hrs	27.0	27.0	27.0
T= % Design hr	13.5	13.5	13.5
% Medium Trucks DHV	8.0	8.0	8.0
% Heavy Trucks DHV	5.5	5.5	5.5
% Buses DHV	0.0	0.0	0.0
% Motorcycles DHV	0.0	0.0	0.0

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: LOS (C)	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: Demand
LOS (C)				
Southbound	Autos	2391	2391	4990
	Med Trucks	221	221	462
	Hvy Trucks	152	152	317
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	1876	1876	3921
	Med Trucks	174	174	363
	Hvy Trucks	119	119	249
	Buses	0	0	0
	Motorcycles	0	0	0
Demand				
Southbound	Autos	2395	4890	4890
	Med Trucks	222	452	452
	Hvy Trucks	152	311	311
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	1882	3842	3842
	Med Trucks	174	355	355
	Hvy Trucks	120	244	244
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red".

TRAFFIC DATA FOR NOISE STUDIES

Project:	I-75 PD&E Study from north of SR 52 to south of CR 476B	Date	4/5/2006
State Project Number(s):		Prepared By:	EJB
Work Program Number(s)			
Federal Aid Number(s):			
Segment Description	Site 5: CR 41 (Blanton Road) to SR 50 (Cortez Blvd)		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less

	Existing Facility		No-Build (Design Year)		Build (Design Year)	
Lanes:	4		4		8	
Year	2005		2030		2030	
ADT: LOS (C)	52,500		52,500		109,600	
Demand	49,300		94,000		94,000	
Speed	70	mph	70	mph	70	mph
	113	kmh	113	kmh	113	kmh
K=	9.4	%	9.4	%	9.4	%
D=	56	%	56	%	56	%
T=	27.0	% for 24 hrs.	27.0	% for 24 hrs.	27.0	% for 24 hrs
T=	13.5	% Design hr	13.5	% Design hr	13.5	% Design hr
% Medium Trucks DHV	8.0		8.0		8.0	
% Heavy Trucks DHV	5.5		5.5		5.5	
% Buses DHV	0.0		0.0		0.0	
% Motorcycles DHV	0.0		0.0		0.0	

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: Demand
LOS (C)				
Southbound	Autos	2391	2391	4990
	Med Trucks	221	221	462
	Hvy Trucks	152	152	317
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	1878	1878	3921
	Med Trucks	174	174	363
	Hvy Trucks	119	119	249
	Buses	0	0	0
	Motorcycles	0	0	0
Demand				
Southbound	Autos	2245	4280	4280
	Med Trucks	208	396	396
	Hvy Trucks	143	272	272
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	1764	3363	3363
	Med Trucks	163	311	311
	Hvy Trucks	112	214	214
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red"*.

TRAFFIC DATA FOR NOISE STUDIES

Project:	I-75 PD&E Study from north of SR 52 to south of CR 476B	Date:	4/5/2006
State Project Number(s):		Prepared By:	EJB
Work Program Number(s):			
Federal Aid Number(s):			
Segment Description:	Site 9. North of SR 50 (Cortez Blvd)		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less

	Existing Facility		No-Build (Design Year)		Build (Design Year)	
Lanes:	4		4		8	
Year:	2005		2030		2030	
ADT: LOS (C)	52,500		52,500		109,600	
Demand	49,300		90,000		90,000	
Speed:	70	mph	70	mph	70	mph
	113	kmh	113	kmh	113	kmh
K=	9.4	%	9.4	%	9.4	%
D=	56	%	56	%	56	%
T=	27.0	% for 24 hrs.	27.0	% for 24 hrs.	27.0	% for 24 hrs
T=	13.5	% Design hr	13.5	% Design hr	13.5	% Design hr
% Medium Trucks DHV	8.0		8.0		8.0	
% Heavy Trucks DHV	5.5		5.5		5.5	
% Buses DHV	0.0		0.0		0.0	
% Motorcycles DHV	0.0		0.0		0.0	

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: Demand
LOS (C)				
Southbound	Autos	2391	2391	4990
	Med Trucks	221	221	462
	Hvy Trucks	152	152	317
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	1876	1878	3921
	Med Trucks	174	174	363
	Hvy Trucks	119	119	249
	Buses	0	0	0
	Motorcycles	0	0	0
Demand				
Southbound	Autos	2245	4098	4098
	Med Trucks	208	379	379
	Hvy Trucks	143	261	261
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	1764	3220	3220
	Med Trucks	163	298	298
	Hvy Trucks	112	205	205
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red"

TRAFFIC DATA FOR NOISE STUDIES

Project:	I-75 PD&E Study from north of SR 52 to south of CR 476B	Date:	4/5/2006
State Project Number(s):		Prepared By:	EJB
Work Program Number(s):			
Federal Aid Number(s):			
Segment Description:	Site 9b: Southbound onramp at CR 41 (Blanton Road)		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less.

	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1
Year:	2005	2030	2030
ADT: LOS (C)	7,860	7,860	7,860
Demand	2,400	11,900	11,900
Speed: mph	35	35	35
Speed: kmh	56	56	56
K= %	9.4	9.4	9.4
D= %	56	56	56
T= % for 24 hrs.	20.0	20.0	20.0
T= % Design hr	10.0	10.0	10.0
% Medium Trucks DHV	6.0	6.0	6.0
% Heavy Trucks DHV	4.0	4.0	4.0
% Buses DHV	0.0	0.0	0.0
% Motorcycles DHV	0.0	0.0	0.0

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: LOS (C)
LOS (C)				
Southbound	Autos	372	372	372
	Med Trucks	25	25	25
	Hvy Trucks	17	17	17
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	293	293	293
	Med Trucks	20	20	20
	Hvy Trucks	13	13	13
	Buses	0	0	0
	Motorcycles	0	0	0
Demand				
Southbound	Autos	114	564	564
	Med Trucks	8	38	38
	Hvy Trucks	5	25	25
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	89	443	443
	Med Trucks	6	30	30
	Hvy Trucks	4	20	20
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red".

TRAFFIC DATA FOR NOISE STUDIES

Project: I-75 PD&E Study from north of SR 52 to south of CR 476B

Date: 4/5/2006

State Project Number(s):

Prepared By: EJB

Work Program Number(s):

Federal Aid Number(s):

Segment Description: Site 9a: Southbound offramp at CR 41 (Blanton Road)

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less.

	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1
Year:	2005	2030	2030
ADT: LOS (C)	7,860	7,860	7,860
Demand	800	5,200	5,200
Speed: (mph)	35	35	35
Speed: (kmh)	56	56	56
K= (%)	9.4	9.4	9.4
D= (%)	56	56	56
T= (% for 24 hrs.)	20.0	20.0	20.0
T= (% Design hr)	10.0	10.0	10.0
% Medium Trucks DHV	6.0	6.0	6.0
% Heavy Trucks DHV	4.0	4.0	4.0
% Buses DHV	0.0	0.0	0.0
% Motorcycles DHV	0.0	0.0	0.0

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: Demand	Build (Design Year) Model: Demand
LOS (C)				
Southbound	Autos	372	372	372
	Med Trucks	25	25	25
	Hvy Trucks	17	17	17
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	293	293	293
	Med Trucks	20	20	20
	Hvy Trucks	13	13	13
	Buses	0	0	0
	Motorcycles	0	0	0
Demand				
Southbound	Autos	38	246	246
	Med Trucks	3	16	16
	Hvy Trucks	2	11	11
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	30	194	194
	Med Trucks	2	13	13
	Hvy Trucks	1	9	9
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red"

TRAFFIC DATA FOR NOISE STUDIES

Project:	I-75 PD&E Study from north of SR 52 to south of CR 476B	Date	4/5/2006
State Project Number(s)		Prepared By:	EJB
Work Program Number(s):			
Federal Aid Number(s):			
Segment Description:	Site 10a: Northbound offramp at CR 41 (Blanton Road)		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less.

	Existing Facility		No-Build (Design Year)		Build (Design Year)	
Lanes:	1		1		1	
Year:	2005		2030		2030	
ADT: LOS (C)	7,860		7,860		7,860	
Demand	2,400		11,900		11,900	
Speed:	35	mph	35	mph	35	mph
	56	kmh	56	kmh	56	kmh
K=	9.4	%	9.4	%	9.4	%
D=	56	%	56	%	56	%
T=	20.0	% for 24 hrs.	20.0	% for 24 hrs.	20.0	% for 24 hrs
T=	10.0	% Design hr	10.0	% Design hr	10.0	% Design hr
	6.0	% Medium Trucks DHV	6.0	% Medium Trucks DHV	6.0	% Medium Trucks DHV
	4.0	% Heavy Trucks DHV	4.0	% Heavy Trucks DHV	4.0	% Heavy Trucks DHV
	0.0	% Buses DHV	0.0	% Buses DHV	0.0	% Buses DHV
	0.0	% Motorcycles DHV	0.0	% Motorcycles DHV	0.0	% Motorcycles DHV

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: LOS (C)
LOS (C)				
Southbound	Autos	372	372	372
	Med Trucks	25	25	25
	Hvy Trucks	17	17	17
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	293	293	293
	Med Trucks	20	20	20
	Hvy Trucks	13	13	13
	Buses	0	0	0
	Motorcycles	0	0	0
Demand				
Southbound	Autos	114	564	564
	Med Trucks	8	38	38
	Hvy Trucks	5	25	25
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	89	443	443
	Med Trucks	6	30	30
	Hvy Trucks	4	20	20
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red"

TRAFFIC DATA FOR NOISE STUDIES

Project	I-75 PD&E Study from north of SR 52 to south of CR 476B	Date:	4/5/2006
State Project Number(s):		Prepared By:	EJB
Work Program Number(s):			
Federal Aid Number(s):			
Segment Description:	Site 10b: Northbound onramp at CR 41 (Blanton Road)		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less.

	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1
Year:	2005	2030	2030
ADT: LOS (C)	7,860	7,860	7,860
Demand	800	5,200	5,200
Speed:	35 mph / 56 kmh	35 mph / 56 kmh	35 mph / 56 kmh
K=	9.4 %	9.4 %	9.4 %
D=	56 %	56 %	56 %
T=	20.0 % for 24 hrs.	20.0 % for 24 hrs.	20.0 % for 24 hrs.
T=	10.0 % Design hr	10.0 % Design hr	10.0 % Design hr
% Medium Trucks DHV	6.0	6.0	6.0
% Heavy Trucks DHV	4.0	4.0	4.0
% Buses DHV	0.0	0.0	0.0
% Motorcycles DHV	0.0	0.0	0.0

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: Demand	Build (Design Year) Model: Demand
LOS (C)				
Southbound	Autos	372	372	372
	Med Trucks	25	25	25
	Hvy Trucks	17	17	17
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	293	293	293
	Med Trucks	20	20	20
	Hvy Trucks	13	13	13
	Buses	0	0	0
	Motorcycles	0	0	0
Demand				
Southbound	Autos	38	246	246
	Med Trucks	3	16	16
	Hvy Trucks	2	11	11
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	30	194	194
	Med Trucks	2	13	13
	Hvy Trucks	1	9	9
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red"

TRAFFIC DATA FOR NOISE STUDIES

Project:	I-75 PD&E Study from north of SR 52 to south of CR 476B	Date:	4/5/2006
State Project Number(s):		Prepared By:	EJB
Work Program Number(s):			
Federal Aid Number(s):			
Segment Description:	Site 12a: Southbound offramp at SR 50 (Cortez Blvd)		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less.

	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	1
Year:	2005	2030	2030
ADT: LOS (C)	7,860	7,860	7,860
Demand	4,300	13,800	13,800
Speed: (mph)	35	35	35
Speed: (kmh)	56	56	56
K= (%)	9.4	9.4	9.4
D= (%)	56	56	56
T= (% for 24 hrs)	38.0	38.0	38.0
T= (% Design hr)	19.0	19.0	19.0
% Medium Trucks DHV	11.5	11.5	11.5
% Heavy Trucks DHV	7.5	7.5	7.5
% Buses DHV	0.0	0.0	0.0
% Motorcycles DHV	0.0	0.0	0.0

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: LOS (C)
LOS (C)				
Southbound	Autos	335	335	335
	Med Trucks	48	48	48
	Hvy Trucks	31	31	31
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	263	263	263
	Med Trucks	37	37	37
	Hvy Trucks	24	24	24
	Buses	0	0	0
	Motorcycles	0	0	0
Demand				
Southbound	Autos	183	588	588
	Med Trucks	26	84	84
	Hvy Trucks	17	54	54
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	144	462	462
	Med Trucks	20	66	66
	Hvy Trucks	13	43	43
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red".

TRAFFIC DATA FOR NOISE STUDIES

Project: I-75 PD&E Study from north of SR 52 to south of CR 476B

Date: 4/5/2006

State Project Number(s):

Prepared By: EJB

Work Program Number(s):

Federal Aid Number(s):

Segment Description: Site 12b: Southbound onramp at SR 50 (Cortez Blvd)

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less

	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	2
Year:	2005	2030	2030
ADT: LOS (C)	7,860	7,860	19,680
Demand	6,100	15,800	15,800
Speed: (mph)	35	35	35
Speed: (kmh)	56	56	56
K= (%)	9.4	9.4	9.4
D= (%)	56	56	56
T= (% for 24 hrs.)	38.0	38.0	38.0
T= (% Design hr)	19.0	19.0	19.0
% Medium Trucks DHV	11.5	11.5	11.5
% Heavy Trucks DHV	7.5	7.5	7.5
% Buses DHV	0.0	0.0	0.0
% Motorcycles DHV	0.0	0.0	0.0

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: Demand
LOS (C)				
Southbound	Autos	335	335	839
	Med Trucks	48	48	119
	Hvy Trucks	31	31	78
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	263	263	659
	Med Trucks	37	37	94
	Hvy Trucks	24	24	61
	Buses	0	0	0
	Motorcycles	0	0	0
Demand				
Southbound	Autos	260	674	674
	Med Trucks	37	96	96
	Hvy Trucks	24	62	62
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	204	529	529
	Med Trucks	29	75	75
	Hvy Trucks	19	49	49
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red" .

TRAFFIC DATA FOR NOISE STUDIES

Project:	I-75 PD&E Study from north of SR 52 to south of CR 476B	Date:	4/5/2006
State Project Number(s):		Prepared By:	EJB
Work Program Number(s):			
Federal Aid Number(s)			
Segment Description:	Site 13a: Northbound offramp at SR 50 (Cortez Blvd)		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less.

	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	1	1	2
Year:	2005	2030	2030
ADT LOS (C)	7,860	7,860	19,680
Demand	6,100	15,800	15,800
Speed (mph)	35	35	35
Speed (kmh)	56	56	56
K= (%)	9.4	9.4	9.4
D= (%)	56	56	56
T= (% for 24 hrs)	38.0	38.0	38.0
T= (% Design hr)	19.0	19.0	19.0
% Medium Trucks DHV	11.5	11.5	11.5
% Heavy Trucks DHV	7.5	7.5	7.5
% Buses DHV	0.0	0.0	0.0
% Motorcycles DHV	0.0	0.0	0.0

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: Demand
LOS (C)				
Southbound	Autos	335	335	839
	Med Trucks	48	48	119
	Hvy Trucks	31	31	78
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	263	263	659
	Med Trucks	37	37	94
	Hvy Trucks	24	24	61
	Buses	0	0	0
	Motorcycles	0	0	0
Demand				
Southbound	Autos	260	674	674
	Med Trucks	37	96	96
	Hvy Trucks	24	62	62
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	204	529	529
	Med Trucks	29	75	75
	Hvy Trucks	19	49	49
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red".

TRAFFIC DATA FOR NOISE STUDIES

Project: I-75 PD&E Study from north of SR 52 to south of CR 476B

Date: 4/5/2006

State Project Number(s):

Prepared By: EJB

Work Program Number(s):

Federal Aid Number(s):

Segment Description: Site 13b: Northbound onramp at SR 50 (Cortez Blvd)

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less

	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes	1	1	1
Year	2005	2030	2030
ADT: LOS (C)	7,860	7,860	7,860
Demand	4,300	13,800	13,800
Speed (mph)	35	35	35
Speed (km/h)	56	56	56
K= (%)	9.4	9.4	9.4
D= (%)	56	56	56
T= (% for 24 hrs.)	38.0	38.0	38.0
T= (% Design hr)	19.0	19.0	19.0
% Medium Trucks DHV	11.5	11.5	11.5
% Heavy Trucks DHV	7.5	7.5	7.5
% Buses DHV	0.0	0.0	0.0
% Motorcycles DHV	0.0	0.0	0.0

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

Existing Facility Model: Demand

No-Build (Design Year) Model: LOS (C)

Build (Design Year) Model: LOS (C)

LOS (C)

Direction	Vehicle	Existing Facility	No-Build (Design Year)	Build (Design Year)
Southbound	Autos	335	335	335
	Med Trucks	48	48	48
	Hvy Trucks	31	31	31
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	263	263	263
	Med Trucks	37	37	37
	Hvy Trucks	24	24	24
	Buses	0	0	0
	Motorcycles	0	0	0

Demand

Direction	Vehicle	Existing Facility	No-Build (Design Year)	Build (Design Year)
Southbound	Autos	183	588	588
	Med Trucks	26	84	84
	Hvy Trucks	17	54	54
	Buses	0	0	0
	Motorcycles	0	0	0
Northbound	Autos	144	462	462
	Med Trucks	20	66	66
	Hvy Trucks	13	43	43
	Buses	0	0	0
	Motorcycles	0	0	0

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red"

TRAFFIC DATA FOR NOISE STUDIES

Project:	I-75 PD&E Study from north of SR 52 to south of CR 476B	Date:	10/30/2006 rev'd 11/2/06
State Project Number(s):		Prepared By:	FJD
Work Program Number(s)			
Federal Aid Number(s):			
Segment Description:	Site 8: SR 50 (Cortez Blvd) East of I-75		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less

	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	4	4	6
Year:	2005	2030	2030
ADT: LOS (C)	24,400	24,400	38,000
Demand	24,100	75,000	75,000
Speed: mph	45	45	45
Speed: kmh	72	72	72
K= %	9.6	9.6	9.6
D= %	55	55	55
T= % for 24 hrs	14.1	14.1	14.1
T= % Design hr	7.1	7.1	7.1
% Medium Trucks DHV	1.8	1.8	1.8
% Heavy Trucks DHV	5.3	5.3	5.3
% Buses DHV	0.5	0.5	0.5
% Motorcycles DHV	0.4	0.4	0.4

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: LOS (C)
LOS (C)				
Westbound	Autos	1177	1176	1831
	Med Trucks	23	23	36
	Hvy Trucks	67	68	105
	Buses	6	6	9
	Motorcycles	5	5	9
Eastbound	Autos	982	982	1529
	Med Trucks	19	19	30
	Hvy Trucks	56	57	89
	Buses	5	5	7
	Motorcycles	5	5	7
Demand				
Westbound	Autos	1162	3615	3615
	Med Trucks	22	71	71
	Hvy Trucks	66	208	208
	Buses	6	18	18
	Motorcycles	5	17	17
Eastbound	Autos	970	3015	[illegible]
	Med Trucks	19	59	59
	Hvy Trucks	55	174	174
	Buses	5	15	15
	Motorcycles	5	14	14

This spreadsheet is designed to calculate the appropriate traffic data for use in the noise model - do not input values for items in "red".

TRAFFIC DATA FOR NOISE STUDIES

Project:	I-75 PD&E Study from north of SR 52 to south of CR 476B	Date	11/2/2006
State Project Number(s):		Prepared By:	FJD
Work Program Number(s):			
Federal Aid Number(s):			
Segment Description:	Site 8: SR 50 (Cortez Blvd) West of I-75		

(Data sheets are to be filled out for every segment having a change in traffic parameters such as volumes, posted speeds, typical section, etc.)

NOTE: Modeled ADT is the LOS(C) volume referenced in the FDOT LOS tables or demand, whichever is less.

	Existing Facility	No-Build (Design Year)	Build (Design Year)
Lanes:	4	4	6
Year:	2005	2030	2030
ADT: LOS (C)	24,400	24,400	38,000
Demand	20,600	64,000	64,000
Speed	45 mph / 72 kmh	45 mph / 72 kmh	45 mph / 72 kmh
K=	9.6 %	9.6 %	9.6 %
D=	55 %	55 %	55 %
T=	15.5 % for 24 hrs	15.5 % for 24 hrs	15.5 % for 24 hrs
T=	7.8 % Design hr	7.8 % Design hr	7.8 % Design hr
% Medium Trucks DHV	2.0	2.0	2.0
% Heavy Trucks DHV	5.8	5.8	5.8
% Buses DHV	0.6	0.6	0.6
% Motorcycles DHV	0.4	0.4	0.4

STAMINA/TNM INPUT

The following are spreadsheet calculations based on the input above - do not enter data below this line

		Existing Facility Model: Demand	No-Build (Design Year) Model: LOS (C)	Build (Design Year) Model: LOS (C)
LOS (C)				
Westbound	Autos	1165	1165	1815
	Med Trucks	25	25	39
	Hvy Trucks	75	75	116
	Buses	7	7	11
	Motorcycles	6	6	9
Eastbound	Autos	973	973	1515
	Med Trucks	21	21	33
	Hvy Trucks	62	62	97
	Buses	6	5	9
	Motorcycles	5	5	7
Demand				
Westbound	Autos	964	3057	3057
	Med Trucks	21	66	66
	Hvy Trucks	63	196	196
	Buses	6	18	18
	Motorcycles	5	15	15
Eastbound	Autos	[illegible]	2552	2552
	Med Trucks	18	55	55
	Hvy Trucks	53	163	163
	Buses	5	15	15
	Motorcycles	4	12	12

DISTRICT 7
TRAFFIC DATA FOR AIR STUDY SCREENING TEST

DATE : 04/25/06

PREPARED BY: Ed Bryant, PE

Work Program Item Segment Number(s): 411014-1-22-01

Federal Aid Number(s): 0751-120I

Project Description: I-75 PD&E Study from north of SR 52 to south of CR 476B (Pasco, Hernando, and Sumter Counties, Florida)

NOTE: The most congested intersection is the intersection with the highest total volume and lowest departure speeds and it could be two different intersections based on the Build vs. No-Build alternatives. The traffic volumes are to be the peak vph of the most congested leg approaching the intersection (values between 1000- 9999 are accepted into the computer model). The speeds are to be the average cruise speed / mid-block speed for the most congested leg and the model will accept values between 15 – 65 mph.

OPENING YEAR: 2010

"BUILD"

Most Congested Intersection:
I-75 (SR 93) SB Ramps at SR 50
Peak Hour Traffic
for most congested leg: 1,561 vph
Specify leg: WB SR 50 – Cortez Blvd
Average Cruise Speed: 45 mph

"NO-BUILD"

Most Congested Intersection:
I-75 (SR 93) SB Ramps at SR 50
Peak Hour Traffic
for most congested leg: 1,561 vph
Specify leg: WB SR 50 – Cortez Blvd
Average Cruise Speed: 45 mph

DESIGN YEAR : 2030

"BUILD"

Most Congested Intersection:
I-75 (SR 93) NB Ramps at SR 50
Peak Hour Traffic
for most congested leg: 3,389 vph
Specify leg: WB SR 50 – Cortez Blvd
Average Cruise Speed: 45 mph

"NO-BUILD"

Most Congested Intersection:
I-75 (SR 93) NB Ramps at SR 50
Peak Hour Traffic
for most congested leg: 3,389 vph
Specify leg: WB SR 50-Cortez Blvd
Average Cruise Speed: 45 mph