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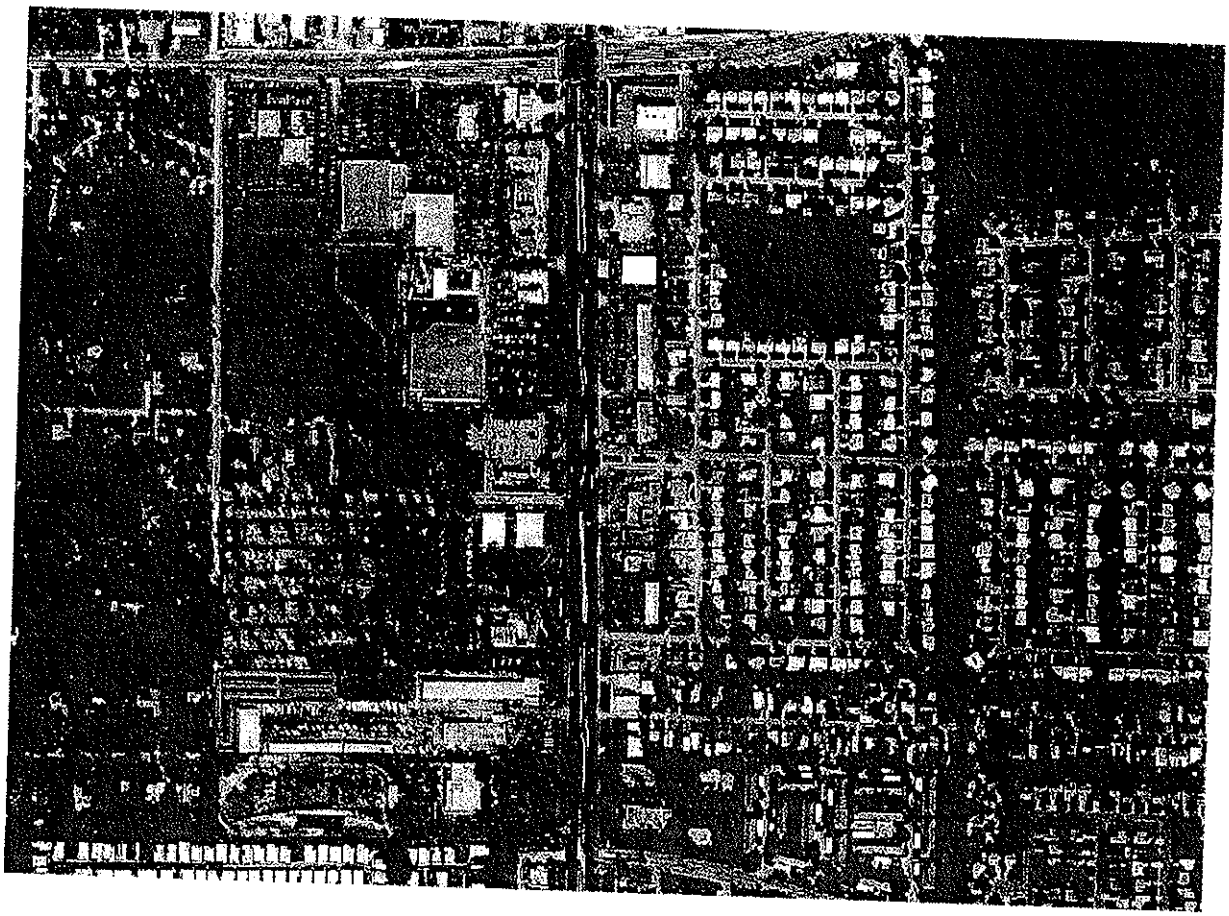
DRAFT TRAFFIC REPORT

U.S. 19 SUB CORRIDOR REPORT

U.S. 19 (SR 580 to CR 95)
Controlled Access Highway Feasibility Study
Pinellas County, Florida



Prepared for

Florida Department of Transportation
District Seven

By
LOCHNER

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1. INTRODUCTION

1.1 Purpose

The purpose of this traffic study is to investigate the feasibility of upgrading US 19 corridor as a controlled access highway from north of SR 580 to north of Curlew Road (SR 586) to near CR 95 and to identify the appropriate conceptual design. This traffic report documents: existing traffic conditions; study area model validation of the Tampa Bay Regional Planning Model (TBRPM); development of the design year 2030 projected annual average daily traffic (AADT); estimation of design hour traffic volumes and capacity; and level of service (LOS) analysis of the design alternatives for the US 19 corridor study in Pinellas County, Florida.

1.2 Description of Project

Upgrading the US 19 corridor to a controlled access highway has long been a goal of the Pinellas County Metropolitan Planning Organization's (MPO) Long Range Transportation Plan. In November 2000, a Cost Estimate Update Study was completed that developed a mainline with frontage lane system concept to improve traffic operations along US 19 in Pinellas County. Subsequently, several sub-corridor studies were done and several interchanges with frontage lanes are under construction or are being designed. Once all the planned improvements are built, the US 19 corridor will operate as a controlled access highway from south of 49th Street to north of SR 580. This traffic study is a continuation of previous sub-corridor analysis to extend US 19 as a controlled access highway further north to Curlew Road. The project will improve the capacity and safety of the existing US 19 arterial segment between north of SR 580 and north of Curlew Road by upgrading the facility as a controlled access highway segment with the provision of grade separations and frontage lanes. The total length of the project segment is approximately two miles. Between Curlew Road and SR 580 there are no major cross streets, but there are several minor cross streets and driveways. This situation requires a unique design solution to facilitate local access, without major intermediate interchanges between SR 580 and Curlew Road. The project location is shown in Exhibit 1.

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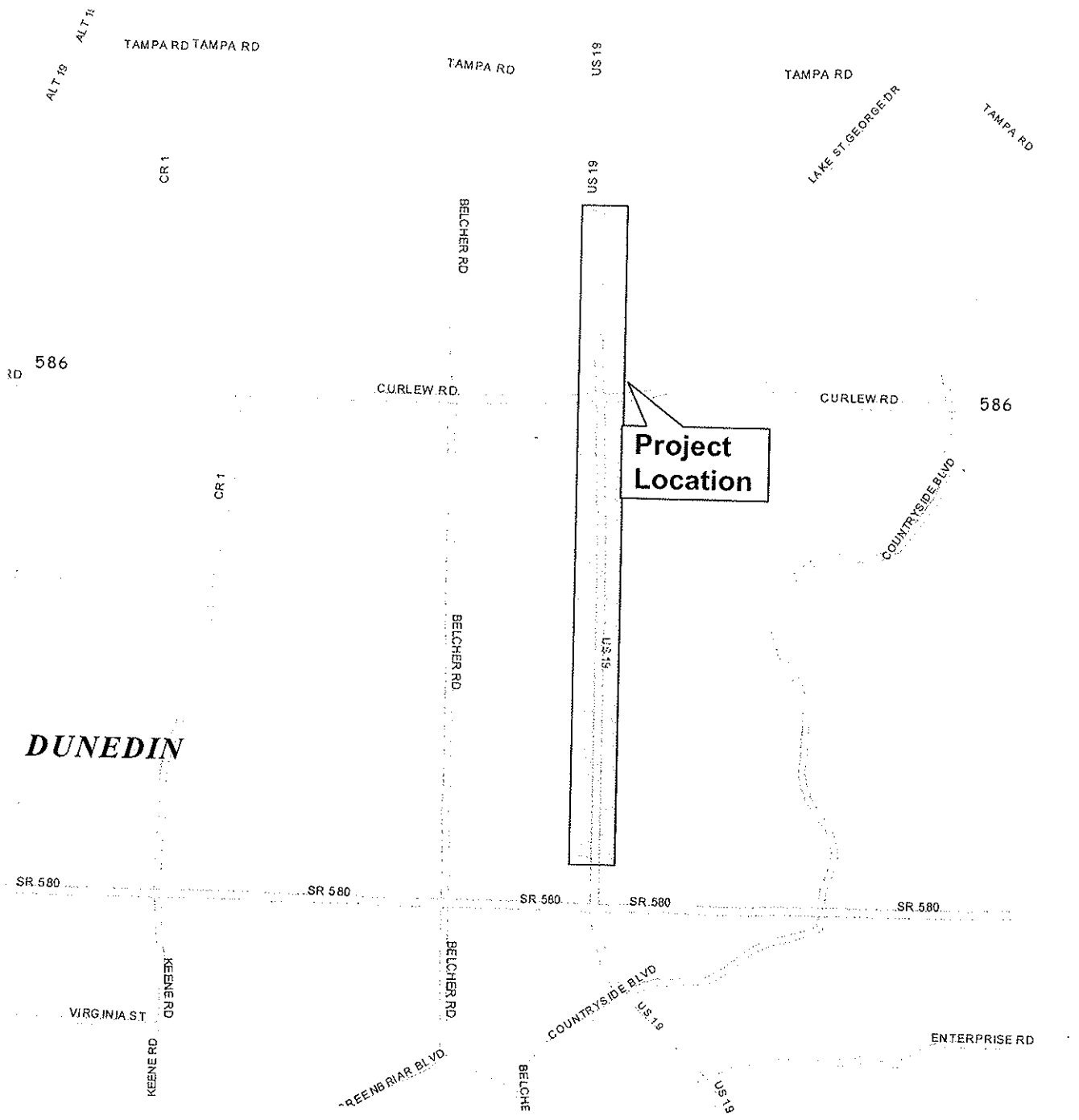

US 19
Sub Corridor Report
SR 580- CR 95

Project Location Map

Exhibit 1

1.3 Scope of Work

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The primary objective of this study is to develop the conceptual design and complete the traffic operational analysis for the upgrading of the US 19 arterial from north of SR 580 to near CR 95, with a Single Point Urban Interchange (SPUI) at Curlew Road. The study also identifies the location and produces a conceptual design for an additional overpass location between SR 580 and north of Curlew Road. This overpass concept will allow frontage lane U-Turn lanes under the overpass to facilitate local accessibility to and from the minor streets and driveways, that are located on both sides of the US 19 corridor. The design and traffic operational feasibility of constructing additional entry and exit ramps from the frontage lanes to the US 19 highway between SR 580 and Curlew Road are also considered in this study. In addition, US 19 arterial and intersection traffic operational analyses are performed for no-build and build conditions to analyze the impacts of the proposed improvements.

The traffic analysis conducted for this US 19 corridor study includes existing traffic analysis, the modeling effort for the development of design year traffic for the alternatives and the design year traffic analysis. The existing traffic analysis includes the collection of traffic count data, the development of existing year design hour traffic volumes and the level of service analysis of roadway segments and intersections. The design year traffic analyses are performed for the screening of preliminary alternatives and the evaluation of viable alternatives.

2. EXISTING CONDITIONS

Existing roadway and intersection characteristics of US 19 and cross streets, historical traffic count data from FDOT count stations, traffic data from Pinellas County count stations, 2004 daily traffic machine counts and six-hour manual turning movement counts were collected and used to analyze the existing conditions of the US 19 study corridor.

2.1 Roadway and Intersection Characteristics

The existing US 19 segment between north of SR 580 interchange and CR 95 is an eight-lane arterial. The US 19 northbound rightmost through-lane begins at the entry ramp near Evans Road and becomes an exclusive right-turn lane at the intersection of Curlew Road. The rightmost through-lane again begins at Curlew Road and continues further north. The US 19 southbound rightmost through-lane terminates as the first exit ramp north of Evans Road. The existing year (2004) corridor study area road network and the lane arrangements are shown in Exhibit 2 and Exhibit 3, respectively.

2.2 Traffic Data Collection

Field traffic counts collected for this project include 72-hour tube counts and 6-hour manual turning movement counts. The counts were conducted during November 2004. The 6-hour manual turning movement counts were collected for AM and PM peak periods. The traffic count locations are shown in Exhibit 4. Traffic count data collected was used in estimating existing year (2004) and design year (2030) design hour volumes. Additional data collected for use in the traffic analysis includes:

- Tampa Bay Regional Planning Model Data
- Florida Department of Transportation Traffic Count Information
- Pinellas County Traffic Count Information
- Signal Timing Information from Pinellas County and City of Clearwater

2.3 Traffic Parameters

The design year (2030) design hour volumes were estimated using the 30th highest hour Time of Day (K_{30}), Directional Distribution (D_{30}) and Truck (T) factors. The K, D, and T factors were estimated based on the procedure outlined in the FDOT Project Traffic Forecasting Handbook, 2002. The K, D, and T traffic factors collected during the past three years from FDOT count stations in the US 19 study area are shown in Table 1. These factors are compared with the State and National data in Table 2.

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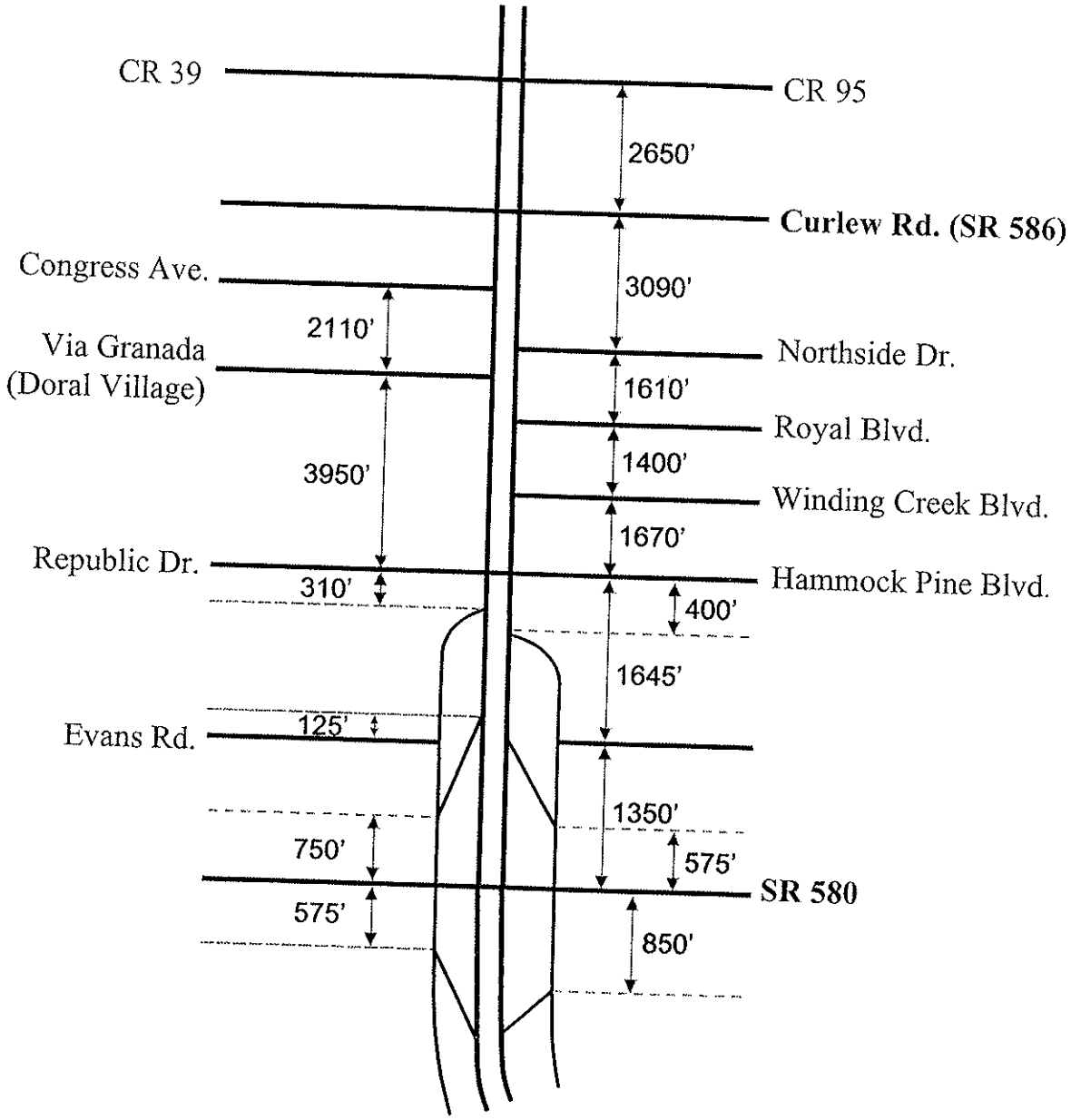

US 19
Sub Corridor Report
SR 580- CR 95

Existing Year 2004
Study Area
Road Network

Exhibit 2

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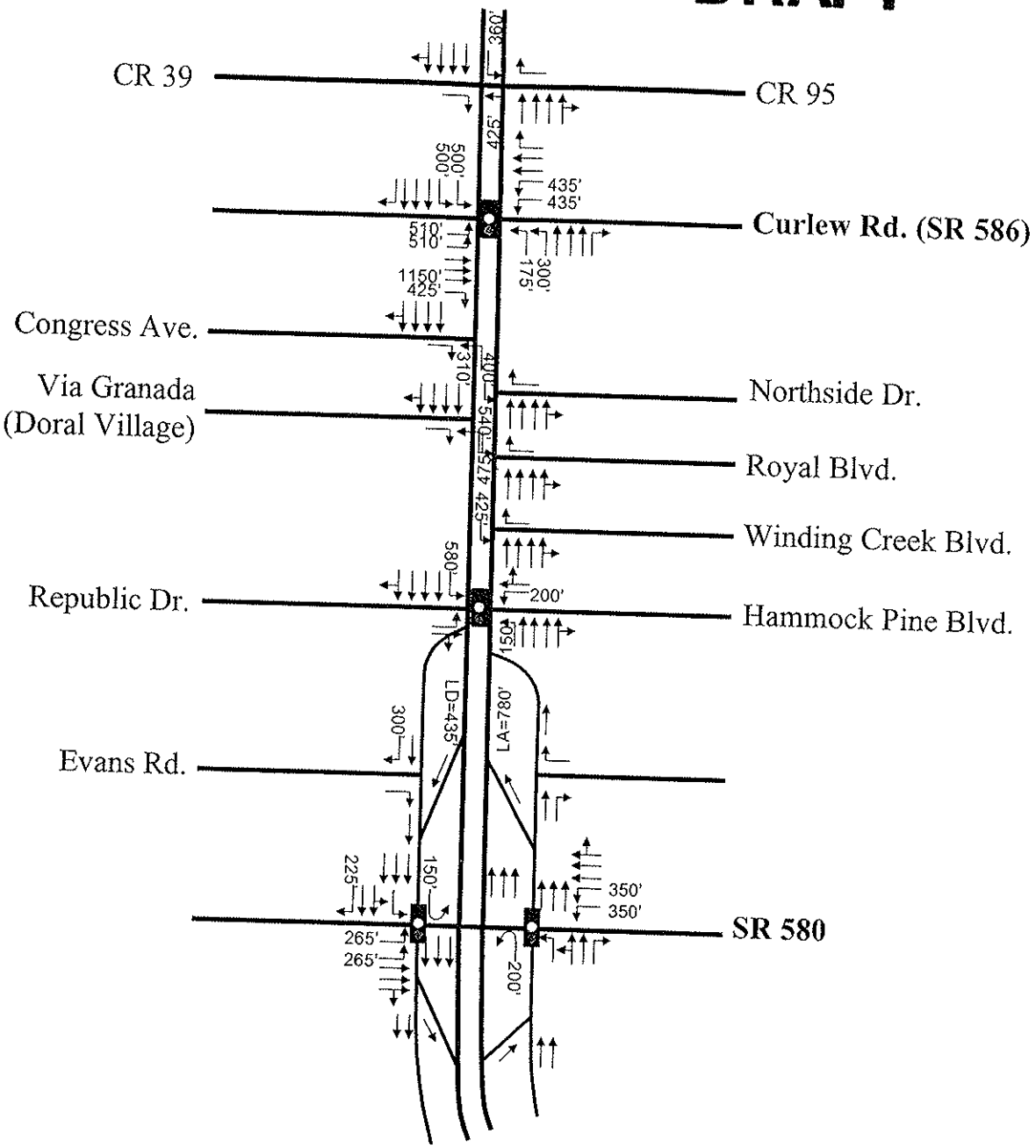
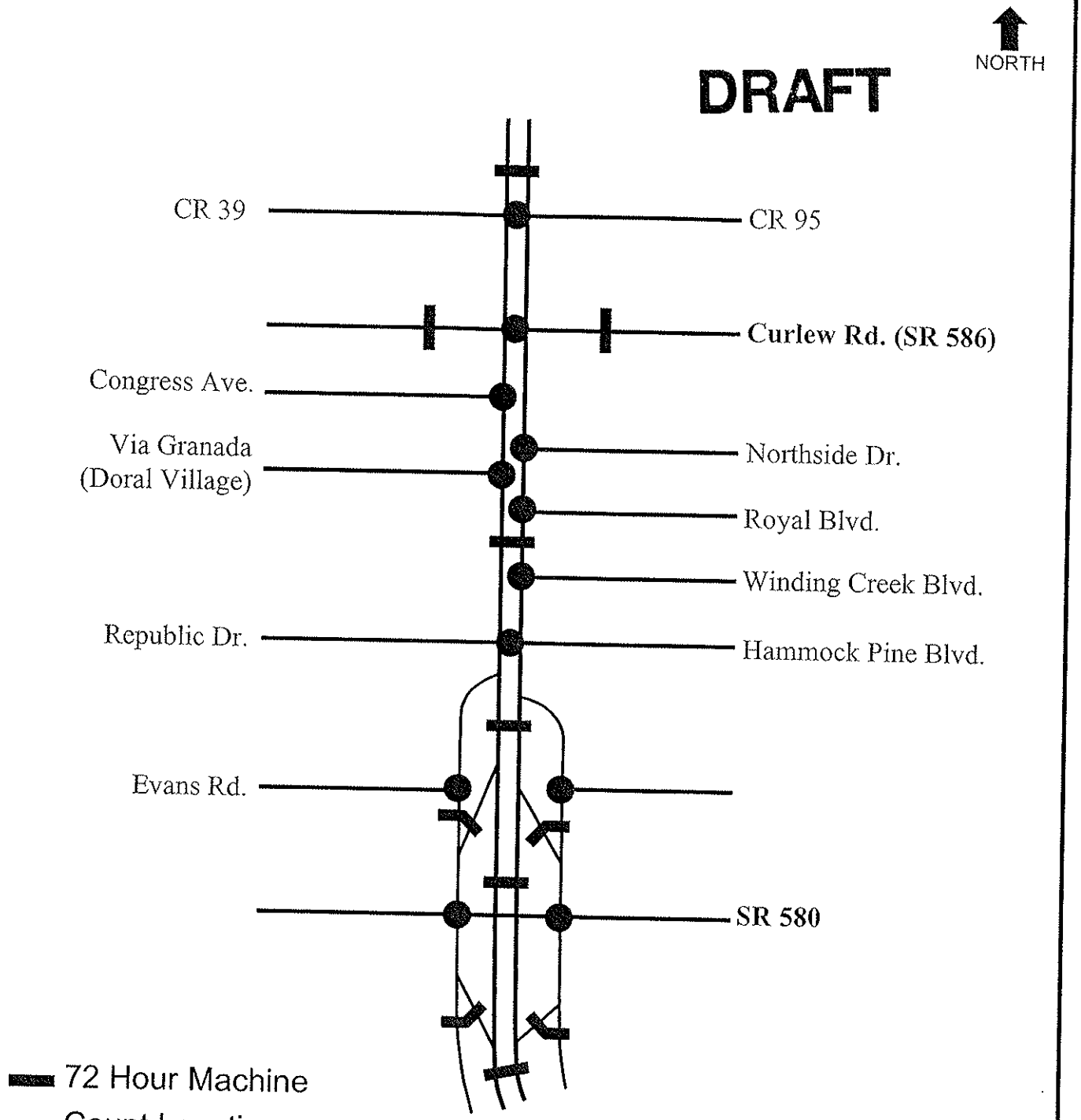


US 19
Sub Corridor Report
SR 580- CR 95

Existing Year 2004
Lane Arrangements

Exhibit 3



US 19
Sub Corridor Report
SR 580- CR 95

Existing Year 2004
Study Area
Traffic Count Locations

Exhibit 4

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Table 1. Traffic Characteristics for the US 19 Corridor Study Area

Count Station	Location	Facility Type	Year	K30	D30	Daily Truck %
0045	US 19,	Urban	2003	9.98	56.04	4.87
	North of Curlew Road	Arterial	2002	9.80	55.66	4.87
			2001	9.98	52.10	4.06
0044	US 19,	Urban	2003	9.98	56.04	5.48
	North of SR 580/Main Street	Arterial	2002	9.80	55.66	5.48
			2001	9.98	52.10	5.52
0042	US 19,	Urban	2003	9.98	56.04	6.03
	Bet. Blackburn & Bermuda	Arterial	2002	9.80	55.66	6.03
			2001	9.98	52.10	4.71
	US 19		**Average**	**9.92**	**54.60**	**5.23**
5182	Curlew Road,	Urban	2003	9.98	56.04	3.31
	West of US 19	Arterial	2002	9.80	55.66	3.31
			2001	9.98	52.10	3.31
5183	Curlew Road,	Urban	2003	9.98	56.04	4.45
	East of US 19	Arterial	2002	9.80	55.66	4.45
			2001	9.98	52.10	2.52
5301	Curlew Road,	Urban	2003	9.98	56.04	4.05
	West of McMullen Road	Arterial	2002	9.80	55.66	4.05
			2001	9.98	52.10	2.61
	Curlew Road		**Average**	**9.92**	**54.60**	**3.56**
5310	SR 580 / Main Street,	Urban	2003	9.98	56.04	4.54
	West of Belcher Road	Arterial	2002	9.80	55.66	5.24
			2001	9.98	52.10	4.01
5311	SR 580/Main Street,	Urban	2003	9.98	56.04	3.98
	West of Pine Tree Lane	Arterial	2002	9.80	55.66	5.24
			2001	9.98	52.10	3.98
	SR 580 / Main Street		**Average**	**9.92**	**54.60**	**4.50**

* Source: FDOT Traffic Information, 2001, 2002 and 2003.

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Table 2. Comparison of Site Specific Data with State and National Data for Urban Arterials

	FDOT SITE DATA		STATE DATA*		NATIONAL DATA*	
	K_{30}	D_{30}	K_{30}	D_{30}	K_{30}	D_{30}
Observed Minimum	9.80	52.10	9.2	50.8	9.0	50.0
Observed Maximum	9.98	56.04	11.5	67.1	10.0	55.0

* Source: FDOT Project Traffic Handbook, 2002.

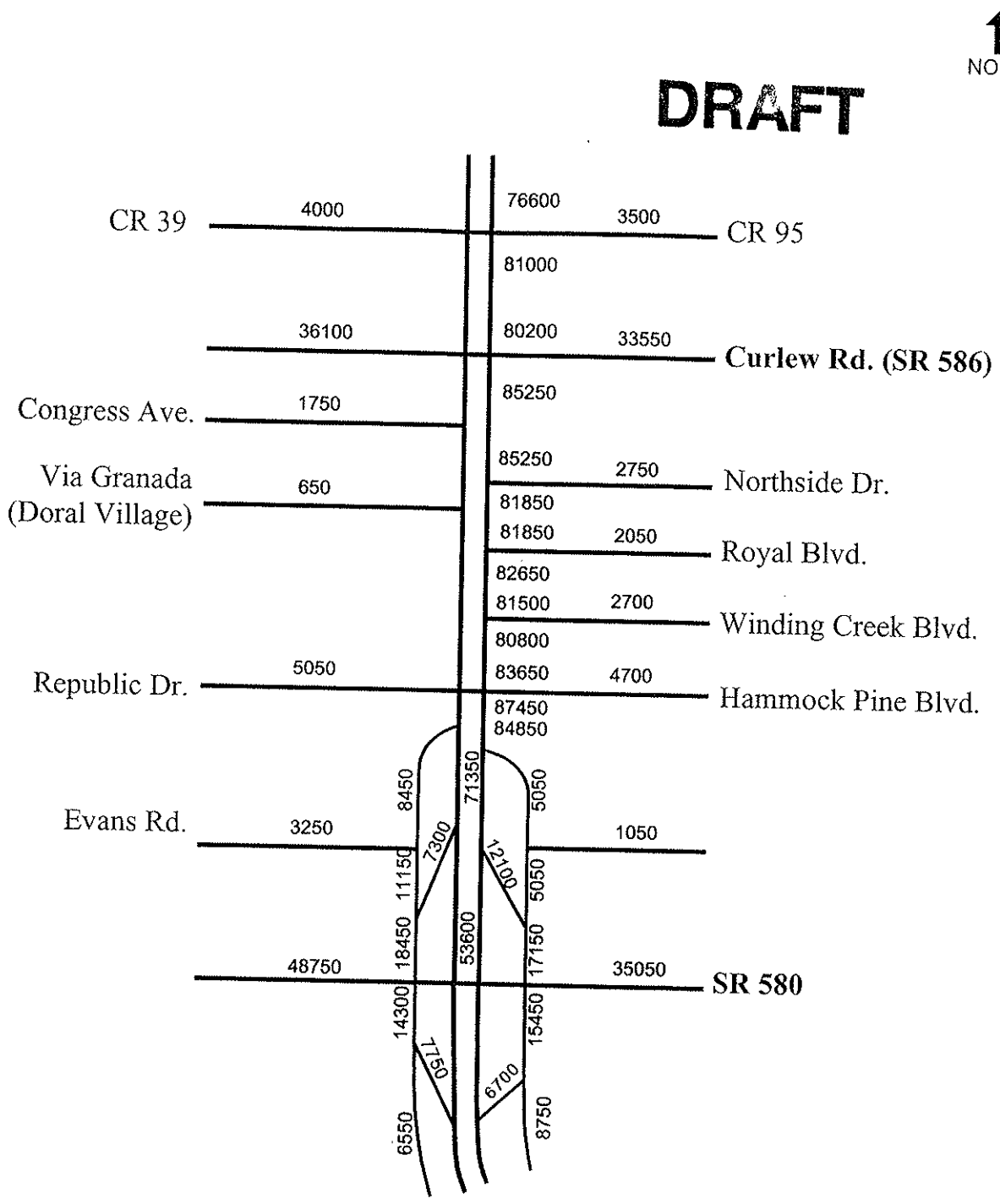
Based on these data, the following K and D factors are recommended to develop the design hour traffic characteristics in the level of service analyses for design year (2030).

K_{30} = 9.9 percent T – Daily = 5 percent

D = 54.6 percent T – Design Hour = 2.5 percent

2.4 Development of Existing Year 2004 Design Hour Volumes

The existing year 2004 AADT volumes were estimated by multiplying the collected tube counts by the respective axle factor and by the historical seasonal factor. At three locations, Nebraska Avenue west of US 19, Tampa Road west of US 19 and SR 580 east of US 19, the year 2004 AADT volumes were estimated from the year 2003 Pinellas County AADT counts. In those locations where daily counts were not collected or available, the six hour manual turning movement counts are used to estimate the AADT volumes. The estimated existing year (2004) annual average daily traffic (AADT) at roadway segments are shown in Exhibit 5. The existing year (2004) design hour volumes were estimated using the 30th highest hour K and D (K_{30} and D_{30}) factors. The AADT volumes were multiplied first by the K_{30} factor of 9.9 percent and then by the D_{30} factor of 54.6 percent to develop the design hour AM and PM directional volumes. At major intersections, the design hour AM and PM intersection turning movement volumes were



US 19
Sub Corridor Report
SR 580- CR 95

Existing Year 2004
AADT

Exhibit 5

estimated using the TURNS5 Turning Movement Analysis Tool developed by FDOT. At minor intersections, the intersection turning movement volumes were estimated manually after applying K_{30} and D_{30} factors to the AADT volumes. For cross streets the recommended corridor study area K_{30} and D_{30} factors were compared to the K and D factors derived from the collected single day field traffic data. At the cross streets where field derived K and D factors are higher than the recommended corridor study area K_{30} and D_{30} factors, the field derived K and D factors were used to develop design hour turning movement volumes if the estimates were found reasonable and appropriate. For US 19, the peak hour traffic directions are southbound in the AM peak hour and northbound in the PM peak hour. For cross streets the existing year 2004 peak hour traffic directions are determined based on the collected field traffic count data. The developed existing year (2004), AM and PM turning movement traffic volumes are shown in Exhibit 6 and Exhibit 7, respectively.

2.5 Intersection Level of Service Analysis

Intersection levels of service (LOS) were estimated using the Highway Capacity Software (HCS). Existing year (2004) geometric conditions and design hour turning movement traffic volumes, with respect to individual intersections were used in the analysis. Existing signal timing information collected from Pinellas County and the City of Clearwater were also used in the analysis. The analysis results for signalized intersections are shown in Table 3. The HCS intersection analysis sheets for the existing conditions are included in Appendix A.

2.6 Arterial Segment Level of Service Analysis

The existing year (2004) arterial segment level of service (LOS) analyses for US 19 roadway segments within the vicinity of the study area were conducted using the estimated existing year (2004) design hour volumes and Highway Capacity software (HCS). In the analysis, existing geometric conditions and traffic characteristics, with respect to individual road segments were used. The results of the arterial segment level of service analysis for the existing conditions are summarized in Table 4. The HCS arterial segment LOS analysis sheets for the existing conditions are included in Appendix B.

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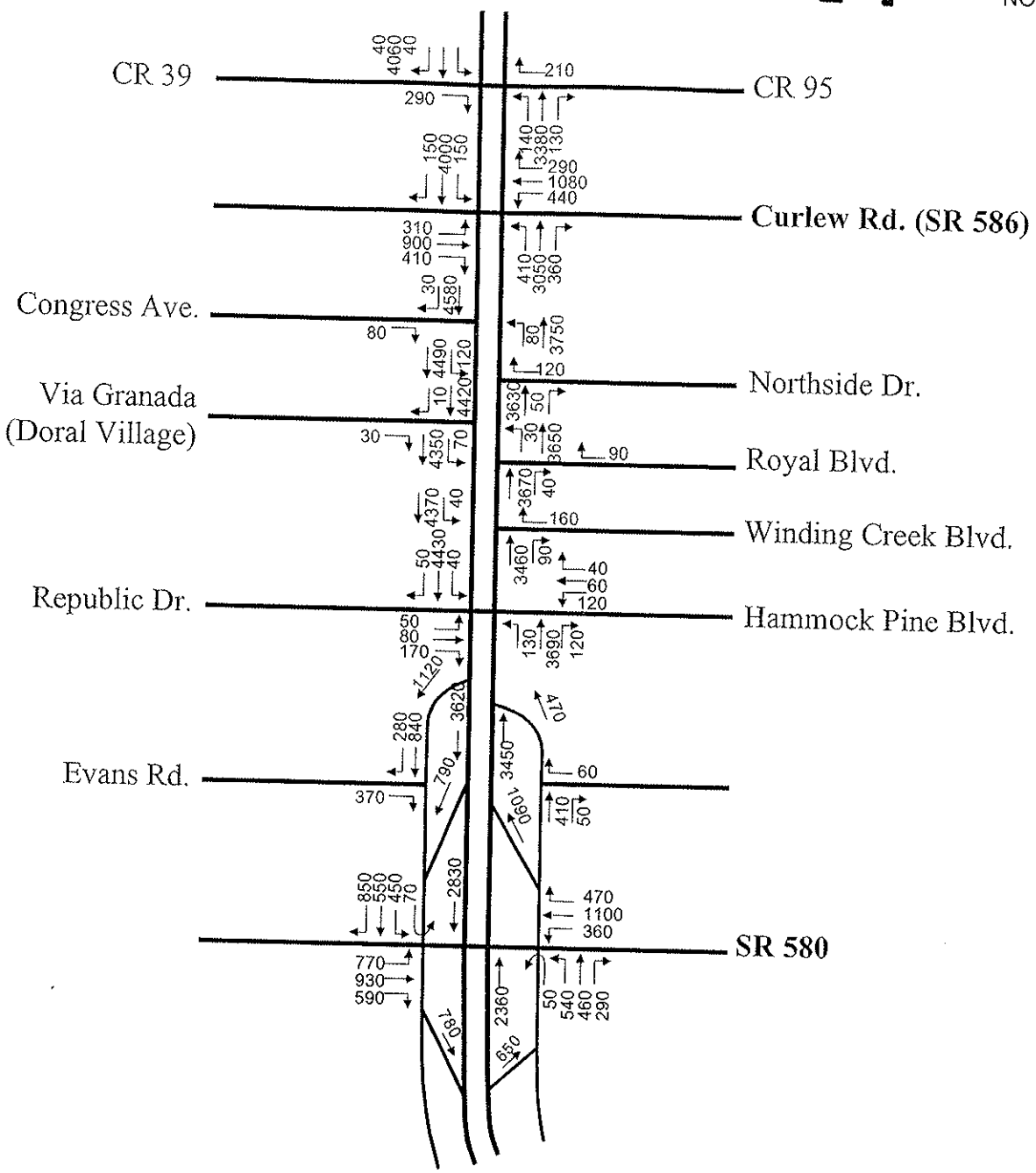

US 19
Sub Corridor Report
SR 580- CR 95

Existing Year 2004 AM
Design Hour Volumes

Exhibit 6

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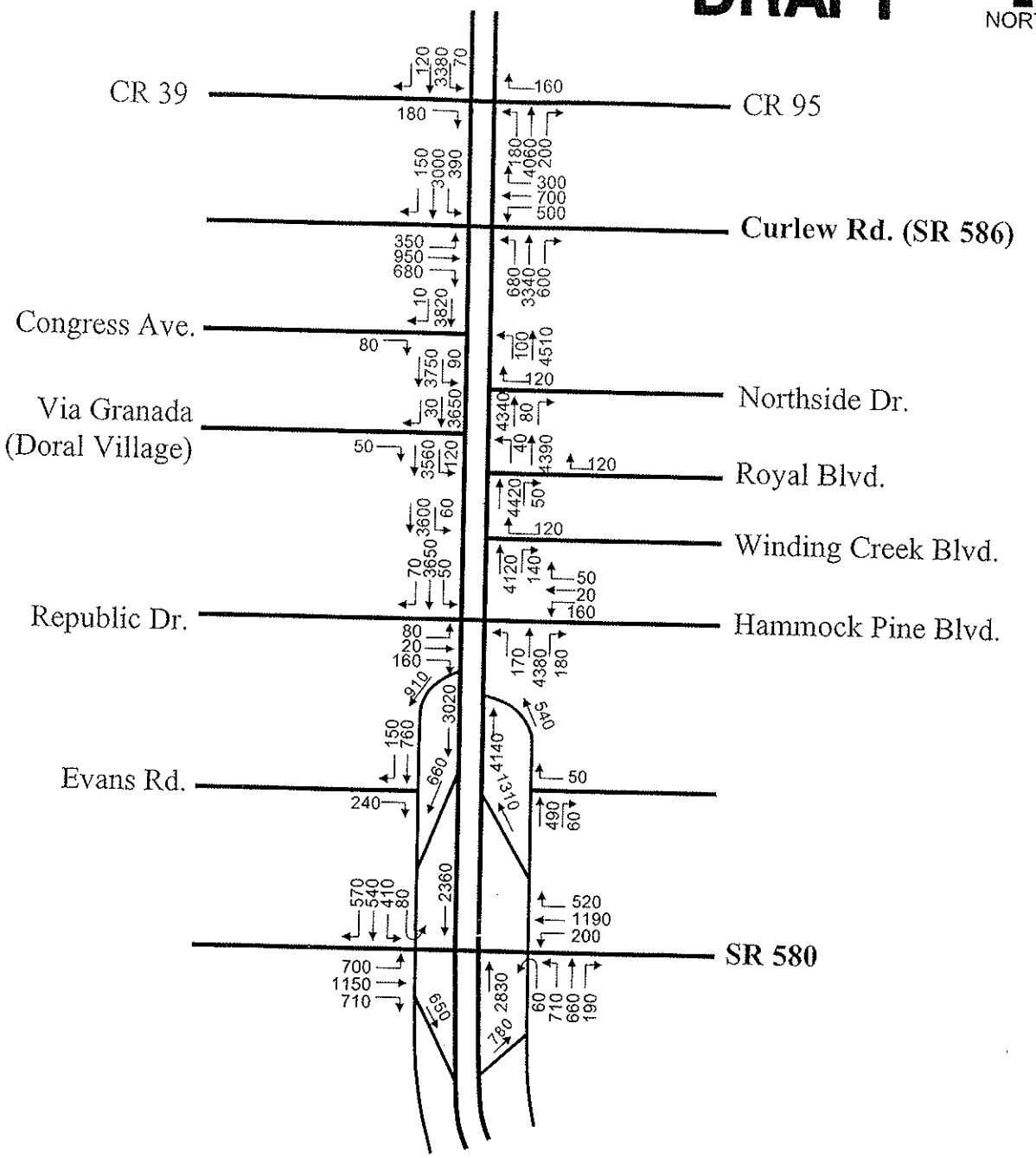

US 19
Sub Corridor Report
SR 580- CR 95

Existing Year 2004 PM
Design Hour Volumes

Exhibit 7

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Table 3. Existing Year 2004 Peak Hour Level of Service at Signalized Intersections

Intersections	Level of Service (Delay)	
	AM Peak	*PM Peak*
US 19 with Curlew Road	**F (269 sec)**	**F (243 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F
US 19 with Republic Drive	**E (70 sec)**	**D (40 sec)**
NB Approach	C	D
SB Approach	F	C
EB Approach	F	F
WB Approach	F	F
US 19 Frontage Roads with SR 580	**F (198 sec)**	**F (236 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F

Table 4. Existing Year 2004 Peak Hour Level of Service on Arterial Segments

Arterial Segments	Level of Service	
	AM Peak	*PM Peak*
US 19 Northbound	**D**	**F**
SR 580 to Republic Drive	C	D
Republic Drive to Curlew Road	D	F
US 19 Southbound	**F**	**E**
CR 95 to Curlew Road	F	F
Curlew Road to Republic Drive	D	B

2.7 Transit Considerations

A review of Pinellas Suncoast Transit Authority (PSTA) service routes indicated that regularly scheduled express and local public transit service currently exists along the US 19 corridor. There are many bus stops located along both sides of the US 19 corridor. It is observed that frequent stops of the transit service buses, operating in the US 19 corridor also contribute delay to the traffic movement along the arterial. With the proposed upgrading of the US 19 corridor with frontage road system, the local transit service routes would be relocated to the frontage lanes from the US 19 mainline. This would eliminate the traffic movement delay on mainline US 19, caused by the frequent stops of the transit service buses, and also facilitate accessibility to the local bus services. Furthermore, the express bus services can be operated more efficiently through the upgraded US 19 controlled access mainline facility.

3. DEVELOPMENT OF FUTURE TRAFFIC

The Tampa Bay Regional Model Version 5.0 (as of January, 2005) was utilized to estimate future year traffic volumes on US 19 and the intersecting cross streets. The model generated traffic volumes for the year 2025. The design year 2030 traffic volumes are projected by applying a growth factor to the model generated traffic volumes and used in the analysis for long-term improvement scenarios on US 19. At the time that this corridor study was conducted, the TBRPM 5.0 was in the process of being revised. This revised version of TBRPM 5.0 as of January, 2005 was approved for use in this study by FDOT.

3.1 Base Year 2000 Model Validation

The model validation for this corridor project was to review the model performance in the study area. For this process, 2000 model traffic results were adjusted from peak season traffic to annual average daily traffic (AADT), by using the base model year 2000 Pinellas countywide model conversion factor (MOCF) of 0.94, and compared with observed 2000 traffic counts at various FDOT and Pinellas County count stations. A comparison of the 2000 TBRPM model results with the observed 2000 AADT counts is presented in Table 5.

Table 5. Year 2000 Model AADT Comparison with 2000 FDOT Traffic Counts

Count Location	No. of Lanes	2000 Traffic Counts	2000 Model AADT	Vol. / Count	Percent Deviation	Within NCHRP Range?
US 19						
North of Highlands Blvd.	6	88,350	86,800	0.98	(2)	Yes
North of Curlew Road	6	72,000	70,950	0.99	(1)	Yes
North of SR 580 / Main St.	6	76,000	77,350	1.02	2	Yes
South of Enterpise Rd.	6	82,000	89,750	1.09	9	Yes
Mc Mullen Booth Road						
South of Curlew Rd.	6	51,200	52,850	1.03	3	Yes
South of Enterprise Rd.	6	67,700	61,250	0.90	(10)	Yes
Belcher Road						
South of Curlew Rd.	4	21,900	28,200	1.29	29	No
North of SR 580 / Main St.	4	25,250	33,650	1.33	33	No
Tampa Road						
West of Belcher Rd.	4	25,000	28,600	1.14	14	Yes
West of Countryside Rd.	6	39,150	42,650	1.09	9	Yes
Curlew Road						
East of Belcher Rd.	2	25,000	32,600	1.30	30	No
East of US 19	6	26,000	33,650	1.29	29	No
West of McMullen Booth Rd.	6	29,000	52,250	1.80	80	No
SR 580 / Main Street						
West of Belcher Rd.	6	42,500	24,900	0.59	(41)	No
East of US 19	6	29,000	28,900	1.00	0	Yes

NCHRP – National Cooperative Highway Research Program

From a review of this data, the 2000 TBRPM traffic estimation differs considerably with observed traffic at six count locations. Therefore, a network review was conducted and adjustments were identified to better match existing conditions and centroid loadings. Based on the reviews, the following adjustments to the base 2000 model network were made:

1. Belcher Road Facility Type (FT) is changed from 24 to 25 between Countryside Blvd. and Solon Avenue.
2. Curlew Road FT is changed from 22 to 23 between Country Woods Lane and Countryside Blvd.
3. Curlew Road FT is changed from 22 to 25 between Countryside Blvd and McMullen Booth Road.

4. Curlew Road FT is changed from 24 to 25 between McMullen Booth Road and Tampa Road.
5. SR 580 FT is changed from 25 to 24 between Belcher Road and CR 1.
6. Keene Road FT is changed from 33 to 42 between Sunset Point Road SR 580.
7. CR 1 FT is changed from 25 to 41 between SR 580 and Curlew Road.
8. CR 1 FT is changed from 45 to 42 between Curlew Road and Tampa Road.
9. Greenbriar Blvd. FT is changed from 47 to 45 between Beltrees Street and Belcher Road.
10. Countryside Blvd. FT is changed from 41 to 44 between SR 580 and Northside Drive.
11. Northside Drive FT is changed from 42 to 45 between US 19 and Countryside Blvd.
12. Countryside Blvd. FT is changed from 42 to 45 between Northside Drive and Curlew Road.
13. Lake Street FT is changed from 42 to 45 between Curlew Road and Tampa Road.
14. Landmark Drive FT is changed from 32 to 42 between SR 580 and Knollwood Ct.
15. Landmark Drive FT is changed from 42 to 45 between Knollwood Ct. and Curlew Road.
16. US 19 northbound and southbound frontage lanes FT is changed from 67 to 66 between Enterprise Road and Countryside Blvd.
17. Centroid Connector for TAZ 1147 is relocated to better represent access to McMullen Booth Road.
18. For TAZ 1139, an additional Centroid Connector to Countryside Blvd. is coded and the Centroid Connector to US 19 northbound frontage lane is relocated to south of the US 19 Off-Ramp / Frontage Road intersection to better represent the TAZ access points.

By making these network changes, the revised 2000 TBRPM reasonably matched the 2000 observed traffic counts. A comparison of the revised 2000 model results with the observed 2000 traffic counts is presented in Table 6. This table shows that although some percentage differences seem high, they are within the acceptable National Cooperative Highway Research Program (NCHRP) range. Based on this review, the modified 2000 model seems to reasonably reflect 2000 conditions.

Table 6. Validated 2000 Model AADT Comparison with 2000 FDOT Traffic Counts

Count Location	No. of Lanes	2000 Traffic Counts	2000 Model AADT	Vol. / Count	Percent Deviation	Within NCHRP Range?
US 19						
North of Highlands Blvd.	6	88,350	88,200	1.00	0	Yes
North of Curlew Road	6	72,000	73,200	1.02	2	Yes
North of SR 580 / Main St.	6	76,000	82,100	1.08	8	Yes
South of Enterpise Rd.	6	82,000	91,000	1.11	11	Yes
Mc Mullen Booth Road						
South of Curlew Rd.	6	51,200	58,700	1.15	15	Yes
South of Enterprise Rd.	6	67,700	65,350	0.97	(3)	Yes
Belcher Road						
South of Curlew Rd.	4	21,900	24,000	1.10	10	Yes
North of SR 580 / Main St.	4	25,250	28,550	1.13	13	Yes
Tampa Road						
West of Belcher Rd.	4	25,000	28,450	1.14	14	Yes
West of Countryside Rd.	6	39,150	44,150	1.13	13	Yes
Curlew Road						
East of Belcher Rd.	2	25,000	25,600	1.02	2	Yes
East of US 19	6	26,000	25,450	0.98	(2)	Yes
West of McMullen Booth Rd.	6	29,000	33,600	1.16	16	Yes
SR 580 / Main Street						
West of Belcher Rd.	6	42,500	40,250	0.95	(5)	Yes
East of US 19	6	29,000	29,200	1.01	1	Yes

NCHRP – National Cooperative Highway Research Program

3.2 Future Year 2025 Model Review

The 2025 model network was revised to include the following refinements based on the base year 2000 model validation and by reviewing the year 2025 model network.

1. Belcher Road FT is changed from 24 to 25 between Countryside Blvd. and Solon Avenue.
2. Curlew Road FT is changed from 23 to 25 between Countryside Blvd and Tampa Road.
3. Curlew Road FT is changed from 24 to 23 between Belcher Road and US 19.
4. SR 580 FT is changed from 25 to 24 between Belcher Road and CR 1.
5. Countryside Blvd. FT is changed from 41 to 44 between SR 580 and Northside Drive.
6. Northside Drive FT is changed from 42 to 45 between US 19 and Countryside Blvd.

7. Countryside Blvd. FT is changed from 42 to 45 between Northside Drive and Curlew Road.
8. Lake St. FT is changed from 42 to 45 between Curlew Road and Tampa Road.
9. Landmark Drive FT is changed from 32 to 42 between SR 580 and Knollwood.
10. Landmark Drive FT is changed from 42 to 45 between Knollwood Ct. and Curlew Road.
11. Centroid Connector for TAZ 1147 is relocated to better represent access to McMullen Booth Road.
12. FT is changed from 73 to 71 for US 19 northbound on-ramp and southbound off-ramp located north of SR 580.
13. US 19 FT is changed from 23 to 16 between ramps north of SR 580 and ramps north of Evans Road.
14. For TAZ 1139, an additional Centroid Connector to Countryside Blvd. is coded and the Centroid Connector to US 19 northbound frontage lane is relocated to south of the US 19 Off-Ramp / Frontage Road intersection to better represent the TAZ access points.
15. West Lake Road FT is changed from 46 to 44 between Hermos Drive and Tampa Road as coded in the base year model network.
16. West Lake Road FT is changed from 46 to 42 between Tampa Road and Nebraska Avenue as coded in the base year model network.

With the preceding refinements, the Year 2025 model was reviewed and found to reflect the appropriate conditions for the Year 2025. Using the validated model, the Average Annual Daily Traffic (AADT) volumes were estimated for the alternatives. The base model year 2000 Pinellas countywide model conversion factor (MOCF) of 0.94 was used to convert the peak season model volumes to AADT. The comparison of the revised TBRPM model projections for the year 2025 No-Build alternative with the validated base year 2000 model projections is shown in Table 7.

Table 7. 2025 No-Build Model AADT Comparison with Validated 2000 Model AADT

Count Location	2000 No. of Lanes	2000 Model AADT	2025 No. of Lanes	2025 Model AADT	Traffic Growth (25Yrs)
US 19					
North of Highlands Blvd.	6	88,200	6	94,150	1.07
North of Curlew Road	6	73,200	6	87,400	1.19
North of SR 580 / Main St.	6	82,100	6	97,750	1.19
South of Enterprise Rd.	6	91,000	6	124,250	1.37
Mc Mullen Booth Road					
South of Curlew Rd.	6	58,700	6	60,050	1.02
South of Enterprise Rd.	6	65,350	6	63,400	0.97
Belcher Road					
South of Curlew Rd.	4	24,000	4	27,950	1.16
North of SR 580 / Main St.	4	28,550	4	31,850	1.12
Tampa Road					
West of Belcher Rd.	4	28,450	4	24,500	0.86
West of Countryside Rd.	6	44,150	6	46,500	1.05
Curlew Road					
East of Belcher Rd.	2	25,600	4	41,800	1.63
East of US 19	6	25,450	6	34,400	1.35
West of McMullen Booth Rd.	6	33,600	6	43,100	1.28
SR 580 / Main Street					
West of Belcher Rd.	6	40,250	6	34,250	0.85
East of US 19	6	29,200	6	24,700	0.85

The year 2025 TBRPM model forecast shows a lower traffic growth on US 19, north of SR 580 for the No-Build condition which is caused by the proposed extension of Belcher Road from Tampa Road to Alderman Road. However, the US 19 traffic growth estimate south of Enterprise Road is found to be moderate because of the planned capacity improvements such as frontage lanes and grade separations. The traffic growth on Curlew Road, the major cross street in the study area, is projected to be high and moderate west and east of US 19, respectively. The projected higher traffic growth on Curlew Road is due to the proposed widening of Curlew Road from a two-lane arterial to a four-lane arterial between US 19 and Alt. US 19. The widening of Curlew Road caused lower traffic growth projections on Tampa Road and SR 580 which are parallel arterials to Curlew Road. Since the Curlew Road traffic is expected to grow significantly, appropriate highway improvements need to be identified to facilitate efficient

traffic flow on US 19 and at the intersection of US 19 and Curlew Road. The grade separation of US 19 and Curlew Road with frontage lanes and ramps is considered in this study and further analyzed in the subsequent sections of this report.

3.3 Design Year 2030 Traffic Projections

The year 2030 was selected as the design year for future year traffic analysis. The current Tampa Bay Regional Planning Model (TBRPM) estimates year 2025 peak season daily traffic volumes. To convert the peak season daily traffic to annual daily traffic (AADT) volumes, the Pinellas countywide model conversion factor (MOCF) of 0.94 was used. Since the study design year is 2030, growth factors were developed to project 2030 AADT volumes from the 2025 model projections. For the five year period from 2025 to 2030, it is assumed that there will not be any major capacity improvements within the study area. Based on the above mentioned assumption, the traffic volume is expected to grow at a historical short term traffic growth rate. A historical traffic growth analysis for the study area was performed as shown in Table 8. The analysis results show that the short term five year total growth varies from 3.6% to 13.8% in the vicinity of the study area. As an average of these growth rates, the five year total growth of 8% was proposed for the US 19 corridor to project 2030 AADT from 2025 model AADT estimates.

Table 8. Historical Traffic Growth Rates at the FDOT Count Stations

Traffic Counts at FDOT Count Stations						
YEAR	AADT	3-year Average	5 Year Total Growth	AADT	3-year Average	5 Year Total Growth
	US 19, North of Curlew Road			**US 19, South of Enterprise Road**		
2003	79,500			83,500		
2002	73,500	75,500		82,500	82,666	
2001	73,500			82,000		
2000	68,000		13.8 %	79,000		7.1 %
1999	70,500			82,000		
1998	67,500			81,000		
1997	66,500	66,333		74,000	77,166	
1996	65,000			76,500		
	Curlew Road, East of Belcher Road			**Curlew Road, East of US 19**		
2003	26,500			32,000		
2002	25,500	25,333		28,000	28,666	
2001	24,000			26,000		
2000	25,000		7.0 %	26,000		3.6 %
1999	25,500			28,000		
1998	25,000			28,000		
1997	21,000	23,666		28,000	27,666	
1996	25,000			27,000		
	SR 580, West of Belcher Road			**SR 580, East of US 19**		
2003	44,500			34,500		
2002	46,000	44,166		33,500	33,000	
2001	42,000			31,000		
2000	42,500		10.4 %	29,000		5.9 %
1999	40,500			28,500		
1998	40,000			33,000		
1997	40,000	40,000		33,000	31,166	
1996	40,000			27,500		

4. FUTURE CONDITIONS

The future year traffic conditions were developed and analyzed for the study area along US 19 in Pinellas County. Using the validated travel demand model described in the previous section the design year traffic volumes were estimated and the operational conditions for each alternative including the No-Build conditions were analyzed. A summary of this information and analyses is presented below.

4.1 No-Build Alternative

The current cost affordable 2025 Long Range Transportation Plan, as developed by the Pinellas County MPO and FDOT, was used as the future year base transportation network. This network included the various highway and transit improvements that could be implemented by the various jurisdictions and agencies over the next twenty years. There are no corridor improvements proposed for the US 19 corridor between north of the SR 580 interchange and Curlew Road in the 2025 cost affordable plan. This scenario is considered as the No-Build alternative in this traffic study.

4.2 Build Alternatives

Two Build scenarios are considered in this study. Both Build scenarios include as its base a six-lane US 19 controlled access highway facility segment, with frontage lane system, from the SR 580 interchange, north of Curlew Road to near CR 95. The Build scenarios have a Single Point Urban Interchange (SPUI) at Curlew Road and an overpass between Winding Creek Boulevard and Royal Boulevard with frontage lane U-turn lanes under the overpass. The Year 2000 U.S. 19 Cost Estimate Update Study showed grade separation for Michigan Avenue which does not cross US 19 but was determined to represent a place holder for a grade separation between SR 580 and Curlew Road.

The first 2030 Build scenario assumes that the US 19 arterial would be upgraded as a controlled access highway up to CR 95 (north of Curlew Road) with a SPUI interchange at Curlew Road. This scenario is Build Alternative 1, as illustrated in Exhibit 8 and Exhibit 9. The second Build

scenario, Alternative 2, assumes that the US 19 controlled access highway would be extended to Pinellas Trail (south of Pasco County Line) as proposed in the Year 2000 U. S. 19 Cost Estimate Update Study. The second scenario is considered for the analysis purposes to determine the effects of extending the US 19 controlled access highway to south of Pasco County line, on the estimated design year traffic for the US 19 project segment between SR 580 and CR 95. For this analysis, the highway network used in the model was adjusted by changing the facility type on US 19 from principal arterial to a limited access facility between SR 580 and Pinellas Trail south of the Pasco County Line.

Since the second Build scenario is the most probable situation for the design year 2030, the design traffic analysis with slip ramps is limited to the second scenario. Three Build alternatives 2A, 2B and 2C are considered for the second scenario. Alternative 2A does not consider any additional slip ramps between US 19 grade separations at SR 580 and Curlew Road, as illustrated in Exhibit 10 and Exhibit 11.

Build alternatives 2B and 2C modify Build alternative 2A by adding slip ramps located between SR 580 interchange and Curlew Road interchange. Alternative 2B includes a northbound off-ramp and a southbound on-ramp between Republic Drive and Winding Creek Boulevard, as illustrated in Exhibits 12 and 13. Build Alternative 2B, consists of a northbound and a southbound weaving segment south of the proposed grade separation between Winding Creek Boulevard and Royal Boulevard. Alternative 2C includes a northbound off-ramp and a southbound on-ramp between Republic Drive and Winding Creek Boulevard and a northbound on-ramp and a southbound off-ramp between Royal Boulevard and Northside Drive, as illustrated in Exhibits 14 and 15. Build Alternative 2C, consists of a northbound and a southbound weaving segments north and south of the proposed grade separation between Winding Creek Boulevard and Royal Boulevard. The conceptual layouts of the design alternatives are included in the appendices.

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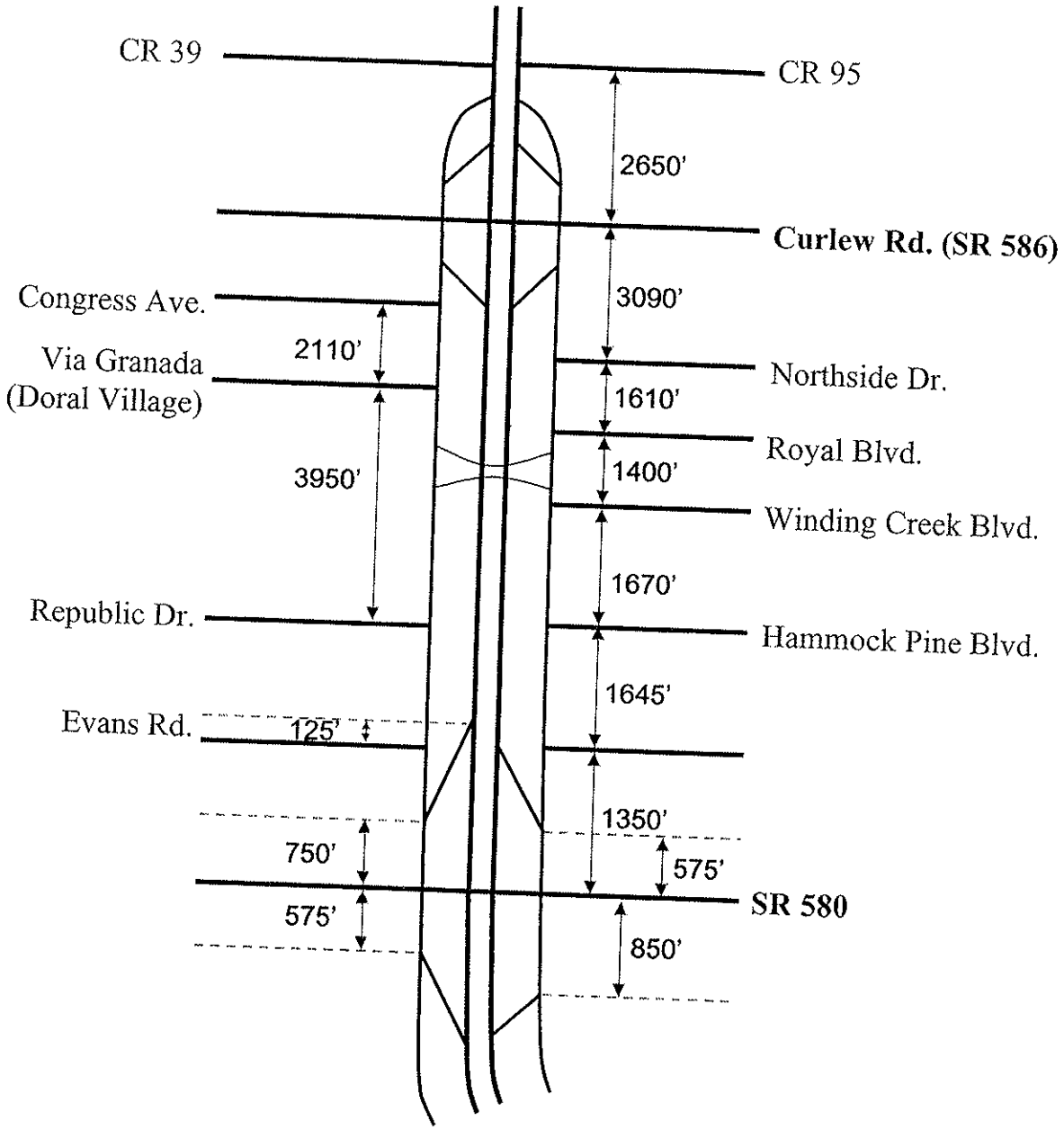
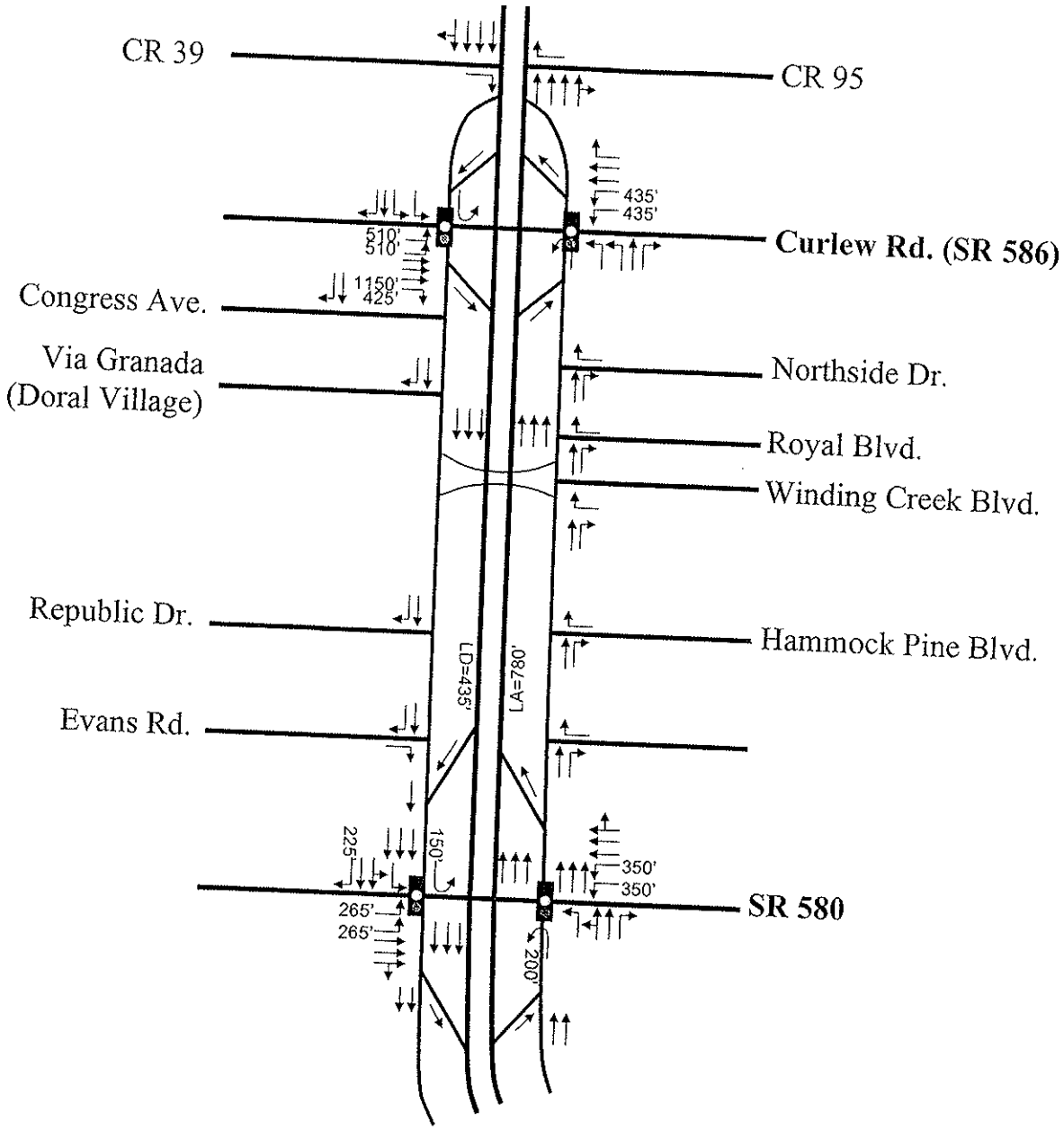


US 19
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 1
Road Network

Exhibit 8



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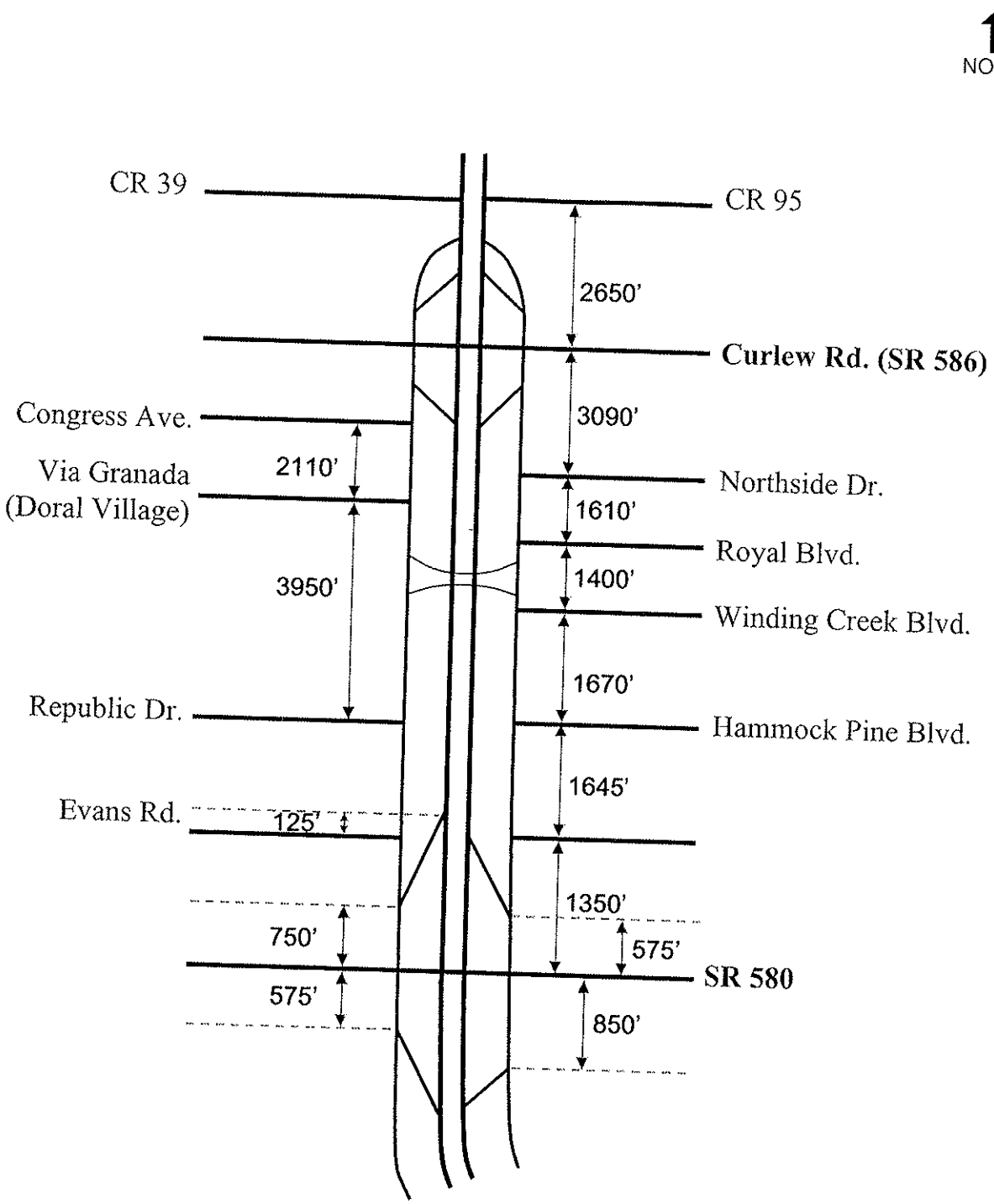
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 1
Lane Arrangements

Exhibit 9



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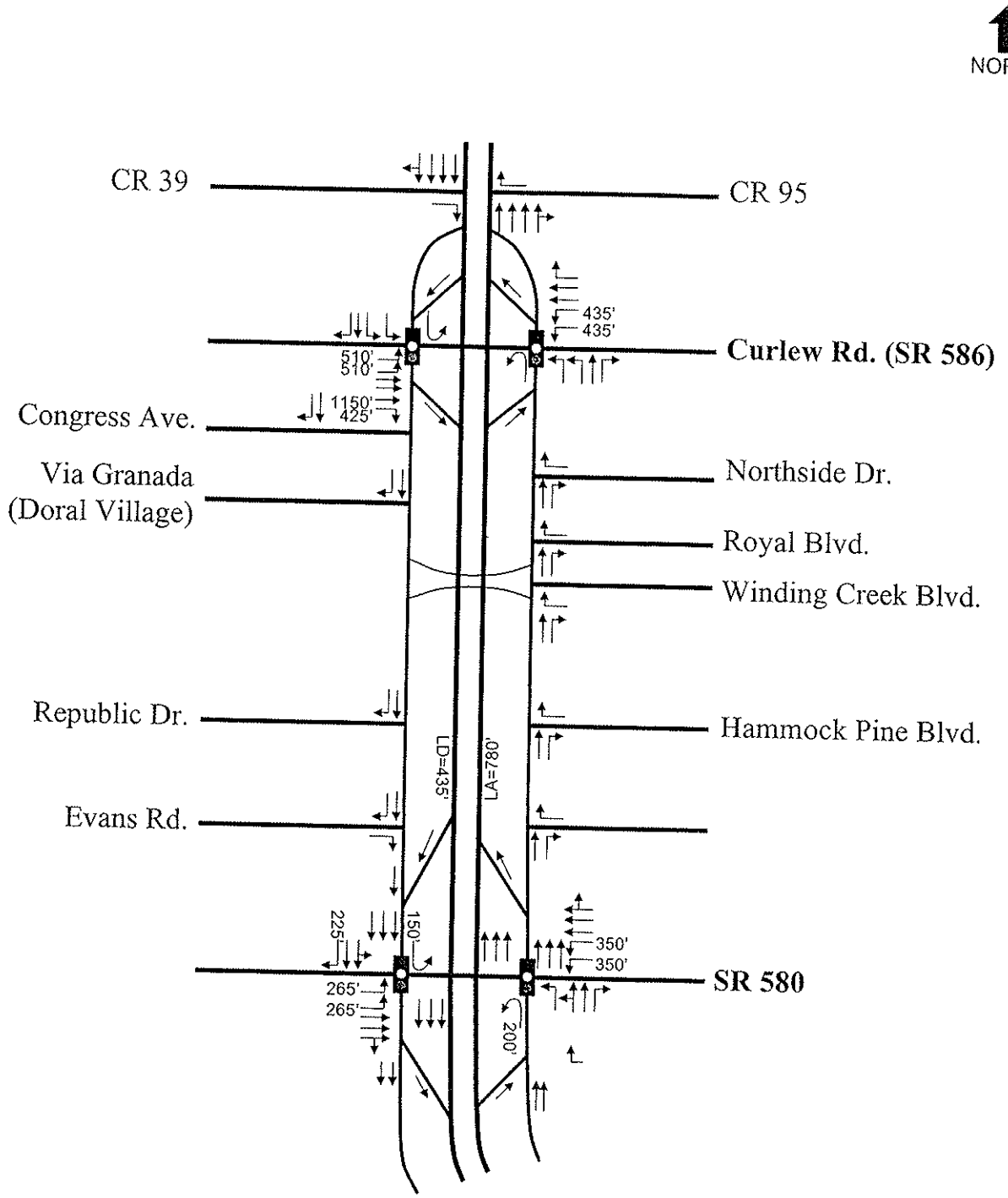
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 2A
Road Network

Exhibit 10



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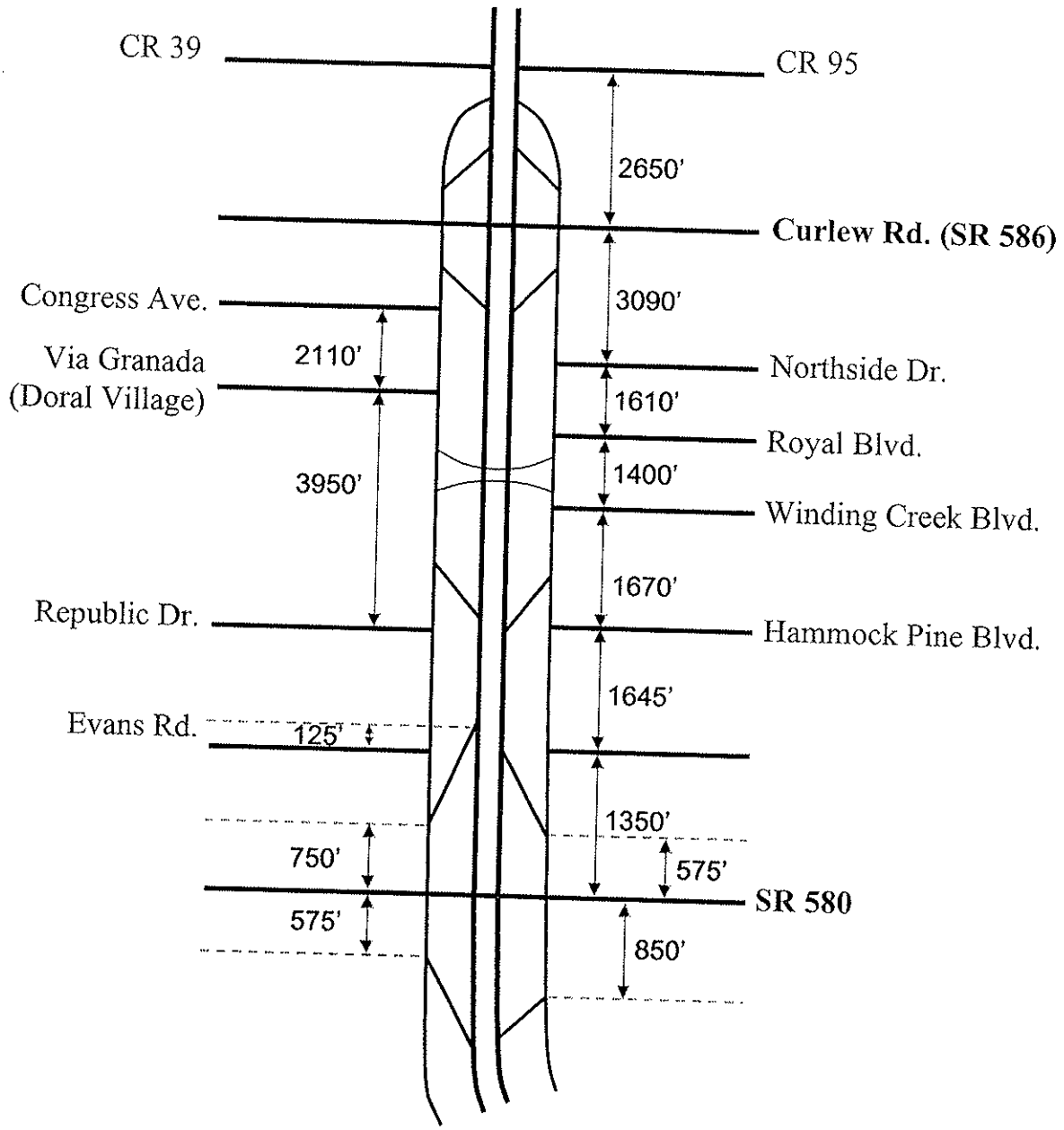
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 2A
Lane Arrangements

Exhibit 11



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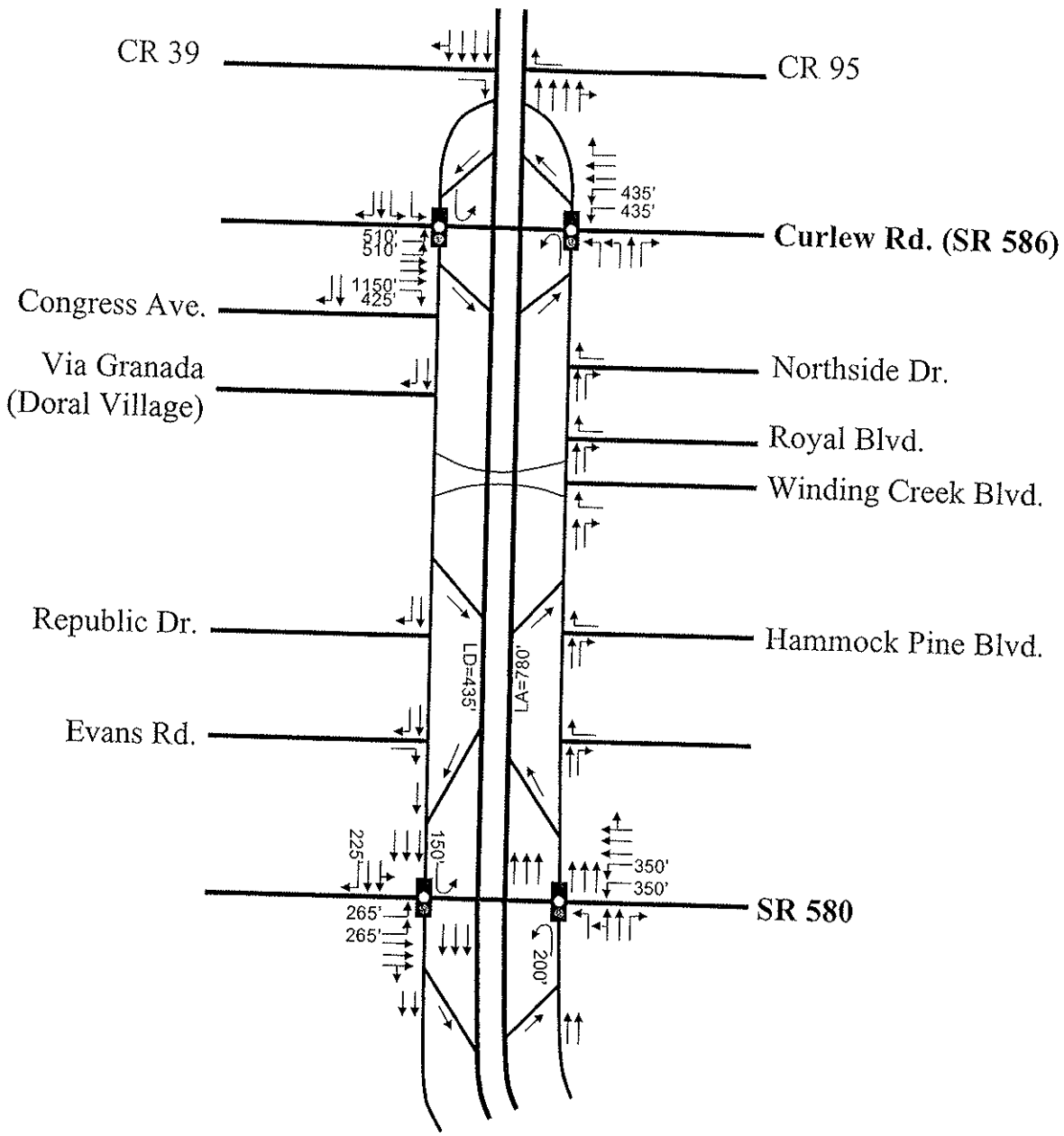
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 2B
Road Network

Exhibit 12



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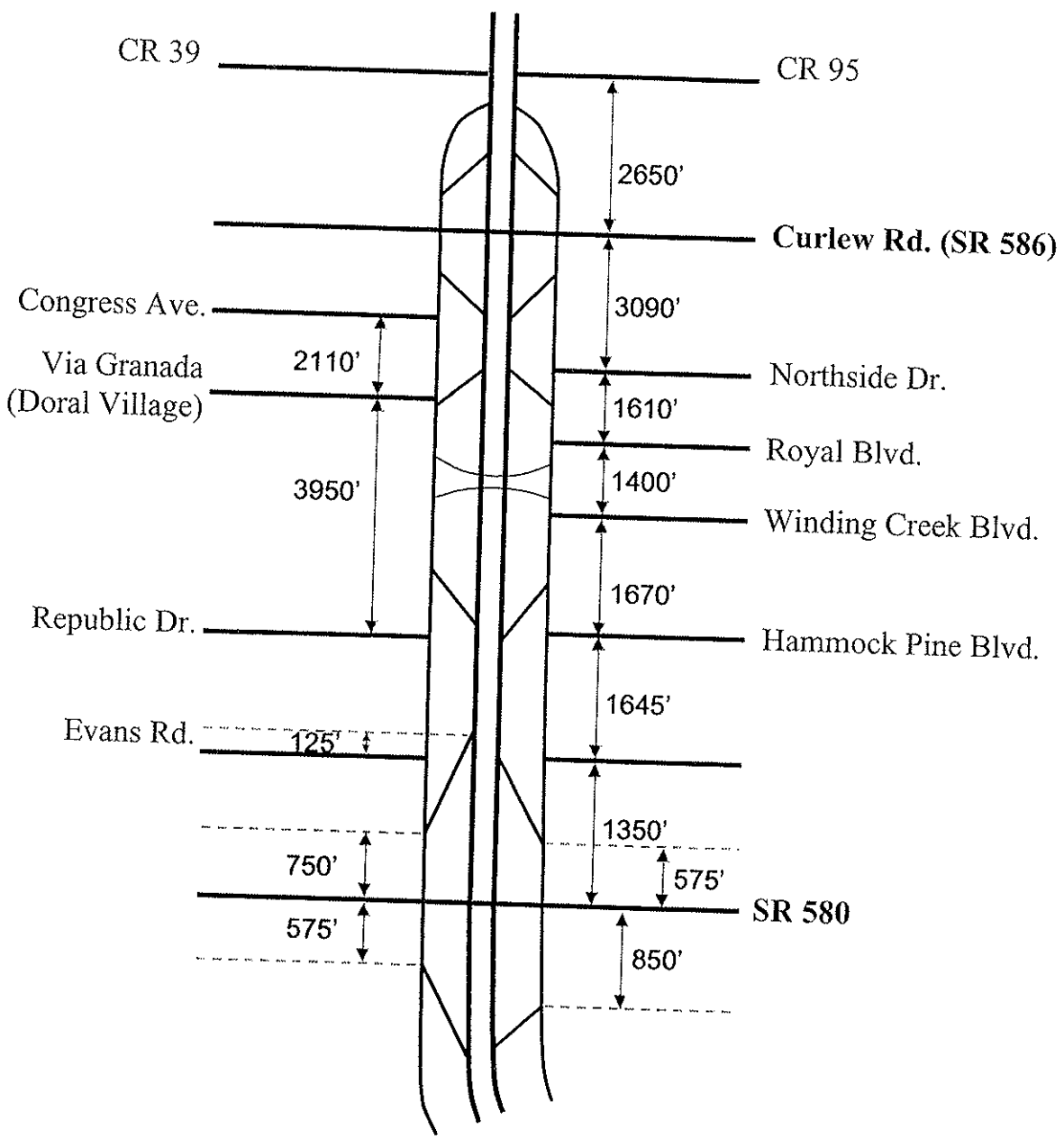
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 2B
Lane Arrangements

Exhibit 13



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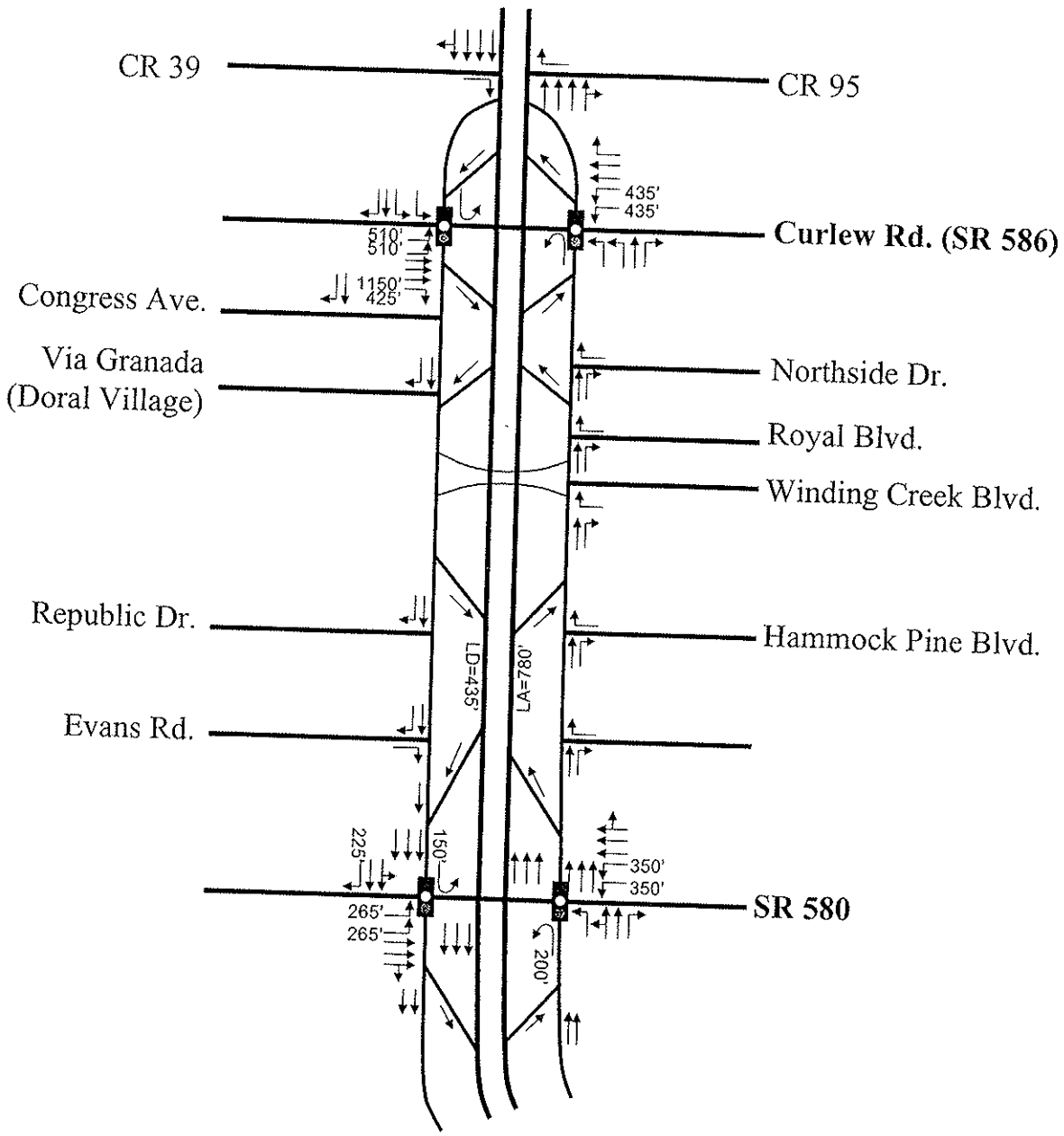
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 2C
Road Network

Exhibit 14



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Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 2C
Lane Arrangements

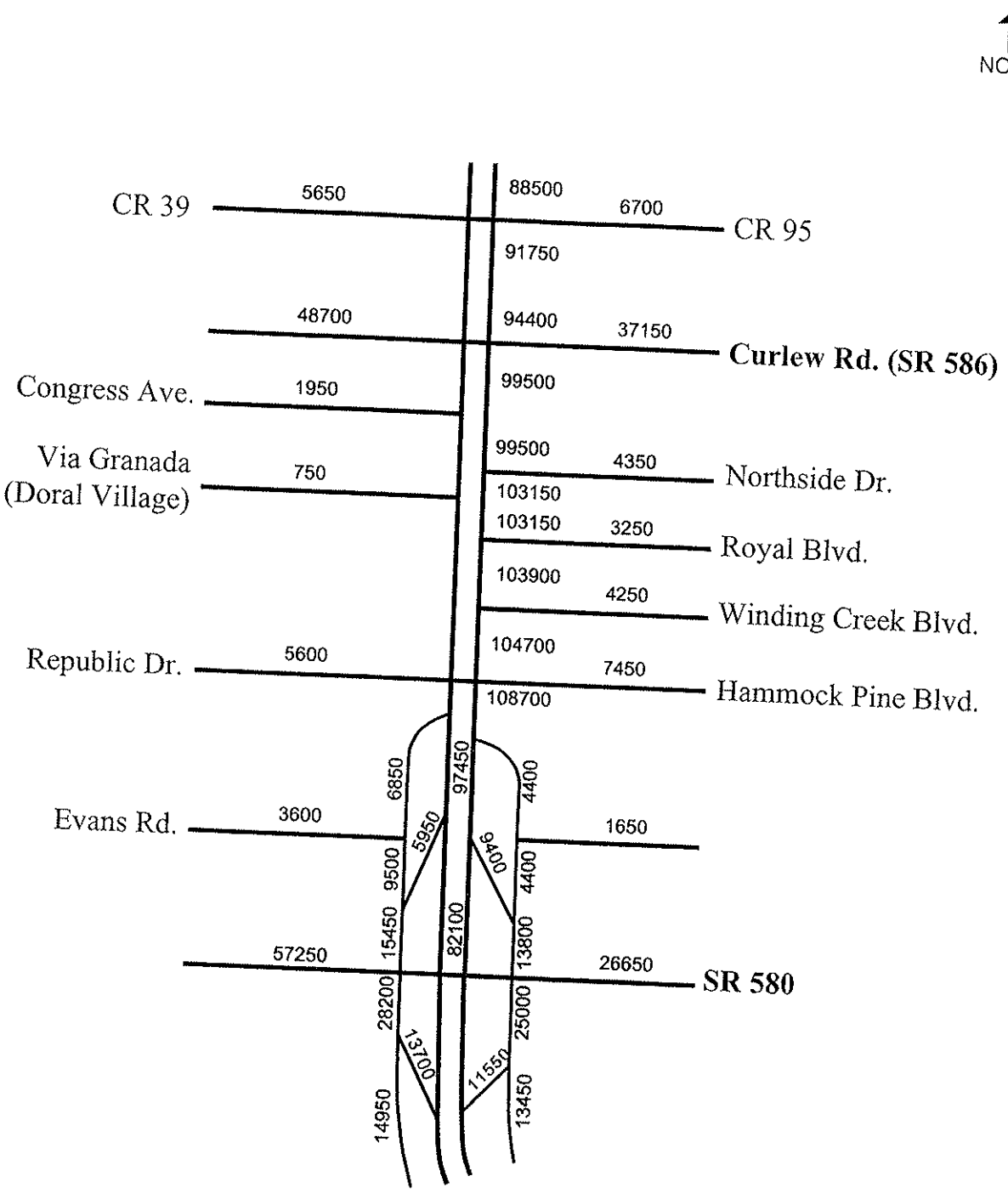
Exhibit 15

4.3 Development of Design Year 2030 Design Hour Volumes

The 2030 Annual Average Daily Traffic (AADT) volumes for the No-Build and Build alternatives were estimated by first projecting the 2025 AADT volumes using the TBRPM 5.0 model and then applying a five year total growth of 8%. The 2030 AADT volumes for the No-Build alternative are shown in Exhibit 16. The 2030 AADT volumes for Build alternatives are shown in Exhibit 17 through Exhibit 20.

The design year (2030) design hour volumes were estimated using the 30th highest hour K and D (K_{30} and D_{30}) factors. The AADT volumes were multiplied first by the K_{30} factor of 9.9 percent and then by the D_{30} factor of 54.6 percent to develop the design hour AM and PM directional volumes. At major intersections, the design hour AM and PM intersection turning movement volumes are estimated using the TURNS5 Turning Movement Analysis Tool. At minor intersections, the intersection turning movement volumes are estimated manually after applying K_{30} and D_{30} factors to the AADT volumes. For cross streets, the recommended corridor study area K_{30} and D_{30} factors were compared to the K and D factors derived from the collected single day field traffic data. At the cross streets where field derived K and D factors are higher than the recommended corridor study area K_{30} and D_{30} factors, the field derived K and D factors were used to develop design hour turning movement volumes if the estimates were found reasonable and appropriate.

For US 19, the peak hour traffic directions in the year 2030 are assumed to be southbound in the AM peak hour and northbound in the PM peak hour consistent with the existing year (2004) peak hour traffic directions. For cross streets the design year 2030 peak hour traffic directions are assumed as the respective existing year (2004) AM and PM peak hour traffic directions. The developed design year (2030), AM and PM turning movement traffic volumes for No-Build alternative are shown in Exhibit 21 and Exhibit 22, respectively. The developed design year (2030), AM and PM turning movement traffic volumes for Build alternatives are shown in Exhibit 23 through Exhibit 30.



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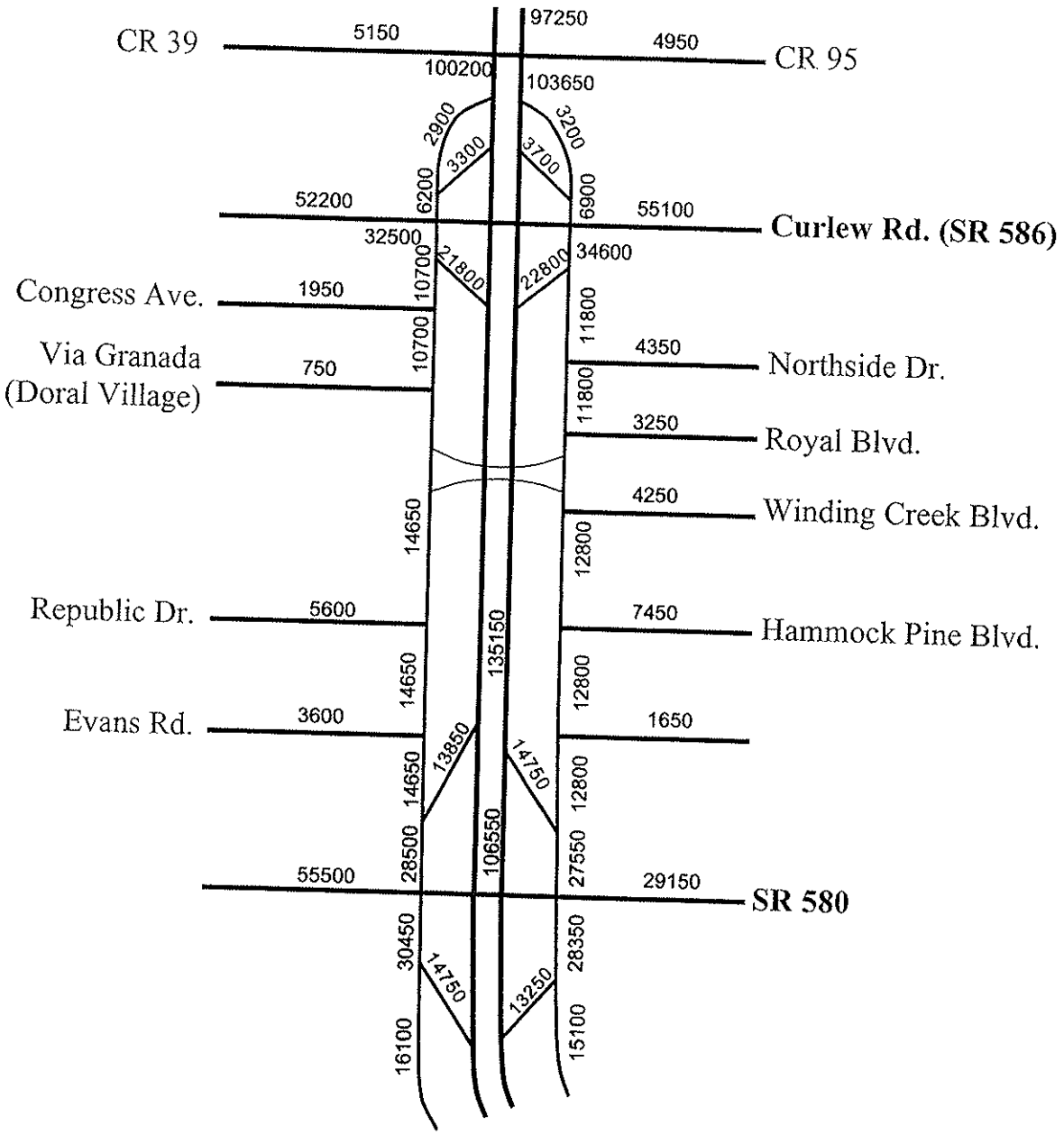
US 19
Sub Corridor Report
SR 580- CR 95
Design Year 2030
No Build Alternative
AADT

Exhibit 16



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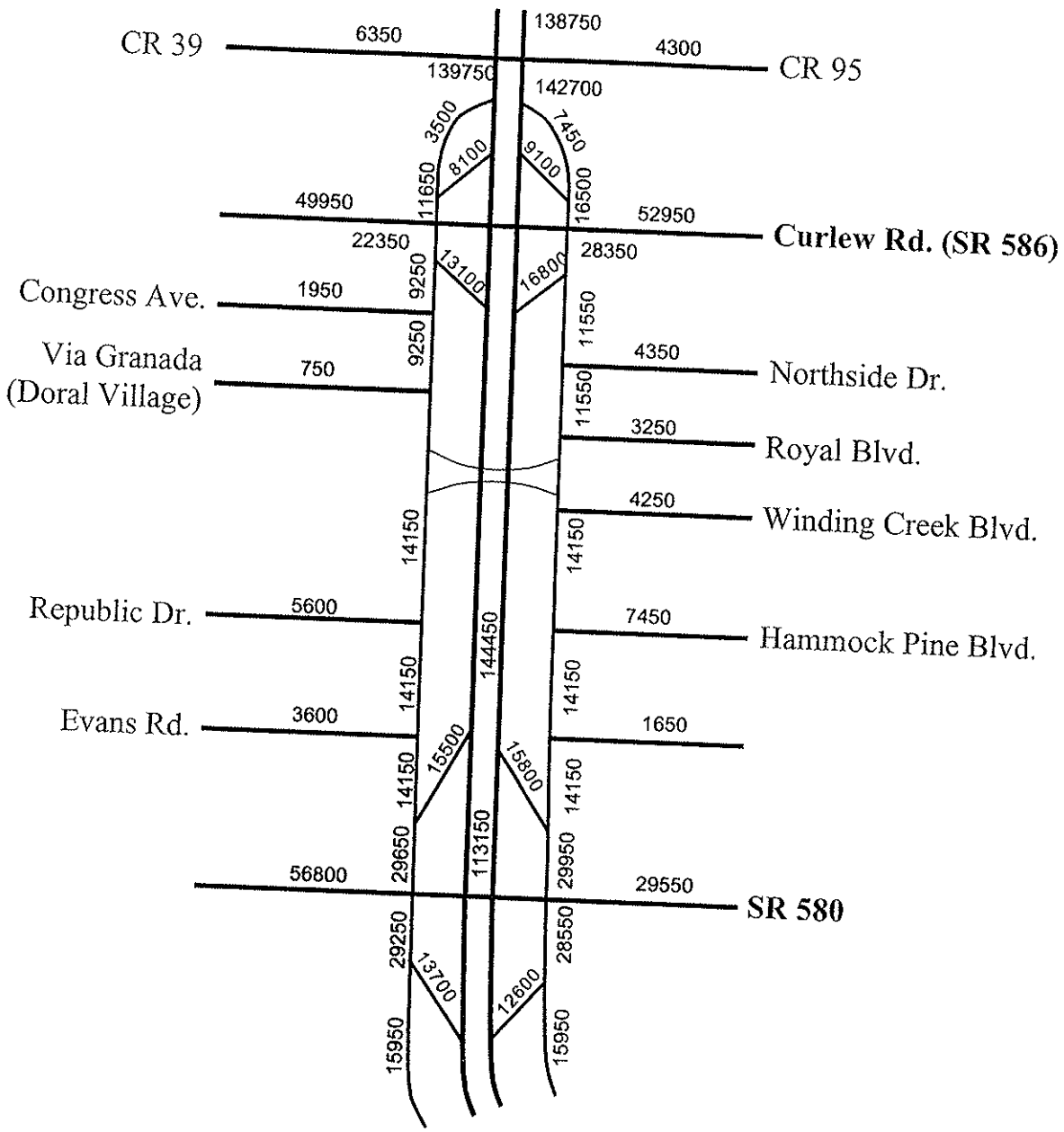
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 1
AADT

Exhibit 17



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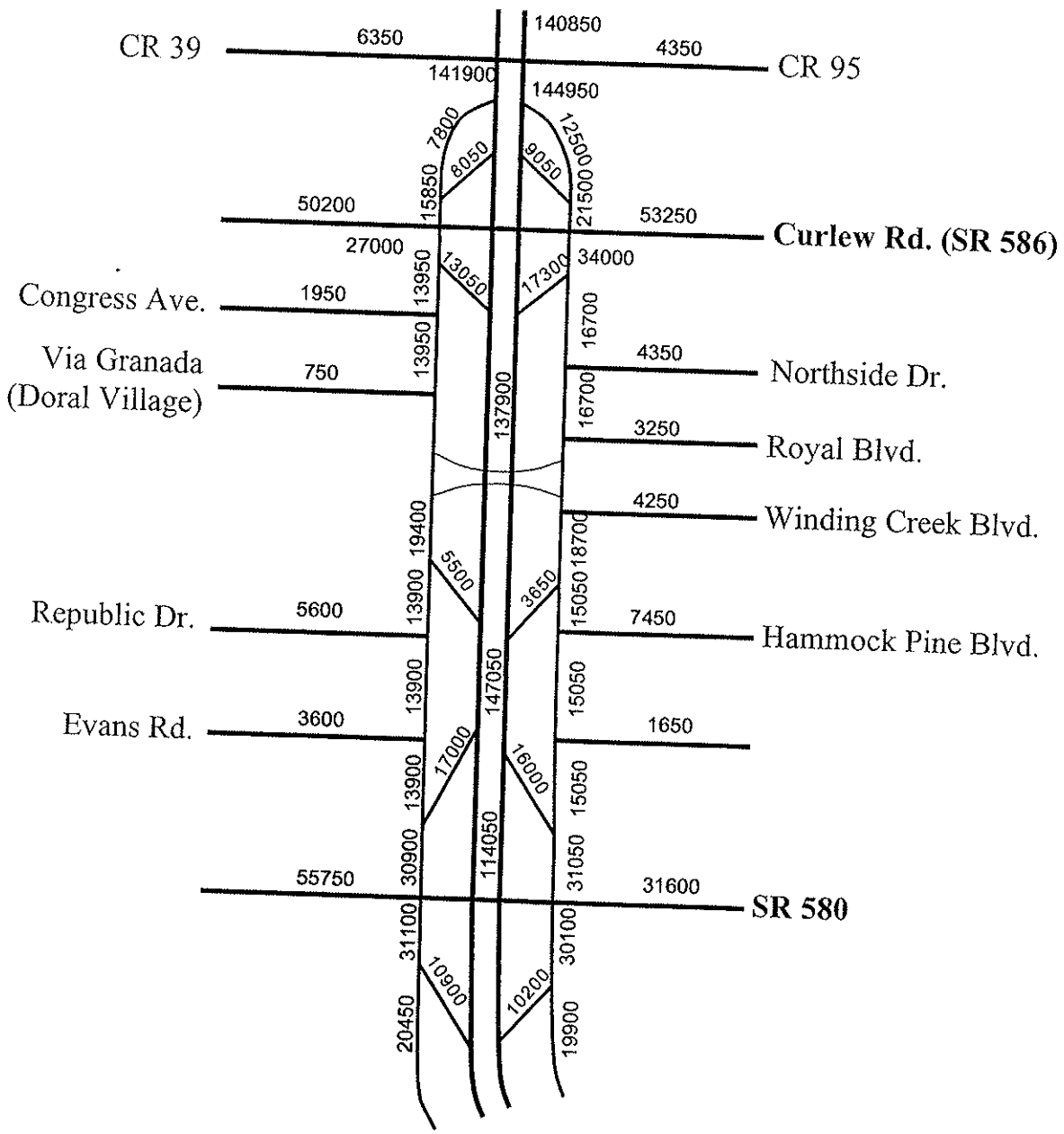
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 2A
AADT

Exhibit 18



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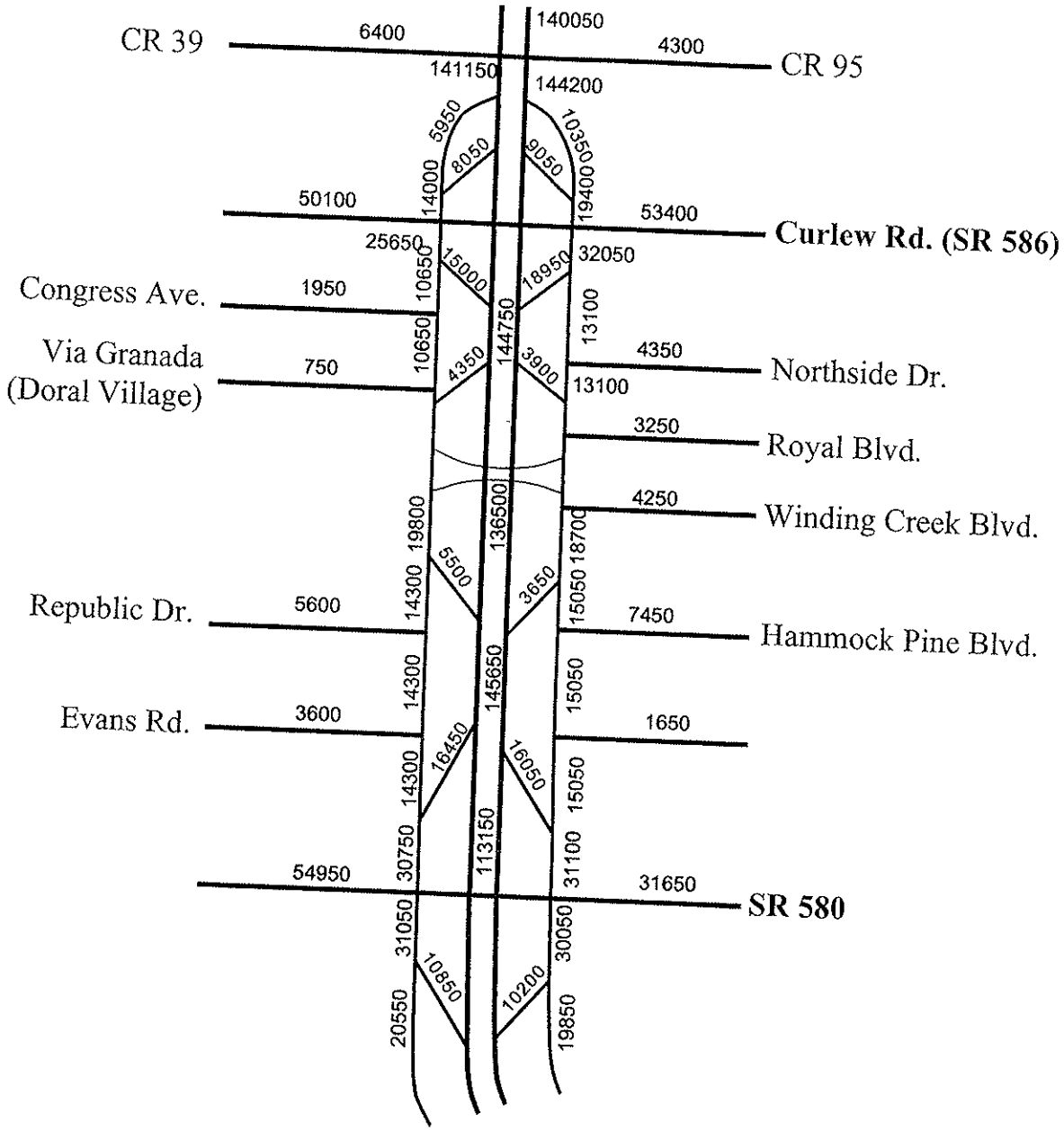
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 2B
AADT

Exhibit 19



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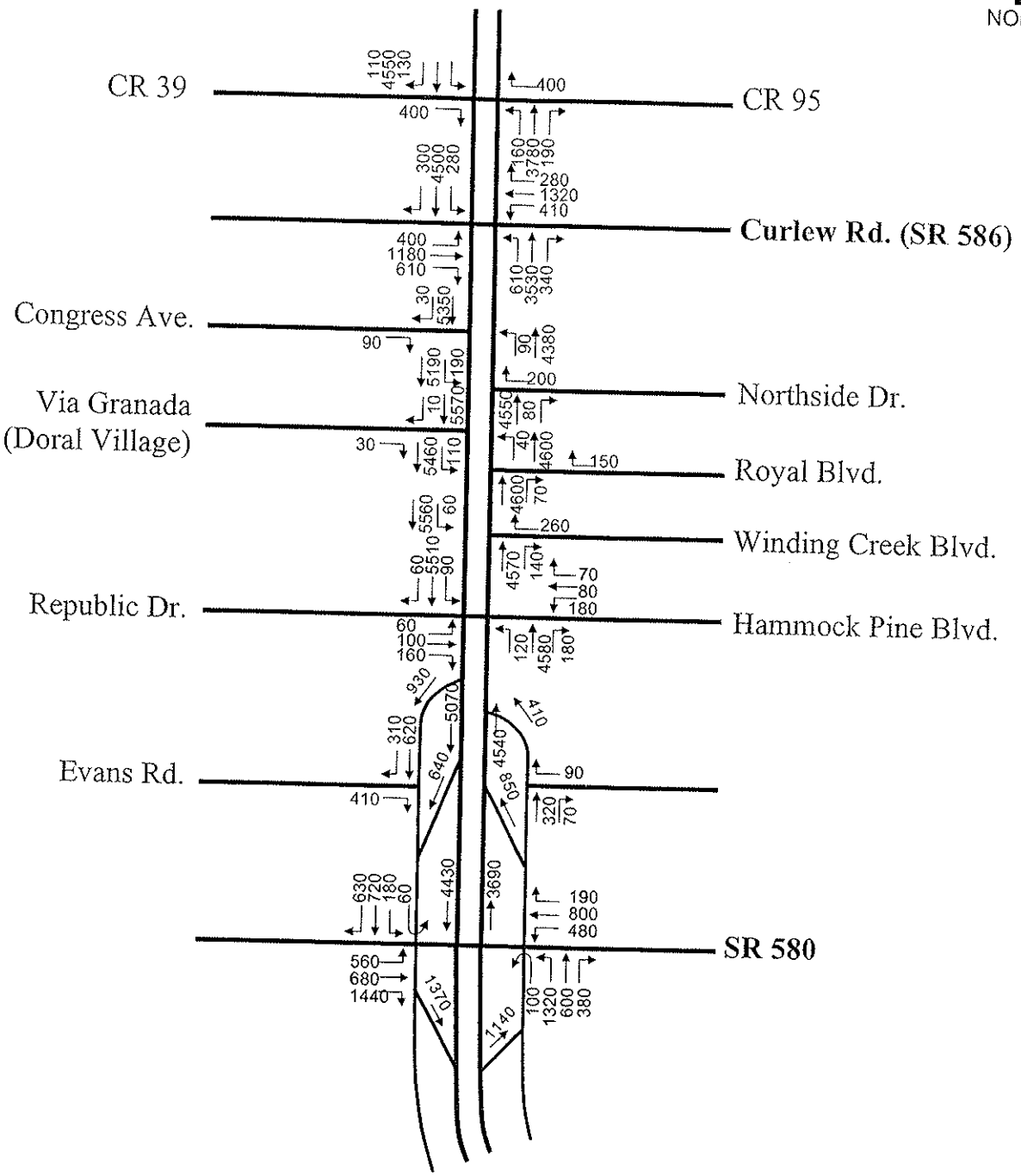
Sub Corridor Report
SR 580- CR 95

Design Year 2030
Build Alternative 2C
AADT

Exhibit 20



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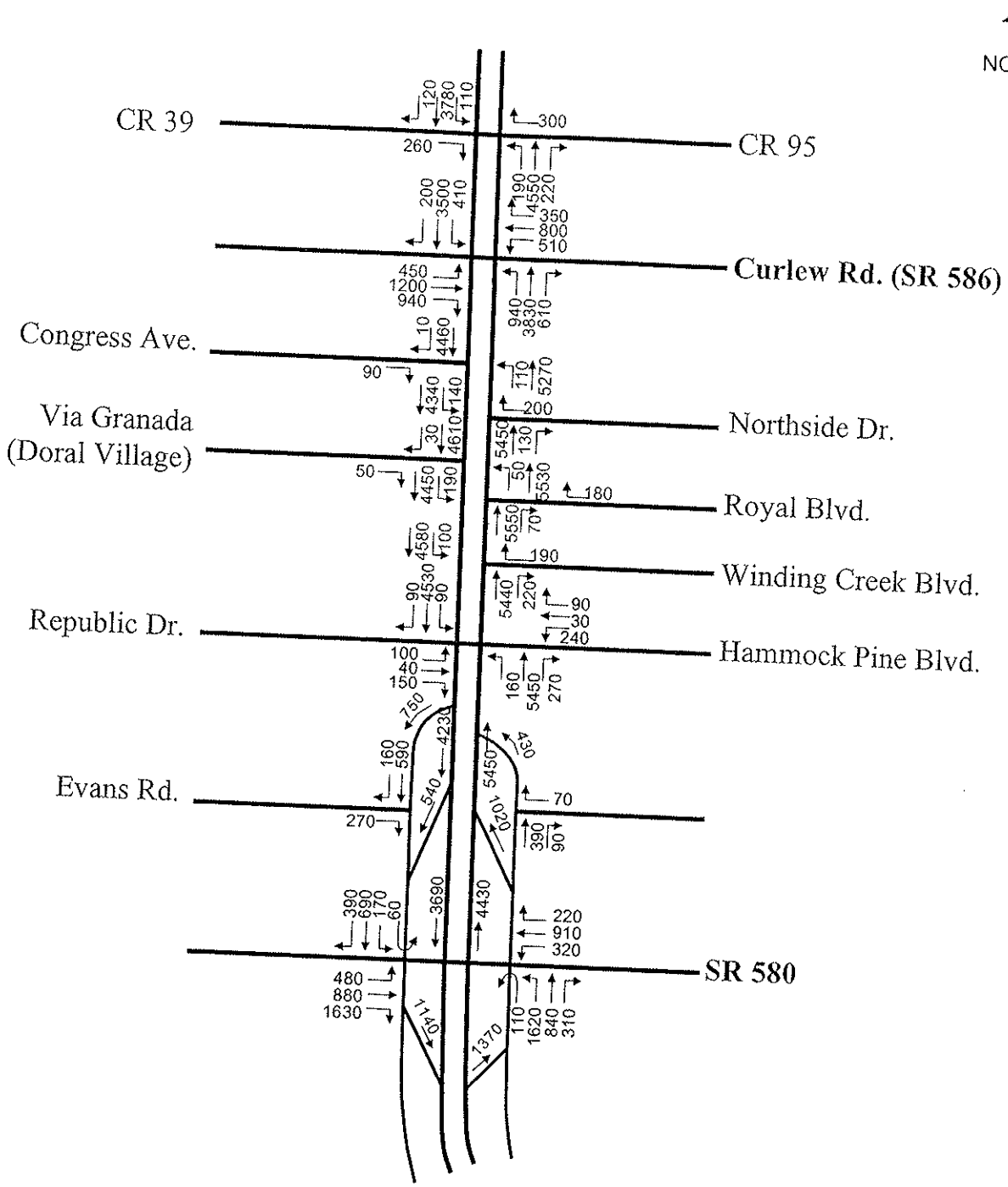
Sub Corridor Report
SR 580- CR 95

Design Year 2030 AM
No Build
Design Hour Volumes

Exhibit 21



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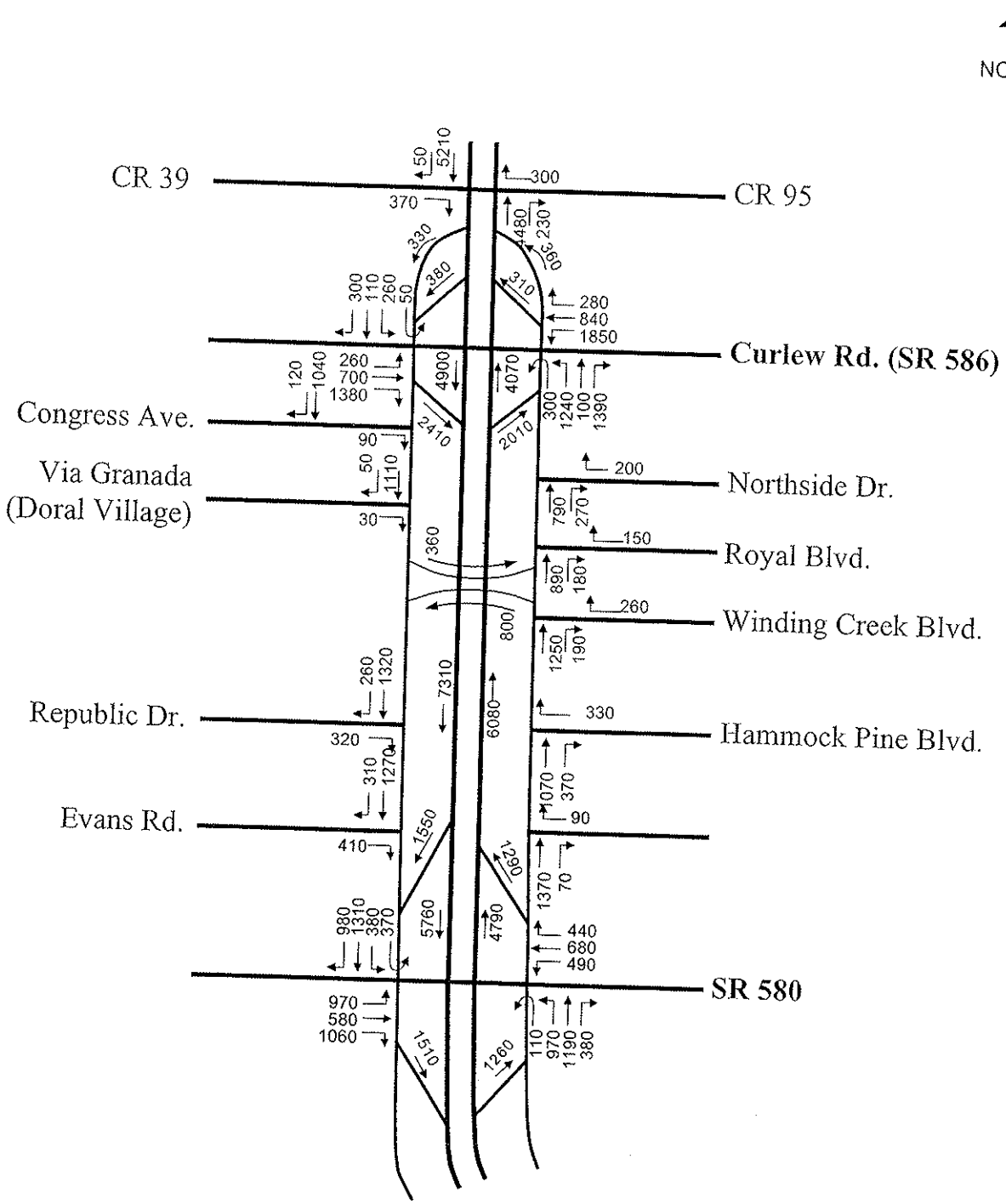
Sub Corridor Report
SR 580- CR 95

Design Year 2030 PM
No Build
Design Hour Volumes

Exhibit 22



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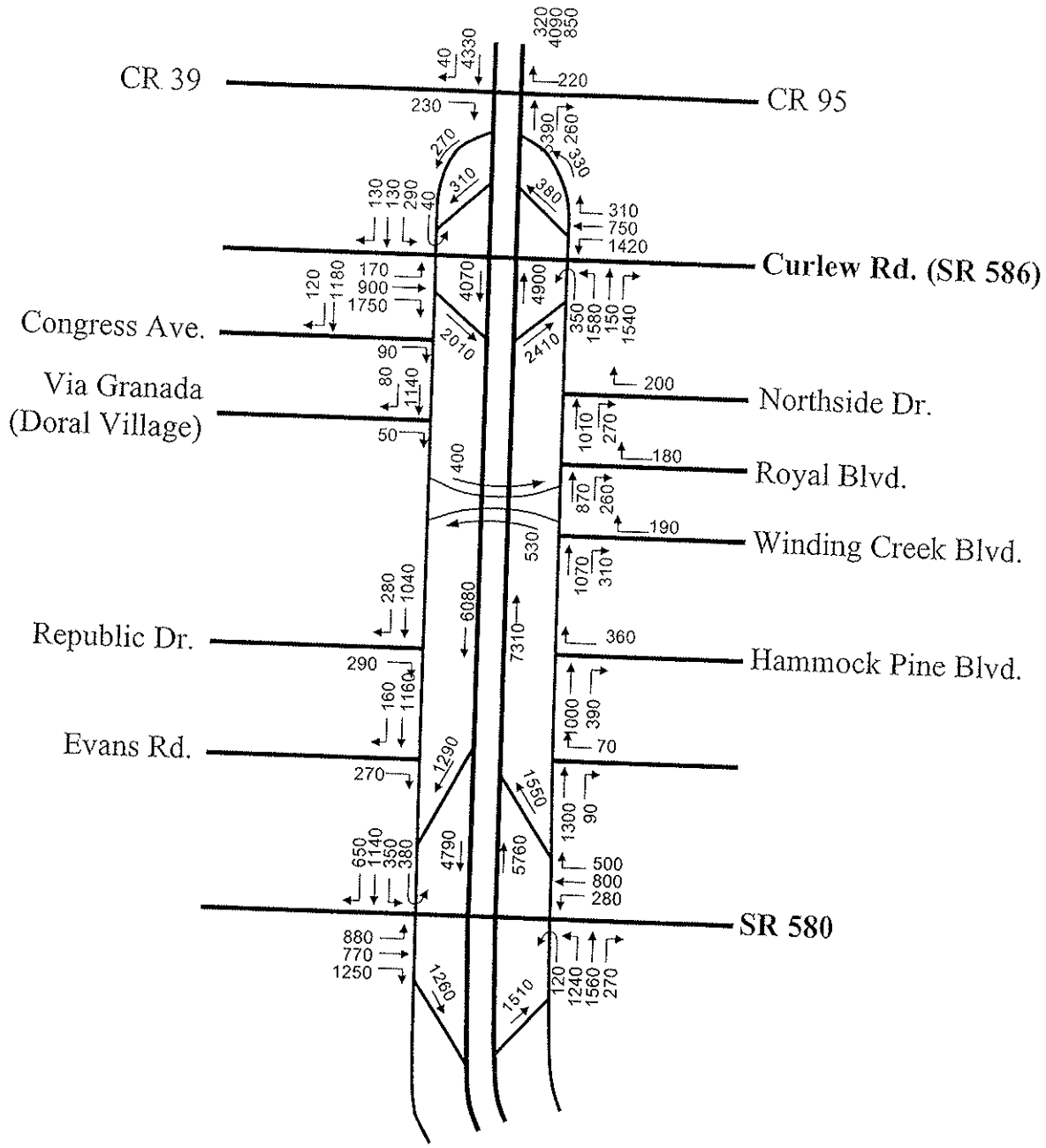
US 19
Sub Corridor Report
SR 580- CR 95

Design Year 2030 AM
Build Alternative 1
Design Hour Volumes

Exhibit 23



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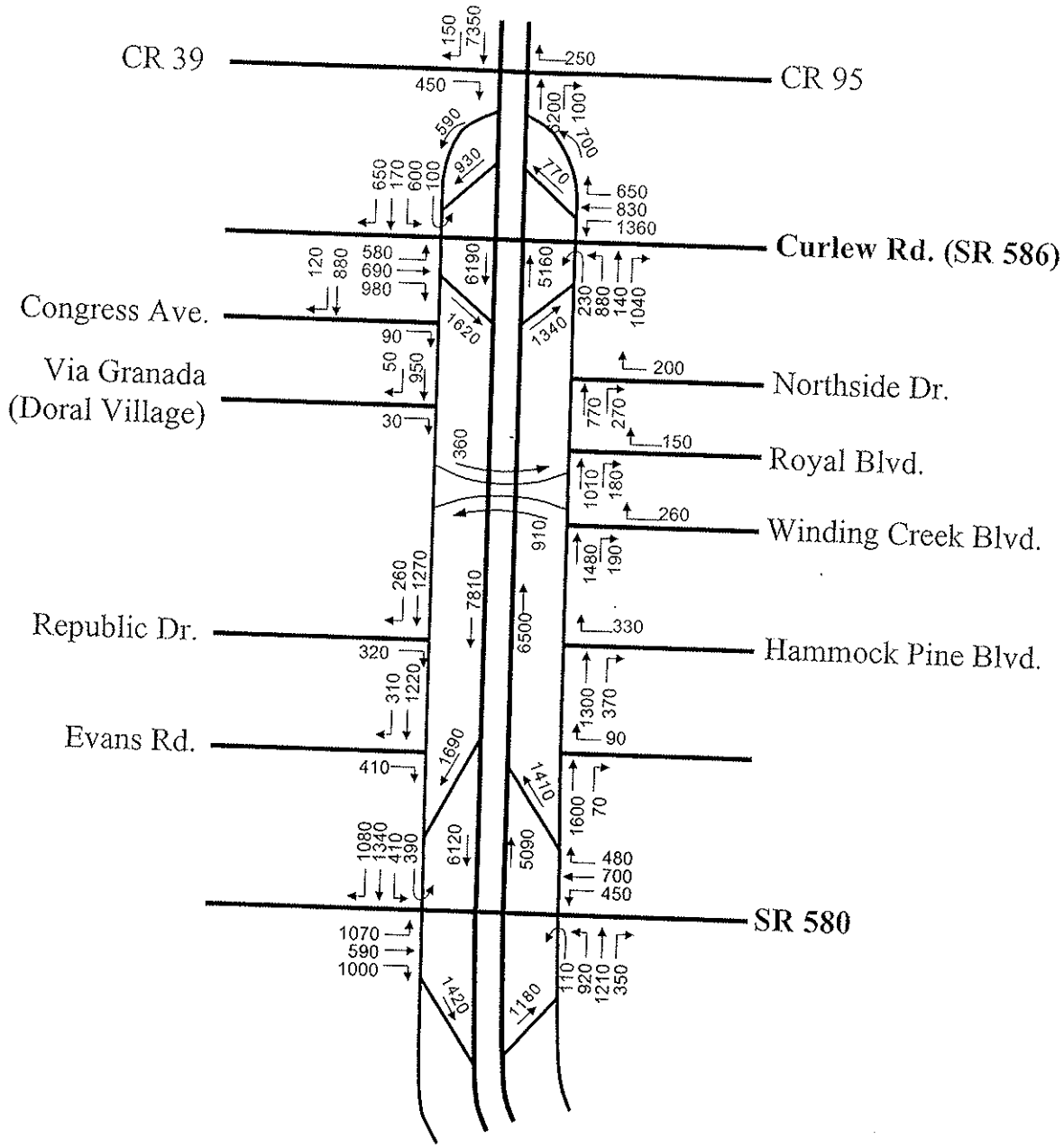
Sub Corridor Report
SR 580- CR 95

Design Year 2030 PM
Build Alternative 1
Design Hour Volumes

Exhibit 24



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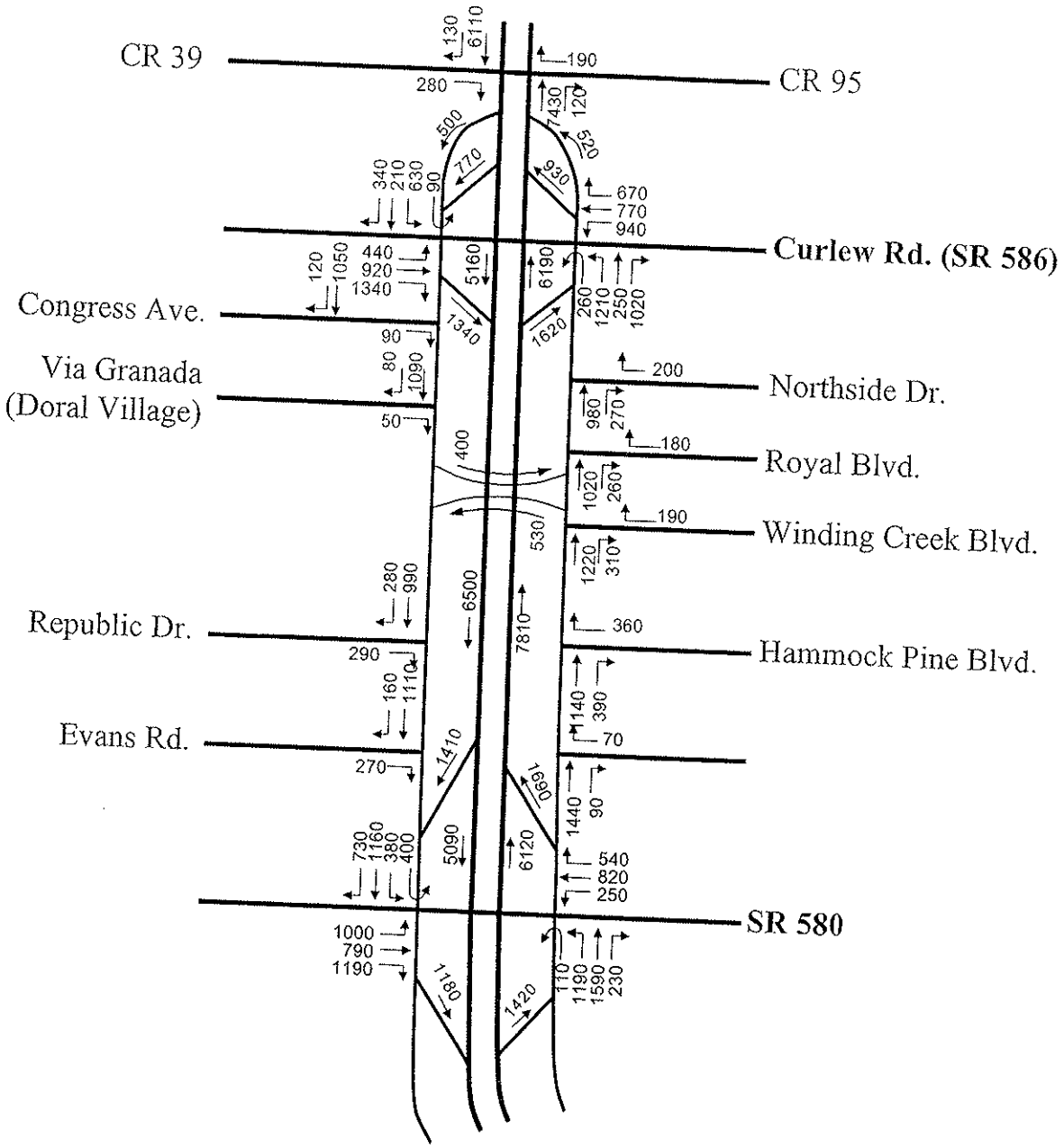
US 19
Sub Corridor Report
SR 580- CR 95

Design Year 2030 AM
Build Alternative 2A
Design Hour Volumes

Exhibit 25



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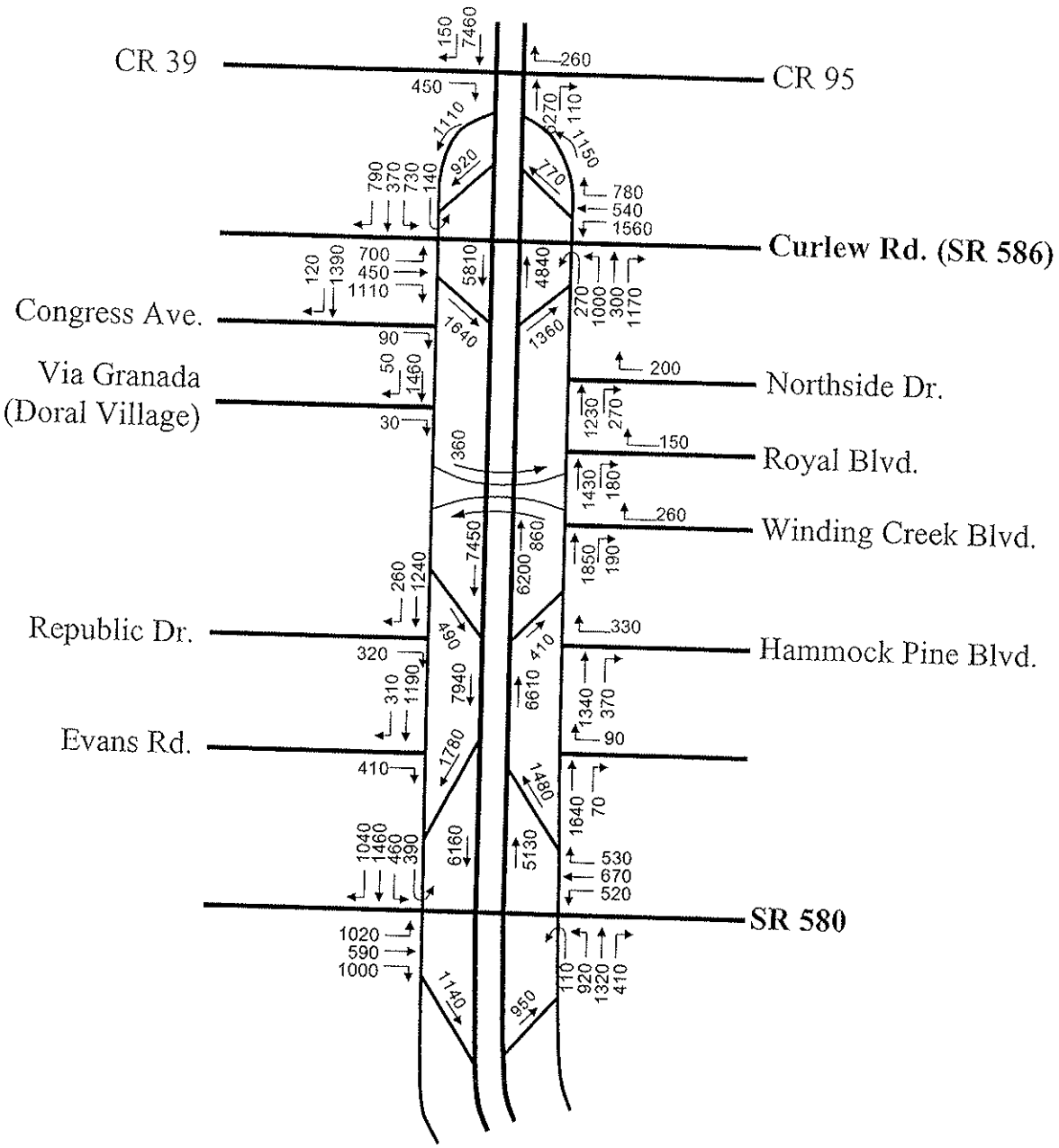
US 19
Sub Corridor Report
SR 580- CR 95

Design Year 2030 PM
Build Alternative 2A
Design Hour Volumes

Exhibit 26



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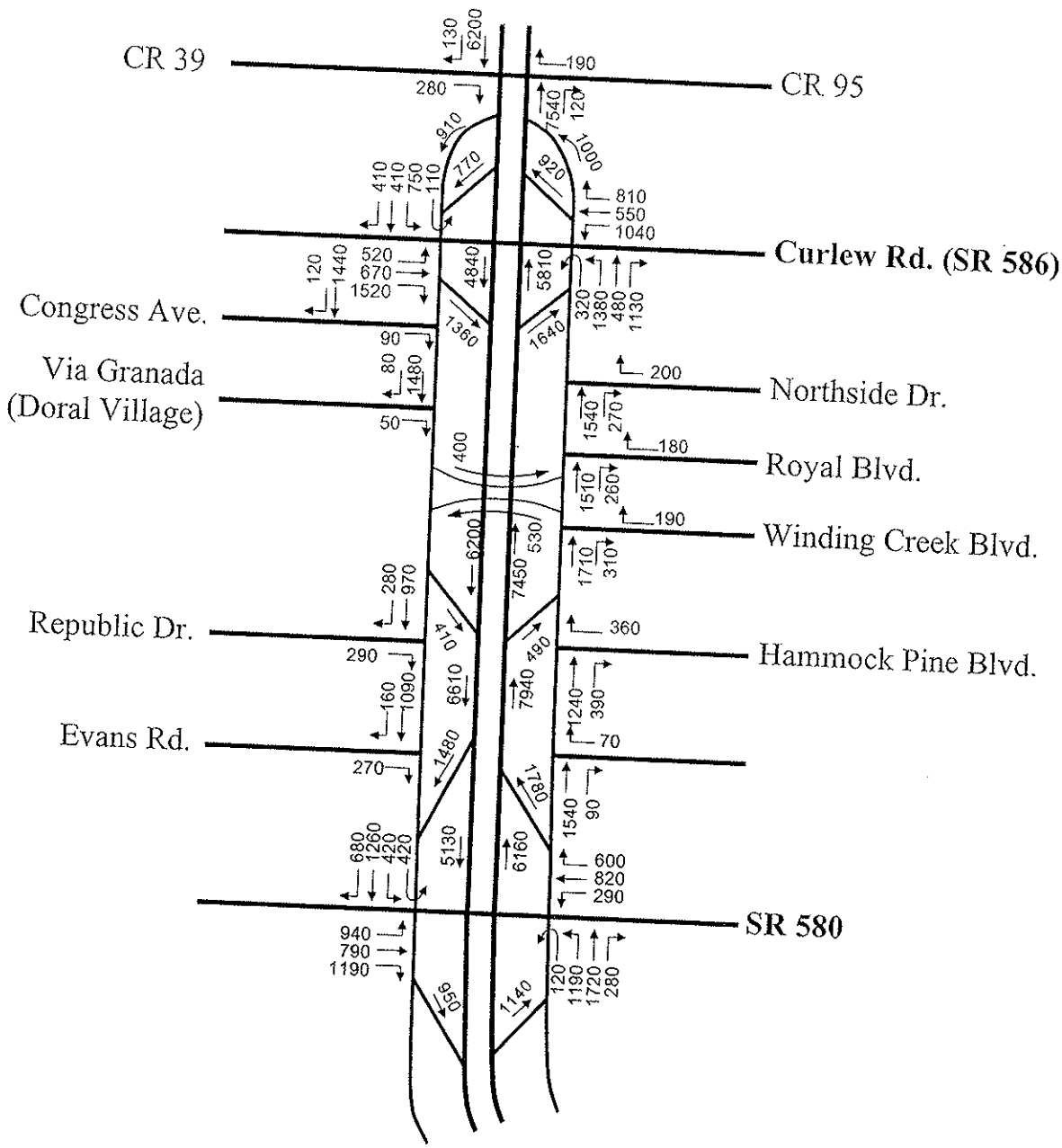
Sub Corridor Report
SR 580- CR 95

Design Year 2030 AM
Build Alternative 2B
Design Hour Volumes

Exhibit 27



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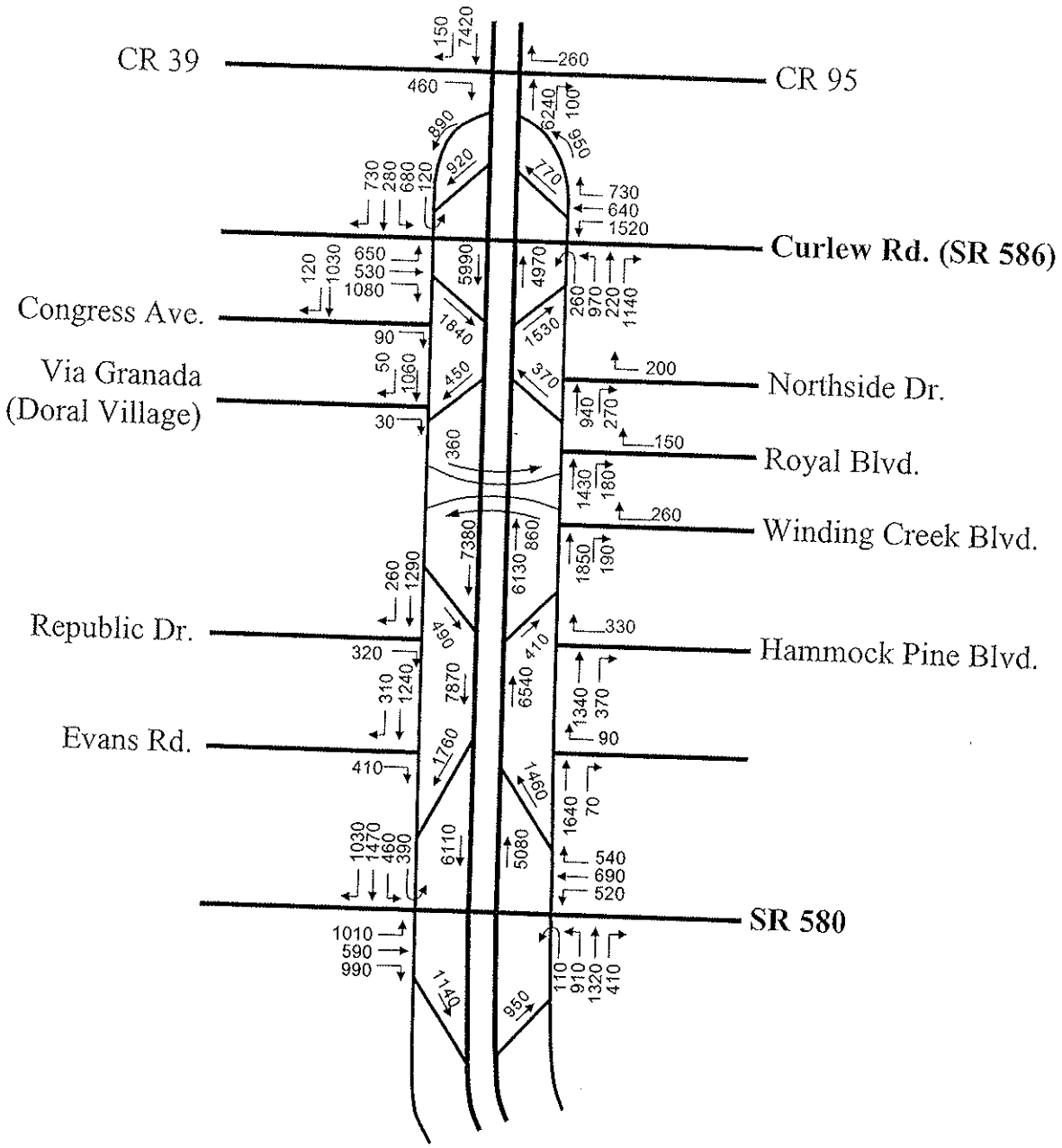
Sub Corridor Report
SR 580- CR 95

Design Year 2030 PM
Build Alternative 2B
Design Hour Volumes

Exhibit 28



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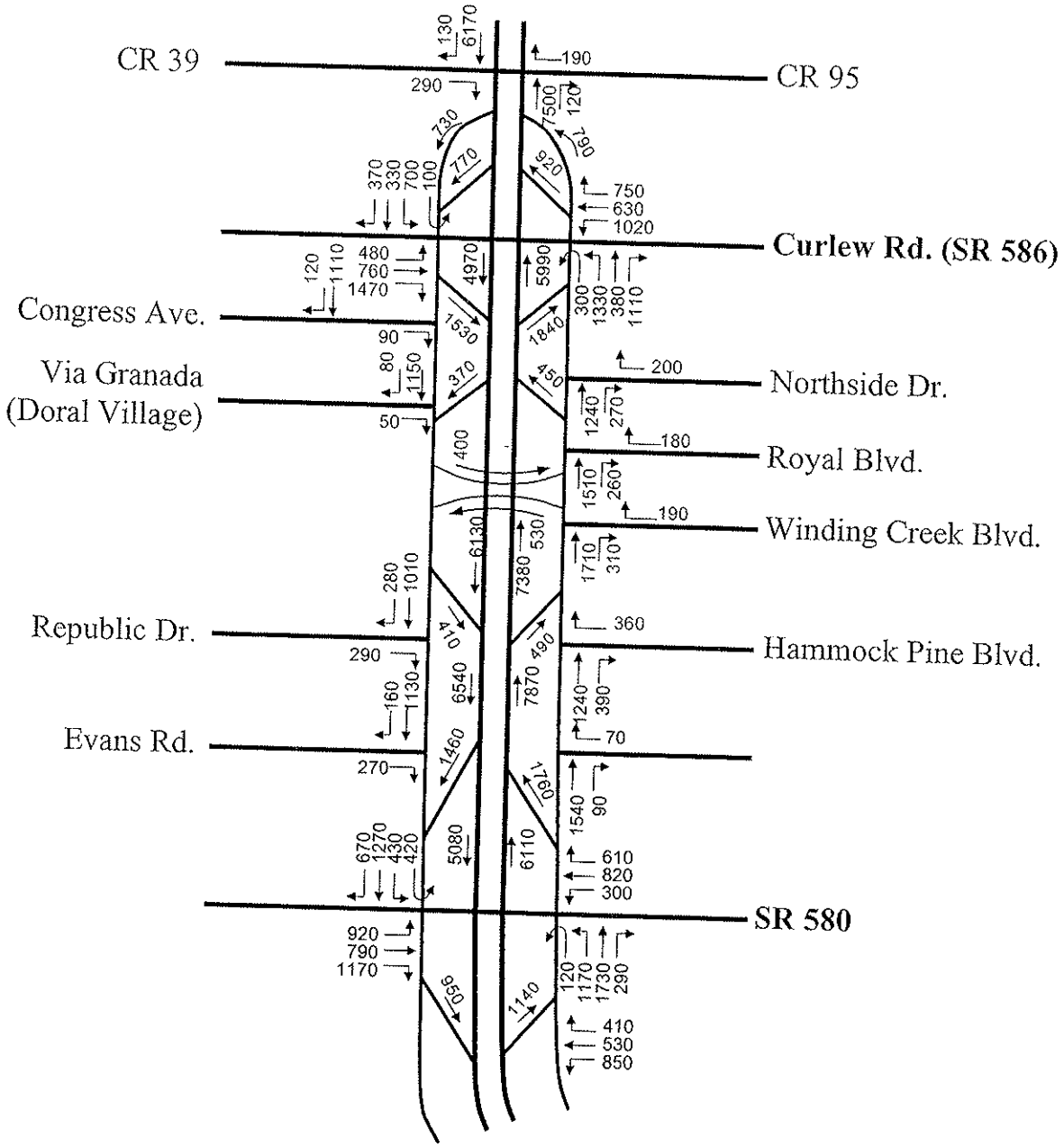
Sub Corridor Report
SR 580- CR 95

Design Year 2030 AM
Build Alternative 2C
Design Hour Volumes

Exhibit 29



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Sub Corridor Report
SR 580- CR 95

Design Year 2030 PM
Build Alternative 2C
Design Hour Volumes

Exhibit 30

4.4 Intersection Level of Service Analysis

Using the 2030 design hour volumes discussed in Section 4.3 of this report, level of service analyses were conducted for both No-Build and Build alternatives. Level of service analyses were conducted for the signalized intersections using the Highway Capacity Software (HCS). No-Build alternative intersection level of service analysis was conducted with the assumption that no corridor or intersection improvements would be made before the year 2030. The existing year (2004) geometric conditions at the intersections were considered for the analysis. Build alternative intersection level of service analysis was conducted with intersection improvements proposed associated with the Build alternative conceptual designs. The proposed road network and intersection lane arrangements associated with the Build alternatives are shown in Exhibit 8 through Exhibit 13. The analysis results of signalized intersections for No-Build and Build alternatives are summarized in Table 9 and shown in detail by intersection approaches in Table 10 through Table 14. The HCS intersection analysis sheets for the No-Build and Build conditions are included in Appendix C and Appendix D, respectively.

As summarized in Table 9, for the year 2030 No-Build scenario the signalized intersections on the US 19 corridor would operate with considerably higher intersection delay. Build Alternative 1, which assumes US 19 will operate as a controlled access facility up to north of Curlew Road, would eliminate traffic delay to US 19 through traffic caused by the signalized intersections at Republic Drive and Curlew Road. However, if the controlled access facility is not extended further north of the Curlew Road interchange, the Curlew Road intersection with the US 19 frontage lanes would operate with significantly higher intersection delay as shown in Table 9. This would be due to higher traffic volumes entering and exiting US 19 at the Curlew Road interchange from drivers wishing to avoid congestion on the US 19 arterial sections with signalized intersections north of Curlew Road.

The Build Alternatives 2A, 2B and 2C which are based on the second scenario that US 19 would be extended as a controlled access facility up to south of Pasco County line, are expected to decrease the intersection delay at Curlew Road intersection with the US 19 frontage lanes. This is expected because a portion of the local traffic would enter and exit US 19 at other interchanges

north of Curlew Road and hence would reduce traffic congestion at the Curlew Road interchange. Intersection analysis results show that for the Build Alternative 2A the intersection delay at Curlew Road intersection with the US 19 frontage lanes would be lower. However, for Build alternatives 2B and 2C, the Curlew Road intersection with the US 19 frontage lanes would operate with higher intersection delay compared to Build Alternative 2A, by attracting more traffic to the frontage lanes. This is due to the intermediate additional slip ramps between SR 580 and Curlew road interchanges.

Table 9. Design Alternatives Year 2030 Level of Service at Signalized Intersections

Intersections		Level of Service	
		AM Peak	*PM Peak*
US 19 with Curlew Road			
No-Build Alternative		F (339 sec)	F (349 sec)
Build Alternative 1	(US 19 Mainline Free Flow)	F (391 sec)	F (470 sec)
Build Alternative 2A	(US 19 Mainline Free Flow)	F (233 sec)	F (273 sec)
Build Alternative 2B	(US 19 Mainline Free Flow)	F (369 sec)	F (392 sec)
Build Alternative 2C	(US 19 Mainline Free Flow)	F (338 sec)	F (344 sec)
US 19 with Republic Drive			
No-Build Alternative		F (183 sec)	F (159 sec)
Build Alternative 1	(US 19 Mainline Free Flow)	NA	NA
Build Alternative 2A	(US 19 Mainline Free Flow)	NA	NA
Build Alternative 2B	(US 19 Mainline Free Flow)	NA	NA
Build Alternative 2C	(US 19 Mainline Free Flow)	NA	NA
US 19 Frontage Lanes with SR 580			
No-Build Alternative	(US 19 Mainline Free Flow)	F (352 sec)	F (424 sec)
Build Alternative 1	(US 19 Mainline Free Flow)	F (370 sec)	F (424 sec)
Build Alternative 2A	(US 19 Mainline Free Flow)	F (376 sec)	F (434 sec)
Build Alternative 2B	(US 19 Mainline Free Flow)	F (384 sec)	F (442 sec)
Build Alternative 2C	(US 19 Mainline Free Flow)	F (381 sec)	F (436 sec)

Table 10. No-Build Conditions Year 2030 Level of Service at Signalized Intersections

Intersections	Level of Service	
	AM Peak	*PM Peak*
US 19 with Curlew Road	**F (339 sec)**	**F (349 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F
US 19 with Republic Drive	**F (183 sec)**	**F (159 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F
US 19 Frontage Lanes with SR 580	**F (352 sec)**	**F (424 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F

Table 11. Build Alternative 1 Year 2030 Level of Service at Signalized Intersections (US 19 Controlled Access Facility up to North of Curlew Road)

Intersections	Level of Service	
	AM Peak	*PM Peak*
US 19 with Curlew Road	**F (391 sec)**	**F (470 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F
US 19 Frontage Lanes with SR 580	**F (370 sec)**	**F (424 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F

Table 12. Build Alternative 2A Year 2030 Level of Service at Signalized Intersections (US 19 Extended as a Controlled Access Facility up to Pasco County line)

Intersections	Level of Service	
	AM Peak	*PM Peak*
US 19 with Curlew Road	**F (233 sec)**	**F (273 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F
US 19 Frontage Lanes with SR 580	**F (376 sec)**	**F (434 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F

Table 13. Build Alternative 2B Year 2030 Level of Service at Signalized Intersections (US 19 Extended as a Controlled Access Facility up to Pasco County line)

Intersections	Level of Service	
	AM Peak	*PM Peak*
US 19 with Curlew Road	**F (369 sec)**	**F (392 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F
US 19 Frontage Lanes with SR 580	**F (384 sec)**	**F (442 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F

Table 14. Build Alternative 2C Year 2030 Level of Service at Signalized Intersections (US 19 Extended as a Controlled Access Facility up to Pasco County line)

Intersections	Level of Service	
	AM Peak	*PM Peak*
US 19 with Curlew Road	**F (338 sec)**	**F (344 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F
US 19 Frontage Lanes with SR 580	**F (381 sec)**	**F (436 sec)**
NB Approach	F	F
SB Approach	F	F
EB Approach	F	F
WB Approach	F	F

4.5 Arterial Segment Level of Service Analysis

The design year (2030) arterial segment level of service (LOS) analyses for US 19 roadway segments within the vicinity of the study area were conducted using the projected design year (2030) design hour volumes. The level of service analysis was conducted using the Highway Capacity Software (HCS) for both No-Build and Build alternatives. For the No-Build alternative, US 19 remained as an arterial facility with the same exiting year (2004) lane arrangements. The results of the arterial segment level of service analysis for the No-Build conditions are summarized in Table 15. The HCS arterial segment LOS analysis sheets for the No-Build conditions are included in Appendix E. The No-Build alternative overall US 19 arterial segment between SR 580 and CR 95 is expected to operate at LOS F during the design year 2030 design hour.

Table 15. No-Build Conditions Year 2030 Level of Service on Arterial Segments

Arterial Segments	Level of Service	
	AM Peak	*PM Peak*
US 19 Northbound	**F**	**F**
SR 580 to Republic Drive	F	F
Republic Drive to Curlew Road	E	F
US 19 Southbound	**F**	**F**
CR 95 to Curlew Road	F	F
Curlew Road to Republic Drive	E	C

4.6 Build Alternatives Travel Time Savings

Build Alternatives 1, 2A, 2B and 2C provides reduction in travel time for US 19 mainline traffic by eliminating US 19 mainline signals at Curlew road and Republic Drive. For the No-Build scenario the intersection signal delay for the US 19 mainline through traffic at the intersections of Republic Drive and Curlew road are shown in Table 16. This through traffic signal delay information is obtained from the arterial level of service analysis performed using the HCS. The results indicate that significant travel time reduction for the US 19 mainline through traffic could be achieved if the signals at Curlew road and Republic Drive are eliminated as proposed in the build alternatives.

Table 16. Intersection Signal Delay for the US 19 Through Traffic – 2030 No-Build

Intersections	Signal Delay for the US 19 Through Traffic	
	AM Peak	*PM Peak*
US 19 Northbound	**6.0 min**	**9.3 min**
Republic Drive	2.3 min	3.6 min
Curlew Road	3.7 min	5.7 min
US 19 Southbound	**11.1 min**	**8.4 min**
Curlew Road	8.0 min	7.3 min
Republic Drive	3.1 min	1.1 min

4.7 Controlled Access Highway Segment Level of Service Analysis

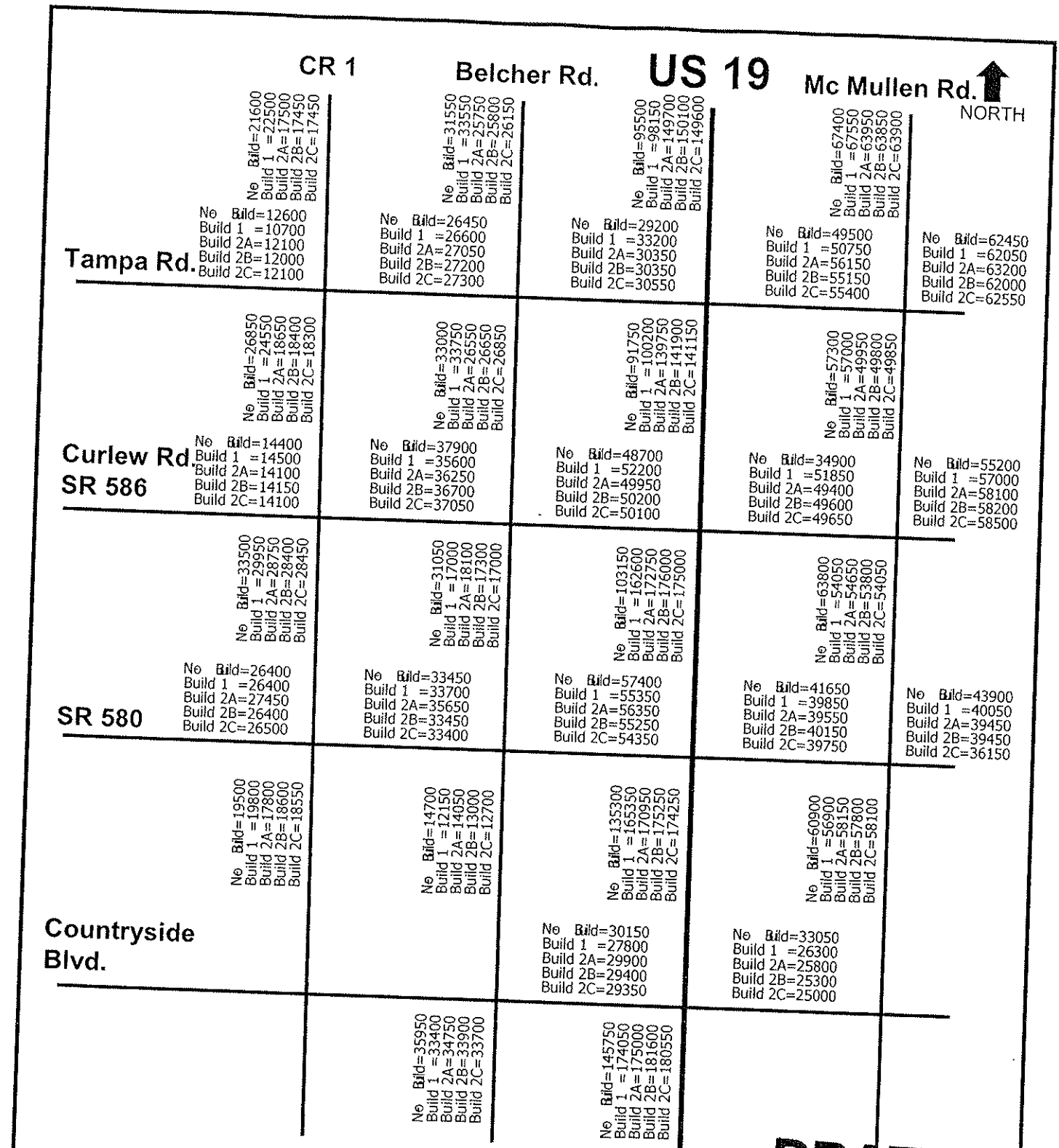
The controlled access highway segment level of service analyses for the Build alternatives were conducted using the Freeway module of the Highway Capacity Software (HCS). The results of the controlled access highway segment level of service analysis for the Build conditions are summarized in Table 17. In addition to design hour LOS, the "average" peak hour was also analyzed to give an indication of more typical or daily conditions. These results are also shown in Table 17. The HCS highway segment LOS analysis sheets for the Build conditions are included in Appendix F.

Table 17. Build Year 2030 Level of Service on US 19 Controlled Access Facility

Controlled Access Highway Segments US 19 (SR 580 – Curlew Road)	Design Hour LOS	Average Peak Hour LOS
Build Alternative 1	F	D
Build Alternative 2A	F	E
Build Alternative 2B	F	D
Build Alternative 2C	F	D
Build Alternative 1 or 2A or 2B or 2C with Estimated No-Build Traffic	E	C

Note – Speed is not estimated for LOS F conditions in the HCS

All of the Build alternatives for the US 19 controlled access highway are expected to operate at LOS F during the design hour in 2030 as shown in Table 16. The Build alternatives LOS would operate at LOS E during the design hour in 2030 if there is no increase in the projected traffic for the Build scenarios as compared to the No-Build scenario. However, traffic projections are expected to increase significantly for Build alternatives because of induced traffic created by the capacity improvements to the US 19 corridor and by traffic shifted from other parallel facilities as shown in the screenline analysis, in Exhibit 31. The increase in traffic projections for the Build alternatives would make the US 19 controlled access facility operate at LOS F during the design year 2030 design hour. However, the Build alternatives would eliminate delay caused by the traffic signals in the No-Build alternative as discussed in section 4.6.



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US 19

Sub Corridor Report

SR 580- CR 95

Design Year 2030

AADT

Comparison

Exhibit 31

In addition to the 2030 design hour level of service analysis, design year 2030 average peak hour level of service analysis was performed and the results are shown in Table 17. In the 2030 average peak hour analysis, the average peak hour traffic volume were estimated using the average peak hour traffic to annual average daily traffic ratio ($K_{Average}$) factor of 7.35 percent instead of the design hour K_{30} factor of 9.9 percent. The $K_{Average}$ factor was estimated as 7.35 percent based on the year 2004 field collected 3-day machine traffic count data. The analysis results show that the Build alternatives would operate with acceptable level of service during the design year 2030 average peak hour. During the 2030 design hour, however, the Build alternatives would operate at LOS F. Since this is a constrained facility, the Level of Service (LOS) standard for the Florida Intrastate Highway System (FIHS) facility cannot be achieved for this study corridor. However, the facility would operate at an acceptable level of service except for Build Alternative 2A, during greater than 50 percent of the peak hours, based on the average peak hour LOS analysis results.

Build Alternatives 2B and 2C consists of weaving segments between SR 580 interchange and Curlew Road interchange, as described in section 4.2. The weaving segments of the Build alternatives 2B and 2C are projected to operate at LOS E for the off-peak direction and at LOS F for the peak direction during the 2030 design hour. The weaving analysis results are shown in Table 18. The HCS weaving analysis sheets are included in appendix G.

Table 18. Build Year 2030 Level of Service on US 19 Controlled Access Facility Weaving Segments

Weaving Segments US 19 (SR 580 – Curlew Road)	Level of Service	
	AM Peak	*PM Peak*
Build Alternative 2B – Southern Segment		
Northbound Direction	E	F
Southbound Direction	F	E
Build Alternative 2C – Northern Segment		
Northbound Direction	E	F
Southbound Direction	F	E
Build Alternative 2C – Southern Segment		
Northbound Direction	E	F
Southbound Direction	F	E

5. NON-TRAFFIC CONSIDERATIONS

5.1 Right-of-Way

In keeping with the interchange improvements to the south currently under design or construction, this study is predicated on the use of the minimum right-of-way interchange concepts and does not anticipate the need for any additional right-of-way other than any corner clips which might be required for traffic signal poles or other incidental appurtenances or for drainage ponds. No right-of-way costs are included in the costs noted in this report.

5.2 Drainage

Given the nature of the improvements proposed in this study, right-of-way for pond site(s) is expected to be required. A very cursory review of the corridor indicated limited opportunities for off-site storage; thus, retention under overpass structures may be the more likely approach. At this time, this report is treated solely as a traffic analysis; therefore, no further preliminary drainage analysis or cost analysis is included.

5.3 Cost

Based on information previously provided, the District LRE was updated in June, 2007. That update reflected a cost of approximately $164 Million for construction alone, which included a 15% contingency factor.

5.4 Land Use Access

All adjacent land use access is off of the frontage lanes. Access to adjacent land uses within the project limits has the same issues that have been present in each of the other segments of US 19 where the same mainline and frontage lanes typical sections have been constructed or are under design. Due to the length of this study area, (overall 2.54 miles from SR 580 to CR 95; 2.04 miles from SR 580 to Curlew Road), an additional overpass providing turn-around capability was included near the mid-point of this length. This avoided a potential distance to U-turn of up to four miles total travel, which was considered unreasonable.

6. SUMMARY AND CONCLUSIONS

The key findings associated with each conceptual alternative are summarized in Table 19. The findings show that:

- The No-Build Alternative creates significant traffic signal delay for the US 19 mainline at the Curlew road and Republic drive intersections.
- The No-Build Alternative consists of directional median openings with potential safety concerns.
- The No-Build Alternative creates side friction of vehicles entering and exiting the mainline lanes from several driveways.
- Build Alternatives 1, 2A, 2B and 2C provides reduction in travel time and uniform traffic flow for US 19 mainline traffic by eliminating US 19 mainline signals at Curlew Road and Republic Drive.
- Build Alternatives 1, 2A, 2B and 2C provide better local traffic circulation with directional frontage lanes connected with U-turn lanes under the US 19 mainline overpass.
- Build Alternatives 1, 2A, 2B and 2C eliminate un-safe median openings along US 19.
- Build Alternatives 1, 2A, 2B and 2C provide access to/from adjacent land uses utilizing the US 19 local frontage lanes and ramps onto US 19 mainline lanes.
- Build Alternatives 1, 2A, 2B and 2C facilitate local transit service to use the US 19 frontage lanes to pick-up and drop-off passengers. Express bus service can use the US 19 mainline lanes with limited bus stops along the frontage lanes.
- Build Alternatives 1 and 2A provides better traffic operations results for US 19 mainline without potential weaving problems.

- Build Alternative 2A provides better traffic operations results for Curlew Road intersection with US 19 frontage lanes.

- Build Alternative 1 provides highest intersection delay for Curlew Road intersection with US 19 frontage lanes.

- Build Alternative 2A restricts US 19 mainline access between SR 580 and Curlew Road Interchanges.

- Build Alternatives 2B and 2C with the provision of slip ramps, provides better access to local land uses from US 19 mainline between SR 580 and Curlew Road.

- Build Alternatives 2B and 2C creates potential weaving problems on US 19 mainline.

Based on the findings listed above, Alternatives 1, 2A, 2B and 2C would eliminate several problems associated with No-Build alternative. In addition, Alternatives 1, 2A, 2B and 2C would upgrade the US 19 arterial as a controlled access highway, facilitating regional traffic movement. At the same time the frontage road system associated with these alternatives would enhance the local traffic flow and access to local land uses.

Alternative 1 assumes that the US 19 controlled access facility terminates at Curlew Road interchange. For this scenario, the Curlew Road intersection with US 19 frontage lanes would operate with higher intersection delay. Alternatives 2A, 2B and 2C assume that US 19 would be extended as a controlled access facility to south of Pasco County line. For this second scenario, alternatives 2B and 2C would create weaving problems on the US 19 mainline because of intermediate slip ramps. If additional slip ramps are necessary to improve US 19 mainline access between SR 580 and Curlew Road and the cost associated with the slip ramps construction is minimal, then Alternatives 2B or 2C could be considered for design with modifications to avoid weaving problems. Otherwise, Alternative 2A is the recommended alternative for design.

Table 19. Comparison of Options for US 19 (SR 580 TO CR 95)

	No-Build	Alternative 1	Alternative 2A	Alternative 2B	Alternative 2C
Assumptions	US 19 remains as an Arterial Facility North of SR 580	US 19 Controlled Access Facility extended to North of Curlew Road to near CR 95	US 19 extended as a Controlled Access Facility to Pasco County line	US 19 extended as a Controlled Access Facility to Pasco County line	US 19 extended as a Controlled Access Facility to Pasco County line
Travel Time	No Impact	Reduction in US 19 through traffic travel time by eliminating traffic signal delay	Reduction in US 19 through traffic travel time by eliminating traffic signal delay	Reduction in US 19 through traffic travel time by eliminating traffic signal delay	Reduction in US 19 through traffic travel time by eliminating traffic signal delay
Traffic Flow	No Impact	Uniform traffic flow by eliminating traffic signals	Uniform traffic flow by eliminating signals	Uniform traffic flow by eliminating signals	Uniform traffic flow by eliminating signals
Traffic Circulation	No Impact	Traffic circulation is facilitated with directional frontage lanes connected with U-turn lanes under the US 19 mainline overpass	Traffic circulation is facilitated with directional frontage lanes connected with U-turn lanes under the US 19 mainline overpass	Traffic circulation is facilitated with directional frontage lanes connected with U-turn lanes under the US 19 mainline overpass	Traffic circulation is facilitated with directional frontage lanes connected with U-turn lanes under the US 19 mainline overpass
Traffic Operations	US 19 Arterial Design Hour LOS = F US 19 Intersections Curlew Road AM LOS = F Delay = 339 sec Curlew Road PM LOS = F Delay = 349 sec SR 580 AM LOS = F Delay = 352 sec SR 580 PM LOS = F Delay = 424 sec	US 19 Controlled Access Highway Design Hour LOS = F Average Peak Hour LOS = D US 19 Intersections Curlew Road AM LOS = F Delay = 391 sec Curlew Road PM LOS = F Delay = 470 sec SR 580 AM LOS = F Delay = 370 sec SR 580 PM LOS = F Delay = 424 sec Weaving Segments No Weaving Segments No Weaving Problem on US 19	US 19 Controlled Access Highway Design Hour LOS = F Average Peak Hour LOS = E US 19 Intersections Curlew Road AM LOS = F Delay = 233 sec Curlew Road PM LOS = F Delay = 273 sec SR 580 AM LOS = F Delay = 376 sec SR 580 PM LOS = F Delay = 434 sec Weaving Segments No Weaving Segments No Weaving Problem on US 19	US 19 Controlled Access Highway Design Hour LOS = F Average Peak Hour LOS = D US 19 Intersections Curlew Road AM LOS = F Delay = 369 sec Curlew Road PM LOS = F Delay = 392 sec SR 580 AM LOS = F Delay = 384 sec SR 580 PM LOS = F Delay = 442 sec Weaving Segments One NB & One SB Weaving Segments Design Hour LOS = F Potential Weaving Problem on US 19	US 19 Controlled Access Highway Design Hour LOS = F Average Peak Hour LOS = D US 19 Intersections Curlew Road AM LOS = F Delay = 338 sec Curlew Road PM LOS = F Delay = 344 sec SR 580 AM LOS = F Delay = 381 sec SR 580 PM LOS = F Delay = 436 sec Weaving Segments Two NB & Two SB Weaving Segments Design Hour LOS = F Potential Weaving Problem on US 19
Land Use Access	No Impact	Access to/from adjacent land uses will utilize the US 19 local frontage lanes and ramps onto US 19 mainline lanes at SR 580 & Curlew Road Interchanges	Access to/from adjacent land uses will utilize the US 19 local frontage lanes and ramps onto US 19 mainline lanes at SR 580 & Curlew Road Interchanges	Access to/from adjacent land uses will utilize the US 19 local frontage lanes and additional slip ramps onto US 19 mainline lanes between SR 580 & Curlew Road	Access to/from adjacent land uses will utilize the US 19 local frontage lanes and additional slip ramps onto US 19 mainline lanes between SR 580 & Curlew Road
Transit Services	No Impact	Local transit service will use the US 19 frontage lanes to pick-up and drop-off passengers. Express bus service can use the US 19 mainline lanes with limited bus stops along the frontage lanes	Local transit service will use the US 19 frontage lanes to pick-up and drop-off passengers. Express bus service can use the US 19 mainline lanes with limited bus stops along the frontage lanes	Local transit service will use the US 19 frontage lanes to pick-up and drop-off passengers. Express bus service can use the US 19 mainline lanes with limited bus stops along the frontage lanes	Local transit service will use the US 19 frontage lanes to pick-up and drop-off passengers. Express bus service can use the US 19 mainline lanes with limited bus stops along the frontage lanes

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APPENDIX - A

HCS Worksheets for Signalized Intersections

Existing Year 2004 Conditions

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FULL REPORT

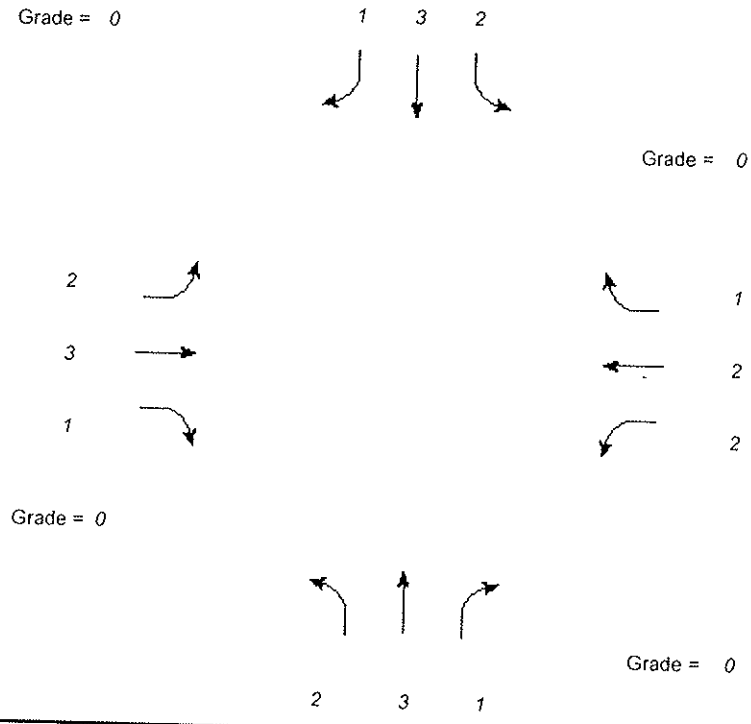
General Information

Analyst	*Praba*
Agency or Co.	*H. W. Lochner, Inc.*
Date Performed	*04/29/2005*
Time Period	*AM*

Site Information

Intersection	*Curlew Road & US 19*
Area Type	*All other areas*
Jurisdiction	*Pinellas County*
Analysis Year	*2004*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	310	900	410	440	1080	290	410	3050	360	150	4000	150
% Heavy veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	4.3	5.1	5.1	4.3	5.1	5.1	5.4	5.4	5.4	5.4	5.4	5.4
Arrival type	3	3	3	3	3	3	3	3	3	3	2	2
Unit Extension	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
Ped/Bike/RTOR Volume	0	0	93	0	0	97	0	0	67	0	0	21
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0	0	0	0	0	0	0
Ped timing	3.2			3.2			3.2			3.2		

	Excl. Left	Thru & RT	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 24.1	G = 23.3	G =	G =	G = 13.5	G = 100.9	G =	G =
	Y = 6.3	Y = 7.1	Y =	Y =	Y = 7.4	Y = 7.4	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 190.0		

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VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	310	900	410	440	1080	290	410	3050	360	150	4000	150
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	337	978	345	478	1174	210	446	3315	318	163	4348	140
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	337	978	345	478	1174	210	446	3315	318	163	4348	140
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	3	1	2	3	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	0.908	1.000	0.971	0.908	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	5025	1568	3403	5025	1568
Sec. adj. satflow			--			--			--			--

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CAPACITY AND LOS WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	337	978	345	478	1174	210	446	3315	318	163	4348	140
Satflow rate	3403	5025	1568	3403	3512	1568	3403	5025	1568	3403	5025	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.55	0.55	0.09	0.55	0.55
Lane group cap.	473	698	218	473	488	218	303	2758	861	303	2758	861
v/c ratio	0.71	1.40	1.58	1.01	2.41	0.96	1.47	1.20	0.37	0.54	1.58	0.16
Flow ratio	0.10	0.19	0.22	0.14	0.33	0.13	0.13	0.66	0.20	0.05	0.87	0.09
Crit. lane group	N	N	N	Y	Y	N	Y	N	N	N	Y	N
Sum flow ratios	1.47											
Lost time/cycle	16.00											
Critical v/c ratio	1.61											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	337	978	345	478	1174	210	446	3315	318	163	4348	140
Lane group cap.	473	698	218	473	488	218	303	2758	861	303	2758	861
v/c ratio	0.71	1.40	1.58	1.01	2.41	0.96	1.47	1.20	0.37	0.54	1.58	0.16
Green ratio	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.55	0.55	0.09	0.55	0.55
Unif. delay d1	78.2	81.8	81.8	81.8	81.8	81.3	86.6	42.9	24.2	82.8	42.9	21.2
Delay factor k	0.28	0.50	0.50	0.50	0.50	0.47	0.50	0.50	0.50	0.14	0.50	0.50
Increm. delay d2	5.0	189.1	282.9	44.0	638.8	50.6	229.5	94.6	1.2	0.2	259.6	0.0
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.021	1.307
Control delay	83.2	270.9	364.7	125.8	720.6	131.9	316.1	137.5	25.5	83.0	303.3	27.8
Lane group LOS	F	F	F	F	F	F	F	F	C	F	F	C
Apprch. delay	252.3			501.5			148.3			287.3		
Approach LOS	F			F			F			F		
Intersec. delay	268.8			Intersection LOS						F		

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BACK-OF-QUEUE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*337*	*978*	*345*	*478*	*1174*	*210*	*446*	*3315*	*318*	*163*	*4348*	*140*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*473*	*698*	*218*	*473*	*488*	*218*	*303*	*2758*	*861*	*303*	*2758*	*861*
Flow ratio	*0.10*	*0.19*	*0.22*	*0.14*	*0.33*	*0.13*	*0.13*	*0.66*	*0.20*	*0.05*	*0.87*	*0.09*
v/c ratio	*0.71*	*1.40*	*1.58*	*1.01*	*2.41*	*0.96*	*1.47*	*1.20*	*0.37*	*0.54*	*1.58*	*0.16*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*2*	*2*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*0.92*	*0.67*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.36*
Q_1	*8.7*	*18.9*	*18.2*	*13.0*	*32.5*	*11.0*	*12.1*	*64.2*	*9.5*	*4.2*	*84.2*	*5.0*
k_B	*0.5*	*0.5*	*0.4*	*0.5*	*0.5*	*0.4*	*0.4*	*1.9*	*1.7*	*0.0*	*0.2*	*0.2*
Q_2	*1.0*	*14.4*	*17.0*	*4.0*	*45.8*	*2.9*	*10.1*	*34.2*	*1.0*	*0.0*	*73.5*	*0.0*
Q avg.	*9.7*	*33.3*	*35.2*	*16.9*	*78.3*	*13.9*	*22.2*	*98.3*	*10.5*	*4.2*	*157.7*	*5.0*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.8*	*1.6*	*1.6*	*1.7*	*1.5*	*1.8*	*1.7*	*1.6*	*1.7*	*2.0*	*1.6*	*2.0*
BOQ, Q%	*18.0*	*53.1*	*55.8*	*29.4*	*118*	*24.7*	*37.2*	*157*	*18.1*	*8.3*	*252*	*9.9*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

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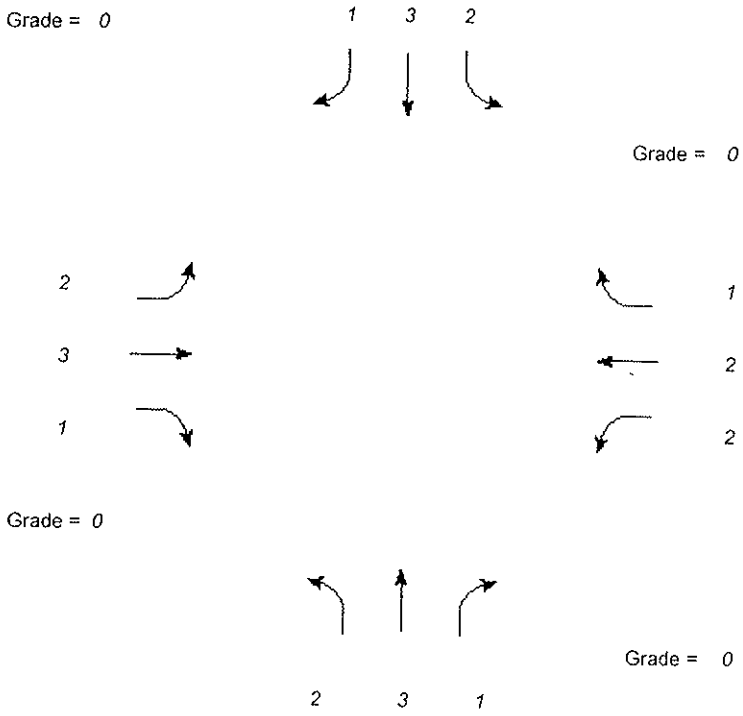
FULL REPORT

General Information		Site Information	
Analyst	Praba	Intersection	Curlew Road & US 19
Agency or Co.	H. W. Lochner, Inc.	Area Type	All other areas
Date Performed	04/28/2005	Jurisdiction	Pinellas County
Time Period	PM	Analysis Year	2004

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	350	950	680	500	700	300	680	3340	600	390	3000	150
% Heavy veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	4.3	5.1	5.1	4.3	5.1	5.1	5.4	5.4	5.4	5.4	5.4	5.4
Arrival type	3	3	3	3	3	3	3	3	3	4	2	1
Unit Extension	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
Ped/Bike/RTOR Volume	0	0	112	0	0	125	0	0	88	0	0	24
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0	0	0	0	0	0	0
Ped timing	3.2			3.2			3.2			3.2		

	Excl. Left	EB Only	Thru & RT	04	Excl. Left	Thru & RT	07	08
Timing	G = 23.4	G = 1.0	G = 36.9	G =	G = 19.0	G = 105.3	G =	G =
	Y = 6.3	Y = 6.3	Y = 7.1	Y =	Y = 7.4	Y = 7.4	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 220.0		

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VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	350	950	680	500	700	300	680	3340	600	390	3000	150
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	380	1033	617	543	761	190	739	3630	557	424	3261	137
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	380	1033	617	543	761	190	739	3630	557	424	3261	137
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	3	1	2	3	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	0.908	1.000	0.971	0.908	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	5025	1568	3403	5025	1568
Sec. adj. satflow			--			--			--			--

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CAPACITY AND LOS WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	380	1033	617	543	761	190	739	3630	557	424	3261	137
Satflow rate	3403	5025	1568	3403	3512	1568	3403	5025	1568	3403	5025	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.15	0.22	0.22	0.12	0.18	0.18	0.10	0.49	0.49	0.10	0.49	0.49
Lane group cap.	510	1080	337	397	639	285	346	2482	774	346	2482	774
v/c ratio	0.75	0.96	1.83	1.37	1.19	0.67	2.14	1.46	0.72	1.23	1.31	0.18
Flow ratio	0.11	0.21	0.39	0.16	0.22	0.12	0.22	0.72	0.36	0.12	0.65	0.09
Crit. lane group	N	N	Y	Y	N	N	Y	Y	N	N	N	N
Sum flow ratios	1.49											
Lost time/cycle	16.00											
Critical v/c ratio	1.61											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	380	1033	617	543	761	190	739	3630	557	424	3261	137
Lane group cap.	510	1080	337	397	639	285	346	2482	774	346	2482	774
v/c ratio	0.75	0.96	1.83	1.37	1.19	0.67	2.14	1.46	0.72	1.23	1.31	0.18
Green ratio	0.15	0.22	0.22	0.12	0.18	0.18	0.10	0.49	0.49	0.10	0.49	0.49
Unif. delay d1	89.5	85.3	86.4	97.2	90.0	83.8	98.8	55.7	43.7	98.8	55.7	30.9
Delay factor k	0.30	0.47	0.50	0.50	0.50	0.27	0.50	0.50	0.50	0.50	0.50	0.50
Increm. delay d2	5.9	17.9	385.3	180.9	100.9	6.5	520.7	210.4	5.7	103.9	141.5	0.0
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.232	1.651
Control delay	95.4	103.3	471.7	278.1	190.9	90.3	619.5	266.1	49.4	202.7	210.1	51.0
Lane group LOS	F	F	F	F	F	F	F	F	D	F	F	D
Apprch. delay	213.8			209.8			294.6			203.6		
Approach LOS	F			F			F			F		
Intersec. delay	242.6			Intersection LOS						F		

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BACK-OF-QUEUE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*380*	*1033*	*617*	*543*	*761*	*190*	*739*	*3630*	*557*	*424*	*3261*	*137*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*510*	*1080*	*337*	*397*	*639*	*285*	*346*	*2482*	*774*	*346*	*2482*	*774*
Flow ratio	*0.11*	*0.21*	*0.39*	*0.16*	*0.22*	*0.12*	*0.22*	*0.72*	*0.36*	*0.12*	*0.65*	*0.09*
v/c ratio	*0.75*	*0.96*	*1.83*	*1.37*	*1.19*	*0.67*	*2.14*	*1.46*	*0.72*	*1.23*	*1.31*	*0.18*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*4*	*2*	*1*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.33*	*0.67*	*0.33*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.55*
Q_1	*11.4*	*22.9*	*37.7*	*17.1*	*24.4*	*10.8*	*23.2*	*81.4*	*26.7*	*13.3*	*73.2*	*7.2*
k_B	*0.5*	*0.7*	*0.6*	*0.5*	*0.6*	*0.6*	*0.4*	*2.0*	*1.8*	*0.0*	*0.2*	*0.2*
Q_2	*1.3*	*4.7*	*36.3*	*10.8*	*10.8*	*1.0*	*26.0*	*58.3*	*4.0*	*5.2*	*36.5*	*0.0*
Q avg.	*12.7*	*27.6*	*74.0*	*27.9*	*35.2*	*11.8*	*49.2*	*139.7*	*30.7*	*18.5*	*109.6*	*7.2*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.8*	*1.6*	*1.5*	*1.6*	*1.6*	*1.8*	*1.5*	*1.6*	*1.6*	*1.7*	*1.6*	*1.8*
BOQ, Q%	*22.9*	*45.0*	*112*	*45.4*	*55.8*	*21.4*	*75.8*	*224*	*49.2*	*31.8*	*175*	*13.3*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

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FULL REPORT

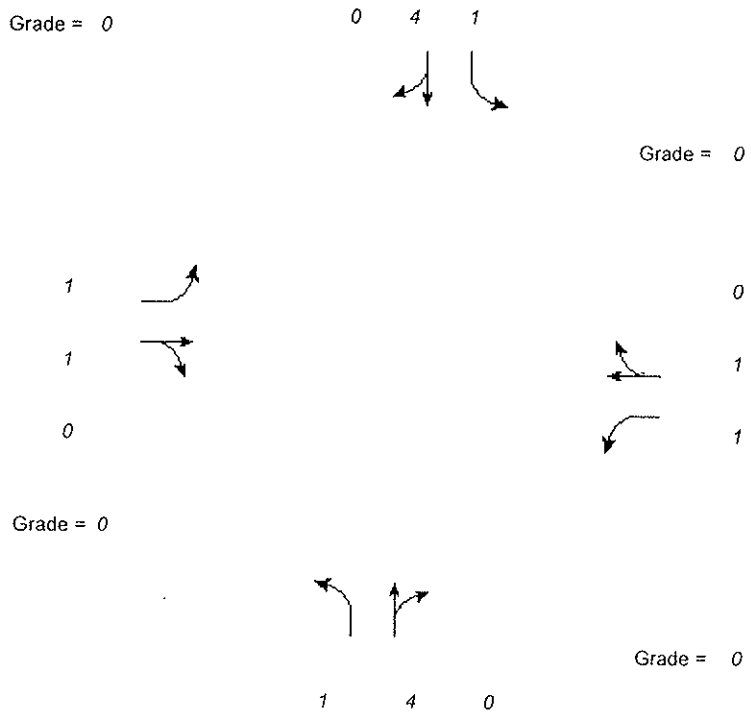
General Information

Analyst	*Praba*
Agency or Co.	*H. W. Lochner, Inc.*
Date Performed	*04/29/2005*
Time Period	*AM*

Site Information

Intersection	*Republic Dr. & US 19*
Area Type	*All other areas*
Jurisdiction	*Pinellas County*
Analysis Year	*2004*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*50*	*80*	*170*	*120*	*60*	*40*	*130*	*3690*	*120*	*40*	*4430*	*50*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*P*	*P*	*A*	*P*	*P*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Ext. eff. green	*5.7*	*5.7*		*5.7*	*5.7*		*5.0*	*4.8*		*5.0*	*4.8*	
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*		*4*	*2*	
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*40*	*0*	*0*	*12*	*0*	*0*	*2*	*0*	*0*	*1*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	EW Perm	02	03	04	Excl. Left	NB Only	Thru & RT	08
Timing	G = *30.3*	G =	G =	G =	G = *10.0*	G = *1.2*	G = *120.0*	G =
	Y = *7.7*	Y =	Y =	Y =	Y = *7*	Y = *7*	Y = *6.8*	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *190.0*		

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VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *Sub Corridor Report (SR 580 - CR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	50	80	170	120	60	40	130	3690	120	40	4430	50
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	54	87	141	130	65	30	141	4011	128	43	4815	53
Lane Group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	54	228		130	95		141	4139		43	4868	
Prop. LT or RT	0.000	--	0.618	0.000	--	0.316	0.000	--	0.031	0.000	--	0.011

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900		1900	1900	
Num. of lanes	1	1	0	1	1	0	1	4	0	1	4	0
fW	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fHV	0.971	0.971		0.971	0.971		0.971	0.971		0.971	0.971	
fg	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fp	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fbb	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fa	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fLU	1.000	1.000		1.000	1.000		1.000	0.908		1.000	0.908	
fLT	0.600	1.000	--	0.279	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.907		--	0.953		--	0.995		--	0.998	
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000		--	1.000	
Adj. satflow	1106	1674		514	1757		1752	6669		1752	6689	
Sec. adj. satflow			--			--			--			--

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CAPACITY AND LOS WORKSHEET

General Information

Project Description *Sub Corridor Report (SR 580 - CR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	54	228		130	95		141	4139		43	4868	
Satflow rate	1106	1674		514	1757		1752	6669		1752	6689	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.18	0.18		0.18	0.18		0.11	0.69		0.07	0.65	
Lane group cap.	198	300		92	314		195	4598		120	4323	
v/c ratio	0.27	0.76		1.41	0.30		0.72	0.90		0.36	1.13	
Flow ratio	0.05	0.14		0.25	0.05		0.08	0.62		0.02	0.73	
Crit. lane group	N	N		Y	N		Y	N		N	Y	
Sum flow ratios	1.06											
Lost time/cycle	12.00											
Critical v/c ratio	1.13											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	54	228		130	95		141	4139		43	4868	
Lane group cap.	198	300		92	314		195	4598		120	4323	
v/c ratio	0.27	0.76		1.41	0.30		0.72	0.90		0.36	1.13	
Green ratio	0.18	0.18		0.18	0.18		0.11	0.69		0.07	0.65	
Unif. delay d1	67.3	74.1		78.0	67.7		81.6	24.1		84.5	33.6	
Delay factor k	0.11	0.31		0.50	0.11		0.28	0.50		0.11	0.50	
Increm. delay d2	0.7	10.8		238.1	0.5		12.4	3.3		0.2	57.1	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.214	
Control delay	68.1	84.9		316.1	68.3		94.0	27.4		84.7	97.8	
Lane group LOS	E	F		F	E		F	C		F	F	
Apprch. delay	81.7			211.5			29.6			97.7		
Approach LOS	F			F			C			F		
Intersec. delay	69.8			Intersection LOS						E		

BACK-OF-QUEUE WORKSHEET

DRAFT

General Information

Project Description *Sub Corridor Report (SR 580 - CR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*TR*		*L*	*TR*	
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Flow rate/lane	*54*	*228*		*130*	*95*		*141*	*4139*		*43*	*4868*	
Satflow per lane	*1106*	*1674*		*514*	*1757*		*1752*	*1836*		*1752*	*1841*	
Capacity/lane	*198*	*300*		*92*	*314*		*195*	*4598*		*120*	*4323*	
Flow ratio	*0.05*	*0.14*		*0.25*	*0.05*		*0.08*	*0.62*		*0.02*	*0.73*	
v/c ratio	*0.27*	*0.76*		*1.41*	*0.30*		*0.72*	*0.90*		*0.36*	*1.13*	
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*0.090*	*0.090*	
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*		*4*	*2*	
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*		*1.33*	*0.83*	
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*		*0.98*	*1.00*	
Q_1	*2.5*	*11.4*		*6.9*	*4.4*		*7.2*	*49.2*		*2.1*	*70.7*	
k_B	*0.4*	*0.5*		*0.3*	*0.5*		*0.4*	*2.3*		*0.0*	*0.2*	
Q_2	*0.2*	*1.4*		*5.5*	*0.2*		*0.9*	*11.8*		*0.0*	*20.4*	
Q avg.	*2.6*	*12.9*		*12.4*	*4.6*		*8.1*	*61.0*		*2.1*	*91.1*	

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*2.0*	*1.8*		*1.8*	*2.0*		*1.9*	*1.6*		*2.0*	*1.6*	
BOQ, Q%	*5.3*	*23.1*		*22.3*	*9.0*		*15.3*	*97.6*		*4.4*	*146*	

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	
Q storage	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™

Version 4.1e

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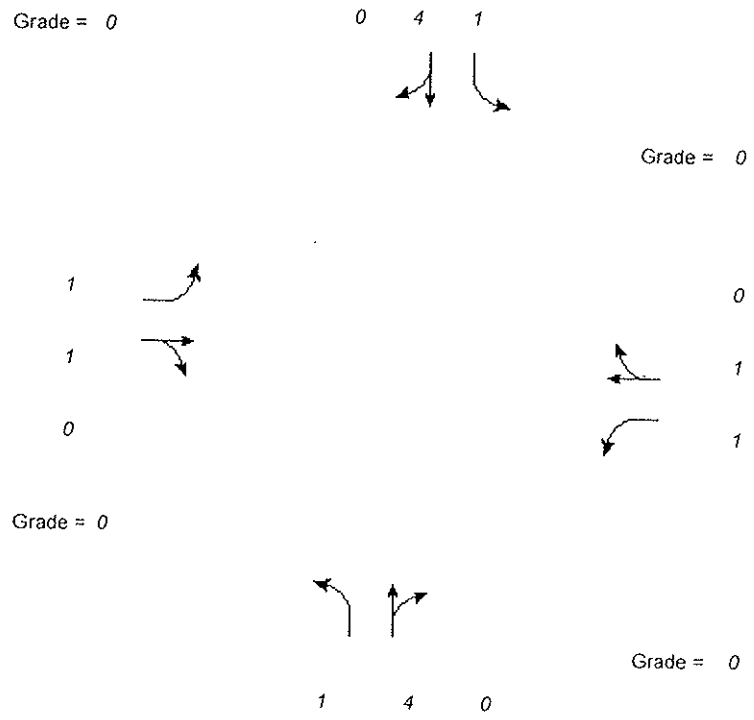
FULL REPORT

General Information		Site Information	
Analyst	Praba	Intersection	Republic Dr. & US 19
Agency or Co.	H. W. Lochner, Inc.	Area Type	All other areas
Date Performed	04/28/2005	Jurisdiction	Pinellas County
Time Period	PM	Analysis Year	2004

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	80	20	160	160	20	50	170	4380	180	50	3650	70
% Heavy veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	5.7	5.7		5.7	5.7		5.0	4.8		5.0	4.8	
Arrival type	3	3		3	3		3	3		2	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	118	0	0	40	0	0	2	0	0	1
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Ped timing	3.2			3.2			3.2			3.2		

	EW Perm	02	03	04	Excl. Left	NB Only	Thru & RT	08
Timing	G = 25.3	G =	G =	G =	G = 12.3	G = 2.3	G = 151.6	G =
	Y = 7.7	Y =	Y =	Y =	Y = 7	Y = 7	Y = 6.8	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 220.0		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *Sub Corridor Report (SR 580 - CR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	80	20	160	160	20	50	170	4380	180	50	3650	70
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	87	22	46	174	22	11	185	4761	193	54	3967	75
Lane Group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	87	68		174	33		185	4954		54	4042	
Prop. LT or RT	0.000	--	0.676	0.000	--	0.333	0.000	--	0.039	0.000	--	0.019

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900		1900	1900	
Num. of lanes	1	1	0	1	1	0	1	4	0	1	4	0
fW	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fHV	0.971	0.971		0.971	0.971		0.971	0.971		0.971	0.971	
fg	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fp	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fbb	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fa	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fLU	1.000	1.000		1.000	1.000		1.000	0.908		1.000	0.908	
fLT	0.736	1.000	--	0.627	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.899		--	0.950		--	0.994		--	0.997	
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000		--	1.000	
Adj. satflow	1357	1657		1156	1752		1752	6661		1752	6681	
Sec. adj. satflow			--			--			--			--

DRAFT

CAPACITY AND LOS WORKSHEET

General Information

Project Description *Sub Corridor Report (SR 580 - CR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	87	68		174	33		185	4954		54	4042	
Satflow rate	1357	1657		1156	1752		1752	6661		1752	6681	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.13	0.13		0.13	0.13		0.11	0.74		0.07	0.70	
Lane group cap.	179	218		152	231		196	4956		122	4689	
v/c ratio	0.49	0.31		1.14	0.14		0.94	1.00		0.44	0.86	
Flow ratio	0.06	0.04		0.15	0.02		0.11	0.74		0.03	0.60	
Crit. lane group	N	N		Y	N		N	Y		Y	N	
Sum flow ratios	0.93											
Lost time/cycle	12.00											
Critical v/c ratio	0.98											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	87	68		174	33		185	4954		54	4042	
Lane group cap.	179	218		152	231		196	4956		122	4689	
v/c ratio	0.49	0.31		1.14	0.14		0.94	1.00		0.44	0.86	
Green ratio	0.13	0.13		0.13	0.13		0.11	0.74		0.07	0.70	
Unif. delay d1	88.6	86.5		95.5	84.5		97.0	28.1		98.3	24.8	
Delay factor k	0.11	0.11		0.50	0.11		0.46	0.50		0.11	0.50	
Increm. delay d2	2.1	0.8		117.2	0.3		48.4	12.7		0.2	0.2	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	90.7	87.3		212.7	84.8		145.4	40.8		98.5	25.0	
Lane group LOS	F	F		F	F		F	D		F	C	
Apprch. delay	89.2			192.3			44.6			25.9		
Approach LOS	F			F			D			C		
Intersec. delay	40.5			Intersection LOS						D		

BACK-OF-QUEUE WORKSHEET

DRAFT

General Information

Project Description *Sub Corridor Report (SR 580 - CR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*TR*		*L*	*TR*	
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Flow rate/lane	*87*	*68*		*174*	*33*		*185*	*4954*		*54*	*4042*	
Satflow per lane	*1357*	*1657*		*1156*	*1752*		*1752*	*1833*		*1752*	*1839*	
Capacity/lane	*179*	*218*		*152*	*231*		*196*	*4956*		*122*	*4689*	
Flow ratio	*0.06*	*0.04*		*0.15*	*0.02*		*0.11*	*0.74*		*0.03*	*0.60*	
v/c ratio	*0.49*	*0.31*		*1.14*	*0.14*		*0.94*	*1.00*		*0.44*	*0.86*	
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*0.090*	*0.090*	
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*		*2*	*3*	
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*		*0.67*	*1.00*	
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*		*1.01*	*1.00*	
Q_1	*4.9*	*3.8*		*10.6*	*1.8*		*11.2*	*83.1*		*3.2*	*51.2*	
k_B	*0.4*	*0.5*		*0.4*	*0.5*		*0.4*	*2.7*		*0.0*	*0.2*	
Q_2	*0.4*	*0.2*		*4.6*	*0.1*		*2.6*	*21.2*		*0.0*	*1.3*	
Q avg.	*5.3*	*4.0*		*15.2*	*1.9*		*13.8*	*104.3*		*3.2*	*52.6*	

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.9*	*2.0*		*1.8*	*2.0*		*1.8*	*1.6*		*2.0*	*1.6*	
BOQ, $Q_{\%}$	*10.3*	*7.9*		*26.7*	*3.8*		*24.6*	*167*		*6.5*	*84.1*	

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	
Q storage	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™

Version 4.1e

FULL REPORT DRAFT

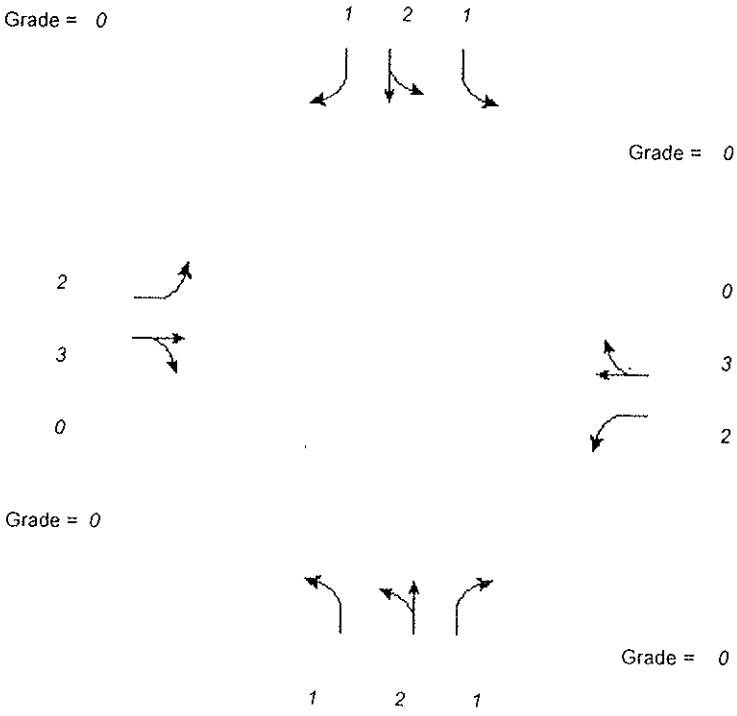
General Information

Analyst	*Praba*
Agency or Co.	*H. W. Lochner, Inc.*
Date Performed	*04/29/2005*
Time Period	*AM*

Site Information

Intersection	*SR 580 & US 19*
Area Type	*All other areas*
Jurisdiction	*Pinellas County*
Analysis Year	*2004*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*770*	*930*	*590*	*360*	*1100*	*470*	*540*	*460*	*290*	*450*	*550*	*850*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*		*4.3*	*5.1*		*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*50*	*0*	*0*	*50*	*0*	*0*	*100*	*0*	*0*	*300*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *30.0*	G = *50.0*	G =	G =	G = *30.0*	G = *30.0*	G =	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *177.8*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	770	930	590	360	1100	470	540	460	290	450	550	850
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	837	1011	587	391	1196	457	587	500	207	489	598	598
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	837	1598		391	1653		587	500	207	489	598	598
Prop. LT or RT	0.000	--	0.367	0.000	--	0.276	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.945		--	0.959		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4748		3403	4816		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

DRAFT

CAPACITY AND LOS WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	837	1598		391	1653		587	500	207	489	598	598
Satflow rate	3403	4748		3403	4816		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.18	0.30		0.18	0.30		0.19	0.19	0.19	0.19	0.19	0.19
Lane group cap.	618	1418		618	1438		329	660	295	329	660	295
v/c ratio	1.35	1.13		0.63	1.15		1.78	0.76	0.70	1.49	0.91	2.03
Flow ratio	0.25	0.34		0.11	0.34		0.34	0.14	0.13	0.28	0.17	0.38
Crit. lane group	Y	N		N	Y		Y	N	N	N	N	Y
Sum flow ratios	1.31											
Lost time/cycle	25.60											
Critical v/c ratio	1.53											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	837	1598		391	1653		587	500	207	489	598	598
Lane group cap.	618	1418		618	1438		329	660	295	329	660	295
v/c ratio	1.35	1.13		0.63	1.15		1.78	0.76	0.70	1.49	0.91	2.03
Green ratio	0.18	0.30		0.18	0.30		0.19	0.19	0.19	0.19	0.19	0.19
Unif. delay d1	72.8	62.4		67.3	62.4		72.2	68.4	67.5	72.2	70.7	72.2
Delay factor k	0.50	0.50		0.21	0.50		0.50	0.31	0.27	0.50	0.43	0.50
Increm. delay d2	169.9	66.8		2.1	75.8		364.9	5.1	7.3	220.3	1.9	463.3
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	242.7	129.1		69.4	138.2		437.1	73.4	74.8	292.5	72.6	535.5
Lane group LOS	F	F		E	F		F	E	E	F	E	F
Apprch. delay	168.1			125.0			238.6			300.7		
Approach LOS	F			F			F			F		
Intersec. delay	198.5			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*837*	*1598*		*391*	*1653*		*587*	*500*	*207*	*489*	*598*	*598*
Satflow per lane	*1752*	*1743*		*1752*	*1767*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*618*	*1418*		*618*	*1438*		*329*	*660*	*295*	*329*	*660*	*295*
Flow ratio	*0.25*	*0.34*		*0.11*	*0.34*		*0.34*	*0.14*	*0.13*	*0.28*	*0.17*	*0.38*
v/c ratio	*1.35*	*1.13*		*0.63*	*1.15*		*1.78*	*0.76*	*0.70*	*1.49*	*0.91*	*2.03*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*21.2*	*28.9*		*9.2*	*29.9*		*29.0*	*12.3*	*9.6*	*24.2*	*15.2*	*29.5*
k_B	*0.5*	*0.7*		*0.5*	*0.7*		*0.5*	*0.5*	*0.5*	*0.0*	*0.0*	*0.0*
Q_2	*15.8*	*12.4*		*0.8*	*13.8*		*33.4*	*1.5*	*1.1*	*20.1*	*0.4*	*38.0*
Q avg.	*37.0*	*41.3*		*10.0*	*43.7*		*62.4*	*13.8*	*10.6*	*44.3*	*15.6*	*67.5*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.6*	*1.6*		*1.8*	*1.6*		*1.5*	*1.8*	*1.8*	*1.6*	*1.8*	*1.5*
BOQ, Q%	*58.4*	*64.5*		*18.5*	*67.9*		*94.8*	*24.5*	*19.5*	*68.7*	*27.4*	*102*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. Rq												
95% Rq%												

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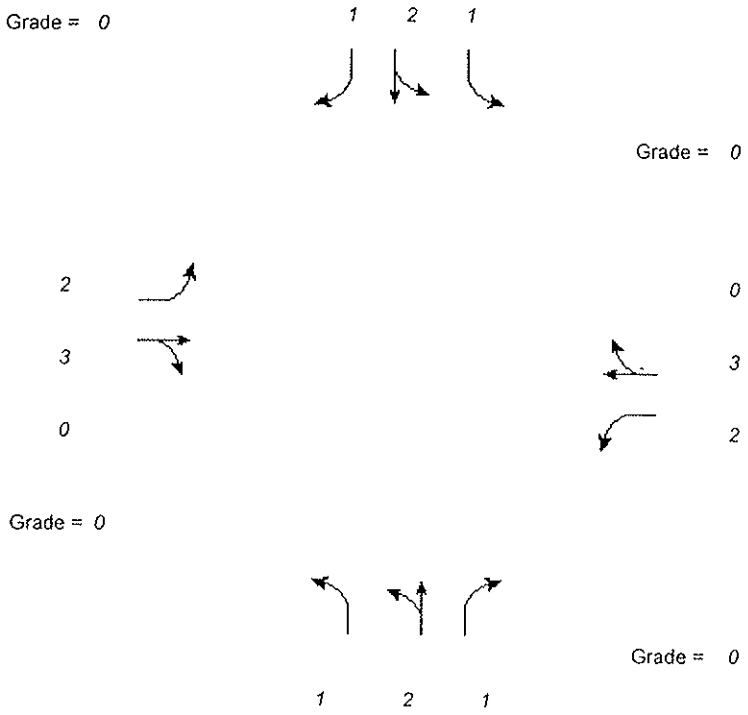
FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*SR 580 & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*04/29/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM*	Analysis Year	*2004*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*700*	*1150*	*710*	*200*	*1190*	*520*	*710*	*660*	*190*	*410*	*540*	*570*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*		*4.3*	*5.1*		*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*50*	*0*	*0*	*50*	*0*	*0*	*70*	*0*	*0*	*200*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *30.0*	G = *50.0*	G =	G =	G = *30.0*	G = *30.0*	G =	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *177.8*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	700	1150	710	200	1190	520	710	660	190	410	540	570
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	761	1250	717	217	1293	511	772	717	130	446	587	402
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	761	1967		217	1804		772	717	130	446	587	402
Prop. LT or RT	0.000	--	0.365	0.000	--	0.283	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.945		--	0.958		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4750		3403	4811		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

DRAFT

CAPACITY AND LOS WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	761	1967		217	1804		772	717	130	446	587	402
Satflow rate	3403	4750		3403	4811		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.18	0.30		0.18	0.30		0.19	0.19	0.19	0.19	0.19	0.19
Lane group cap.	618	1419		618	1437		329	660	295	329	660	295
v/c ratio	1.23	1.39		0.35	1.26		2.35	1.09	0.44	1.36	0.89	1.36
Flow ratio	0.22	0.41		0.06	0.37		0.44	0.20	0.08	0.25	0.17	0.26
Crit. lane group	Y	Y		N	N		Y	N	N	N	N	Y
Sum flow ratios	1.33											
Lost time/cycle	25.60											
Critical v/c ratio	1.56											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	761	1967		217	1804		772	717	130	446	587	402
Lane group cap.	618	1419		618	1437		329	660	295	329	660	295
v/c ratio	1.23	1.39		0.35	1.26		2.35	1.09	0.44	1.36	0.89	1.36
Green ratio	0.18	0.30		0.18	0.30		0.19	0.19	0.19	0.19	0.19	0.19
Unif. delay d1	72.8	62.4		63.6	62.4		72.2	72.2	63.9	72.2	70.4	72.2
Delay factor k	0.50	0.50		0.11	0.50		0.50	0.50	0.11	0.50	0.41	0.50
Increm. delay d2	117.8	178.2		0.3	120.8		615.3	60.8	1.1	161.9	1.6	165.3
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	190.6	240.6		63.9	183.1		687.5	133.0	65.0	234.1	72.0	237.5
Lane group LOS	F	F		E	F		F	F	E	F	E	F
Apprch. delay	226.6			170.3			391.9			168.7		
Approach LOS	F			F			F			F		
Intersec. delay	235.7			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*761*	*1967*		*217*	*1804*		*772*	*717*	*130*	*446*	*587*	*402*
Satflow per lane	*1752*	*1743*		*1752*	*1766*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*618*	*1419*		*618*	*1437*		*329*	*660*	*295*	*329*	*660*	*295*
Flow ratio	*0.22*	*0.41*		*0.06*	*0.37*		*0.44*	*0.20*	*0.08*	*0.25*	0.17	*0.26*
v/c ratio	*1.23*	*1.39*		*0.35*	*1.26*		*2.35*	*1.09*	*0.44*	*1.36*	*0.89*	*1.36*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*19.3*	*35.7*		*4.8*	*32.7*		*38.1*	*18.6*	*5.7*	*22.0*	*14.8*	*19.9*
k_B	*0.5*	*0.7*		*0.5*	*0.7*		*0.5*	*0.5*	*0.5*	*0.0*	*0.0*	*0.0*
Q_2	*11.4*	*27.5*		*0.3*	*19.8*		*56.3*	*7.3*	*0.4*	*14.8*	*0.4*	*13.5*
Q avg.	*30.7*	*63.2*		*5.1*	*52.5*		*94.4*	*25.9*	*6.1*	*36.8*	*15.2*	*33.4*
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*1.6*	*1.5*		*2.0*	*1.5*		*1.5*	*1.6*	*1.9*	*1.6*	*1.8*	*1.6*
BOQ, Q%	*49.4*	*95.9*		*9.9*	*80.5*		*142*	*42.5*	*11.7*	*58.1*	*26.7*	*53.2*
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

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APPENDIX - B

DRAFT

HCS Worksheets for Arterial Segments

Existing Year 2004 Conditions

URBAN STREET WORKSHEET #1 DRAFT

General Information		Site Information	
Analyst	*Praba*	Urban Street	*US 19*
Agency/Co.	*H. W. Lochner, Inc.*	Direction of Travel	*North-bound*
Date Performed	*7/14/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM Peak*	Analysis Year	*2004*

Project Description: *US 19 Sub Corridor Report (SR 580 - SR 95)*

Input Parameters

Analysis Period(h) T = *0.25*	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	*190.0*	*190.0*						
Eff. green to cycle ratio, g/C	*0.689*	*0.549*						
v/c ratio for lane group, X	*0.900*	*1.202*						
Cap of lane group, c (veh/h)	*4598*	*2758*						
Pct Veh on Grn., PVG								
Arrival type, AT	*3*	*3*						
Unit Extension, UE (sec)	*0.0*	*0.0*						
Length of segment, L (mi)	*0.57*	*1.47*						
Initial Queue, Qb (veh)	*0*	*0*						
Urban street class, SC	*1*	*1*						
Free-flow speed, FSS (mi/h)	*50*	*50*						
Running Time, TR (s)	*44.0*	*105.8*						
Other delay, (s)	*0.0*	*0.0*						
Delay Computation								
Uniform delay, d1 (s)	*24.1*	*42.9*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Incremental delay adj, k	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Upstream filtering adj factor, I	*1.000*	*0.314*						
Incremental delay, d2 (s)	*3.3*	*92.1*	*0.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*
Initial queue delay, d3 (s)	*0*	*0*						
Progression adj factor, PF	*1.000*	*1.000*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*
Control delay, d (s)	*27.4*	*134.9*						
Segment LOS Determination								
Travel time, ST (s)	*71.4*	*240.8*						
Travel speed, SA (mi/h)	*28.7*	*22.0*						
Segment LOS	*C*	*D*						

Urban Street LOS Determination

Total travel time (s)	*312.2*
Total length (mi)	*2.04*
Total travel speed, SA (mi/h)	*23.5*
Total urban street LOS	*D*

URBAN STREET WORKSHEET #1 DRAFT

General Information		Site Information	
Analyst	*Praba*	Urban Street	*US 19*
Agency/Co.	*H. W. Lochner, Inc.*	Direction of Travel	*North-bound*
Date Performed	*7/14/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM Peak*	Analysis Year	*2004*

Project Description: *US 19 Sub Corridor Report (SR 580 - SR 95)*

Input Parameters

Analysis Period(h) T = *0.25*	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	*220.0*	*220.0*						
Eff. green to cycle ratio, g/C	*0.744*	*0.478*						
v/c ratio for lane group, X	*1.000*	*1.512*						
Cap of lane group, c (veh/h)	*4956*	*2401*						
Pct Veh on Grn., PVG								
Arrival type, AT	*3*	*3*						
Unit Extension, UE (sec)	*0.0*	*0.0*						
Length of segment, L (mi)	*0.57*	*1.47*						
Initial Queue, Qb (veh)	*0*	*0*						
Urban street class, SC	*1*	*1*						
Free-flow speed, FSS (mi/h)	*50*	*50*						
Running Time, TR (s)	*44.0*	*105.8*						
Other delay, (s)	*0.0*	*0.0*						
Delay Computation								
Uniform delay, d1 (s)	*28.1*	*57.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Incremental delay adj, k	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Upstream filtering adj factor, I	*1.000*	*0.091*						
Incremental delay, d2 (s)	*12.7*	*230.5*	*0.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*
Initial queue delay, d3 (s)	*0*	*0*						
Progression adj factor, PF	*1.000*	*1.000*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*
Control delay, d (s)	*40.8*	*288.0*						
Segment LOS Determination								
Travel time, ST (s)	*84.8*	*393.8*						
Travel speed, SA (mi/h)	*24.2*	*13.4*						
Segment LOS	*D*	*F*						

Urban Street LOS Determination

Total travel time (s)	*478.6*
Total length (mi)	*2.04*
Total travel speed, SA (mi/h)	*15.3*
Total urban street LOS	*F*

URBAN STREET WORKSHEET #1 DRAFT

General Information		Site Information	
Analyst	*Praba*	Urban Street	*US 19*
Agency/Co.	*H. W. Lochner, Inc.*	Direction of Travel	*South-bound*
Date Performed	*7/14/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM Peak*	Analysis Year	*2004*

Project Description: *US 19 Sub Corridor Report (SR 580 - SR 95)*

Input Parameters

Analysis Period(h) T = *0.25*	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	*190.0*	*190.0*						
Eff. green to cycle ratio, g/C	*0.549*	*0.646*						
v/c ratio for lane group, X	*1.577*	*1.126*						
Cap of lane group, c (veh/h)	*2758*	*4323*						
Pct Veh on Grn., PVG								
Arrival type, AT	*2*	*2*						
Unit Extension, UE (sec)	*0.0*	*0.0*						
Length of segment, L (mi)	*0.50*	*1.47*						
Initial Queue, Qb (veh)	*0*	*0*						
Urban street class, SC	*1*	*1*						
Free-flow speed, FSS (mi/h)	*50*	*50*						
Running Time, TR (s)	*39.0*	*105.8*						
Other delay, (s)	*0.0*	*0.0*						
Delay Computation								
Uniform delay, d1 (s)	*42.9*	*33.6*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Incremental delay adj, k	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Upstream filtering adj factor, I	*1.000*	*0.090*						
Incremental delay, d2 (s)	*261.2*	*57.1*	*0.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*
Initial queue delay, d3 (s)	*0*	*0*						
Progression adj factor, PF	*1.307*	*1.496*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*
Control delay, d (s)	*317.2*	*107.3*						
Segment LOS Determination								
Travel time, ST (s)	*356.2*	*213.2*						
Travel speed, SA (mi/h)	*5.1*	*24.8*						
Segment LOS	*F*	*D*						

Urban Street LOS Determination

Total travel time (s)	*569.4*
Total length (mi)	*1.97*
Total travel speed, SA (mi/h)	*12.5*
Total urban street LOS	*F*

URBAN STREET WORKSHEET #1 DRAFT

General Information		Site Information	
Analyst	*Praba*	Urban Street	*US 19*
Agency/Co.	*H. W. Lochner, Inc.*	Direction of Travel	*South-bound*
Date Performed	*7/14/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM Peak*	Analysis Year	*2004*

Project Description: *US 19 Sub Corridor Report (SR 580 - SR 95)*

Input Parameters

Analysis Period(h) T = *0.25*	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	*220.0*	*220.0*						
Eff. green to cycle ratio, g/C	*0.478*	*0.702*						
v/c ratio for lane group, X	*1.358*	*0.862*						
Cap of lane group, c (veh/h)	*2401*	*4689*						
Pct Veh on Grn., PVG								
Arrival type, AT	*2*	*3*						
Unit Extension, UE (sec)	*0.0*	*0.0*						
Length of segment, L (mi)	*0.50*	*1.47*						
Initial Queue, Qb (veh)	*0*	*0*						
Urban street class, SC	*1*	*1*						
Free-flow speed, FSS (mi/h)	*50*	*50*						
Running Time, TR (s)	*39.0*	*105.8*						
Other delay, (s)	*0.0*	*0.0*						
Delay Computation								
Uniform delay, d1 (s)	*57.4*	*24.8*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Incremental delay adj, k	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Upstream filtering adj factor, I	*1.000*	*0.090*						
Incremental delay, d2 (s)	*164.0*	*0.2*	*1.7*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*
Initial queue delay, d3 (s)	*0*	*0*						
Progression adj factor, PF	*1.213*	*1.000*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*
Control delay, d (s)	*233.7*	*25.0*						
Segment LOS Determination								
Travel time, ST (s)	*272.7*	*130.8*						
Travel speed, SA (mi/h)	*6.6*	*40.5*						
Segment LOS	*F*	*B*						

Urban Street LOS Determination

Total travel time (s)	*403.5*
Total length (mi)	*1.97*
Total travel speed, SA (mi/h)	*17.6*
Total urban street LOS	*E*

APPENDIX – C DRAFT

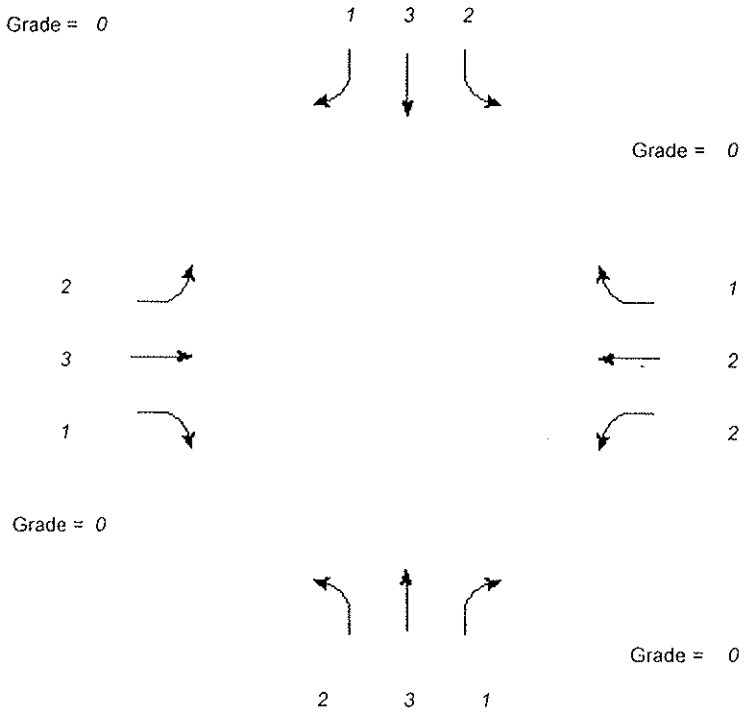
HCS Worksheets for Signalized Intersections

Design Year 2030 No-Build Conditions

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*Curlew Road & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*04/29/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM*	Analysis Year	*2030 No-Build*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*400*	*1180*	*610*	*410*	*1320*	*280*	*610*	*3530*	*340*	*280*	*4500*	*300*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*P*	*P*	*A*	*P*	*P*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*	*5.1*	*4.3*	*5.1*	*5.1*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*4*	*4*	*3*	*4*	*5*
Unit Extension	*3.0*	*4.0*	*4.0*	*3.0*	*4.0*	*4.0*	*3.0*	*4.0*	*4.0*	*3.0*	*4.0*	*4.0*
Ped/Bike/RTOR Volume	*0*	*0*	*79*	*0*	*0*	*59*	*0*	*0*	*43*	*0*	*0*	*30*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Thru & RT	Excl. Left	03	04	Thru & RT	NB Only	Excl. Left	08
Timing	G = *59.9*	G = *14.2*	G =	G =	G = *116.1*	G = *3.6*	G = *10.6*	G =
	Y = *7.1*	Y = *6.3*	Y =	Y =	Y = *7.4*	Y = *7.4*	Y = *7.4*	Y =
Duration of Analysis (hrs) = *0.25*					Cycle Length C = *240.0*			

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	400	1180	610	410	1320	280	610	3530	340	280	4500	300
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	435	1283	577	446	1435	240	663	3837	323	304	4891	293
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	435	1283	577	446	1435	240	663	3837	323	304	4891	293
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	3	1	2	3	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	0.908	1.000	0.971	0.908	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	5025	1568	3403	5025	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET

DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	435	1283	577	446	1435	240	663	3837	323	304	4891	293
Satflow rate	3403	5025	1568	3403	3512	1568	3403	5025	1568	3403	5025	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.07	0.26	0.26	0.07	0.26	0.26	0.10	0.54	0.54	0.06	0.50	0.50
Lane group cap.	234	1319	412	234	922	412	354	2732	853	199	2502	781
v/c ratio	1.86	0.97	1.40	1.91	1.56	0.58	1.87	1.40	0.38	1.53	1.95	0.38
Flow ratio	0.13	0.26	0.37	0.13	0.41	0.15	0.19	0.76	0.21	0.09	0.97	0.19
Crit. lane group	N	N	N	Y	Y	N	Y	N	N	N	Y	N
Sum flow ratios	1.71											
Lost time/cycle	16.00											
Critical v/c ratio	1.83											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	435	1283	577	446	1435	240	663	3837	323	304	4891	293
Lane group cap.	234	1319	412	234	922	412	354	2732	853	199	2502	781
v/c ratio	1.86	0.97	1.40	1.91	1.56	0.58	1.87	1.40	0.38	1.53	1.95	0.38
Green ratio	0.07	0.26	0.26	0.07	0.26	0.26	0.10	0.54	0.54	0.06	0.50	0.50
Unif. delay d1	111.8	87.6	88.5	111.8	88.5	77.1	107.5	54.8	31.5	113.0	60.3	37.2
Delay factor k	0.50	0.48	0.50	0.50	0.50	0.21	0.50	0.50	0.50	0.50	0.50	0.50
Increm. delay d2	402.5	18.6	194.4	423.3	255.7	2.5	393.8	182.2	0.1	239.8	429.8	0.1
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.815	0.693	1.000	1.000	0.339
Control delay	514.3	106.3	282.9	535.0	344.2	79.6	501.3	226.9	21.9	352.8	490.1	12.7
Lane group LOS	F	F	F	F	F	E	F	F	C	F	F	B
Apprch. delay	228.0			354.4			250.9			457.0		
Approach LOS	F			F			F			F		
Intersec. delay	339.0			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*435*	*1283*	*577*	*446*	*1435*	*240*	*663*	*3837*	*323*	*304*	*4891*	*293*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*234*	*1319*	*412*	*234*	*922*	*412*	*354*	*2732*	*853*	*199*	*2502*	*781*
Flow ratio	*0.13*	*0.25*	*0.37*	*0.13*	*0.41*	*0.15*	*0.19*	*0.76*	*0.21*	*0.09*	*0.97*	*0.19*
v/c ratio	*1.86*	*0.97*	*1.40*	*1.91*	*1.56*	*0.58*	*1.87*	*1.40*	*0.38*	*1.53*	*1.95*	*0.38*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*4*	*4*	*3*	*4*	*5*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.24*	*1.33*	*1.00*	*1.00*	*1.67*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*0.66*	*1.00*	*1.00*	*0.40*
Q_1	*14.9*	*31.0*	*38.5*	*15.3*	*50.2*	*13.9*	*22.7*	*93.9*	*8.2*	*10.4*	*119.7*	*4.8*
k_B	*0.3*	*0.8*	*0.7*	*0.3*	*0.8*	*0.7*	*0.0*	*0.2*	*0.2*	*0.0*	*0.2*	*0.2*
Q_2	*13.6*	*6.1*	*22.9*	*14.3*	*35.7*	*1.0*	*20.0*	*51.5*	*0.1*	*6.8*	*110.0*	*0.1*
Q avg.	*28.5*	*37.1*	*61.4*	*29.6*	*85.9*	*14.9*	*42.7*	*145.3*	*8.3*	*17.2*	*229.7*	*4.9*
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*1.6*	*1.6*	*1.5*	*1.6*	*1.5*	*1.8*	*1.6*	*1.6*	*1.8*	*1.7*	*1.6*	*2.0*
BOQ, Q%	*46.2*	*58.4*	*93.3*	*47.8*	*129*	*26.3*	*66.4*	*233*	*14.8*	*29.8*	*367*	*9.7*
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

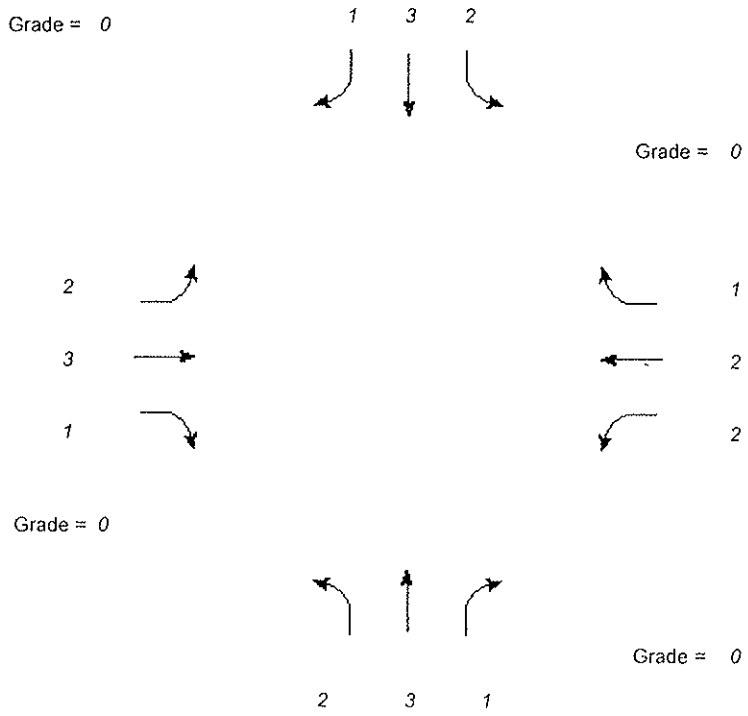
HCS2000™

Version 4.1e

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*Curlew Road & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/06/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM*	Analysis Year	*2030 No-Build*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*450*	*1200*	*940*	*510*	*800*	*350*	*940*	*3830*	*610*	*410*	*3500*	*200*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*P*	*P*	*A*	*P*	*P*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*	*5.1*	*4.3*	*5.1*	*5.1*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*2*	*5*	*5*	*2*	*4*	*5*
Unit Extension	*3.0*	*4.0*	*4.0*	*3.0*	*4.0*	*4.0*	*3.0*	*4.0*	*4.0*	*3.0*	*4.0*	*4.0*
Ped/Bike/RTOR Volume	*0*	*0*	*141*	*0*	*0*	*91*	*0*	*0*	*72*	*0*	*0*	*26*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	EB Only	Thru & RT	04	Excl. Left	NB Only	Thru & RT	08
Timing	G = *18.7*	G = *4.7*	G = *53.8*	G =	G = *15.6*	G = *9.6*	G = *95.7*	G =
	Y = *6.3*	Y = *6.3*	Y = *7.1*	Y =	Y = *7.4*	Y = *7.4*	Y = *7.4*	Y =
Duration of Analysis (hrs) = *0.25*					Cycle Length C = *240.0*			

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	450	1200	940	510	800	350	940	3830	610	410	3500	200
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	489	1304	868	554	870	282	1022	4163	585	446	3804	189
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	489	1304	868	554	870	282	1022	4163	585	446	3804	189
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	3	1	2	3	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	0.908	1.000	0.971	0.908	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	5025	1568	3403	5025	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	489	1304	868	554	870	282	1022	4163	585	446	3804	189
Satflow rate	3403	5025	1568	3403	3512	1568	3403	5025	1568	3403	5025	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.13	0.28	0.28	0.09	0.24	0.24	0.15	0.48	0.48	0.08	0.41	0.41
Lane group cap.	454	1422	444	298	833	372	510	2431	759	269	2075	647
v/c ratio	1.08	0.92	1.95	1.86	1.04	0.76	2.00	1.71	0.77	1.66	1.83	0.29
Flow ratio	0.14	0.26	0.55	0.16	0.25	0.18	0.30	0.83	0.37	0.13	0.76	0.12
Crit. lane group	N	N	Y	Y	N	N	Y	N	N	N	Y	N
Sum flow ratios	1.77											
Lost time/cycle	16.00											
Critical v/c ratio	1.90											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	489	1304	868	554	870	282	1022	4163	585	446	3804	189
Lane group cap.	454	1422	444	298	833	372	510	2431	759	269	2075	647
v/c ratio	1.08	0.92	1.95	1.86	1.04	0.76	2.00	1.71	0.77	1.66	1.83	0.29
Green ratio	0.13	0.28	0.28	0.09	0.24	0.24	0.15	0.48	0.48	0.08	0.41	0.41
Unif. delay d1	104.0	83.3	86.1	109.5	91.5	85.1	102.0	62.0	51.0	110.5	70.4	47.0
Delay factor k	0.50	0.44	0.50	0.50	0.50	0.33	0.50	0.50	0.50	0.50	0.50	0.50
Increm. delay d2	64.5	9.8	437.9	399.2	43.4	9.2	452.4	320.8	0.7	297.6	375.1	0.1
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.863	0.375	1.000	0.944	0.531
Control delay	168.5	93.1	523.9	508.7	134.9	94.4	554.4	374.2	19.9	408.1	441.6	25.1
Lane group LOS	F	F	F	F	F	F	F	F	B	F	F	C
Apprch. delay	247.5			249.6			370.2			420.5		
Approach LOS	F			F			F			F		
Intersec. delay	349.0			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*489*	*1304*	*868*	*554*	*870*	*282*	*1022*	*4163*	*585*	*446*	*3804*	*189*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*454*	*1422*	*444*	*298*	*833*	*372*	*510*	*2431*	*759*	*269*	*2075*	*647*
Flow ratio	*0.14*	*0.26*	*0.55*	*0.16*	*0.25*	*0.18*	*0.30*	*0.83*	*0.37*	*0.13*	*0.76*	*0.12*
v/c ratio	*1.08*	*0.92*	*1.95*	*1.86*	*1.04*	*0.76*	*2.00*	*1.71*	*0.77*	*1.66*	*1.83*	*0.29*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*2*	*5*	*5*	*2*	*4*	*5*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*0.67*	*1.15*	*1.67*	*0.67*	*1.25*	*1.67*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*0.62*	*1.00*	*1.00*	*0.58*
Q_1	*16.7*	*30.8*	*57.9*	*19.0*	*30.4*	*17.5*	*35.1*	*101.9*	*20.0*	*15.3*	*93.1*	*4.9*
k_B	*0.5*	*0.8*	*0.8*	*0.4*	*0.8*	*0.7*	*0.1*	*0.2*	*0.2*	*0.0*	*0.2*	*0.2*
Q_2	*5.3*	*4.9*	*54.5*	*17.3*	*7.9*	*1.8*	*33.1*	*80.0*	*0.6*	*11.5*	*79.7*	*0.1*
Q avg.	*22.0*	*35.7*	*112.4*	*36.3*	*38.3*	*19.3*	*68.2*	*181.8*	*20.5*	*26.7*	*172.8*	*5.0*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.7*	*1.6*	*1.5*	*1.6*	*1.6*	*1.7*	*1.5*	*1.6*	*1.6*	*1.6*	*1.6*	*2.0*
BOQ, Q%	*37.0*	*56.5*	*169*	*57.4*	*60.1*	*33.0*	*103*	*291*	*33.2*	*43.7*	*276*	*9.8*

Queue Storage Ratio

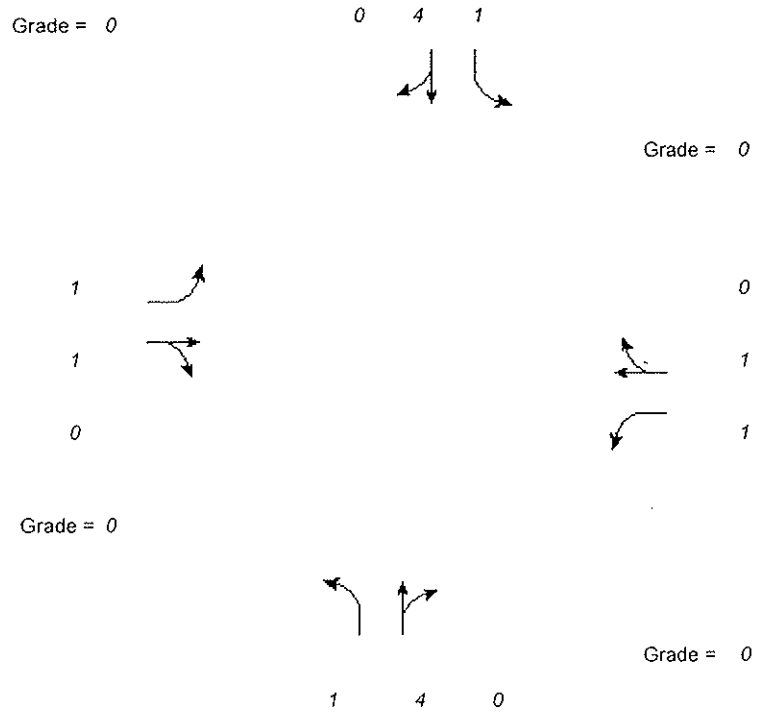
Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT

DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*Republic Dr. & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*04/29/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM*	Analysis Year	*2030 No-Build*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*60*	*100*	*160*	*180*	*80*	*70*	*120*	*4580*	*180*	*90*	*5510*	*60*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*P*	*P*	*A*	*P*	*P*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Ext. eff. green	*5.7*	*5.7*		*5.7*	*5.7*		*5.0*	*4.8*		*5.0*	*4.8*	
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*		*2*	*6*	
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*24*	*0*	*0*	*13*	*0*	*0*	*2*	*0*	*0*	*1*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	EW Perm	02	03	04	SB Only	Thru & RT	NB Only	08
Timing	G = *56.3*	G =	G =	G =	G = *10.0*	G = *133.2*	G = *12.0*	G =
	Y = *7.7*	Y =	Y =	Y =	Y = *7*	Y = *6.8*	Y = *7*	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *240.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	60	100	160	180	80	70	120	4580	180	90	5510	60
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	65	109	148	196	87	62	130	4978	193	98	5989	64
Lane Group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	65	257		196	149		130	5171		98	6053	
Prop. LT or RT	0.000	--	0.576	0.000	--	0.416	0.000	--	0.037	0.000	--	0.011

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900		1900	1900	
Num. of lanes	1	1	0	1	1	0	1	4	0	1	4	0
fW	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fHV	0.971	0.971		0.971	0.971		0.971	0.971		0.971	0.971	
fg	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fp	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fbb	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fa	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fLU	1.000	1.000		1.000	1.000		1.000	0.908		1.000	0.908	
fLT	0.527	1.000	--	0.340	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.914		--	0.938		--	0.994		--	0.998	
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000		--	1.000	
Adj. satflow	972	1685		628	1730		1752	6662		1752	6689	
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	65	257		196	149		130	5171		98	6053	
Satflow rate	972	1685		628	1730		1752	6662		1752	6689	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.25	0.25		0.25	0.25		0.06	0.65		0.05	0.64	
Lane group cap.	243	421		157	432		110	4297		95	4264	
v/c ratio	0.27	0.61		1.25	0.34		1.18	1.20		1.03	1.42	
Flow ratio	0.07	0.15		0.31	0.09		0.07	0.78		0.06	0.90	
Crit. lane group	N	N		Y	N		Y	N		N	Y	
Sum flow ratios	1.29											
Lost time/cycle	12.00											
Critical v/c ratio	1.36											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	65	257		196	149		130	5171		98	6053	
Lane group cap.	243	421		157	432		110	4297		95	4264	
v/c ratio	0.27	0.61		1.25	0.34		1.18	1.20		1.03	1.42	
Green ratio	0.25	0.25		0.25	0.25		0.06	0.65		0.05	0.64	
Unif. delay d1	72.3	79.7		90.0	73.9		112.5	42.6		113.5	43.5	
Delay factor k	0.11	0.20		0.50	0.11		0.50	0.50		0.50	0.50	
Increm. delay d2	0.6	2.6		153.7	0.5		142.8	93.9		36.1	188.9	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	0.912	
Control delay	72.9	82.2		243.7	74.4		255.3	136.5		149.6	228.6	
Lane group LOS	E	F		F	E		F	F		F	F	
Apprch. delay	80.4			170.6			139.5			227.4		
Approach LOS	F			F			F			F		
Intersec. delay	183.4			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*TR*		*L*	*TR*	
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Flow rate/lane	*65*	*257*		*196*	*149*		*130*	*5171*		*98*	*6053*	
Satflow per lane	*972*	*1685*		*628*	*1730*		*1752*	*1834*		*1752*	*1841*	
Capacity/lane	*243*	*421*		*157*	*432*		*110*	*4297*		*95*	*4264*	
Flow ratio	*0.07*	*0.15*		*0.31*	*0.09*		*0.07*	*0.78*		*0.06*	0.90	
v/c ratio	*0.27*	*0.61*		*1.25*	*0.34*		*1.18*	*1.20*		*1.03*	*1.42*	
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*0.090*	*0.090*	
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*		*2*	*6*	
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*		*0.67*	*1.05*	
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	
Q_1	*3.5*	*15.2*		*13.1*	*8.2*		*8.7*	*94.9*		*6.5*	*111.1*	
k_B	*0.5*	*0.7*		*0.4*	*0.8*		*0.3*	*2.6*		*0.0*	*0.2*	
Q_2	*0.2*	*1.1*		*6.4*	*0.4*		*3.9*	*41.1*		*0.8*	*62.3*	
Q avg.	*3.7*	*16.3*		*19.5*	*8.5*		*12.5*	*135.9*		*7.3*	*173.3*	

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*2.0*	*1.7*		*1.7*	*1.9*		*1.8*	*1.6*		*1.9*	*1.6*	
BOQ, Q%	*7.3*	*28.4*		*33.2*	*16.0*		*22.6*	*217*		*13.9*	*277*	

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	
Q storage	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT

DRAFT

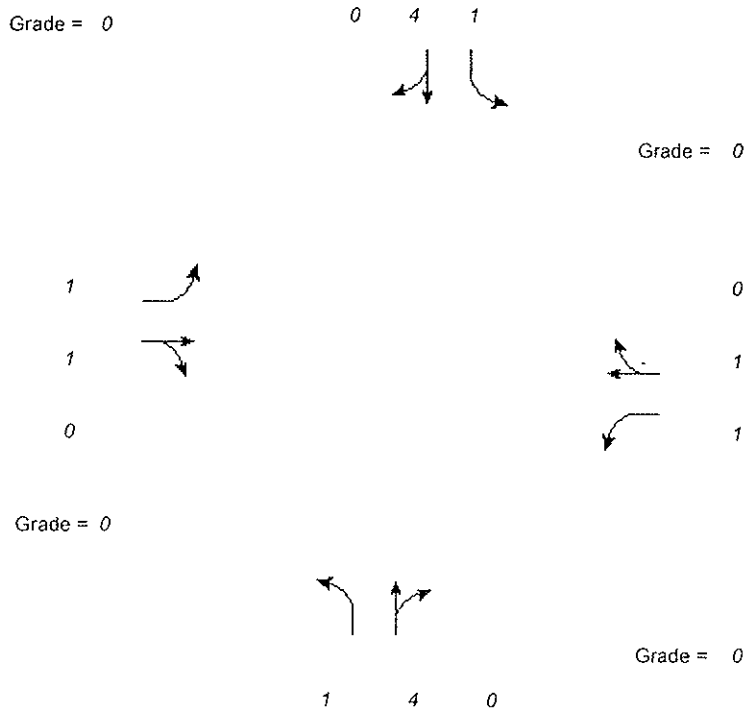
General Information

Analyst	*Praba*
Agency or Co.	*H. W. Lochner, Inc.*
Date Performed	*05/06/2005*
Time Period	*12:00 pm*

Site Information

Intersection	*Republic Dr. & US 19*
Area Type	*All other areas*
Jurisdiction	*Pinellas County*
Analysis Year	*2030 No-Build*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*100*	*40*	*150*	*240*	*30*	*90*	*160*	*5450*	*270*	*90*	*4530*	*90*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*P*	*P*	*A*	*P*	*P*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Ext. eff. green	*5.7*	*5.7*		*5.7*	*5.7*		*5.0*	*4.8*		*5.0*	*4.8*	
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*		*2*	*5*	
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*57*	*0*	*0*	*44*	*0*	*0*	*3*	*0*	*0*	*1*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	EW Perm	02	03	04	SB Only	Thru & RT	NB Only	08
Timing	G = *49.3*	G =	G =	G =	G = *10.0*	G = *137.2*	G = *15.0*	G =
	Y = *7.7*	Y =	Y =	Y =	Y = *7*	Y = *6.8*	Y = *7*	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *240.0*		

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	100	40	150	240	30	90	160	5450	270	90	4530	90
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	109	43	101	261	33	50	174	5924	290	98	4924	97
Lane Group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	109	144		261	83		174	6214		98	5021	
Prop. LT or RT	0.000	--	0.701	0.000	--	0.602	0.000	--	0.047	0.000	--	0.019

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900		1900	1900	
Num. of lanes	1	1	0	1	1	0	1	4	0	1	4	0
fW	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fHV	0.971	0.971		0.971	0.971		0.971	0.971		0.971	0.971	
fg	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fp	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fbb	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fa	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
fLU	1.000	1.000		1.000	1.000		1.000	0.908		1.000	0.908	
fLT	0.636	1.000	--	0.511	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.895		--	0.910		--	0.993		--	0.997	
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000		--	1.000	
Adj. satflow	1174	1651		943	1678		1752	6653		1752	6680	
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	109	144		261	83		174	6214		98	5021	
Satflow rate	1174	1651		943	1678		1752	6653		1752	6680	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.22	0.22		0.22	0.22		0.08	0.67		0.05	0.65	
Lane group cap.	259	365		208	371		131	4485		95	4370	
v/c ratio	0.42	0.39		1.25	0.22		1.33	1.39		1.03	1.15	
Flow ratio	0.09	0.09		0.28	0.05		0.10	0.93		0.06	0.75	
Crit. lane group	N	N		Y	N		N	Y		Y	N	
Sum flow ratios	1.27											
Lost time/cycle	12.20											
Critical v/c ratio	1.33											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	109	144		261	83		174	6214		98	5021	
Lane group cap.	259	365		208	371		131	4485		95	4370	
v/c ratio	0.42	0.39		1.25	0.22		1.33	1.39		1.03	1.15	
Green ratio	0.22	0.22		0.22	0.22		0.08	0.67		0.05	0.65	
Unif. delay d1	80.3	79.8		93.5	76.6		111.0	39.1		113.5	41.5	
Delay factor k	0.11	0.11		0.50	0.11		0.50	0.50		0.50	0.50	
Increm. delay d2	1.1	0.7		147.7	0.3		190.8	174.9		36.1	67.3	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	0.500	
Control delay	81.4	80.5		241.2	76.9		301.8	214.0		149.6	88.1	
Lane group LOS	F	F		F	E		F	F		F	F	
Apprch. delay	80.9			201.6			216.4			89.3		
Approach LOS	F			F			F			F		
Intersec. delay	159.4			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

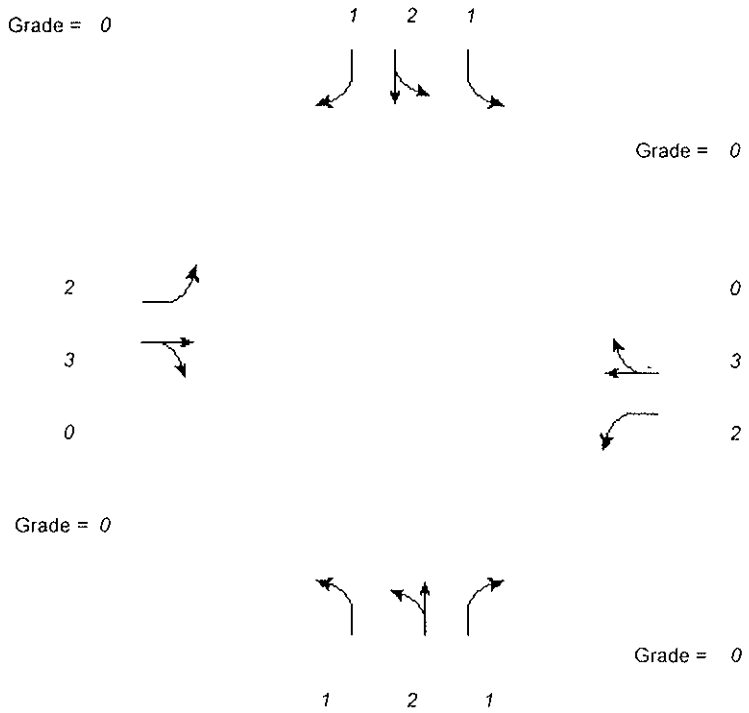
Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*TR*		*L*	*TR*	
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Flow rate/lane	*109*	*144*		*261*	*83*		*174*	*6214*		*98*	*5021*	
Satflow per lane	*1174*	*1651*		*943*	*1678*		*1752*	*1831*		*1752*	*1839*	
Capacity/lane	*259*	*365*		*208*	*371*		*131*	*4485*		*95*	*4370*	
Flow ratio	*0.09*	*0.09*		*0.28*	*0.05*		*0.10*	*0.93*		*0.06*	*0.75*	
v/c ratio	*0.42*	*0.39*		*1.25*	*0.22*		*1.33*	*1.39*		*1.03*	*1.15*	
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*0.090*	*0.090*	
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*		*2*	*5*	
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*		*0.67*	*1.26*	
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	
Q_1	*6.2*	*8.2*		*17.4*	*4.5*		*11.6*	*114.0*		*6.5*	*92.1*	
k_B	*0.6*	*0.7*		*0.5*	*0.7*		*0.4*	*2.6*		*0.0*	*0.2*	
Q_2	*0.4*	*0.4*		*8.5*	*0.2*		*6.6*	*67.8*		*0.8*	*24.0*	
Q avg.	*6.6*	*8.6*		*25.9*	*4.7*		*18.2*	*181.8*		*7.3*	*116.2*	
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*1.9*	*1.9*		*1.6*	*2.0*		*1.7*	*1.6*		*1.9*	*1.6*	
BOQ, $Q_{\%}$	*12.7*	*16.1*		*42.5*	*9.3*		*31.3*	*291*		*13.9*	*186*	
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	
Q storage	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*SR 580 & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/05/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM*	Analysis Year	*2030 No-Build*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*560*	*680*	*1440*	*480*	*800*	*190*	*1320*	*600*	*380*	*180*	*720*	*630*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*		*4.3*	*5.1*		*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*50*	*0*	*0*	*50*	*0*	*0*	*100*	*0*	*0*	*300*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *20.0*	G = *57.2*	G =	G =	G = *25.0*	G = *60.0*	G =	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *200.0*		

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	560	680	1440	480	800	190	1320	600	380	180	720	630
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	609	739	1511	522	870	152	1435	652	304	196	783	359
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	609	2250		522	1022		1435	652	304	196	783	359
Prop. LT or RT	0.000	--	0.672	0.000	--	0.149	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.899		--	0.978		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4519		3403	4913		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	609	2250		522	1022		1435	652	304	196	783	359
Satflow rate	3403	4519		3403	4913		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.11	0.30		0.11	0.30		0.32	0.32	0.32	0.14	0.14	0.14
Lane group cap.	379	1362		379	1481		555	1113	497	249	499	223
v/c ratio	1.61	1.65		1.38	0.69		2.59	0.59	0.61	0.79	1.57	1.61
Flow ratio	0.18	0.50		0.15	0.21		0.82	0.19	0.19	0.11	0.22	0.23
Crit. lane group	Y	Y		N	N		Y	N	N	N	N	Y
Sum flow ratios	1.72											
Lost time/cycle	25.60											
Critical v/c ratio	1.98											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	609	2250		522	1022		1435	652	304	196	783	359
Lane group cap.	379	1362		379	1481		555	1113	497	249	499	223
v/c ratio	1.61	1.65		1.38	0.69		2.59	0.59	0.61	0.79	1.57	1.61
Green ratio	0.11	0.30		0.11	0.30		0.32	0.32	0.32	0.14	0.14	0.14
Unif. delay d1	88.8	69.8		88.8	61.6		68.3	57.3	57.9	82.9	85.8	85.8
Delay factor k	0.50	0.50		0.50	0.26		0.50	0.18	0.20	0.33	0.50	0.50
Increm. delay d2	285.1	296.7		185.6	1.4		718.8	0.8	2.2	1.6	257.0	276.3
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	374.0	366.6		274.5	63.0		787.1	58.1	60.1	84.5	342.8	362.1
Lane group LOS	F	F		F	E		F	E	E	F	F	F
Apprch. delay	368.1			134.5			495.9			310.1		
Approach LOS	F			F			F			F		
Intersec. delay	351.8			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*609*	*2250*		*522*	*1022*		*1435*	*652*	*304*	*196*	*783*	*359*
Satflow per lane	*1752*	*1658*		*1752*	*1803*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*379*	*1362*		*379*	*1481*		*555*	*1113*	*497*	*249*	*499*	*223*
Flow ratio	*0.18*	*0.50*		*0.15*	*0.21*		*0.82*	*0.19*	*0.19*	*0.11*	*0.22*	*0.23*
v/c ratio	*1.61*	*1.65*		*1.38*	*0.69*		*2.59*	*0.59*	*0.61*	*0.79*	*1.57*	*1.61*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*17.4*	*45.8*		*14.9*	*18.4*		*79.7*	*15.9*	*14.3*	*10.5*	*22.8*	*19.9*
k_B	*0.4*	*0.7*		*0.4*	*0.8*		*0.8*	*0.8*	*0.7*	*0.0*	*0.0*	*0.0*
Q_2	*15.8*	*42.4*		*10.5*	*1.6*		*111.3*	*1.1*	*1.1*	*0.2*	*18.7*	*17.1*
Q avg.	*33.2*	*88.2*		*25.4*	*20.0*		*191.0*	*17.0*	*15.4*	*10.7*	*41.6*	*37.1*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.6*	*1.5*		*1.6*	*1.7*		*1.5*	*1.7*	*1.8*	*1.8*	*1.6*	*1.6*
BOQ, Q%	*52.9*	*133*		*41.7*	*33.9*		*286*	*29.5*	*27.0*	*19.6*	*64.8*	*58.4*

Queue Storage Ratio

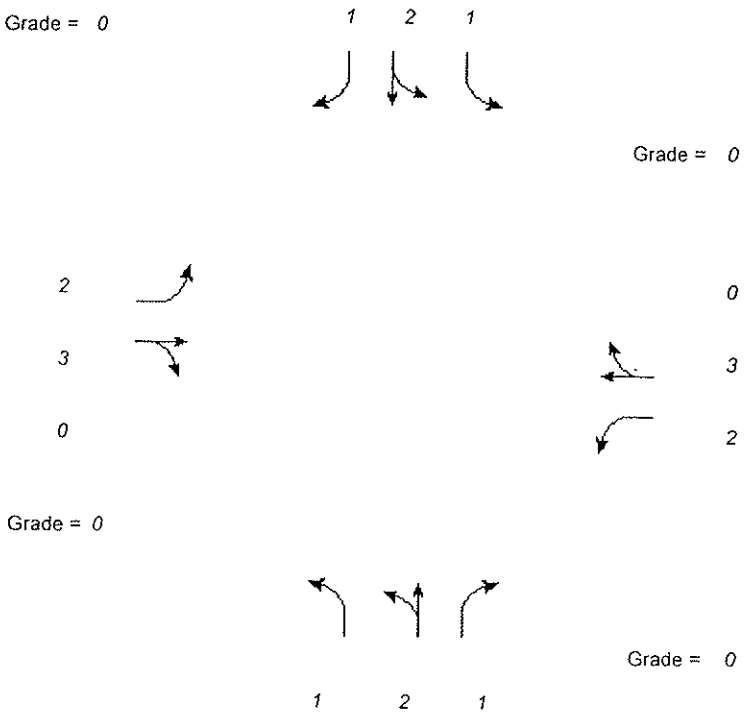
Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT

DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*SR 580 & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/05/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM*	Analysis Year	*2030 No-Build*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	480	880	1630	320	910	220	1620	840	310	170	690	390
% Heavy veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	4.3	5.1		4.3	5.1		5.4	5.4	5.4	5.4	5.4	5.4
Arrival type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	50	0	0	100	0	0	100
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0	0	0	0	0
Ped timing	3.2			3.2			3.2			3.2		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = 15.0	G = 64.2	G =	G =	G = 20.0	G = 63.0	G =	G =
	Y = 9.5	Y = 9.3	Y =	Y =	Y = 9.5	Y = 9.5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 200.0		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	480	880	1630	320	910	220	1620	840	310	170	690	390
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	522	957	1717	348	989	185	1761	913	228	185	750	315
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	522	2674		348	1174		1761	913	228	185	750	315
Prop. LT or RT	0.000	--	0.642	0.000	--	0.158	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.904		--	0.976		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4541		3403	4906		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET

DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	522	2674		348	1174		1761	913	228	185	750	315
Satflow rate	3403	4541		3403	4906		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.09	0.34		0.09	0.34		0.33	0.33	0.33	0.12	0.12	0.12
Lane group cap.	294	1528		294	1651		582	1166	521	205	411	183
v/c ratio	1.78	1.75		1.18	0.71		3.03	0.78	0.44	0.90	1.82	1.72
Flow ratio	0.15	0.59		0.10	0.24		1.01	0.26	0.15	0.11	0.21	0.20
Crit. lane group	Y	Y		N	N		Y	N	N	N	Y	N
Sum flow ratios	1.96											
Lost time/cycle	25.60											
Critical v/c ratio	2.25											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	522	2674		348	1174		1761	913	228	185	750	315
Lane group cap.	294	1528		294	1651		582	1166	521	205	411	183
v/c ratio	1.78	1.75		1.18	0.71		3.03	0.78	0.44	0.90	1.82	1.72
Green ratio	0.09	0.34		0.09	0.34		0.33	0.33	0.33	0.12	0.12	0.12
Unif. delay d1	91.3	66.3		91.3	57.9		66.8	60.3	52.2	87.2	88.3	88.3
Delay factor k	0.50	0.50		0.50	0.27		0.50	0.33	0.11	0.42	0.50	0.50
Increm. delay d2	362.5	340.2		111.8	1.5		916.2	3.6	0.6	5.5	372.0	326.7
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	453.8	406.6		203.2	59.3		983.0	63.9	52.8	92.7	460.3	415.0
Lane group LOS	F	F		F	E		F	E	D	F	F	F
Apprch. delay	414.3			92.2			620.7			394.5		
Approach LOS	F			F			F			F		
Intersec. delay	423.8			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*522*	*2674*		*348*	*1174*		*1761*	*913*	*228*	*185*	*750*	*315*
Satflow per lane	*1752*	*1667*		*1752*	*1801*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*294*	*1528*		*294*	*1651*		*582*	*1166*	*521*	*205*	*411*	*183*
Flow ratio	*0.15*	*0.59*		*0.10*	*0.24*		*1.01*	*0.26*	*0.15*	*0.11*	*0.21*	*0.20*
v/c ratio	*1.78*	*1.75*		*1.18*	*0.71*		*3.03*	*0.78*	*0.44*	*0.90*	*1.82*	*1.72*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*14.9*	*54.5*		*9.9*	*20.8*		*97.8*	*24.0*	*9.9*	*10.1*	*21.8*	*17.5*
k_B	*0.4*	*0.8*		*0.4*	*0.8*		*0.8*	*0.8*	*0.8*	*0.0*	*0.0*	*0.0*
Q_2	*15.4*	*54.4*		*5.1*	*1.9*		*148.6*	*2.6*	*0.6*	*0.3*	*22.3*	*16.6*
Q avg.	*30.3*	*108.9*		*15.0*	*22.7*		*246.4*	*26.6*	*10.5*	*10.5*	*44.2*	*34.1*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.6*	*1.5*		*1.8*	*1.7*		*1.5*	*1.6*	*1.8*	*1.8*	*1.6*	*1.6*
BOQ, Q%	*48.8*	*164*		*26.5*	*37.9*		*370*	*43.5*	*19.2*	*19.2*	*68.5*	*54.2*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

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APPENDIX – D

DRAFT

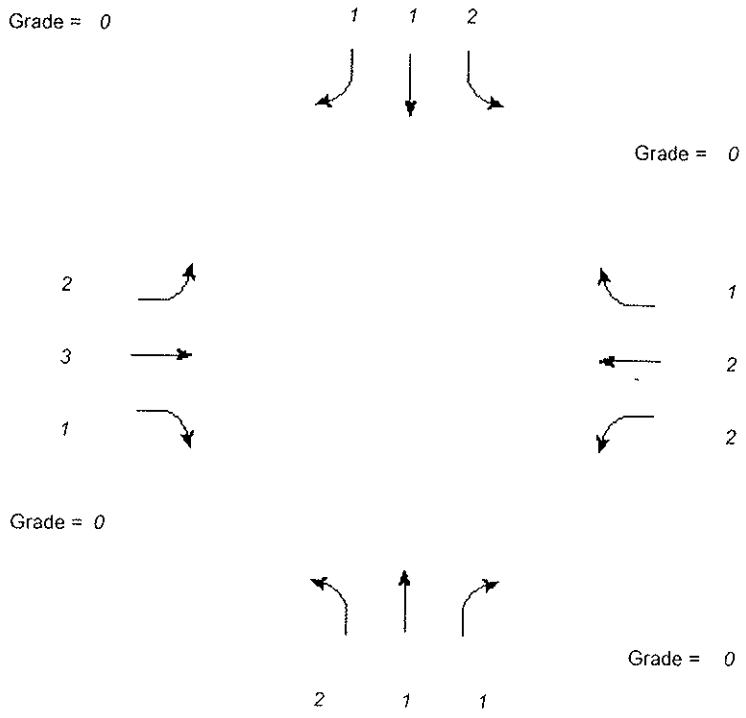
HCS Worksheets for Signalized Intersections

Design Year 2030 Build Alternatives

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*Curlew Road & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/09/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM*	Analysis Year	*2030 Build Scenario 1*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*260*	*700*	*1380*	*1850*	*840*	*280*	*1240*	*100*	*1390*	*260*	*110*	*300*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*7.5*	*7.3*	*7.3*	*7.5*	*7.3*	*7.3*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*		*363*	*0*		*104*	*0*		*369*	*0*		*173*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	WB Only	Thru & RT	04	NB Only	SB Only	07	08
Timing	G = *19.0*	G = *32.5*	G = *48.2*	G =	G = *62.0*	G = *6.0*	G =	G =
	Y = *9.5*	Y = *9.5*	Y = *9.3*	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *215.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	260	700	1380	1850	840	280	1240	100	1390	260	110	300
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	283	761	1105	2011	913	191	1348	109	1110	283	120	138
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	283	761	1105	2011	913	191	1348	109	1110	283	120	138
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	1	1	2	1	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET

DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	283	761	1105	2011	913	191	1348	109	1110	283	120	138
Satflow rate	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.11	0.25	0.25	0.31	0.44	0.44	0.31	0.31	0.31	0.05	0.05	0.05
Lane group cap.	388	1250	390	1053	1560	696	1068	579	492	182	99	84
v/c ratio	0.73	0.61	2.83	1.91	0.59	0.27	1.26	0.19	2.26	1.55	1.21	1.64
Flow ratio	0.08	0.15	0.70	0.59	0.26	0.12	0.40	0.06	0.71	0.08	0.07	0.09
Crit. lane group	N	N	Y	Y	N	N	N	N	Y	N	N	Y
Sum flow ratios	2.09											
Lost time/cycle	16.00											
Critical v/c ratio	2.26											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	283	761	1105	2011	913	191	1348	109	1110	283	120	138
Lane group cap.	388	1250	390	1053	1560	696	1068	579	492	182	99	84
v/c ratio	0.73	0.61	2.83	1.91	0.59	0.27	1.26	0.19	2.26	1.55	1.21	1.64
Green ratio	0.11	0.25	0.25	0.31	0.44	0.44	0.31	0.31	0.31	0.05	0.05	0.05
Unif. delay d1	92.0	71.5	80.8	74.3	44.9	37.8	73.8	53.8	73.8	101.8	101.8	101.8
Delay factor k	0.29	0.19	0.50	0.50	0.18	0.11	0.50	0.11	0.50	0.50	0.50	0.50
Increm. delay d2	6.8	0.9	832.1	413.0	0.6	0.2	118.7	0.0	565.8	252.2	104.0	294.1
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	98.9	72.4	912.8	487.2	45.4	38.0	192.5	53.8	639.6	353.9	205.8	395.9
Lane group LOS	F	E	F	F	D	D	F	D	F	F	F	F
Apprch. delay	508.0			330.2			379.9			331.8		
Approach LOS	F			F			F			F		
Intersec. delay	391.2			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*283*	*761*	*1105*	*2011*	*913*	*191*	*1348*	*109*	*1110*	*283*	*120*	*138*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1845*	*1568*	*1752*	*1845*	*1568*
Capacity/lane	*388*	*1250*	*390*	*1053*	*1560*	*696*	*1068*	*579*	*492*	*182*	*99*	*84*
Flow ratio	*0.08*	*0.15*	*0.70*	*0.59*	*0.26*	*0.12*	*0.40*	*0.06*	*0.71*	*0.08*	0.07	*0.09*
v/c ratio	*0.73*	*0.61*	*2.83*	*1.91*	*0.59*	*0.27*	*1.26*	*0.19*	*2.26*	*1.55*	*1.21*	*1.64*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*8.4*	*14.8*	*66.0*	*61.8*	*21.5*	*7.2*	*41.4*	*4.7*	*66.3*	*8.7*	*7.2*	*8.2*
k_B	*0.4*	*0.7*	*0.7*	*0.8*	*1.0*	*0.9*	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*
Q_2	*1.0*	*1.1*	*90.4*	*63.3*	*1.4*	*0.4*	*18.5*	*0.0*	*77.4*	*6.6*	*2.8*	*6.8*
Q avg.	*9.4*	*15.8*	*156.4*	*125.1*	*22.9*	*7.6*	*59.9*	*4.8*	*143.7*	*15.2*	*9.9*	*15.1*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.9*	*1.7*	*1.5*	*1.5*	*1.7*	*1.9*	*1.5*	*2.0*	*1.5*	*1.8*	*1.8*	*1.8*
BOQ, $Q_{\%}$	*17.4*	*27.7*	*235*	*188*	*38.2*	*14.3*	*91.2*	*9.3*	*216*	*26.8*	*18.3*	*26.5*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™

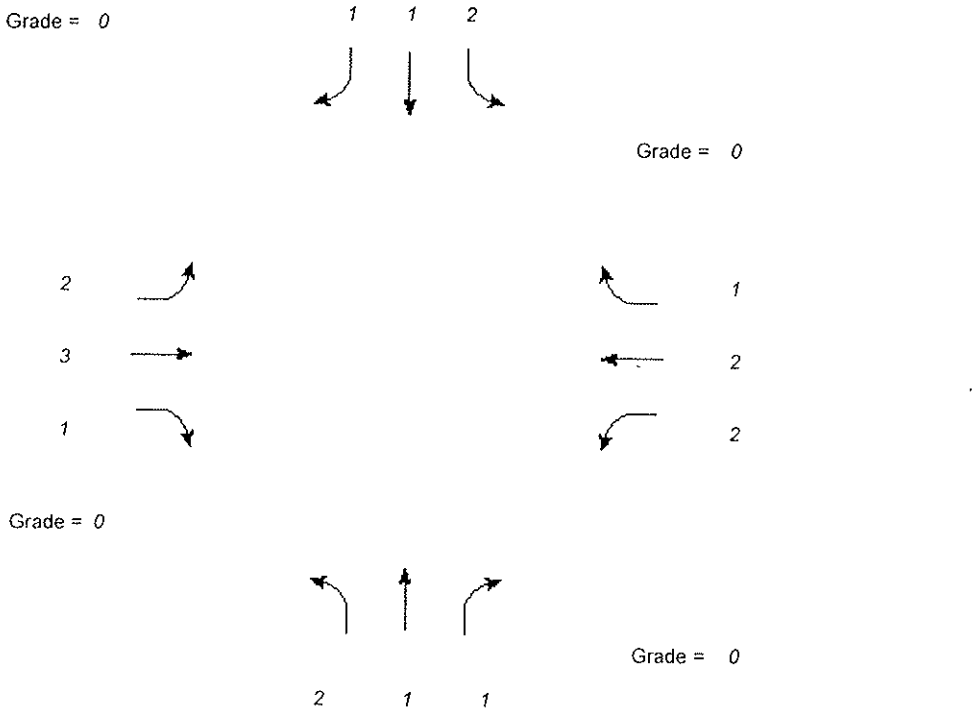
Version 4.1c

FULL REPORT

DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*Curlew Road & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/09/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM*	Analysis Year	*2030 Build Scenario 1*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*170*	*900*	*1750*	*1420*	*750*	*310*	*1580*	*150*	*1540*	*290*	*130*	*130*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*7.5*	*7.3*	*7.3*	*7.5*	*7.3*	*7.3*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*4.0*	*4.0*	*3.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*
Ped/Bike/RTOR Volume	*0*		*451*	*0*		*155*	*0*		*235*	*0*		*0*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	WB Only	Thru & RT	04	NB Only	SB Only	07	08
Timing	G = *9.8*	G = *17.2*	G = *47.7*	G =	G = *70.5*	G = *7.5*	G =	G =
	Y = *9.5*	Y = *9.5*	Y = *9.3*	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *200.0*		

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VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	170	900	1750	1420	750	310	1580	150	1540	290	130	130
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	185	978	1412	1543	815	168	1717	163	1418	315	141	141
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	185	978	1412	1543	815	168	1717	163	1418	315	141	141
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	—	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	1	1	2	1	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	185	978	1412	1543	815	168	1717	163	1418	315	141	141
Satflow rate	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.08	0.26	0.26	0.21	0.40	0.40	0.38	0.38	0.38	0.06	0.06	0.06
Lane group cap.	260	1332	416	715	1400	625	1293	701	596	221	120	102
v/c ratio	0.71	0.73	3.39	2.16	0.58	0.27	1.33	0.23	2.38	1.43	1.17	1.38
Flow ratio	0.05	0.19	0.90	0.45	0.23	0.11	0.50	0.09	0.90	0.09	0.08	0.09
Crit. lane group	N	N	Y	Y	N	N	N	N	Y	Y	N	N
Sum flow ratios	2.35											
Lost time/cycle	16.00											
Critical v/c ratio	2.56											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	185	978	1412	1543	815	168	1717	163	1418	315	141	141
Lane group cap.	260	1332	416	715	1400	625	1293	701	596	221	120	102
v/c ratio	0.71	0.73	3.39	2.16	0.58	0.27	1.33	0.23	2.38	1.43	1.17	1.38
Green ratio	0.08	0.26	0.26	0.21	0.40	0.40	0.38	0.38	0.38	0.06	0.06	0.06
Unif. delay d1	90.2	67.1	73.5	79.0	47.1	40.5	62.0	42.2	62.0	93.5	93.5	93.5
Delay factor k	0.27	0.31	0.50	0.50	0.21	0.15	0.50	0.15	0.50	0.50	0.50	0.50
Increm. delay d2	8.8	2.3	1084	525.8	0.7	0.3	153.0	0.2	625.8	215.6	136.7	221.6
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	99.0	69.4	1157	604.8	47.8	40.8	215.0	42.4	687.8	309.1	230.2	315.1
Lane group LOS	F	E	F	F	D	D	F	D	F	F	F	F
Apprch. delay	667.9			387.6			409.8			291.9		
Approach LOS	F			F			F			F		
Intersec. delay	469.6			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET

DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*185*	*978*	*1412*	*1543*	*815*	*168*	*1717*	*163*	*1418*	*315*	*141*	*141*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1845*	*1568*	*1752*	*1845*	*1568*
Capacity/lane	*260*	*1332*	*416*	*715*	*1400*	*625*	*1293*	*701*	*596*	*221*	*120*	*102*
Flow ratio	*0.05*	*0.19*	*0.90*	*0.45*	*0.23*	*0.11*	*0.50*	*0.09*	*0.90*	*0.09*	0.08	*0.09*
v/c ratio	*0.71*	*0.73*	*3.39*	*2.16*	*0.58*	*0.27*	*1.33*	*0.23*	*2.38*	*1.43*	*1.17*	*1.38*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*5.2*	*18.2*	*78.4*	*44.1*	*18.6*	*6.3*	*49.1*	*6.2*	*78.8*	*9.0*	*7.8*	*7.8*
k_B	*0.3*	*0.7*	*0.7*	*0.6*	*0.9*	*0.8*	*0.9*	*0.9*	*0.8*	*0.3*	*0.3*	*0.3*
Q_2	*0.7*	*1.8*	*125.4*	*54.4*	*1.3*	*0.3*	*30.5*	*0.3*	*104.1*	*7.0*	*4.0*	*5.7*
Q avg.	*5.9*	*20.0*	*203.9*	*98.5*	*19.9*	*6.6*	*79.6*	*6.4*	*182.9*	*16.0*	*11.8*	*13.6*
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*1.9*	*1.7*	*1.5*	*1.5*	*1.7*	*1.9*	*1.5*	*1.9*	*1.5*	*1.7*	*1.8*	*1.8*
BOQ, Q%	*11.4*	*34.0*	*306*	*148*	*33.8*	*12.6*	*120*	*12.3*	*274*	*27.9*	*21.4*	*24.2*
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

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FULL REPORT DRAFT

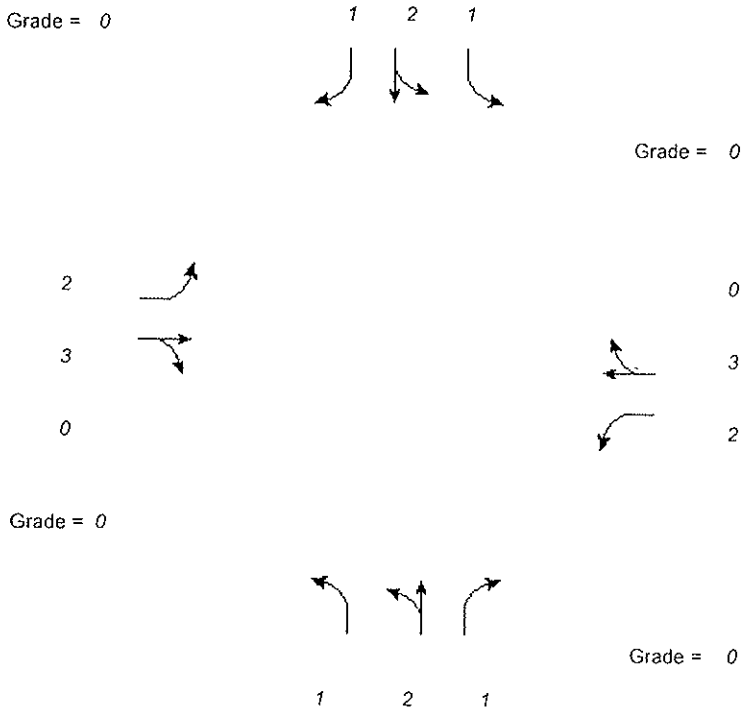
General Information

Analyst	*Praba*
Agency or Co.	*H. W. Lochner, Inc.*
Date Performed	*05/09/2005*
Time Period	*AM*

Site Information

Intersection	*SR 580 & US 19*
Area Type	*All other areas*
Jurisdiction	*Pinellas County*
Analysis Year	*2030 Build Scenario 1*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	970	580	1060	490	680	440	970	1190	380	380	1310	980
% Heavy veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	4.3	5.1		4.3	5.1		5.4	5.4	5.4	5.4	5.4	5.4
Arrival type	3	3		3	3		3	3	3	3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	50	0	0	50	0	0	125	0	0	325
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0	0	0	0	0
Ped timing	3.2			3.2			3.2			3.2		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = 28.0	G = 40.2	G =	G =	G = 48.0	G = 56.0	G =	G =
	Y = 9.5	Y = 9.3	Y =	Y =	Y = 9.5	Y = 9.5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 210.0		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	970	580	1060	490	680	440	970	1190	380	380	1310	980
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	1054	630	1098	533	739	424	1054	1293	277	413	1424	712
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1054	1728		533	1163		1054	1293	277	413	1424	712
Prop. LT or RT	0.000	--	0.635	0.000	--	0.365	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.905		--	0.945		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4546		3403	4750		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1054	1728		533	1163		1054	1293	277	413	1424	712
Satflow rate	3403	4546		3403	4750		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.14	0.21		0.14	0.21		0.28	0.28	0.28	0.24	0.24	0.24
Lane group cap.	491	937		491	979		496	993	444	429	860	384
v/c ratio	2.15	1.84		1.09	1.19		2.13	1.30	0.62	0.96	1.66	1.85
Flow ratio	0.31	0.38		0.16	0.24		0.60	0.37	0.18	0.24	0.41	0.45
Crit. lane group	Y	Y		N	N		Y	N	N	N	N	Y
Sum flow ratios	1.75											
Lost time/cycle	25.60											
Critical v/c ratio	1.99											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1054	1728		533	1163		1054	1293	277	413	1424	712
Lane group cap.	491	937		491	979		496	993	444	429	860	384
v/c ratio	2.15	1.84		1.09	1.19		2.13	1.30	0.62	0.96	1.66	1.85
Green ratio	0.14	0.21		0.14	0.21		0.28	0.28	0.28	0.24	0.24	0.24
Unif. delay d1	89.8	83.3		89.8	83.3		75.3	75.3	65.6	78.4	79.3	79.3
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50	0.21	0.47	0.50	0.50
Increm. delay d2	522.8	384.0		65.7	94.9		513.0	143.4	2.7	6.6	295.6	385.3
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	612.6	467.4		155.6	178.3		588.3	218.7	68.3	84.9	374.9	464.6
Lane group LOS	F	F		F	F		F	F	E	F	F	F
Apprch. delay	522.4			171.1			351.3			353.0		
Approach LOS	F			F			F			F		
Intersec. delay	369.4			Intersection LOS						F		

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BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*1054*	*1728*		*533*	*1163*		*1054*	*1293*	*277*	*413*	*1424*	*712*
Satflow per lane	*1752*	*1668*		*1752*	*1743*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*491*	*937*		*491*	*979*		*496*	*993*	*444*	*429*	*860*	*384*
Flow ratio	*0.31*	*0.38*		*0.16*	*0.24*		*0.60*	*0.37*	*0.18*	*0.24*	*0.41*	*0.45*
v/c ratio	*2.15*	*1.84*		*1.09*	*1.19*		*2.13*	*1.30*	*0.62*	*0.96*	*1.66*	*1.85*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*31.6*	*37.0*		*16.0*	*24.9*		*61.5*	*39.6*	*14.1*	*23.8*	*43.6*	*41.5*
k_B	*0.5*	*0.6*		*0.5*	*0.6*		*0.8*	*0.8*	*0.7*	*0.1*	*0.1*	*0.1*
Q_2	*37.2*	*37.6*		*5.7*	*11.3*		*71.1*	*22.7*	*1.1*	*1.1*	*37.2*	*41.1*
Q avg.	*68.8*	*74.6*		*21.7*	*36.2*		*132.6*	*62.3*	*15.2*	*24.9*	*80.7*	*82.7*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.5*	*1.5*		*1.7*	*1.6*		*1.5*	*1.5*	*1.8*	*1.7*	*1.5*	*1.5*
BOQ, Q%	*104*	*113*		*36.5*	*57.1*		*199*	*94.6*	*26.7*	*41.0*	*122*	*124*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

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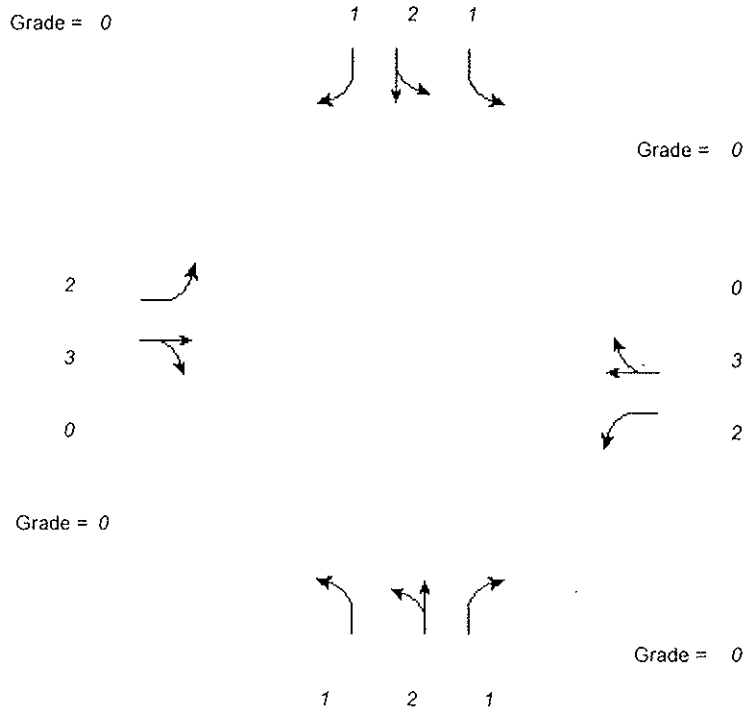
Version 4.1e

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*SR 580 & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/09/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM*	Analysis Year	*2030 Build Scenario 1*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*880*	*770*	*1250*	*280*	*800*	*500*	*1240*	*1560*	*270*	*350*	*1140*	*650*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*		*4.3*	*5.1*		*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*50*	*0*	*0*	*50*	*0*	*0*	*75*	*0*	*0*	*150*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *22.0*	G = *50.2*	G =	G =	G = *37.0*	G = *63.0*	G =	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *210.0*		

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	880	770	1250	280	800	500	1240	1560	270	350	1140	650
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	957	837	1304	304	870	489	1348	1696	212	380	1239	543
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	957	2141		304	1359		1348	1696	212	380	1239	543
Prop. LT or RT	0.000	--	0.609	0.000	--	0.360	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.909		--	0.946		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4566		3403	4754		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	957	2141		304	1359		1348	1696	212	380	1239	543
Satflow rate	3403	4566		3403	4754		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.12	0.25		0.12	0.25		0.32	0.32	0.32	0.19	0.19	0.19
Lane group cap.	394	1159		394	1207		554	1110	496	337	676	302
v/c ratio	2.43	1.85		0.77	1.13		2.43	1.53	0.43	1.13	1.83	1.80
Flow ratio	0.28	0.47		0.09	0.29		0.77	0.48	0.14	0.22	0.35	0.35
Crit. lane group	Y	Y		N	N		Y	N	N	N	Y	N
Sum flow ratios	1.87											
Lost time/cycle	25.60											
Critical v/c ratio	2.13											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	957	2141		304	1359		1348	1696	212	380	1239	543
Lane group cap.	394	1159		394	1207		554	1110	496	337	676	302
v/c ratio	2.43	1.85		0.77	1.13		2.43	1.53	0.43	1.13	1.83	1.80
Green ratio	0.12	0.25		0.12	0.25		0.32	0.32	0.32	0.19	0.19	0.19
Unif. delay d1	92.8	78.3		90.2	78.3		71.8	71.8	56.8	84.8	84.8	84.8
Delay factor k	0.50	0.50		0.32	0.50		0.50	0.50	0.11	0.50	0.50	0.50
Increm. delay d2	650.7	384.6		9.1	67.8		650.4	242.2	0.6	61.4	375.3	360.3
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	743.5	463.0		99.3	146.2		722.2	314.0	57.4	146.2	460.1	445.1
Lane group LOS	F	F		F	F		F	F	E	F	F	F
Apprch. delay	549.7			137.6			466.3			401.2		
Approach LOS	F			F			F			F		
Intersec. delay	424.1			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

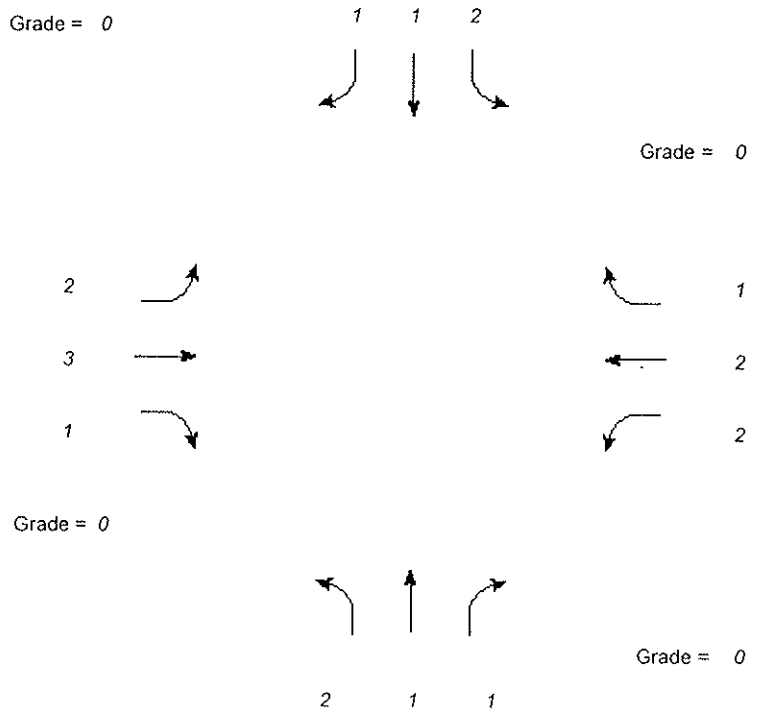
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*957*	*2141*		*304*	*1359*		*1348*	*1696*	*212*	*380*	*1239*	*543*
Satflow per lane	*1752*	*1676*		*1752*	*1745*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*394*	*1159*		*394*	*1207*		*554*	*1110*	*496*	*337*	*676*	*302*
Flow ratio	*0.28*	*0.47*		*0.09*	*0.29*		*0.77*	*0.48*	*0.14*	*0.22*	*0.35*	*0.35*
v/c ratio	*2.43*	*1.85*		*0.77*	*1.13*		*2.43*	*1.53*	*0.43*	*1.13*	*1.83*	*1.80*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*28.7*	*45.8*		*8.8*	*29.0*		*78.6*	*51.9*	*9.8*	*22.2*	*37.9*	*31.7*
k_B	*0.4*	*0.7*		*0.4*	*0.7*		*0.8*	*0.8*	*0.8*	*0.1*	*0.1*	*0.1*
Q_2	*37.0*	*46.5*		*1.2*	*10.9*		*100.6*	*40.8*	*0.6*	*5.8*	*37.0*	*30.2*
Q avg.	*65.7*	*92.2*		*10.1*	*39.9*		*179.2*	*92.7*	*10.3*	*28.0*	*74.9*	*61.9*
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*1.5*	*1.5*		*1.8*	*1.6*		*1.5*	*1.5*	*1.8*	*1.6*	*1.5*	*1.5*
BOQ, $Q_{\%}$	*99.5*	*139*		*18.6*	*62.5*		*269*	*139*	*19.0*	*45.5*	*113*	*94.1*
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT

DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*Curlew Road & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/16/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM*	Analysis Year	*2030 Build Scenario 2A*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	580	690	980	1360	830	650	880	140	1040	600	170	650
% Heavy veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	7.5	7.3	7.3	7.5	7.3	7.3	7.5	7.5	7.5	7.5	7.5	7.5
Arrival type	3	3	3	3	3	3	3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0		351	0		306	0		305	0		267
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0	0	0	0	0	0	0
Ped timing	3.2			3.2			3.2			3.2		

	Excl. Left	WB Only	Thru & RT	04	NB Only	SB Only	07	08
Timing	G = 23.3	G = 2.5	G = 22.9	G =	G = 32.0	G = 17.0	G =	G =
	Y = 9.5	Y = 9.5	Y = 9.3	Y =	Y = 9.5	Y = 9.5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 145.0		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	580	690	980	1360	830	650	880	140	1040	600	170	650
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	630	750	684	1478	902	374	957	152	799	652	185	416
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	630	750	684	1478	902	374	957	152	799	652	185	416
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	1	1	2	1	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET

DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	630	750	684	1478	902	374	957	152	799	652	185	416
Satflow rate	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.20	0.19	0.19	0.28	0.28	0.28	0.26	0.26	0.26	0.16	0.16	0.16
Lane group cap.	676	977	305	958	974	435	880	477	406	528	286	243
v/c ratio	0.93	0.77	2.24	1.54	0.93	0.86	1.09	0.32	1.97	1.23	0.65	1.71
Flow ratio	0.19	0.15	0.44	0.43	0.26	0.24	0.28	0.08	0.51	0.19	0.10	0.27
Crit. lane group	N	N	Y	Y	N	N	N	N	Y	N	N	Y
Sum flow ratios	1.65											
Lost time/cycle	16.00											
Critical v/c ratio	1.85											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	630	750	684	1478	902	374	957	152	799	652	185	416
Lane group cap.	676	977	305	958	974	435	880	477	406	528	286	243
v/c ratio	0.93	0.77	2.24	1.54	0.93	0.86	1.09	0.32	1.97	1.23	0.65	1.71
Green ratio	0.20	0.19	0.19	0.28	0.28	0.28	0.26	0.26	0.26	0.16	0.16	0.16
Unif. delay d1	57.1	55.3	58.4	52.1	51.0	49.7	53.8	43.4	53.8	61.3	57.5	61.3
Delay factor k	0.45	0.32	0.50	0.50	0.44	0.39	0.50	0.11	0.50	0.50	0.22	0.50
Increm. delay d2	19.8	3.7	569.6	249.5	14.3	15.8	57.0	0.4	444.4	121.3	5.0	337.3
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	76.9	59.0	628.0	301.6	65.3	65.6	110.7	43.8	498.2	182.5	62.5	398.5
Lane group LOS	E	E	F	F	E	E	F	D	F	F	E	F
Apprch. delay	253.1			192.1			267.6			236.5		
Approach LOS	F			F			F			F		
Intersec. delay	232.9			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*630*	*750*	*684*	*1478*	*902*	*374*	*957*	*152*	*799*	*652*	*185*	*416*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1845*	*1568*	*1752*	*1845*	*1568*
Capacity/lane	*676*	*977*	*305*	*958*	*974*	*435*	*880*	*477*	*406*	*528*	*286*	*243*
Flow ratio	*0.18*	*0.15*	*0.44*	*0.43*	*0.26*	*0.24*	*0.28*	*0.08*	*0.51*	*0.19*	0.10	*0.27*
v/c ratio	*0.93*	*0.77*	*2.24*	*1.54*	*0.93*	*0.86*	*1.09*	*0.32*	*1.97*	*1.23*	*0.65*	*1.71*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*12.8*	*10.5*	*27.5*	*30.7*	*18.5*	*14.3*	*19.8*	*4.9*	*32.2*	*13.5*	*7.0*	*16.8*
k_B	*0.5*	*0.5*	*0.5*	*0.6*	*0.6*	*0.6*	*0.6*	*0.6*	*0.5*	*0.4*	*0.4*	*0.4*
Q_2	*3.2*	*1.4*	*48.2*	*35.1*	*4.1*	*2.6*	*8.8*	*0.3*	*50.2*	*9.8*	*0.7*	*22.5*
Q avg.	*16.0*	*11.9*	*75.7*	*65.8*	*22.6*	*16.9*	*28.7*	*5.2*	*82.4*	*23.3*	*7.7*	*39.3*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.7*	*1.8*	*1.5*	*1.5*	*1.7*	*1.7*	*1.6*	*1.9*	*1.5*	*1.7*	*1.9*	*1.6*
BOQ, Q%	*28.0*	*21.6*	*114*	*99.7*	*37.8*	*29.2*	*46.5*	*10.2*	*124*	*38.8*	*14.6*	*61.6*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™ Version 4.1e

FULL REPORT DRAFT

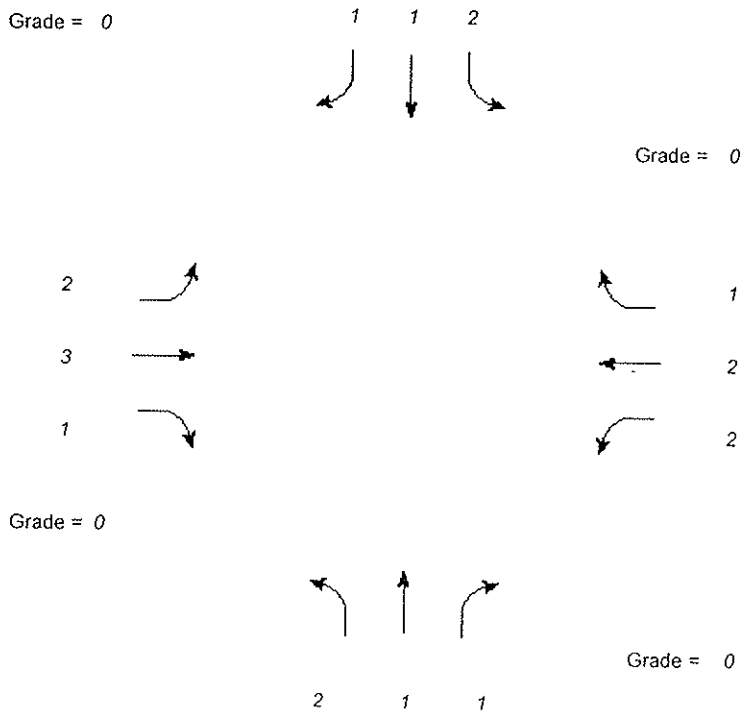
General Information

Analyst	*Praba*
Agency or Co.	*H. W. Lochner, Inc.*
Date Performed	*05/16/2005*
Time Period	*PM*

Site Information

Intersection	*Curlew Road & US 19*
Area Type	*All other areas*
Jurisdiction	*Pinellas County*
Analysis Year	*2030 Build Scenario 2A*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	440	920	1340	940	770	670	1210	250	1020	630	210	340
% Heavy veh	3	3	3	3	3	3	3	3	3	3	3	3
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Actuated (P/A)	A	A	A	A	A	A	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	7.5	7.3	7.3	7.5	7.3	7.3	7.5	7.5	7.5	7.5	7.5	7.5
Arrival type	3	3	3	3	3	3	3	3	3	3	3	3
Unit Extension	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Ped/Bike/RTOR Volume	0		282	0		247	0		254	0		234
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking (Y or N)	N		N	N		N	N		N	N		N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0	0	0	0	0	0	0
Ped timing	3.2			3.2			3.2			3.2		

	EB Only	Thru & RT	WB Only	04	Excl. Left	NB Only	Thru & RT	08
Timing	G = 19.9	G = 18.3	G = 25.5	G =	G = 25.5	G = 10.5	G = 13.5	G =
	Y = 9.5	Y = 9.3	Y = 9.5	Y =	Y = 9.5	Y = 9.5	Y = 9.5	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 170.0		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	440	920	1340	940	770	670	1210	250	1020	630	210	340
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	478	1000	1150	1022	837	460	1315	272	833	685	228	115
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	478	1000	1150	1022	837	460	1315	272	833	685	228	115
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	1	1	2	1	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	478	1000	1150	1022	837	460	1315	272	833	685	228	115
Satflow rate	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.15	0.31	0.31	0.18	0.34	0.34	0.30	0.23	0.23	0.18	0.11	0.11
Lane group cap.	508	1567	489	621	1206	539	1021	423	360	621	206	175
v/c ratio	0.94	0.64	2.35	1.65	0.69	0.85	1.29	0.64	2.31	1.10	1.11	0.66
Flow ratio	0.14	0.20	0.73	0.30	0.24	0.29	0.39	0.15	0.53	0.20	0.12	0.07
Crit. lane group	N	N	Y	Y	N	N	N	N	Y	Y	N	N
Sum flow ratios	1.77											
Lost time/cycle	16.00											
Critical v/c ratio	1.95											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	478	1000	1150	1022	837	460	1315	272	833	685	228	115
Lane group cap.	508	1567	489	621	1206	539	1021	423	360	621	206	175
v/c ratio	0.94	0.64	2.35	1.65	0.69	0.85	1.29	0.64	2.31	1.10	1.11	0.66
Green ratio	0.15	0.31	0.31	0.18	0.34	0.34	0.30	0.23	0.23	0.18	0.11	0.11
Unif. delay d1	71.6	50.3	58.5	69.5	48.1	51.8	59.5	59.2	65.5	69.5	75.5	72.4
Delay factor k	0.45	0.25	0.50	0.50	0.29	0.40	0.50	0.25	0.50	0.50	0.50	0.26
Increm. delay d2	25.9	1.0	614.6	297.8	1.9	12.9	137.0	3.7	599.9	67.6	94.2	9.6
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	97.5	51.3	673.1	367.3	50.0	64.7	196.5	63.0	665.4	137.1	169.7	82.0
Lane group LOS	F	D	F	F	D	E	F	E	F	F	F	F
Apprch. delay	331.8			192.8			342.9			138.2		
Approach LOS	F			F			F			F		
Intersec. delay	272.9			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*478*	*1000*	*1150*	*1022*	*837*	*460*	*1315*	*272*	*833*	*685*	*228*	*115*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1845*	*1568*	*1752*	*1845*	*1568*
Capacity/lane	*508*	*1567*	*489*	*621*	*1206*	*539*	*1021*	*423*	*360*	*621*	*206*	*175*
Flow ratio	*0.14*	*0.20*	*0.73*	*0.30*	*0.24*	*0.29*	*0.39*	*0.15*	*0.53*	*0.20*	0.12	*0.07*
v/c ratio	*0.94*	*0.64*	*2.35*	*1.65*	*0.69*	*0.85*	*1.29*	*0.64*	*2.31*	*1.10*	*1.11*	*0.66*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*11.5*	*14.9*	*54.3*	*24.8*	*17.9*	*20.2*	*32.0*	*11.6*	*39.3*	*16.6*	*10.8*	*5.2*
k_B	*0.5*	*0.7*	*0.7*	*0.5*	*0.8*	*0.7*	*0.7*	*0.6*	*0.5*	*0.5*	*0.4*	*0.4*
Q_2	*2.9*	*1.2*	*83.8*	*27.1*	*1.6*	*3.1*	*21.7*	*1.0*	*60.1*	*7.2*	*5.0*	*0.6*
Q avg.	*14.4*	*16.1*	*138.1*	*51.9*	*19.5*	*23.3*	*53.7*	*12.6*	*99.4*	*23.8*	*15.8*	*5.8*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.8*	*1.7*	*1.5*	*1.5*	*1.7*	*1.7*	*1.5*	*1.8*	*1.5*	*1.7*	*1.8*	*1.9*
BOQ, Q%	*25.5*	*28.1*	*207*	*79.7*	*33.2*	*38.7*	*82.1*	*22.7*	*149*	*39.6*	*27.6*	*11.3*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

HCS2000™

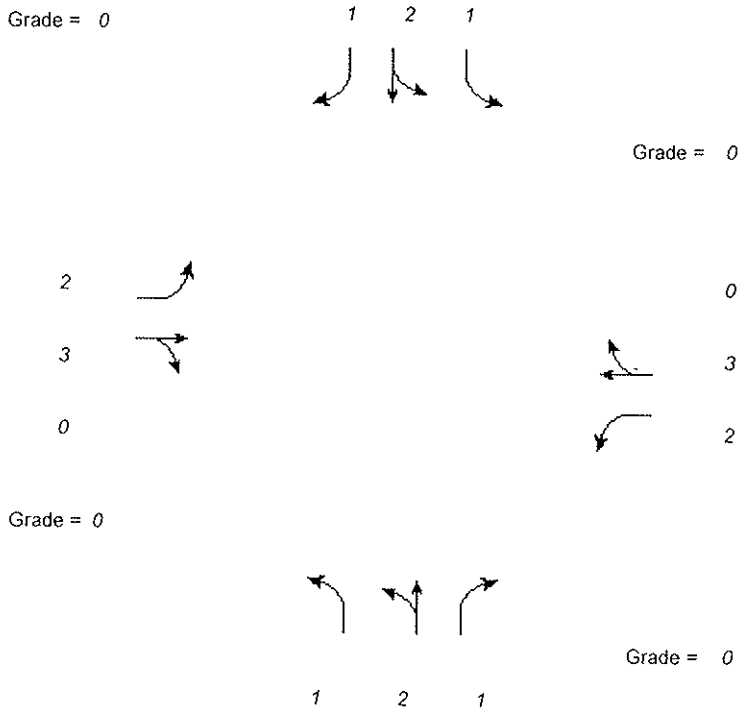
Version 4.1e

FULL REPORT

DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*SR 580 & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/16/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM*	Analysis Year	*2030 Build Scenario 2A*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*1070*	*590*	*1000*	*450*	*700*	*480*	*920*	*1210*	*350*	*410*	*1340*	*1080*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*		*4.3*	*5.1*		*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*50*	*0*	*0*	*50*	*0*	*0*	*125*	*0*	*0*	*400*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *29.0*	G = *43.2*	G =	G =	G = *50.0*	G = *50.0*	G =	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *210.0*		

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	1070	590	1000	450	700	480	920	1210	350	410	1340	1080
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	1163	641	1033	489	761	467	1000	1315	245	446	1457	739
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1163	1674		489	1228		1000	1315	245	446	1457	739
Prop. LT or RT	0.000	--	0.617	0.000	--	0.380	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.907		--	0.943		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4560		3403	4738		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Adj. flow rate	*1163*	*1674*		*489*	*1228*		*1000*	*1315*	*245*	*446*	*1457*	*739*
Satflow rate	*3403*	*4560*		*3403*	*4738*		*1752*	*3512*	*1568*	*1752*	*3512*	*1568*
Lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Green ratio	*0.15*	*0.22*		*0.15*	*0.22*		*0.25*	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*
Lane group cap.	*507*	*1005*		*507*	*1045*		*446*	*893*	*399*	*446*	*893*	*399*
v/c ratio	*2.29*	*1.67*		*0.96*	*1.18*		*2.24*	*1.47*	*0.61*	*1.00*	*1.63*	*1.85*
Flow ratio	*0.34*	*0.37*		*0.14*	*0.26*		*0.57*	*0.37*	*0.16*	*0.25*	*0.41*	*0.47*
Crit. lane group	*Y*	*Y*		*N*	*N*		*Y*	*N*	*N*	*N*	*N*	*Y*
Sum flow ratios	*1.75*											
Lost time/cycle	*25.60*											
Critical v/c ratio	*1.99*											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Adj. flow rate	*1163*	*1674*		*489*	*1228*		*1000*	*1315*	*245*	*446*	*1457*	*739*
Lane group cap.	*507*	*1005*		*507*	*1045*		*446*	*893*	*399*	*446*	*893*	*399*
v/c ratio	*2.29*	*1.67*		*0.96*	*1.18*		*2.24*	*1.47*	*0.61*	*1.00*	*1.63*	*1.85*
Green ratio	*0.15*	*0.22*		*0.15*	*0.22*		*0.25*	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*
Unif. delay d1	*89.3*	*81.8*		*88.8*	*81.8*		*78.3*	*78.3*	*69.2*	*78.3*	*78.3*	*78.3*
Delay factor k	*0.50*	*0.50*		*0.47*	*0.50*		*0.50*	*0.50*	*0.20*	*0.50*	*0.50*	*0.50*
Increm. delay d2	*588.5*	*304.0*		*31.0*	*89.0*		*566.2*	*218.8*	*2.8*	*12.8*	*284.7*	*384.3*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Control delay	*677.8*	*385.8*		*119.8*	*170.9*		*644.5*	*297.1*	*72.0*	*91.1*	*363.0*	*462.6*
Lane group LOS	*F*	*F*		*F*	*F*		*F*	*F*	*E*	*F*	*F*	*F*
Apprch. delay	*505.5*			*156.3*			*411.2*			*345.0*		
Approach LOS	*F*			*F*			*F*			*F*		
Intersec. delay	*375.8*			Intersection LOS						*F*		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*1163*	*1674*		*489*	*1228*		*1000*	*1315*	*245*	*446*	*1457*	*739*
Satflow per lane	*1752*	*1674*		*1752*	*1739*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*507*	*1005*		*507*	*1045*		*446*	*893*	*399*	*446*	*893*	*399*
Flow ratio	*0.34*	*0.37*		*0.14*	*0.26*		*0.57*	*0.37*	*0.16*	*0.25*	0.41	*0.47*
v/c ratio	*2.29*	*1.67*		*0.96*	*1.18*		*2.24*	*1.47*	*0.61*	*1.00*	*1.63*	*1.85*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*34.9*	*35.8*		*14.5*	*26.3*		*58.3*	*40.3*	*12.6*	*26.0*	*44.6*	*43.1*
k_B	*0.5*	*0.6*		*0.5*	*0.6*		*0.7*	*0.7*	*0.7*	*0.1*	*0.1*	*0.1*
Q_2	*43.0*	*32.3*		*3.4*	*11.5*		*70.5*	*29.7*	*1.0*	*1.9*	*37.2*	*42.6*
Q avg.	*77.9*	*68.1*		*18.0*	*37.8*		*128.8*	*70.0*	*13.6*	*27.9*	*81.8*	*85.7*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.5*	*1.5*		*1.7*	*1.6*		*1.5*	*1.5*	*1.8*	*1.6*	*1.5*	*1.5*
BOQ, $Q_{\%}$	*117*	*103*		*30.9*	*59.4*		*193*	*106*	*24.3*	*45.4*	*123*	*129*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

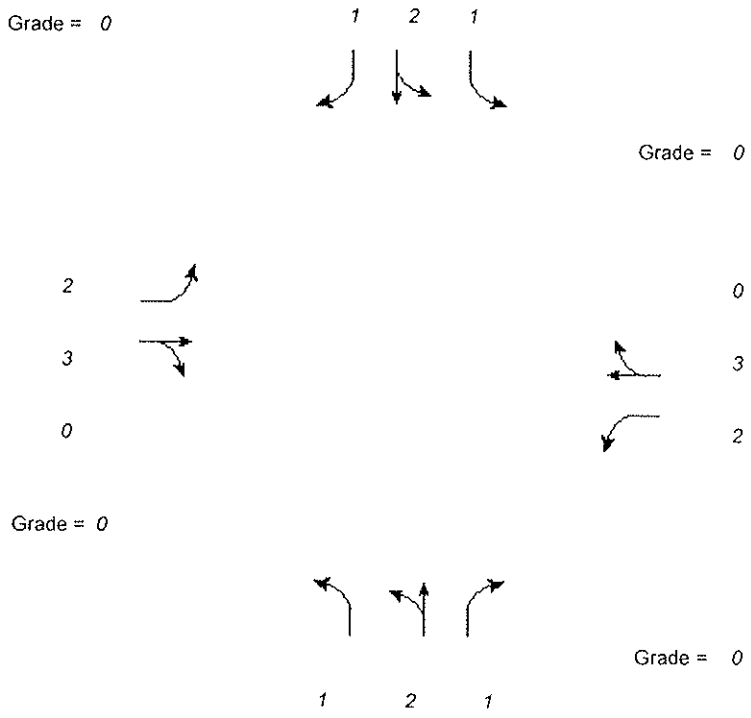
HCS2000™

Version 4.1e

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*SR 580 & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/16/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM*	Analysis Year	*2030 Build Scenario 2A*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*1000*	*790*	*1190*	*250*	*820*	*540*	*1190*	*1590*	*230*	*380*	*1160*	*730*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*		*4.3*	*5.1*		*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*50*	*0*	*0*	*50*	*0*	*0*	*70*	*0*	*0*	*280*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *26.0*	G = *53.2*	G =	G =	G = *41.0*	G = *62.0*	G =	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *220.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	1000	790	1190	250	820	540	1190	1590	230	380	1160	730
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	1087	859	1239	272	891	533	1293	1728	174	413	1261	489
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1087	2098		272	1424		1293	1728	174	413	1261	489
Prop. LT or RT	0.000	--	0.591	0.000	--	0.374	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.911		--	0.944		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4580		3403	4743		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1087	2098		272	1424		1293	1728	174	413	1261	489
Satflow rate	3403	4580		3403	4743		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.13	0.26		0.13	0.26		0.30	0.30	0.30	0.20	0.20	0.20
Lane group cap.	438	1172		438	1214		521	1044	466	354	709	316
v/c ratio	2.48	1.79		0.62	1.17		2.48	1.66	0.37	1.17	1.78	1.55
Flow ratio	0.32	0.46		0.08	0.30		0.74	0.49	0.11	0.24	0.36	0.31
Crit. lane group	Y	Y		N	N		Y	N	N	N	Y	N
Sum flow ratios	1.87											
Lost time/cycle	25.60											
Critical v/c ratio	2.12											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1087	2098		272	1424		1293	1728	174	413	1261	489
Lane group cap.	438	1172		438	1214		521	1044	466	354	709	316
v/c ratio	2.48	1.79		0.62	1.17		2.48	1.66	0.37	1.17	1.78	1.55
Green ratio	0.13	0.26		0.13	0.26		0.30	0.30	0.30	0.20	0.20	0.20
Unif. delay d1	95.8	81.8		90.8	81.8		77.3	77.3	61.1	87.8	87.8	87.8
Delay factor k	0.50	0.50		0.20	0.50		0.50	0.50	0.11	0.50	0.50	0.50
Increm. delay d2	673.6	359.0		2.7	86.9		672.5	299.1	0.5	78.1	350.9	247.8
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	769.4	440.8		93.5	168.7		749.8	376.4	61.6	165.9	438.7	335.6
Lane group LOS	F	F		F	F		F	F	E	F	F	F
Apprch. delay	553.0			156.6			510.4			363.3		
Approach LOS	F			F			F			F		
Intersec. delay	434.0			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

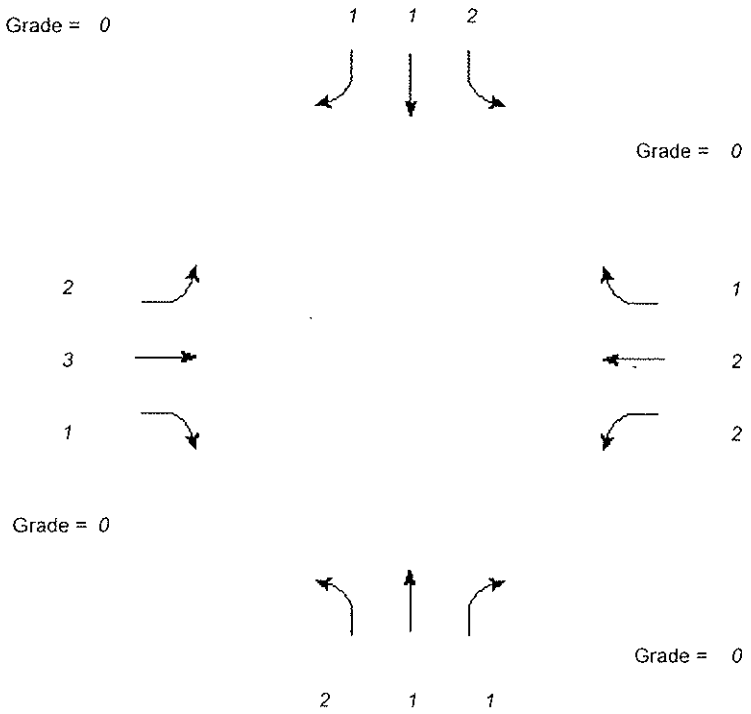
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*1087*	*2098*		*272*	*1424*		*1293*	*1728*	*174*	*413*	*1261*	*489*
Satflow per lane	*1752*	*1681*		*1752*	*1741*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*438*	*1172*		*438*	*1214*		*521*	*1044*	*466*	*354*	*709*	*316*
Flow ratio	*0.32*	*0.46*		*0.08*	*0.30*		*0.74*	*0.49*	*0.11*	*0.24*	0.36	*0.31*
v/c ratio	*2.48*	*1.79*		*0.62*	*1.17*		*2.48*	*1.66*	*0.37*	*1.17*	*1.78*	*1.55*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*34.2*	*47.1*		*8.1*	*31.9*		*79.0*	*55.4*	*8.4*	*25.2*	*40.5*	*29.9*
k_B	*0.5*	*0.7*		*0.5*	*0.7*		*0.8*	*0.8*	*0.7*	*0.1*	*0.1*	*0.1*
Q_2	*42.5*	*44.1*		*0.7*	*13.2*		*97.8*	*46.9*	*0.4*	*7.8*	*36.4*	*21.8*
Q avg.	*76.7*	*91.1*		*8.8*	*45.1*		*176.8*	*102.3*	*8.8*	*33.0*	*76.8*	*51.7*
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*1.5*	*1.5*		*1.9*	*1.5*		*1.5*	*1.5*	*1.9*	*1.6*	*1.5*	*1.5*
BOQ, $Q_{\%}$	*116*	*137*		*16.5*	*69.9*		*265*	*154*	*16.5*	*52.7*	*116*	*79.2*
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

DRAFT

FULL REPORT

General Information		Site Information	
Analyst	*Praba*	Intersection	*Curlew Road & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/16/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM Peak*	Analysis Year	*2030 Build Scenario 2B*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*700*	*450*	*1110*	*1560*	*540*	*780*	*1000*	*300*	*1170*	*730*	*370*	*790*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*7.5*	*7.3*	*7.3*	*7.5*	*7.3*	*7.3*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*4*	*4*	*2*	*4*	*4*
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*		*210*	*0*		*224*	*0*		*344*	*0*		*315*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	WB Only	Thru & RT	04	Excl. Left	NB Only	Thru & RT	08
Timing	G = *43.8*	G = *8.2*	G = *57.7*	G =	G = *28.5*	G = *3.5*	G = *41.5*	G =
	Y = *9.5*	Y = *9.5*	Y = *9.3*	Y =	Y = *9.5*	Y = *9.5*	Y = *9.5*	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *240.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	700	450	1110	1560	540	780	1000	300	1170	730	370	790
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	761	489	978	1696	587	604	1087	326	898	793	402	516
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	761	489	978	1696	587	604	1087	326	898	793	402	516
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	1	1	2	1	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	761	489	978	1696	587	604	1087	326	898	793	402	516
Satflow rate	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.21	0.26	0.26	0.28	0.34	0.34	0.20	0.25	0.25	0.14	0.20	0.20
Lane group cap.	699	1319	412	950	1181	527	666	461	392	482	361	307
v/c ratio	1.09	0.37	2.37	1.79	0.50	1.15	1.63	0.71	2.29	1.65	1.11	1.68
Flow ratio	0.22	0.10	0.62	0.50	0.17	0.39	0.32	0.18	0.57	0.23	0.22	0.33
Crit. lane group	N	N	Y	Y	N	N	N	N	Y	Y	N	N
Sum flow ratios	1.93											
Lost time/cycle	16.00											
Critical v/c ratio	2.07											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	761	489	978	1696	587	604	1087	326	898	793	402	516
Lane group cap.	699	1319	412	950	1181	527	666	461	392	482	361	307
v/c ratio	1.09	0.37	2.37	1.79	0.50	1.15	1.63	0.71	2.29	1.65	1.11	1.68
Green ratio	0.21	0.26	0.26	0.28	0.34	0.34	0.20	0.25	0.25	0.14	0.20	0.20
Unif. delay d1	95.3	72.3	88.5	86.5	63.5	79.7	96.5	82.0	90.0	103.0	96.5	96.5
Delay factor k	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.27	0.50	0.50	0.50	0.50
Increm. delay d2	60.7	0.2	625.7	357.6	0.3	86.2	285.1	0.5	581.6	291.2	55.2	307.6
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	156.0	72.5	714.2	444.1	63.8	165.8	381.6	82.5	671.6	394.2	151.7	404.1
Lane group LOS	F	E	F	F	E	F	F	F	F	F	F	F
Apprch. delay	382.7			308.6			452.1			340.2		
Approach LOS	F			F			F			F		
Intersec. delay	368.9			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*761*	*489*	*978*	*1696*	*587*	*604*	*1087*	*326*	*898*	*793*	*402*	*516*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1845*	*1568*	*1752*	*1845*	*1568*
Capacity/lane	*699*	*1319*	*412*	*950*	*1181*	*527*	*666*	*461*	*392*	*482*	*361*	*307*
Flow ratio	*0.22*	*0.10*	*0.62*	*0.50*	*0.17*	*0.39*	*0.32*	*0.18*	*0.57*	*0.23*	0.22	*0.33*
v/c ratio	*1.09*	*0.37*	*2.37*	*1.79*	*0.50*	*1.15*	*1.63*	*0.71*	*2.29*	*1.65*	*1.11*	*1.68*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*4*	*4*	*2*	*4*	*4*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.33*	*1.33*	*0.67*	*1.33*	*1.33*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*0.96*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*26.1*	*9.7*	*65.2*	*58.2*	*16.4*	*40.3*	*37.3*	*19.0*	*59.9*	*27.2*	*26.8*	*34.4*
k_B	*0.7*	*0.8*	*0.7*	*0.8*	*0.9*	*0.8*	*0.1*	*0.1*	*0.1*	*0.0*	*0.1*	*0.1*
Q_2	*8.1*	*0.5*	*72.0*	*49.8*	*0.9*	*14.1*	*27.3*	*0.2*	*63.4*	*20.1*	*5.7*	*26.3*
Q avg.	*34.1*	*10.2*	*137.2*	*108.0*	*17.3*	*54.4*	*64.5*	*19.1*	*123.2*	*47.3*	*32.5*	*60.7*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.6*	*1.8*	*1.5*	*1.5*	*1.7*	*1.5*	*1.5*	*1.7*	*1.5*	*1.5*	*1.6*	*1.5*
BOQ, Q%	*54.3*	*18.8*	*206*	*162*	*29.9*	*83.2*	*97.9*	*32.7*	*185*	*73.0*	*51.9*	*92.2*

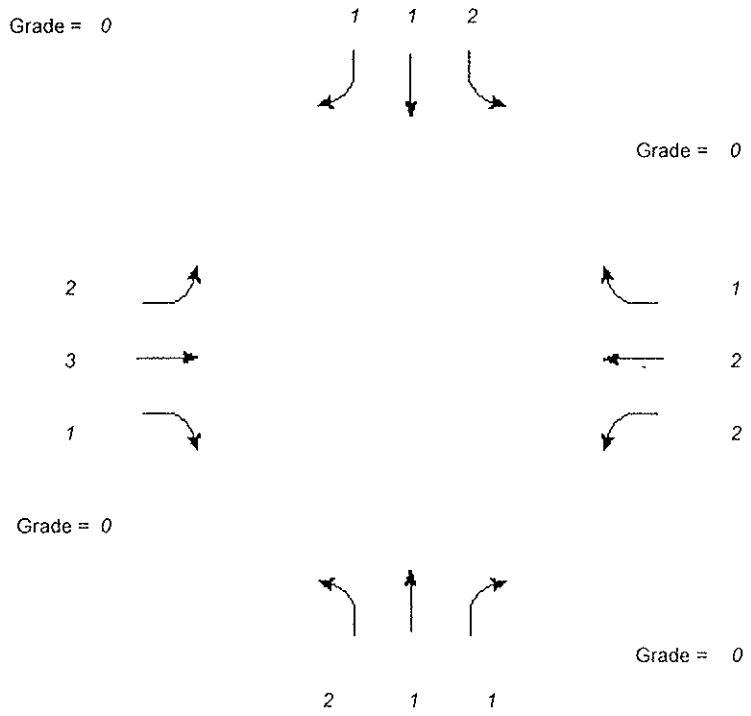
Queue Storage Ratio

Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*Curlew Road & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/16/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM Peak*	Analysis Year	*2030 Build Scenario 2B*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*520*	*670*	*1520*	*1040*	*550*	*810*	*1380*	*480*	*1130*	*750*	*410*	*410*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*7.5*	*7.3*	*7.3*	*7.5*	*7.3*	*7.3*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*4*	*4*	*3*	*4*	*4*
Unit Extension	*3.0*	*4.0*	*4.0*	*3.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*
Ped/Bike/RTOR Volume	*0*		*284*	*0*		*197*	*0*		*212*	*0*		*165*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	Excl. Left	NB Only	Thru & RT	08
Timing	G = *34.9*	G = *77.3*	G =	G =	G = *29.5*	G = *17.5*	G = *33.5*	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y = *9.5*	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *240.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	520	670	1520	1040	550	810	1380	480	1130	750	410	410
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	565	728	1343	1130	598	666	1500	522	998	815	446	266
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	565	728	1343	1130	598	666	1500	522	998	815	446	266
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	1	1	2	1	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET

DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	565	728	1343	1130	598	666	1500	522	998	815	446	266
Satflow rate	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.17	0.34	0.34	0.17	0.34	0.34	0.26	0.28	0.28	0.15	0.16	0.16
Lane group cap.	573	1729	540	573	1209	540	879	507	431	496	300	255
v/c ratio	0.99	0.42	2.49	1.97	0.49	1.23	1.71	1.03	2.32	1.64	1.49	1.04
Flow ratio	0.17	0.14	0.86	0.33	0.17	0.42	0.44	0.28	0.64	0.24	0.24	0.17
Crit. lane group	N	N	Y	Y	N	N	N	N	Y	Y	N	N
Sum flow ratios	2.06											
Lost time/cycle	16.00											
Critical v/c ratio	2.21											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	565	728	1343	1130	598	666	1500	522	998	815	446	266
Lane group cap.	573	1729	540	573	1209	540	879	507	431	496	300	255
v/c ratio	0.99	0.42	2.49	1.97	0.49	1.23	1.71	1.03	2.32	1.64	1.49	1.04
Green ratio	0.17	0.34	0.34	0.17	0.34	0.34	0.26	0.28	0.28	0.15	0.16	0.16
Unif. delay d1	99.5	60.4	78.7	99.8	62.2	78.7	89.0	87.0	87.0	102.5	100.5	100.5
Delay factor k	0.49	0.15	0.50	0.50	0.15	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Increm. delay d2	33.9	0.2	674.7	443.7	0.4	120.4	318.4	20.5	592.7	290.2	220.6	29.5
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	133.4	60.6	753.4	543.5	62.6	199.1	407.4	107.5	679.7	392.7	321.1	130.0
Lane group LOS	F	E	F	F	E	F	F	F	F	F	F	F
Apprch. delay	429.2			327.6			445.5			326.1		
Approach LOS	F			F			F			F		
Intersec. delay	392.5			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET

DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

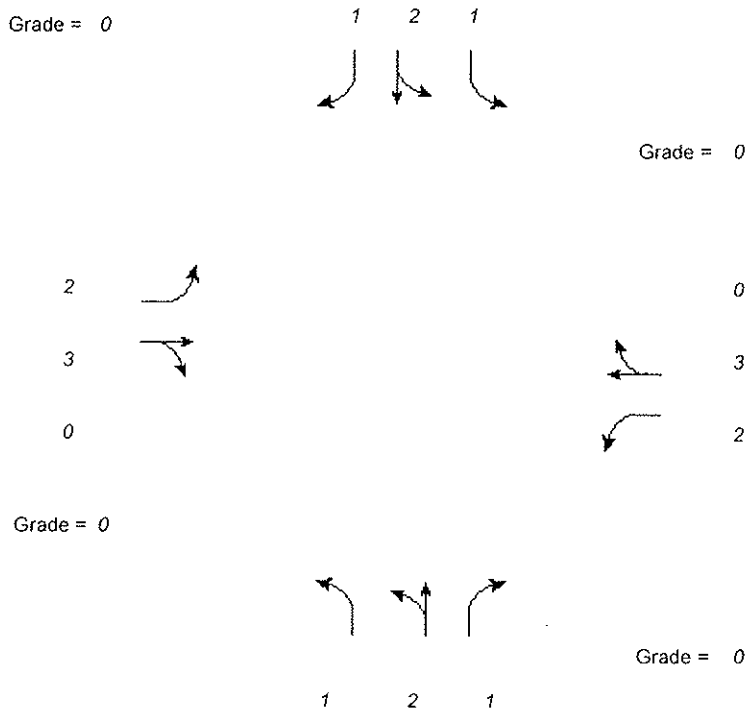
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*565*	*728*	*1343*	*1130*	*598*	*666*	*1500*	*522*	*998*	*815*	*446*	*266*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1845*	*1568*	*1752*	*1845*	*1568*
Capacity/lane	*573*	*1729*	*540*	*573*	*1209*	*540*	*879*	*507*	*431*	*496*	*300*	*255*
Flow ratio	*0.17*	*0.14*	*0.86*	*0.33*	*0.17*	*0.42*	*0.44*	*0.28*	*0.64*	*0.24*	0.24	*0.17*
v/c ratio	*0.99*	*0.42*	*2.49*	*1.97*	*0.49*	*1.23*	*1.71*	*1.03*	*2.32*	*1.64*	*1.49*	*1.04*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*4*	*4*	*3*	*4*	*4*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.33*	*1.33*	*1.00*	*1.33*	*1.33*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*19.3*	*13.7*	*89.5*	*38.7*	*16.5*	*44.4*	*51.5*	*34.8*	*66.5*	*27.9*	*29.7*	*17.7*
k_B	*0.6*	*0.9*	*0.9*	*0.6*	*0.9*	*0.9*	*0.1*	*0.1*	*0.1*	*0.0*	*0.1*	*0.0*
Q_2	*4.4*	*0.7*	*101.8*	*36.9*	*0.9*	*19.4*	*40.2*	*3.3*	*71.0*	*20.6*	*18.4*	*2.1*
Q avg.	*23.6*	*14.3*	*191.3*	*75.7*	*17.5*	*63.8*	*91.6*	*38.1*	*137.5*	*48.6*	*48.1*	*19.9*
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*1.7*	*1.8*	*1.5*	*1.5*	*1.7*	*1.5*	*1.5*	*1.6*	*1.5*	*1.5*	*1.5*	*1.7*
BOQ, Q%	*39.2*	*25.4*	*287*	*114*	*30.2*	*96.8*	*138*	*59.9*	*206*	*74.8*	*74.2*	*33.8*
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT

DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*SR 580 & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/16/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM*	Analysis Year	*2030 Build Scenario 2B*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*1020*	*590*	*1000*	*520*	*670*	*530*	*920*	*1320*	*410*	*460*	*1460*	*1040*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*		*4.3*	*5.1*		*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*50*	*0*	*0*	*50*	*0*	*0*	*125*	*0*	*0*	*400*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *29.0*	G = *43.2*	G =	G =	G = *50.0*	G = *50.0*	G =	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *210.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	1020	590	1000	520	670	530	920	1320	410	460	1460	1040
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	1109	641	1033	565	728	522	1000	1435	310	500	1587	696
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1109	1674		565	1250		1000	1435	310	500	1587	696
Prop. LT or RT	0.000	--	0.617	0.000	--	0.418	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.907		--	0.937		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4560		3403	4710		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1109	1674		565	1250		1000	1435	310	500	1587	696
Satflow rate	3403	4560		3403	4710		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.15	0.22		0.15	0.22		0.25	0.25	0.25	0.25	0.25	0.25
Lane group cap.	507	1005		507	1038		446	893	399	446	893	399
v/c ratio	2.19	1.67		1.11	1.20		2.24	1.61	0.78	1.12	1.78	1.74
Flow ratio	0.33	0.37		0.17	0.27		0.57	0.41	0.20	0.29	0.45	0.44
Crit. lane group	Y	Y		N	N		Y	N	N	N	Y	N
Sum flow ratios	1.72											
Lost time/cycle	25.60											
Critical v/c ratio	1.95											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1109	1674		565	1250		1000	1435	310	500	1587	696
Lane group cap.	507	1005		507	1038		446	893	399	446	893	399
v/c ratio	2.19	1.67		1.11	1.20		2.24	1.61	0.78	1.12	1.78	1.74
Green ratio	0.15	0.22		0.15	0.22		0.25	0.25	0.25	0.25	0.25	0.25
Unif. delay d1	89.3	81.8		89.3	81.8		78.3	78.3	72.8	78.3	78.3	78.3
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50	0.33	0.50	0.50	0.50
Increm. delay d2	540.8	304.0		75.2	101.2		566.2	278.4	9.4	57.7	350.1	335.9
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	630.1	385.8		164.5	183.0		644.5	356.7	82.1	136.0	428.4	414.2
Lane group LOS	F	F		F	F		F	F	F	F	F	F
Apprch. delay	483.2			177.3			430.5			372.3		
Approach LOS	F			F			F			F		
Intersec. delay	383.6			Intersection LOS						F		

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BACK-OF-QUEUE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*1109*	*1674*		*565*	*1250*		*1000*	*1435*	*310*	*500*	*1587*	*696*
Satflow per lane	*1752*	*1674*		*1752*	*1729*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*507*	*1005*		*507*	*1038*		*446*	*893*	*399*	*446*	*893*	*399*
Flow ratio	*0.33*	*0.37*		*0.17*	*0.26*		*0.57*	*0.41*	*0.20*	*0.29*	0.45	*0.44*
v/c ratio	*2.19*	*1.67*		*1.11*	*1.20*		*2.24*	*1.61*	*0.78*	*1.12*	*1.78*	*1.74*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*33.3*	*35.8*		*16.9*	*26.7*		*58.3*	*43.9*	*16.8*	*29.2*	*48.6*	*40.6*
k_B	*0.5*	*0.6*		*0.5*	*0.6*		*0.7*	*0.7*	*0.7*	*0.1*	*0.1*	*0.1*
Q_2	*39.7*	*32.3*		*6.5*	*12.6*		*70.5*	*37.3*	*2.0*	*7.3*	*45.6*	*37.3*
Q avg.	*73.0*	*68.1*		*23.4*	*39.3*		*128.8*	*81.3*	*18.8*	*36.5*	*94.2*	*77.9*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.5*	*1.5*		*1.7*	*1.6*		*1.5*	*1.5*	*1.7*	*1.6*	*1.5*	*1.5*
BOQ, Q%	*110*	*103*		*38.9*	*61.6*		*193*	*122*	*32.1*	*57.6*	*142*	*117*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT DRAFT

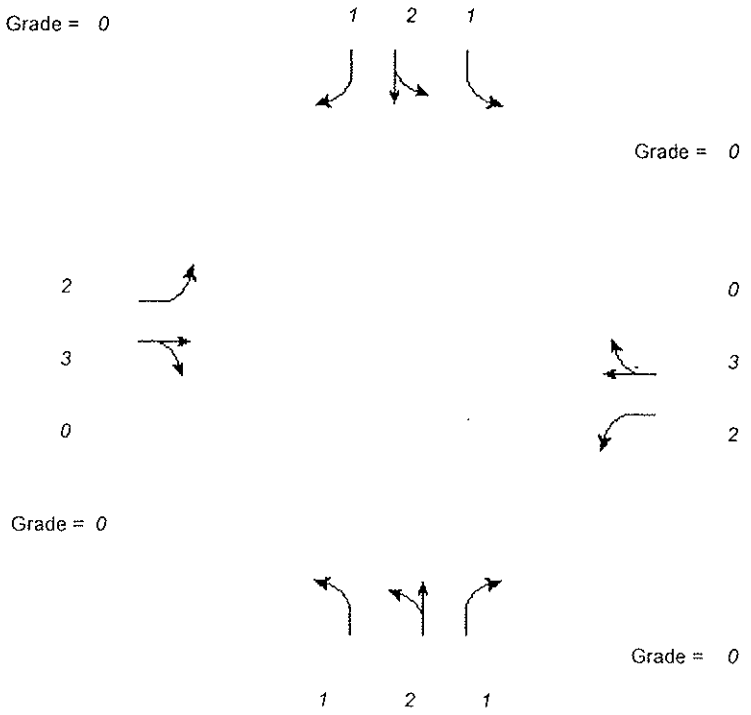
General Information

Analyst	*Praba*
Agency or Co.	*H. W. Lochner, Inc.*
Date Performed	*05/16/2005*
Time Period	*PM*

Site Information

Intersection	*SR 580 & US 19*
Area Type	*All other areas*
Jurisdiction	*Pinellas County*
Analysis Year	*2030 Build Scenario 2B*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*940*	*790*	*1190*	*290*	*820*	*600*	*1190*	*1720*	*280*	*420*	*1260*	*680*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*		*4.3*	*5.1*		*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*50*	*0*	*0*	*50*	*0*	*0*	*70*	*0*	*0*	*280*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *26.0*	G = *53.2*	G =	G =	G = *41.0*	G = *62.0*	G =	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *220.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	940	790	1190	290	820	600	1190	1720	280	420	1260	680
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	1022	859	1239	315	891	598	1293	1870	228	457	1370	435
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1022	2098		315	1489		1293	1870	228	457	1370	435
Prop. LT or RT	0.000	--	0.591	0.000	--	0.402	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.911		--	0.940		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4580		3403	4722		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

DRAFT

CAPACITY AND LOS WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1022	2098		315	1489		1293	1870	228	457	1370	435
Satflow rate	3403	4580		3403	4722		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.13	0.26		0.13	0.26		0.30	0.30	0.30	0.20	0.20	0.20
Lane group cap.	438	1172		438	1208		521	1044	466	354	709	316
v/c ratio	2.33	1.79		0.72	1.23		2.48	1.79	0.49	1.29	1.93	1.38
Flow ratio	0.30	0.46		0.09	0.32		0.74	0.53	0.15	0.26	0.39	0.28
Crit. lane group	Y	Y		N	N		Y	N	N	N	Y	N
Sum flow ratios	1.89											
Lost time/cycle	25.60											
Critical v/c ratio	2.13											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1022	2098		315	1489		1293	1870	228	457	1370	435
Lane group cap.	438	1172		438	1208		521	1044	466	354	709	316
v/c ratio	2.33	1.79		0.72	1.23		2.48	1.79	0.49	1.29	1.93	1.38
Green ratio	0.13	0.26		0.13	0.26		0.30	0.30	0.30	0.20	0.20	0.20
Unif. delay d1	95.8	81.8		92.0	81.8		77.3	77.3	63.6	87.8	87.8	87.8
Delay factor k	0.50	0.50		0.28	0.50		0.50	0.50	0.11	0.50	0.50	0.50
Increm. delay d2	607.1	359.0		5.7	112.1		672.5	359.9	0.8	132.9	420.0	171.3
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	703.0	440.8		97.7	193.9		749.8	437.2	64.4	220.7	507.8	259.1
Lane group LOS	F	F		F	F		F	F	E	F	F	F
Apprch. delay	526.7			177.1			531.3			402.0		
Approach LOS	F			F			F			F		
Intersec. delay	441.9			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*1022*	*2098*		*315*	*1489*		*1293*	*1870*	*228*	*457*	*1370*	*435*
Satflow per lane	*1752*	*1681*		*1752*	*1733*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*438*	*1172*		*438*	*1208*		*521*	*1044*	*466*	*354*	*709*	*316*
Flow ratio	*0.30*	*0.46*		*0.09*	*0.32*		*0.74*	*0.53*	*0.15*	*0.26*	0.39	*0.28*
v/c ratio	*2.33*	*1.79*		*0.72*	*1.23*		*2.48*	*1.79*	*0.49*	*1.29*	*1.93*	*1.38*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*32.1*	*47.1*		*9.5*	*33.4*		*79.0*	*60.0*	*11.5*	*27.9*	*43.9*	*26.6*
k_B	*0.5*	*0.7*		*0.5*	*0.7*		*0.8*	*0.8*	*0.7*	*0.1*	*0.1*	*0.1*
Q_2	*38.4*	*44.1*		*1.1*	*16.0*		*97.8*	*56.1*	*0.7*	*13.1*	*43.5*	*15.1*
Q avg.	*70.6*	*91.1*		*10.6*	*49.3*		*176.8*	*116.1*	*12.2*	*41.1*	*87.4*	*41.7*
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*1.5*	*1.5*		*1.8*	*1.5*		*1.5*	*1.5*	*1.8*	*1.6*	*1.5*	*1.6*
BOQ, Q%	*107*	*137*		*19.4*	*75.9*		*265*	*174*	*21.9*	*64.1*	*132*	*64.9*
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

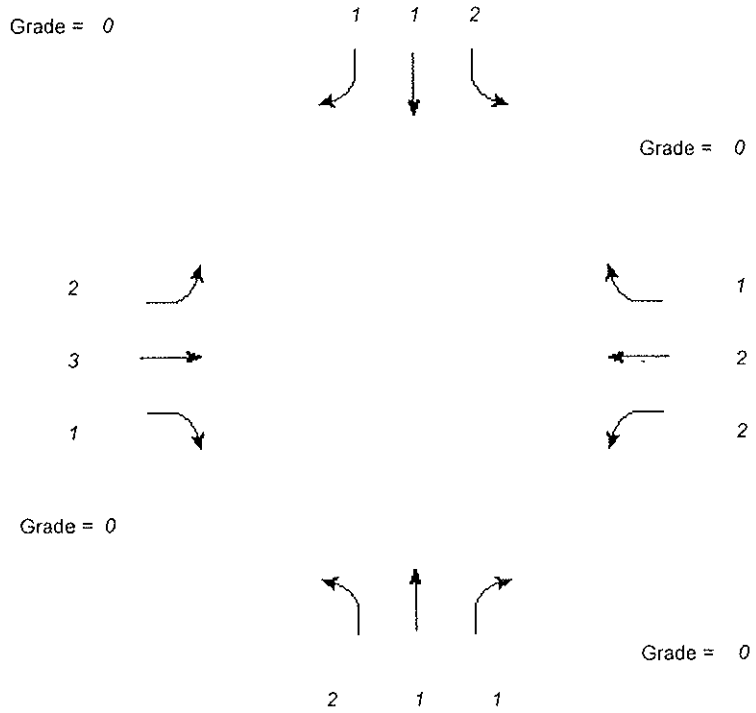
HCS2000™

Version 4.1e

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*Curlew Road & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/16/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM Peak*	Analysis Year	*2030 Build Scenario 2C*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*650*	*530*	*1080*	*1520*	*640*	*730*	*970*	*220*	*1140*	*680*	*280*	*730*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*7.5*	*7.3*	*7.3*	*7.5*	*7.3*	*7.3*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*4*	*4*	*3*	*4*	*4*
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*		*221*	*0*		*241*	*0*		*330*	*0*		*310*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	WB Only	Thru & RT	04	Excl. Left	NB Only	Thru & RT	08
Timing	G = *45.4*	G = *6.6*	G = *59.7*	G =	G = *29.5*	G = *4.5*	G = *37.5*	G =
	Y = *9.5*	Y = *9.5*	Y = *9.3*	Y =	Y = *9.5*	Y = *9.5*	Y = *9.5*	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *240.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	650	530	1080	1520	640	730	970	220	1140	680	280	730
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	707	576	934	1652	696	532	1054	239	880	739	304	457
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	707	576	934	1652	696	532	1054	239	880	739	304	457
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	1	1	2	1	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Sec. adj. satflow			--			--			--			--

CAPACITY AND LOS WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	707	576	934	1652	696	532	1054	239	880	739	304	457
Satflow rate	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.21	0.27	0.27	0.28	0.34	0.34	0.20	0.24	0.24	0.15	0.18	0.18
Lane group cap.	722	1361	425	950	1187	530	695	438	372	496	331	281
v/c ratio	0.98	0.42	2.20	1.74	0.59	1.00	1.52	0.55	2.37	1.49	0.92	1.63
Flow ratio	0.21	0.11	0.60	0.49	0.20	0.34	0.31	0.13	0.56	0.22	0.16	0.29
Crit. lane group	N	N	Y	Y	N	N	N	N	Y	Y	N	N
Sum flow ratios	1.86											
Lost time/cycle	16.00											
Critical v/c ratio	1.99											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	707	576	934	1652	696	532	1054	239	880	739	304	457
Lane group cap.	722	1361	425	950	1187	530	695	438	372	496	331	281
v/c ratio	0.98	0.42	2.20	1.74	0.59	1.00	1.52	0.55	2.37	1.49	0.92	1.63
Green ratio	0.21	0.27	0.27	0.28	0.34	0.34	0.20	0.24	0.24	0.15	0.18	0.18
Unif. delay d1	94.0	72.1	87.5	86.5	65.6	79.4	95.5	80.2	91.5	102.5	96.8	98.5
Delay factor k	0.48	0.11	0.50	0.50	0.18	0.50	0.50	0.15	0.50	0.50	0.44	0.50
Increm. delay d2	28.3	0.2	546.6	336.9	0.8	40.0	233.1	0.1	615.3	221.5	4.3	283.3
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	122.3	72.3	634.1	423.4	66.4	119.5	328.6	80.3	706.8	324.0	101.1	381.8
Lane group LOS	F	E	F	F	E	F	F	F	F	F	F	F
Apprch. delay	324.9			281.0			454.4			296.4		
Approach LOS	F			F			F			F		
Intersec. delay	337.7			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*707*	*576*	*934*	*1652*	*696*	*532*	*1054*	*239*	*880*	*739*	*304*	*457*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1845*	*1568*	*1752*	*1845*	*1568*
Capacity/lane	*722*	*1361*	*425*	*950*	*1187*	*530*	*695*	*438*	*372*	*496*	*331*	*281*
Flow ratio	*0.21*	*0.11*	*0.60*	*0.49*	*0.20*	*0.34*	*0.31*	*0.13*	*0.56*	*0.22*	0.16	*0.29*
v/c ratio	*0.98*	*0.42*	*2.20*	*1.74*	*0.59*	*1.00*	*1.52*	*0.55*	*2.37*	*1.49*	*0.92*	*1.63*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*4*	*4*	*3*	*4*	*4*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.33*	*1.33*	*1.00*	*1.33*	*1.33*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*1.00*	*0.99*	*1.00*
Q_1	*24.1*	*11.6*	*62.3*	*56.7*	*20.1*	*35.5*	*36.1*	*13.2*	*58.7*	*25.3*	*19.8*	*30.5*
k_B	*0.7*	*0.8*	*0.7*	*0.8*	*0.9*	*0.8*	*0.1*	*0.1*	*0.1*	*0.0*	*0.1*	*0.1*
Q_2	*5.2*	*0.6*	*65.0*	*47.0*	*1.3*	*7.6*	*23.3*	*0.1*	*63.6*	*15.8*	*0.6*	*22.1*
Q avg.	*29.3*	*12.2*	*127.2*	*103.6*	*21.4*	*43.1*	*59.4*	*13.2*	*122.3*	*41.1*	*20.3*	*52.6*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.6*	*1.8*	*1.5*	*1.5*	*1.7*	*1.6*	*1.5*	*1.8*	*1.5*	*1.6*	*1.7*	*1.5*
BOQ, Q%	*47.4*	*22.0*	*191*	*156*	*36.0*	*67.0*	*90.5*	*23.7*	*183*	*64.2*	*34.4*	*80.6*

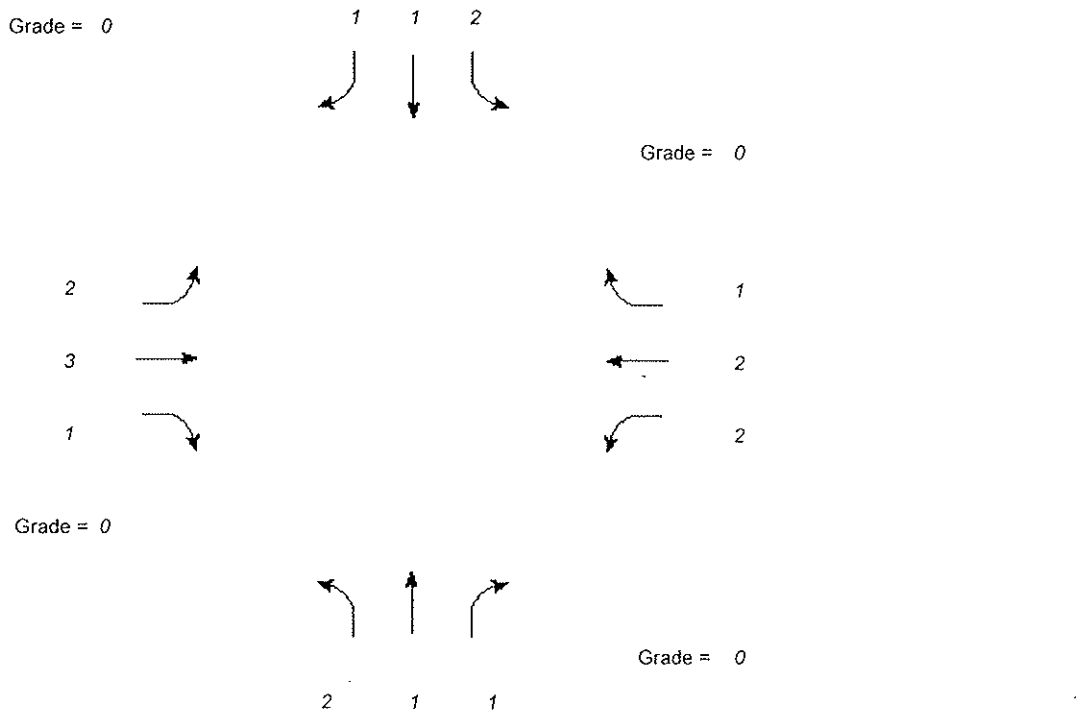
Queue Storage Ratio

Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*Curlew Road & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/16/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM Peak*	Analysis Year	*2030 Build Scenario 2C*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*480*	*760*	*1470*	*1020*	*630*	*750*	*1330*	*380*	*1110*	*700*	*330*	*370*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*7.5*	*7.3*	*7.3*	*7.5*	*7.3*	*7.3*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*	*7.5*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*4.0*	*4.0*	*3.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*	*4.0*
Ped/Bike/RTOR Volume	*0*		*269*	*0*		*220*	*0*		*265*	*0*		*243*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	EB Only	Thru & RT	WB Only	04	Excl. Left	NB Only	Thru & RT	08
Timing	G = *20.8*	G = *19.4*	G = *26.5*	G =	G = *24.5*	G = *15.5*	G = *16.5*	G =
	Y = *9.5*	Y = *9.3*	Y = *9.5*	Y =	Y = *9.5*	Y = *9.5*	Y = *9.5*	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *180.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	480	760	1470	1020	630	750	1330	380	1110	700	330	370
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	522	826	1305	1109	685	576	1446	413	918	761	359	138
Lane Group	L	T	R	L	T	R	L	T	R	L	T	R
Adj. flow rate	522	826	1305	1109	685	576	1446	413	918	761	359	138
Prop. LT or RT	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	1	2	2	1	2	1	1	2	1	1
fW	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	5025	1568	3403	3512	1568	3403	1845	1568	3403	1845	1568
Sec. adj. satflow			--			--			--			--

DRAFT

CAPACITY AND LOS WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Adj. flow rate	*522*	*826*	*1305*	*1109*	*685*	*576*	*1446*	*413*	*918*	*761*	*359*	*138*
Satflow rate	*3403*	*5025*	*1568*	*3403*	*3512*	*1568*	*3403*	*1845*	*1568*	*3403*	*1845*	*1568*
Lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Green ratio	*0.15*	*0.31*	*0.31*	*0.18*	*0.34*	*0.34*	*0.31*	*0.26*	*0.26*	*0.17*	*0.12*	*0.12*
Lane group cap.	*497*	*1535*	*479*	*605*	*1180*	*527*	*1040*	*482*	*409*	*567*	*226*	*192*
v/c ratio	*1.05*	*0.54*	*2.72*	*1.83*	*0.58*	*1.09*	*1.39*	*0.86*	*2.24*	*1.34*	*1.59*	*0.72*
Flow ratio	*0.15*	*0.16*	*0.83*	*0.33*	*0.20*	*0.37*	*0.42*	*0.22*	*0.59*	*0.22*	*0.19*	*0.09*
Crit. lane group	*N*	*N*	*Y*	*Y*	*N*	*N*	*N*	*N*	*Y*	*Y*	*N*	*N*
Sum flow ratios	*1.97*											
Lost time/cycle	*16.00*											
Critical v/c ratio	*2.16*											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Adj. flow rate	*522*	*826*	*1305*	*1109*	*685*	*576*	*1446*	*413*	*918*	*761*	*359*	*138*
Lane group cap.	*497*	*1535*	*479*	*605*	*1180*	*527*	*1040*	*482*	*409*	*567*	*226*	*192*

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

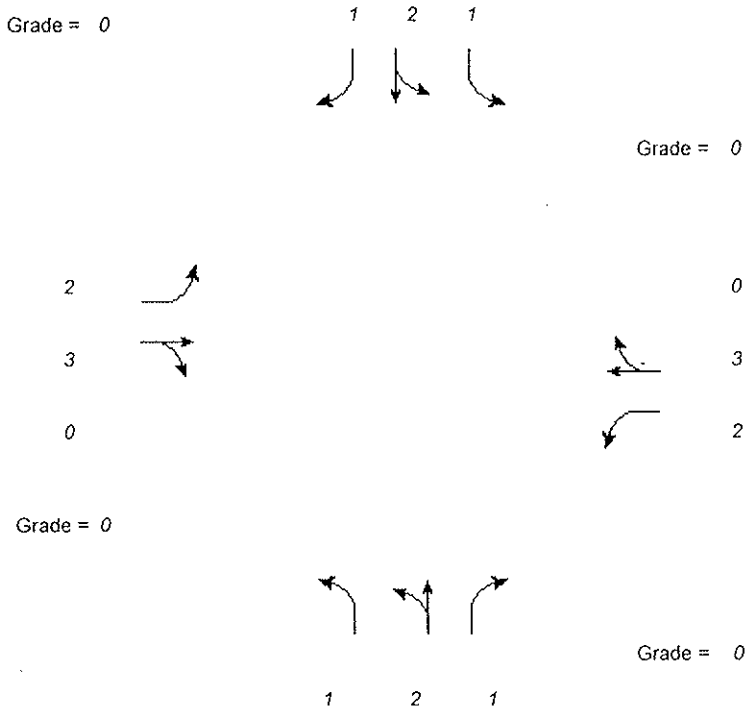
Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*522*	*826*	*1305*	*1109*	*685*	*576*	*1446*	*413*	*918*	*761*	*359*	*138*
Satflow per lane	*1752*	*1844*	*1568*	*1752*	*1844*	*1568*	*1752*	*1845*	*1568*	*1752*	*1845*	*1568*
Capacity/lane	*497*	*1535*	*479*	*605*	*1180*	*527*	*1040*	*482*	*409*	*567*	*226*	*192*
Flow ratio	*0.15*	*0.16*	*0.83*	*0.33*	*0.19*	*0.37*	*0.42*	*0.22*	*0.59*	*0.22*	0.19	*0.09*
v/c ratio	*1.05*	*0.54*	*2.72*	*1.83*	*0.58*	*1.09*	*1.39*	*0.86*	*2.24*	*1.34*	*1.59*	*0.72*
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*13.4*	*12.6*	*65.3*	*28.5*	*14.8*	*28.8*	*37.2*	*19.7*	*45.9*	*19.5*	*18.0*	*6.6*
k_B	*0.5*	*0.7*	*0.7*	*0.5*	*0.8*	*0.7*	*0.7*	*0.7*	*0.6*	*0.5*	*0.4*	*0.4*
Q_2	*4.8*	*0.8*	*104.3*	*33.6*	*1.0*	*10.8*	*28.5*	*3.0*	*64.7*	*14.2*	*17.7*	*0.9*
Q avg.	*18.2*	*13.4*	*169.6*	*62.2*	*15.9*	*39.6*	*65.7*	*22.7*	*110.6*	*33.8*	*35.7*	*7.5*
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*1.7*	*1.8*	*1.5*	*1.5*	*1.7*	*1.6*	*1.5*	*1.7*	*1.5*	*1.6*	*1.6*	*1.9*
BOQ, $Q_{\%}$	*31.3*	*24.0*	*254*	*94.4*	*27.7*	*62.1*	*99.5*	*37.8*	*166*	*53.8*	*56.4*	*14.2*
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*SR 580 & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/16/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM*	Analysis Year	*2030 Build Scenario 2C*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*1010*	*590*	*990*	*520*	*690*	*540*	*910*	*1320*	*410*	*460*	*1470*	*1030*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*		*4.3*	*5.1*		*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*50*	*0*	*0*	*50*	*0*	*0*	*125*	*0*	*0*	*400*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *29.0*	G = *43.2*	G =	G =	G = *50.0*	G = *50.0*	G =	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *210.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	1010	590	990	520	690	540	910	1320	410	460	1470	1030
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	1098	641	1022	565	750	533	989	1435	310	500	1598	685
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1098	1663		565	1283		989	1435	310	500	1598	685
Prop. LT or RT	0.000	--	0.615	0.000	--	0.415	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.908		--	0.938		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4562		3403	4712		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

DRAFT

CAPACITY AND LOS WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1098	1663		565	1283		989	1435	310	500	1598	685
Satflow rate	3403	4562		3403	4712		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.15	0.22		0.15	0.22		0.25	0.25	0.25	0.25	0.25	0.25
Lane group cap.	507	1006		507	1039		446	893	399	446	893	399
v/c ratio	2.17	1.65		1.11	1.23		2.22	1.61	0.78	1.12	1.79	1.72
Flow ratio	0.32	0.36		0.17	0.27		0.56	0.41	0.20	0.29	0.46	0.44
Crit. lane group	Y	Y		N	N		Y	N	N	N	Y	N
Sum flow ratios	1.71											
Lost time/cycle	25.60											
Critical v/c ratio	1.94											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1098	1663		565	1283		989	1435	310	500	1598	685
Lane group cap.	507	1006		507	1039		446	893	399	446	893	399
v/c ratio	2.17	1.65		1.11	1.23		2.22	1.61	0.78	1.12	1.79	1.72
Green ratio	0.15	0.22		0.15	0.22		0.25	0.25	0.25	0.25	0.25	0.25
Unif. delay d1	89.3	81.8		89.3	81.8		78.3	78.3	72.8	78.3	78.3	78.3
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50	0.33	0.50	0.50	0.50
Increm. delay d2	531.1	298.3		75.2	114.1		555.1	278.4	9.4	57.7	355.7	323.5
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	620.4	380.2		164.5	196.0		633.4	356.7	82.1	136.0	434.0	401.8
Lane group LOS	F	F		F	F		F	F	F	F	F	F
Apprch. delay	475.7			186.3			425.7			372.5		
Approach LOS	F			F			F			F		
Intersec. delay	381.0			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*1098*	*1663*		*565*	*1283*		*989*	*1435*	*310*	*500*	*1598*	*685*
Satflow per lane	*1752*	*1674*		*1752*	*1729*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*507*	*1006*		*507*	*1039*		*446*	*893*	*399*	*446*	*893*	*399*
Flow ratio	*0.32*	*0.36*		*0.17*	*0.27*		*0.56*	*0.41*	*0.20*	*0.29*	0.45	*0.44*
v/c ratio	*2.17*	*1.65*		*1.11*	*1.23*		*2.22*	*1.61*	*0.78*	*1.12*	*1.79*	*1.72*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*33.0*	*35.6*		*16.9*	*27.4*		*57.7*	*43.9*	*16.8*	*29.2*	*48.9*	*40.0*
k_B	*0.5*	*0.6*		*0.5*	*0.6*		*0.7*	*0.7*	*0.7*	*0.1*	*0.1*	*0.1*
Q_2	*38.9*	*31.6*		*6.5*	*13.9*		*69.1*	*37.3*	*2.0*	*7.3*	*46.4*	*35.9*
Q avg.	*71.9*	*67.2*		*23.4*	*41.3*		*126.8*	*81.3*	*18.8*	*36.5*	*95.3*	*75.9*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.5*	*1.5*		*1.7*	*1.6*		*1.5*	*1.5*	*1.7*	*1.6*	*1.5*	*1.5*
BOQ, $Q_{\%}$	*109*	*102*		*38.9*	*64.4*		*190*	*122*	*32.1*	*57.6*	*143*	*114*

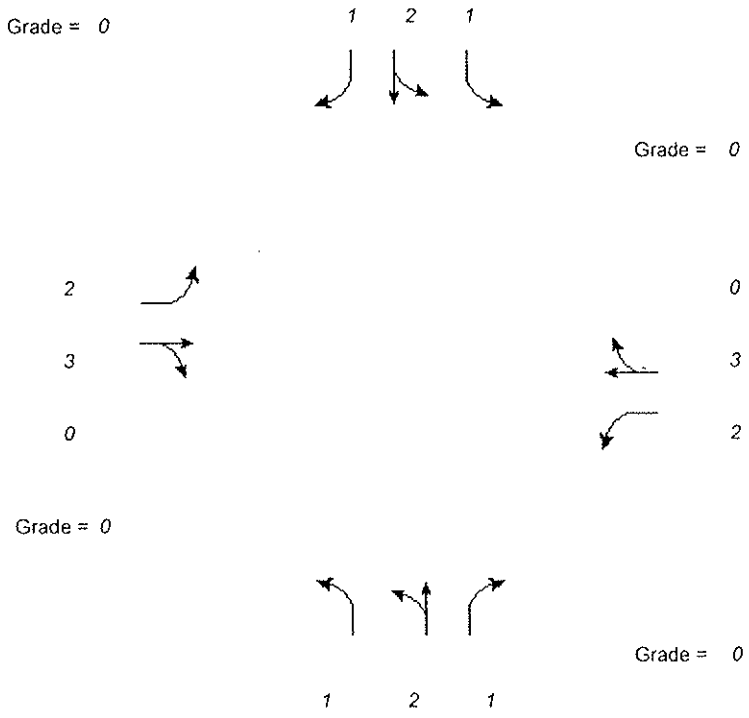
Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

FULL REPORT DRAFT

General Information		Site Information	
Analyst	*Praba*	Intersection	*SR 580 & US 19*
Agency or Co.	*H. W. Lochner, Inc.*	Area Type	*All other areas*
Date Performed	*05/16/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM*	Analysis Year	*2030 Build Scenario 2C*

Intersection Geometry



Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume (vph)	*920*	*790*	*1170*	*300*	*820*	*610*	*1170*	*1730*	*290*	*430*	*1270*	*670*
% Heavy veh	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*4.3*	*5.1*		*4.3*	*5.1*		*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*50*	*0*	*0*	*50*	*0*	*0*	*70*	*0*	*0*	*280*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking (Y or N)	*N*		*N*	*N*		*N*	*N*		*N*	*N*		*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Ped timing	*3.2*			*3.2*			*3.2*			*3.2*		

	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *26.0*	G = *53.2*	G =	G =	G = *41.0*	G = *62.0*	G =	G =
	Y = *9.5*	Y = *9.3*	Y =	Y =	Y = *9.5*	Y = *9.5*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *220.0*		

DRAFT

VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume	920	790	1170	300	820	610	1170	1730	290	430	1270	670
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow Rate	1000	859	1217	326	891	609	1272	1880	239	467	1380	424
Lane Group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1000	2076		326	1500		1272	1880	239	467	1380	424
Prop. LT or RT	0.000	--	0.586	0.000	--	0.406	0.000	--	0.000	0.000	--	0.000

Saturation Flow Rate

Base satflow	1900	1900		1900	1900		1900	1900	1900	1900	1900	1900
Num. of lanes	2	3	0	2	3	0	1	2	1	1	2	1
fW	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fHV	0.971	0.971		0.971	0.971		0.971	0.971	0.971	0.971	0.971	0.971
fg	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fp	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fbb	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fa	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
fLU	0.971	0.908		0.971	0.908		1.000	0.952	1.000	1.000	0.952	1.000
fLT	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--	0.950	1.000	--
Secondary fLT			--			--			--			--
fRT	--	0.912		--	0.939		--	1.000	0.850	--	1.000	0.850
fLpb	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--	1.000	1.000	--
fRpb	--	1.000		--	1.000		--	1.000	1.000	--	1.000	1.000
Adj. satflow	3403	4583		3403	4719		1752	3512	1568	1752	3512	1568
Sec. adj. satflow			--			--			--			--

DRAFT

CAPACITY AND LOS WORKSHEET

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1000	2076		326	1500		1272	1880	239	467	1380	424
Satflow rate	3403	4583		3403	4719		1752	3512	1568	1752	3512	1568
Lost time	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.13	0.26		0.13	0.26		0.30	0.30	0.30	0.20	0.20	0.20
Lane group cap.	438	1173		438	1208		521	1044	466	354	709	316
v/c ratio	2.28	1.77		0.74	1.24		2.44	1.80	0.51	1.32	1.95	1.34
Flow ratio	0.29	0.45		0.10	0.32		0.73	0.54	0.15	0.27	0.39	0.27
Crit. lane group	Y	Y		N	N		Y	N	N	N	Y	N
Sum flow ratios	1.87											
Lost time/cycle	25.60											
Critical v/c ratio	2.11											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	LT	R	L	LT	R
Adj. flow rate	1000	2076		326	1500		1272	1880	239	467	1380	424
Lane group cap.	438	1173		438	1208		521	1044	466	354	709	316
v/c ratio	2.28	1.77		0.74	1.24		2.44	1.80	0.51	1.32	1.95	1.34
Green ratio	0.13	0.26		0.13	0.26		0.30	0.30	0.30	0.20	0.20	0.20
Unif. delay d1	95.8	81.8		92.4	81.8		77.3	77.3	64.1	87.8	87.8	87.8
Delay factor k	0.50	0.50		0.30	0.50		0.50	0.50	0.12	0.50	0.50	0.50
Increm. delay d2	584.6	349.9		6.8	116.0		654.5	364.2	1.0	145.5	426.4	155.8
PF factor	1.000	1.000		1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	680.5	431.8		99.2	197.8		731.8	441.5	65.1	233.3	514.2	243.6
Lane group LOS	F	F		F	F		F	F	E	F	F	F
Apprch. delay	512.6			180.2			523.8			405.9		
Approach LOS	F			F			F			F		
Intersec. delay	435.8			Intersection LOS						F		

BACK-OF-QUEUE WORKSHEET DRAFT

General Information

Project Description *US 19 Sub Corridor Report (SR 580 - SR 95)*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*TR*		*L*	*LT*	*R*	*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*1000*	*2076*		*326*	*1500*		*1272*	*1880*	*239*	*467*	*1380*	*424*
Satflow per lane	*1752*	*1682*		*1752*	*1732*		*1752*	*1844*	*1568*	*1752*	*1844*	*1568*
Capacity/lane	*438*	*1173*		*438*	*1208*		*521*	*1044*	*466*	*354*	*709*	*316*
Flow ratio	*0.29*	*0.45*		*0.10*	*0.32*		*0.73*	*0.54*	*0.15*	*0.27*	0.39	*0.27*
v/c ratio	*2.28*	*1.77*		*0.74*	*1.24*		*2.44*	*1.80*	*0.51*	*1.32*	*1.95*	*1.34*
I factor	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*0.090*	*0.090*	*0.090*
Arrival type	*3*	*3*		*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*31.4*	*46.6*		*9.8*	*33.6*		*77.7*	*60.3*	*12.1*	*28.5*	*44.2*	*25.9*
k_B	*0.5*	*0.7*		*0.5*	*0.7*		*0.8*	*0.8*	*0.7*	*0.1*	*0.1*	*0.1*
Q_2	*37.0*	*43.1*		*1.2*	*16.4*		*95.2*	*56.7*	*0.8*	*14.4*	*44.1*	*13.7*
Q avg.	*68.4*	*89.6*		*11.0*	*50.0*		*172.9*	*117.0*	*12.9*	*42.9*	*88.4*	*39.6*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.5*	*1.5*		*1.8*	*1.5*		*1.5*	*1.5*	*1.8*	*1.6*	*1.5*	*1.6*
BOQ, Q%	*103*	*135*		*20.1*	*76.9*		*259*	*176*	*23.1*	*66.7*	*133*	*62.1*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

APPENDIX – E DRAFT

HCS Worksheets for Arterial Segments
Design Year 2030 No-Build Conditions

URBAN STREET WORKSHEET DRAFT

General Information		Site Information	
Analyst	*Praba*	Urban Street	*US 19*
Agency/Co.	*H. W. Lochner, Inc.*	Direction of Travel	*North-bound*
Date Performed	*7/14/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM Peak*	Analysis Year	*2030*

Project Description: *US 19 Sub Corridor Report (SR 580 - SR 95)*

Input Parameters

Analysis Period(h) T = *0.25*	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	*240.0*	*240.0*						
Eff. green to cycle ratio, g/C	*0.645*	*0.544*						
v/c ratio for lane group, X	*1.203*	*1.404*						
Cap of lane group, c (veh/h)	*4297*	*2732*						
Pct Veh on Grn., PVG								
Arrival type, AT	*3*	*4*						
Unit Extension, UE (sec)	*0.0*	*0.0*						
Length of segment, L (mi)	*0.57*	*1.47*						
Initial Queue, Qb (veh)	*0*	*0*						
Urban street class, SC	*1*	*1*						
Free-flow speed, FSS (mi/h)	*50*	*50*						
Running Time, TR (s)	*44.0*	*105.8*						
Other delay, (s)	*0.0*	*0.0*						
Delay Computation								
Uniform delay, d1 (s)	*42.6*	*54.8*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Incremental delay adj, k	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Upstream filtering adj factor, I	*1.000*	*0.090*						
Incremental delay, d2 (s)	*93.9*	*182.2*	*0.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*
Initial queue delay, d3 (s)	*0*	*0*						
Progression adj factor, PF	*1.000*	*0.694*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*
Control delay, d (s)	*136.5*	*220.2*						
Segment LOS Determination								
Travel time, ST (s)	*180.5*	*326.0*						
Travel speed, SA (mi/h)	*11.4*	*16.2*						
Segment LOS	*F*	*E*						

Urban Street LOS Determination

Total travel time (s)	*506.6*
Total length (mi)	*2.04*
Total travel speed, SA (mi/h)	*14.5*
Total urban street LOS	*F*

URBAN STREET WORKSHEET #1

DRAFT

General Information		Site Information	
Analyst	*Praba*	Urban Street	*US 19*
Agency/Co.	*H. W. Lochner, Inc.*	Direction of Travel	*North-bound*
Date Performed	*7/14/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM Peak*	Analysis Year	*2030*

Project Description: *US 19 Sub Corridor Report (SR 580 - SR 95)*

Input Parameters

Analysis Period(h) T = *0.25*	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	*240.0*	*240.0*						
Eff. green to cycle ratio, g/C	*0.674*	*0.484*						
v/c ratio for lane group, X	*1.386*	*1.712*						
Cap of lane group, c (veh/h)	*4485*	*2431*						
Pct Veh on Grn., PVG								
Arrival type, AT	*3*	*5*						
Unit Extension, UE (sec)	*0.0*	*0.0*						
Length of segment, L (mi)	*0.57*	*1.47*						
Initial Queue, Qb (veh)	*0*	*0*						
Urban street class, SC	*1*	*1*						
Free-flow speed, FSS (mi/h)	*50*	*50*						
Running Time, TR (s)	*44.0*	*105.8*						
Other delay, (s)	*0.0*	*0.0*						
Delay Computation								
Uniform delay, d1 (s)	*39.1*	*62.0*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Incremental delay adj, k	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Upstream filtering adj factor, I	*1.000*	*0.090*						
Incremental delay, d2 (s)	*174.9*	*320.8*	*0.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*
Initial queue delay, d3 (s)	*0*	*0*						
Progression adj factor, PF	*1.000*	*0.375*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*
Control delay, d (s)	*214.0*	*344.0*						
Segment LOS Determination								
Travel time, ST (s)	*258.0*	*449.8*						
Travel speed, SA (mi/h)	*8.0*	*11.8*						
Segment LOS	*F*	*F*						

Urban Street LOS Determination

Total travel time (s)	*707.8*
Total length (mi)	*2.04*
Total travel speed, SA (mi/h)	*10.4*
Total urban street LOS	*F*

URBAN STREET WORKSHEET #1 DRAFT

General Information		Site Information	
Analyst	*Praba*	Urban Street	*US 19*
Agency/Co.	*H. W. Lochner, Inc.*	Direction of Travel	*South-bound*
Date Performed	*7/14/2005*	Jurisdiction	*Pinellas County*
Time Period	*AM Peak*	Analysis Year	*2030*

Project Description: *US 19 Sub Corridor Report (SR 580 - SR 95)*

Input Parameters

Analysis Period(h) T = *0.25*	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	*240.0*	*240.0*						
Eff. green to cycle ratio, g/C	*0.498*	*0.637*						
v/c ratio for lane group, X	*1.955*	*1.420*						
Cap of lane group, c (veh/h)	*2502*	*4264*						
Pct Veh on Grn., PVG								
Arrival type, AT	*4*	*6*						
Unit Extension, UE (sec)	*0.0*	*0.0*						
Length of segment, L (mi)	*0.50*	*1.47*						
Initial Queue, Qb (veh)	*0*	*0*						
Urban street class, SC	*1*	*1*						
Free-flow speed, FSS (mi/h)	*50*	*50*						
Running Time, TR (s)	*39.0*	*105.8*						
Other delay, (s)	*0.0*	*0.0*						
Delay Computation								
Uniform delay, d1 (s)	*60.3*	*43.5*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Incremental delay adj, k	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Upstream filtering adj factor, I	*1.000*	*0.090*						
Incremental delay, d2 (s)	*431.1*	*188.9*	*0.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*
Initial queue delay, d3 (s)	*0*	*0*						
Progression adj factor, PF	*0.770*	*0.000*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*
Control delay, d (s)	*477.6*	*188.9*						
Segment LOS Determination								
Travel time, ST (s)	*516.6*	*294.8*						
Travel speed, SA (mi/h)	*3.5*	*18.0*						
Segment LOS	*F*	*E*						

Urban Street LOS Determination

Total travel time (s)	*811.3*
Total length (mi)	*1.97*
Total travel speed, SA (mi/h)	*8.7*
Total urban street LOS	*F*

URBAN STREET WORKSHEET #1 DRAFT

General Information		Site Information	
Analyst	*Praba*	Urban Street	*US 19*
Agency/Co.	*H. W. Lochner, Inc.*	Direction of Travel	*South-bound*
Date Performed	*7/14/2005*	Jurisdiction	*Pinellas County*
Time Period	*PM Peak*	Analysis Year	*2030*

Project Description: *US 19 Sub Corridor Report (SR 580 - SR 95)*

Input Parameters

Analysis Period(h) T = *0.25*	Segments							
	1	2	3	4	5	6	7	8
Cycle length, C (s)	*240.0*	*240.0*						
Eff. green to cycle ratio, g/C	*0.413*	*0.654*						
v/c ratio for lane group, X	*1.833*	*1.149*						
Cap of lane group, c (veh/h)	*2075*	*4370*						
Pct Veh on Grn., PVG								
Arrival type, AT	*4*	*5*						
Unit Extension, UE (sec)	*0.0*	*0.0*						
Length of segment, L (mi)	*0.50*	*1.47*						
Initial Queue, Qb (veh)	*0*	*0*						
Urban street class, SC	*1*	*1*						
Free-flow speed, FSS (mi/h)	*50*	*50*						
Running Time, TR (s)	*39.0*	*105.8*						
Other delay, (s)	*0.0*	*0.0*						
Delay Computation								
Uniform delay, d1 (s)	*70.4*	*41.5*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Incremental delay adj, k	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*	*0.50*
Upstream filtering adj factor, I	*1.000*	*0.090*						
Incremental delay, d2 (s)	*376.9*	*67.3*	*0.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*
Initial queue delay, d3 (s)	*0*	*0*						
Progression adj factor, PF	*0.881*	*0.000*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*	*0.256*
Control delay, d (s)	*438.9*	*67.3*						
Segment LOS Determination								
Travel time, ST (s)	*477.9*	*173.2*						
Travel speed, SA (mi/h)	*3.8*	*30.6*						
Segment LOS	*F*	*C*						

Urban Street LOS Determination

Total travel time (s)	*651.1*
Total length (mi)	*1.97*
Total travel speed, SA (mi/h)	*10.9*
Total urban street LOS	*F*

APPENDIX – F DRAFT

HCS Worksheets for Highway Segments

Design Year 2030 Build Alternatives

DRAFT

HCS2000: Basic Freeway Segments Release 4.1d

Phone:
E-mail:
Fax:

Operational Analysis

Analyst:	Praba
Agency or Company:	H. W. Lochner, Inc.
Date Performed:	5/18/2005
Analysis Time Period:	Design Hour
Freeway/Direction:	Peak Direction
From/To:	SR 580 / Curlew Road
Jurisdiction:	Pinellas County
Analysis Year:	2030 Build 1
Description:	US 19 Sub Corridor Report (SR 580 - SR 95)

Flow Inputs and Adjustments

Volume, V	7310	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	1986	v
Trucks and buses	3	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.985	
Driver population factor, fp	1.00	
Flow rate, vp	2688	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.1	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2688	pc/h/ln
Free-flow speed, FFS	65.1	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

 DRAFT

HCS2000: Basic Freeway Segments Release 4.1d

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Praba
Agency or Company:	H. W. Lochner, Inc.
Date Performed:	5/18/2005
Analysis Time Period:	Average Peak Hour
Freeway/Direction:	Peak Direction
From/To:	SR 580 / Curlew Road
Jurisdiction:	Pinellas County
Analysis Year:	2030 Build 1
Description:	US 19 Sub Corridor Report (SR 580 - SR 95)

Flow Inputs and Adjustments

Volume, V	5420	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	1473	v
Trucks and buses	3	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.985	
Driver population factor, fp	1.00	
Flow rate, vp	1993	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.1	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1993	pc/h/ln
Free-flow speed, FFS	65.1	mi/h
Average passenger-car speed, S	61.6	mi/h
Number of lanes, N	3	
Density, D	32.3	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1d

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Praba
Agency or Company:	H. W. Lochner, Inc.
Date Performed:	5/18/2005
Analysis Time Period:	Design Hour
Freeway/Direction:	Peak Direction
From/To:	SR 580 / Curlew Road
Jurisdiction:	Pinellas County
Analysis Year:	2030 Build 2A
Description:	US 19 Sub Corridor Report (SR 580 - SR 95)

Flow Inputs and Adjustments

Volume, V	7810	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2122	v
Trucks and buses	3	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.985	
Driver population factor, fp	1.00	
Flow rate, vp	2872	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.83	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.7	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	63.4	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2872	pc/h/ln
Free-flow speed, FFS	63.4	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1d

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Praba
Agency or Company:	H. W. Lochner, Inc.
Date Performed:	5/18/2005
Analysis Time Period:	Average Peak Hour
Freeway/Direction:	Peak Direction
From/To:	SR 580 / Curlew Road
Jurisdiction:	Pinellas County
Analysis Year:	2030 Build 2A
Description:	US 19 Sub Corridor Report (SR 580 - SR 95)

Flow Inputs and Adjustments

Volume, V	5795	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	1575	v
Trucks and buses	3	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.985	
Driver population factor, fp	1.00	
Flow rate, vp	2131	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.83	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.7	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	63.4	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2131	pc/h/ln
Free-flow speed, FFS	63.4	mi/h
Average passenger-car speed, S	57.8	mi/h
Number of lanes, N	3	
Density, D	36.9	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1d

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Praba
Agency or Company:	H. W. Lochner, Inc.
Date Performed:	5/18/2005
Analysis Time Period:	Design Hour
Freeway/Direction:	Peak Direction
From/To:	SR 580 / Curlew Road
Jurisdiction:	Pinellas County
Analysis Year:	2030 Build 2B
Description:	US 19 Sub Corridor Report (SR 580 - SR 95)

Flow Inputs and Adjustments

Volume, V	7450	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2024	v
Trucks and buses	3	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.985	
Driver population factor, fp	1.00	
Flow rate, vp	2740	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	62.6	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2740	pc/h/ln
Free-flow speed, FFS	62.6	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Phone:
E-mail:

Fax:

Operational Analysis

Analyst:	Praba
Agency or Company:	H. W. Lochner, Inc.
Date Performed:	5/18/2005
Analysis Time Period:	Average Peak Hour
Freeway/Direction:	Peak Direction
From/To:	SR 580 / Curlew Road
Jurisdiction:	Pinellas County
Analysis Year:	2030 Build 2B
Description:	US 19 Sub Corridor Report (SR 580 - SR 95)

Flow Inputs and Adjustments

Volume, V	5530	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	1503	v
Trucks and buses	3	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.985	
Driver population factor, fp	1.00	
Flow rate, vp	2034	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	62.6	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2034	pc/h/ln
Free-flow speed, FFS	62.6	mi/h
Average passenger-car speed, S	59.2	mi/h
Number of lanes, N	3	
Density, D	34.3	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

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HCS2000: Basic Freeway Segments Release 4.1d

Phone:
E-mail:
Fax:

Operational Analysis

Analyst:	Praba
Agency or Company:	H. W. Lochner, Inc.
Date Performed:	5/18/2005
Analysis Time Period:	Design Hour
Freeway/Direction:	Peak Direction
From/To:	SR 580 / Curlew Road
Jurisdiction:	Pinellas County
Analysis Year:	2030 Build 2C
Description:	US 19 Sub Corridor Report (SR 580 - SR 95)

Flow Inputs and Adjustments

Volume, V	7380	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2005	v
Trucks and buses	3	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.985	
Driver population factor, fp	1.00	
Flow rate, vp	2714	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	62.6	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2714	pc/h/ln
Free-flow speed, FFS	62.6	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Phone:
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Operational Analysis

Analyst:	Praba
Agency or Company:	H. W. Lochner, Inc.
Date Performed:	5/18/2005
Analysis Time Period:	Average Peak Hour
Freeway/Direction:	Peak Direction
From/To:	SR 580 / Curlew Road
Jurisdiction:	Pinellas County
Analysis Year:	2030 Build 2C
Description:	US 19 Sub Corridor Report (SR 580 - SR 95)

Flow Inputs and Adjustments

Volume, V	5475	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	1488	v
Trucks and buses	3	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.985	
Driver population factor, fp	1.00	
Flow rate, vp	2013	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	62.6	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2013	pc/h/ln
Free-flow speed, FFS	62.6	mi/h
Average passenger-car speed, S	59.6	mi/h
Number of lanes, N	3	
Density, D	33.8	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

2030 Build with No-Build Traffic DRH DRAFT

HCS2000: Basic Freeway Segments Release 4.1d

Phone:
E-mail: Fax:

Operational Analysis

Analyst:	Praba
Agency or Company:	H. W. Lochner, Inc.
Date Performed:	5/18/2005
Analysis Time Period:	Design Hour
Freeway/Direction:	Peak Direction
From/To:	SR 580 / Curlew Road
Jurisdiction:	Pinellas County
Analysis Year:	2030 Build - No-Build Traffic
Description:	US 19 Sub Corridor Report (SR 580 - SR 95)

Flow Inputs and Adjustments

Volume, V	5880	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	1598	v
Trucks and buses	3	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.985	
Driver population factor, fp	1.00	
Flow rate, vp	2162	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.83	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.7	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	63.4	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2162	pc/h/ln
Free-flow speed, FFS	63.4	mi/h
Average passenger-car speed, S	57.1	mi/h
Number of lanes, N	3	
Density, D	37.9	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

2030 Build with No-Build Traffic APH **DRAFT**

HCS2000: Basic Freeway Segments Release 4.1d

Phone:
E-mail:
Fax:

Operational Analysis

Analyst:	Praba
Agency or Company:	H. W. Lochner, Inc.
Date Performed:	5/18/2005
Analysis Time Period:	Average Peak Hour
Freeway/Direction:	Peak Direction
From/To:	SR 580 / Curlew Road
Jurisdiction:	Pinellas County
Analysis Year:	2030 Build - No-Build Traffic
Description:	US 19 Sub Corridor Report (SR 580 - SR 95)

Flow Inputs and Adjustments

Volume, V	4360	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	1185	v
Trucks and buses	3	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.985	
Driver population factor, fp	1.00	
Flow rate, vp	1603	pc/h/ln

Speed Inputs and Adjustments

Lane width	11.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.83	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	1.9	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.7	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	63.4	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1603	pc/h/ln
Free-flow speed, FFS	63.4	mi/h
Average passenger-car speed, S	63.4	mi/h
Number of lanes, N	3	
Density, D	25.3	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

APPENDIX – G DRAFT

HCS Worksheets for Weaving Segments
Design Year 2030 Build Alternatives

FREEWAY WEAVING WORKSHEET DRAFT

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 19 Northbound
Weaving Seg Location	Southern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2B

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.22
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4720	0.92	3	0	1.5	1.2	0.985	1.00	5207
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	410	0.92	3	0	1.5	1.2	0.985	1.00	452
Vw2	1480	0.92	3	0	1.5	1.2	0.985	1.00	1632
Vw				2084	Vnw				5207
V									7291

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			2.55	0.39
Weaving and non-weaving speeds, Si (mi/h)			29.94	53.04

Number of lanes required for unconstrained operation, Nw: 1.59

Maximum number of lanes, Nw (max): 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	43.45
Weaving segment density, D (pc/mi/ln)	41.95
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7435
Capacity as a 15-minute flow rate, c (veh/h)	7325
Capacity as a full-hour volume, c_h (veh/h)	6739

Notes

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

FREEWAY WEAVING WORKSHEET DRAFT

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 19 Northbound
Weaving Seg Location	Southern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2B

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.22
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5670	0.92	3	0	1.5	1.2	0.985	1.00	6255
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	490	0.92	3	0	1.5	1.2	0.985	1.00	540
Vw2	1780	0.92	3	0	1.5	1.2	0.985	1.00	1963
Vw				2503	Vnw				6255
V									8758

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.04	0.50
Weaving and non-weaving speeds, Si (mi/h)			28.10	50.36

Number of lanes required for unconstrained operation, Nw: 1.63
Maximum number of lanes, Nw (max): 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	41.06
Weaving segment density, D (pc/mi/ln)	53.32
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7435
Capacity as a 15-minute flow rate, c (veh/h)	7325
Capacity as a full-hour volume, c_h (veh/h)	6739

Notes

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

FREEWAY WEAVING WORKSHEET DRAFT

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 19 Southbound
Weaving Seg Location	Southern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2B

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.22
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5670	0.92	3	0	1.5	1.2	0.985	1.00	6255
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	1780	0.92	3	0	1.5	1.2	0.985	1.00	1963
Vw2	490	0.92	3	0	1.5	1.2	0.985	1.00	540
Vw				2503	Vnw				6255
V									8758

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.04	0.50
Weaving and non-weaving speeds, Si (mi/h)			28.10	50.36

Number of lanes required for unconstrained operation, Nw 1.63
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	41.06
Weaving segment density, D (pc/mi/ln)	53.32
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7435
Capacity as a 15-minute flow rate, c (veh/h)	7325
Capacity as a full-hour volume, c_h (veh/h)	6739

Notes

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

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FREEWAY WEAVING WORKSHEET

DRAFT

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 19 Southbound
Weaving Seg Location	Southern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2B

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.22
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	fHV	fp	v
Vo1	4720	0.92	3	0	1.5	1.2	0.985	1.00	5207
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	1480	0.92	3	0	1.5	1.2	0.985	1.00	1632
Vw2	410	0.92	3	0	1.5	1.2	0.985	1.00	452
Vw				2084	Vnw				5207
V									7291

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			2.55	0.39
Weaving and non-weaving speeds, Si (mi/h)			29.94	53.04

Number of lanes required for unconstrained operation, Nw: 1.59

Maximum number of lanes, Nw (max): 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	43.45
Weaving segment density, D (pc/mi/ln)	41.95
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7435
Capacity as a 15-minute flow rate, c (veh/h)	7325
Capacity as a full-hour volume, c_h (veh/h)	6739

Notes

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

FREEWAY WEAVING WORKSHEET DRAFT

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 19 Northbound
Weaving Seg Location	Northern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2C

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.19
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4600	0.92	3	0	1.5	1.2	0.985	1.00	5074
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	1530	0.92	3	0	1.5	1.2	0.985	1.00	1687
Vw2	370	0.92	3	0	1.5	1.2	0.985	1.00	408
Vw				2095	Vnw				5074
V									7169

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			2.53	0.39
Weaving and non-weaving speeds, Si (mi/h)			29.99	53.06

Number of lanes required for unconstrained operation, Nw 1.61
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	43.33
Weaving segment density, D (pc/mi/ln)	41.37
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7391
Capacity as a 15-minute flow rate, c (veh/h)	7282
Capacity as a full-hour volume, c_h (veh/h)	6699

Notes

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

FREEWAY WEAVING WORKSHEET DRAFT

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 19 Northbound
Weaving Seg Location	Northern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2C

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.20
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5540	0.92	3	0	1.5	1.2	0.985	1.00	6112
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	1840	0.92	3	0	1.5	1.2	0.985	1.00	2029
Vw2	450	0.92	3	0	1.5	1.2	0.985	1.00	496
Vw				2525	Vnw				6112
V									8637

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.04	0.50
Weaving and non-weaving speeds, Si (mi/h)			28.13	50.33

Number of lanes required for unconstrained operation, Nw: 1.65

Maximum number of lanes, Nw (max): 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	40.89
Weaving segment density, D (pc/mi/ln)	52.80
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7390
Capacity as a 15-minute flow rate, c (veh/h)	7281
Capacity as a full-hour volume, c_h (veh/h)	6699

Notes

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

FREEWAY WEAVING WORKSHEET DRAFT

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 19 Southbound
Weaving Seg Location	Northern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2C

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.20
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5540	0.92	3	0	1.5	1.2	0.985	1.00	6112
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	450	0.92	3	0	1.5	1.2	0.985	1.00	496
Vw2	1840	0.92	3	0	1.5	1.2	0.985	1.00	2029
Vw				2525	Vnw				6112
V									8637

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.04	0.50
Weaving and non-weaving speeds, Si (mi/h)			28.13	50.33

Number of lanes required for unconstrained operation, Nw 1.65
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	40.89
Weaving segment density, D (pc/mi/ln)	52.80
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7390
Capacity as a 15-minute flow rate, c (veh/h)	7281
Capacity as a full-hour volume, c_h (veh/h)	6699

Notes

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

FREEWAY WEAVING WORKSHEET DRAFT

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 19 Southbound
Weaving Seg Location	Northern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2C

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.19
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4600	0.92	3	0	1.5	1.2	0.985	1.00	5074
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	370	0.92	3	0	1.5	1.2	0.985	1.00	408
Vw2	1530	0.92	3	0	1.5	1.2	0.985	1.00	1687
Vw				2095	Vnw				5074
V									7169

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			2.53	0.39
Weaving and non-weaving speeds, Si (mi/h)			29.99	53.06

Number of lanes required for unconstrained operation, Nw 1.61

Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	43.33
Weaving segment density, D (pc/mi/ln)	41.37
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7391
Capacity as a 15-minute flow rate, c (veh/h)	7282
Capacity as a full-hour volume, c_h (veh/h)	6699

Notes

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

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 19 Northbound
Weaving Seg Location	Southern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2C

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.22
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5620	0.92	3	0	1.5	1.2	0.985	1.00	6200
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	490	0.92	3	0	1.5	1.2	0.985	1.00	540
Vw2	1760	0.92	3	0	1.5	1.2	0.985	1.00	1941
Vw				2481	Vnw				6200
V									8681

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.02	0.49
Weaving and non-weaving speeds, Si (mi/h)			28.19	50.49

Number of lanes required for unconstrained operation, Nw 1.63
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	41.18
Weaving segment density, D (pc/mi/ln)	52.70
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7435
Capacity as a 15-minute flow rate, c (veh/h)	7325
Capacity as a full-hour volume, c_h (veh/h)	6739

Notes

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

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	AM Peak

Site Information

Freeway/Dir of Travel	US 19 Southbound
Weaving Seg Location	Southern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2C

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.22
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	5620	0.92	3	0	1.5	1.2	0.985	1.00	6200
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	1760	0.92	3	0	1.5	1.2	0.985	1.00	1941
Vw2	490	0.92	3	0	1.5	1.2	0.985	1.00	540
Vw				2481	Vnw				6200
V									8681

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			3.02	0.49
Weaving and non-weaving speeds, Si (mi/h)			28.19	50.49

Number of lanes required for unconstrained operation, Nw: 1.63

Maximum number of lanes, Nw (max): 1.40

☐ If Nw < Nw(max) unconstrained operation

☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	41.18
Weaving segment density, D (pc/mi/ln)	52.70
Level of service, LOS	F
Capacity of base condition, c_b (pc/h)	7435
Capacity as a 15-minute flow rate, c (veh/h)	7325
Capacity as a full-hour volume, c_h (veh/h)	6739

Notes

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

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FREEWAY WEAVING WORKSHEET

General Information

Analyst	Praba
Agency/Company	H. W. Lochner, Inc.
Date Performed	5/31/2005
Analysis Time Period	PM Peak

Site Information

Freeway/Dir of Travel	US 19 Southbound
Weaving Seg Location	Southern Segment
Jurisdiction	Pinellas County
Analysis Year	2030 Build Alternative 2C

Inputs

Freeway free-flow speed, SFF (mi/h)	63	Weaving type	A
Weaving number of lanes, N	4	Volume ratio, VR	0.29
Weaving seg length, L (ft)	1500	Weaving ratio, R	0.22
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
Vo1	4670	0.92	3	0	1.5	1.2	0.985	1.00	5152
Vo2	0	0.92	3	0	1.5	1.2	0.985	1.00	0
Vw1	1460	0.92	3	0	1.5	1.2	0.985	1.00	1610
Vw2	410	0.92	3	0	1.5	1.2	0.985	1.00	452
Vw				2062	Vnw				5152
V									7214

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)			0.15	0.00
b (Exhibit 24-6)			4.00	4.00
c (Exhibit 24-6)			0.97	1.30
d (Exhibit 24-6)			0.80	0.75
Weaving intensity factor, Wi			2.52	0.39
Weaving and non-weaving speeds, Si (mi/h)			30.05	53.19

Number of lanes required for unconstrained operation, Nw 1.58
Maximum number of lanes, Nw (max) 1.40

☐ If Nw < Nw(max) unconstrained operation ☑ if Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	43.59
Weaving segment density, D (pc/mi/ln)	41.37
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	7435
Capacity as a 15-minute flow rate, c (veh/h)	7325
Capacity as a full-hour volume, c_h (veh/h)	6739

Notes

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