APPENDIX E

Traffic Impact Study and Traffic Impact Analysis

Traffic Impact Study (DKS)

Merced Wal-Mart Distribution Center Traffic Impact Analysis

Draft Report

Prepared for

City of Merced

By

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EXECUTIVE SUMMARY

The purpose of this study is to determine the potential transportation impacts of the proposed Wal-Mart Distribution Center located in the City of Merced. The proposed project consists of approximately 1.1 million square feet of warehouse, a 37,000 square foot office and support facility, a 17,000 square foot truck maintenance building and a 1,600 square foot fire pump house. It is estimated that the Wal-Mart Distribution Center would generate approximately 2,400 net new daily trips with 143 net new AM peak hour trips (87 inbound, 56 outbound) and 328 net new PM peak hour trips (45 inbound, 283 outbound trips).

This report analyzes the traffic conditions of intersection and roadway segments during the weekday A.M. and P.M. peak hours. The operation of these intersections and roadway segments was evaluated for the following scenarios: Existing Condition, 2010 Background Condition, 2010 Background with Project Condition, 2030 Cumulative No Project Condition and 2030 Cumulative with Project Condition. **Tables ES 1-A** and **ES 1-B** provide a summary of the intersection operation Level of Service (LOS). **Tables ES 2-A** and **ES 2-B** provide a summary of the roadway segment operation

It should be noted that under the 2010 Background and 2010 Background with Project Conditions, Campus Parkway was assumed to be constructed between Mission Interchange and Childs Avenue. It was assumed that the corridor would be extended north from Childs Avenue and completed by year 2030 and serve as a main corridor that would carry traffic to the area north of Merced. The traffic travel patterns within the area would, therefore, be different between 2010 Project Condition and 2030 Cumulative Condition.

Based on the analysis results and the threshold criteria, the proposed project would result in one significant transportation impact to the study intersections under the 2030 Cumulative with Project Condition PM peak period due to the development of the Wal-Mart Distribution Center. Additionally, one significant transportation impact to the roadway segment of SR 140 between Santa Fe Avenue and Kibby Road under the 2030 Cumulative with Project Condition PM peak period due to the development of the distribution center.

Existing Condition

Under the Existing Condition, all study intersections and all roadway segments operate at acceptable Level of Services (LOS D or better) during the AM and PM peak hours.

2010 Background Condition

During the AM peak hour, one intersection, SR 140 at Baker Drive, would operate at LOS E. The intersections of Childs Avenue at SR 99 northbound off-ramp would operate at LOS F. The other intersections would continue to operate at acceptable LOS (LOS D or better). During the PM peak hour, four intersections, SR 140 at Baker Drive, Childs Avenue at SR 99 southbound off-ramp, Childs Avenue at SR 99 northbound off-ramp and Childs Avenue at Parsons Avenue would operate at deficient LOS (LOS F). All other intersections would continue to operate at acceptable LOS (LOS D or better). All study roadway segments would continue to operate at an acceptable LOS under 2010 Background Conditions during the AM and PM peak hours.

2030 Cumulative Condition

During the AM peak hour, six intersections, SR 140 at Parsons Avenue, SR 140 at Baker Drive, SR 140 at Kibby Road, Childs Avenue at SR 99 southbound off-ramp, Childs Avenue at SR 99 northbound off-ramp, and Mission Avenue at Coffee Street would operate at LOS F. Childs Avenue and Parsons Avenue would operate at LOS E while all other intersections would continue to operate at acceptable LOS (LOS D or better). During the PM peak hour, five intersections, SR 140 at Baker Drive, SR 140 at Kibby Road, Childs Avenue at SR 99 southbound off-ramp, Childs Avenue at SR 99 northbound off-ramp, and Mission Avenue and Coffee Street would all operated at LOS F. Two intersections, Childs Avenue and Parsons Avenue and Mission Avenue at SR 99 southbound off-ramp, would operate at LOS E. All other intersections would continue to operate at acceptable LOS (LOS D or better). The roadway segment of SR 140 between Santa Fe Avenue and Kibby Road would deteriorate from LOS D under 2010 Background Conditions to operate at LOS E under the 2030 Cumulative Conditions during the AM peak hour, but would continue to operate at acceptable LOS (LOS D) during the PM peak hour.

A Caltrans Peak Hour Signal Warrant analysis was performed at all unsignalized intersections. Based on the signal warrant analysis, the intersection of Childs Avenue and SR 99 northbound off-ramp meets the signal warrant under the Existing Condition PM peak hour. In addition, a signal warrant is also satisfied under the 2010 Background Condition at the intersections of SR 140 at Baker Drive, Childs Avenue at SR 99 southbound off-ramp, and Childs Avenue at SR 99 northbound off-ramp. Under the 2030 Cumulative Condition, the signal warrant would also be met at two other intersections, SR 140 and Kibby Road and Mission Avenue at Coffee Street

One intersection, Mission Avenue at SR 99 northbound off-ramps would experience a significant impact under the 2030 Cumulative with Project scenarios under the PM peak hour. This impact would be mitigated by restriping the northbound and westbound approach would restore the operations to an acceptable LOS of C, fully mitigating this impact resulting no significant impacts for the project.

In addition, mitigation measures have been recommended for six intersections as a means to improve level of service from a deficient level, E or F, to an acceptable level of D or better. For the unsignalized intersections that would operate at a deficient Level of Services (LOS E or F), the installation of a traffic signal control (sometimes with lane additions as well) was recommended as an mitigation measure to improve intersection operation to an acceptable level.

One roadway segment, SR 140 between Santa Fe Avenue and Kibby Road, experienced a significant impact in the 2030 Cumulative with Project scenario for the PM peak hour. This impact would be mitigated by adding on lane in each direction in this segment. With the proposed mitigation, this segment would operated under LOS A, fully mitigating this impact resulting in no significant impaces.

Additionally, one mitigation measure is recommended for the roadway segment of Tower Road between SR 140 and Gerard Avenue. Restriping this segment is necessary since the existing striping has faded. In addition, at the intersections of Tower Road and Gerard Avenue and Tower Road and SR 140, intersection geometry should be improved to provide proper turning radii to accommodate the turning movements of standard trucks.

Table ES 1-A
AM Peak Hour Intersection Level of Service Summary

No.	INTERSECTION	Control	Existing		2010 Background Condition		2010 Background with Project Condition		Impact	2030 Cumulative No Project Condition		2030 Cumulative with Project Condition		Impact
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	
1	SR 140 / Parsons Avenue	Signalized	24.1	C	27.5	C	27.8	C	No	89.8	F	93.1	F	No
2	SR 140 / Baker Drive	Unsignalized	1.8		9.4		10.0		No	5.4		5.8		No
	SB Approach		18.8	C	40.2	E	43.2	E		>50.0 [c]	F	>50.0 [d]	F	
	EB Left		8.9	A	9.2	A	9.2	A		10.2	B	10.3	B	
3	SR 140 / Kibby Road	Unsignalized	3.7		5.2		5.2		No	39.1		46.2		No
	NB Approach		13.7	B	12.2	B	12.5	B		>50.0 [c]	F	>50.0	F	
	SB Approach		12.7	B	14.3	B	15.2	C		>50.0 [c]	F	>50.0	F	
	EB Left		7.8	A	7.8	A	7.9	A		9.6	A	9.6	A	
	WB Left		7.5	A	7.6	A	7.6	A		9.7	A	9.7	A	
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [c]	12.3	B	22.0	C	22.3	C	No	>50.0	F	>50.0	F	No
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	18.5	C	>50.0 [c]	F	>50.0	F	No	>50.0	F	>50.0	F	No
6	Childs Avenue / Parsons Avenue	Signalized	33.8	C	46.4	D	46.6	D	No	66.0	E	66.4	E	No
7	Childs Avenue / Coffee Street	AWSC	30.4	C	36.9	D	37.1	D	No	28.6	C	28.6	C	No
8	Childs Avenue / Kibby Road	Unsignalized	3.2		4.2		4.2		No	2.5		2.5		No
	SB Approach		9.4	A	9.9	A	9.9	A		10.3	B	10.3	B	
	EB Left		7.5	A	7.8	A	7.8	A		7.7	A	7.7	A	
9	Childs Avenue / Tower Road	Unsignalized	1.2		1.1		2.5		No	1.2		1.7		No
	NB Approach		9.8	B	10.3	B	10.7	B		11.1	B	11.2	B	
	SB Approach		9.4	A	9.7	A	10.5	B		10.1	B	10.7	B	
	EB Left		7.4	A	7.5	A	7.5	A		7.6	A	7.6	A	
	WB Left		0.0	A	0.0	A	7.4	A		0.0	A	7.5	A	
10	Gerard Avenue / Coffee Street	AWSC	8.3	A	9.7	A	9.8	A	No	9.5	A	9.5	A	No
11	Gerard Avenue / Tower Road	Unsignalized	6.9		6.9		6.9		No	7.1		7.1		No
	SB Approach		6.5	A	6.5	A	6.5	A		6.7	A	6.6	A	
	EB Left		7.1	A	7.1	A	7.3	A		7.2	A	7.3	A	
12	Childs Avenue / Campus Parkway	Unsig./Signalized	-	-	7.6		7.6		No	27.4	C	27.6	C	No
	NB Approach		-	-	9.3	A	9.3	A						
	WB Left		-	-	7.5	A	7.5	A						
13	Gerard Avenue / Campus Parkway	Signalized	-	-	23.4	C	30.6	C	No	28.8	C	31.0	C	No
14	Mission Avenue / SR 99 Southbound	Signalized	17.8	B	18.3	B	19.2	B	No	20.6	C	21.2	C	No
15	Mission Avenue / SR 99 Northbound	Signalized	24.1	C	29.8	C	27.9	C	No	28.3	C	30.6	C	No
16	Mission Avenue / Coffee Street	AWSC/Signalized	8.1	A	28.5	B	28.8	C	No	37.1	D	37.7	D	No

Source: DKS Associates

Notes: a. Delay = Intersection Average Delay (seconds/vehicle). For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
b. LOS = Level of Service.
c. AWSC = All-way stop control

Table ES 1-B
PM Peak Hour Intersection Level of Service Summary

No.	INTERSECTION	Control	Existing		2010 Background Condition		2010 Background with Project Condition		Impact	2030 Cumulative No Project Condition		2030 Cumulative with Project Condition		Impact
			Delay [a]	LOS [b]	Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	
1	SR 140 / Parsons Avenue	Signalized	24.4	C	47.9	D	49.9	D	No	37.7	D	38.7	D	No
2	SR 140 / Baker Drive	Unsignalized	2.3		13.9		15.3		No	6.1		6.6		No
	SB Approach		20.7	C	>50.0	F	>50.0	F		>50.0	F	>50.0	F	
	EB Left		8.2	A	9.2	A	9.2	A		9.6	B	9.7	A	
3	SR 140 / Kibby Road	Unsignalized	2.3		4.7		4.5		No	3.1		3.3		No
	NB Approach		13.1	B	13.4	B	13.9	B		>50.0	F	>50.0	F	
	SB Approach		12.0	B	16.3	C	17.4	C		36.6	E	44.8	E	
	EB Left		7.6	A	7.7	A	7.8	A		9.1	A	9.2	A	
	WB Left		0.0	A	7.9	A	7.9	A		0.0	A	0.0	A	
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [c]	13.0	B	>50.0	F	>50.0	F	No	>50.0	F	>50.0	F	No
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	18.1	C	>50.0	F	>50.0	F	No	>50.0	F	>50.0	F	No
6	Childs Avenue / Parsons Avenue	Signalized	32.0	C	43.1	D	43.3	D	No	61.8	E	64.8	E	No
7	Childs Avenue / Coffee Street	AWSC	22.8	C	33.1	C	34.2	C	No	32.2	C	32.7	C	No
8	Childs Avenue / Kibby Road	Unsignalized	2.0		4.2		4.2		No	1.8		1.8		No
	SB Approach		9.2	A	10.1	B	10.1	B		12.1	B	12.1	B	
	EB Left		7.4	A	7.6	A	7.6	A		7.8	A	7.8	A	
9	Childs Avenue / Tower Road	Unsignalized	0.6		0.6		3.1		No	0.5		2.1		No
	NB Approach		9.6	A	10.4	B	11.7	B		12.8	B	15.0	B	
	SB Approach		9.6	A	9.5	A	10.6	B		12.8	B	13.5	B	
	EB Left		7.3	A	7.5	A	7.5	A		7.7	A	7.7	A	
	WB Left		0.0	A	0.0	A	7.5	A		0.0	A	8.0	A	
10	Gerard Avenue / Coffee Street	AWSC	7.1	A	8.4	A	8.5	A	No	9.8	A	10.0	A	No
11	Gerard Avenue / Tower Road	Unsignalized	6.9		6.9		7.4		No	7.1		7.5		No
	SB Approach		6.9	A	6.9	A	6.7	A		7.0	A	6.9	A	
	EB Left		7.0	A	7.0	A	7.6	A		7.1	A	7.7	A	
12	Childs Avenue / Campus Parkway	Unsig./Signalized	-	-	3.5		3.7		No	28.0	C	28.4	C	No
	NB Approach		-	-	9.8	A	10.0	A						
	WB Left		-	-	7.5	A	7.5	A						
13	Gerard Avenue / Campus Parkway	Signalized	-	-	23.3	C	34.9	C	No	29.8	C	51.2	D	No
14	Mission Avenue / SR 99 Southbound	Signalized	17.6	B	13.6	B	15.3	B	No	21.5	B	22.1	C	No
15	Mission Avenue / SR 99 Northbound	Signalized	18.6	B	28.5	C	34.6	C	No	39.6	D	55.1	E	**Yes**
16	Mission Avenue / Coffee Street	AWSC	7.8	A	33.3	C	33.4	C	No	45.8	D	48.5	D	No

Source: DKS Associates

Notes: a. Delay = Intersection Average Delay (seconds/vehicle). For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
b. LOS = Level of Service
c. AWSC = All-way stop control

Table ES 2-A
AM Peak Hour Roadway Segment Level of Service Summary

No.	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	Existing		2010 Background Condition		2010 Background with Project Condition		2030 Cumulative No Project Condition		2030 Cumulative with Project Condition	
					MOE [a]	LOS [b]	MOE	LOS	MOE	LOS	MOE	LOS	MOE	LOS
1	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	12.7	B	18.6	C	18.6	C	17.4	C	17.4	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	12.4	B	16.6	B	17.2	B	18.6	C	19.0	C
2	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	34.9	A	34.7	A	34.6	A	29.2	B	28.9	B
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	34.5	A	32.1	A	32.0	A	32.2	A	32.1	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	39.9	A	39.6	A	39.5	A	39.1	A	39.1	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	38.8	A	38.8	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	68.0	D	68.4	D	69.2	D	82.3	E	82.7	E
3	Parsons Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	34.9	A	34.6	A	34.6	A	34.8	A	34.7	A
			from SR 140 to Childs Ave.	Travel Speed (mi/hr)	34.9	A	34.8	A	34.8	A	34.8	A	34.8	A
4	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	30.0	A	29.9	A	29.9	A	30.0	A	30.0	A
			From Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	30.0	A	29.9	A	29.9	A	30.0	A	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	30.0	A	28.7	A	28.7	A	30.0	A	30.0	A
			from Gerard Ave. to Childs Ave.	Travel Speed (mi/hr)	30.0	A	29.9	A	29.9	A	29.9	A	29.9	A
5	Gerard Avenue	Urban Class III	from Parson Ave. to Coffee Str.	Travel Speed (mi/hr)	35.0	A	35.0	A	35.0	A	35.0	A	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	35.0	A	35.0	A	35.0	A	35.0	A	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
6	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness
b. LOS = Level of Service

Table ES 2-B
AM Peak Hour Roadway Segment Level of Service Summary

No.	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	Existing		2010 Background Condition		2010 Background with Project Condition		2030 Cumulative No Project Condition		2030 Cumulative with Project Condition	
					MOE [a]	LOS [b]	MOE	LOS	MOE	LOS	MOE	LOS	MOE	LOS
6	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
7	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	34.7	A	34.2	A	34.2	A	30.1	A	30.0	B
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	34.6	A	31.9	A	31.9	A	30.3	A	30.3	A
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	34.9	A	34.7	A	34.7	A	33.7	A	33.7	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	34.9	A	34.4	A	32.9	A	33.2	A	33.2	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
8	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	34.7	A	35.0	A	35.0	A	35.0	A	34.9	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	34.6	A	35.0	A	35.0	A	34.9	A	34.9	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	35.0	A	35.0	A	35.0	A	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	n/a	n/a	35.0	A	35.0	A	35.0	A	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a	35.0	A	35.0	A
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a	35.0	A	35.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness
b. LOS = Level of Service

Table ES 2-C
PM Peak Hour Roadway Segment Level of Service Summary

NO	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	Existing		2010 Background Condition		2010 Background with Project Condition		2030 Cumulative No Project Condition		2030 Cumulative with Project Condition	
					MOE [a]	LOS [b]	MOE	LOS	MOE	LOS	MOE	LOS	MOE	LOS
1	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	15.5	B	20.1	C	20.1	C	21.7	C	21.7	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	17.4	B	28.4	D	28.7	D	28.7	D	29.0	D
2	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	34.5	A	31.5	A	31.3	A	31.9	A	31.8	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	34.8	A	33.9	A	33.7	A	32.6	A	32.3	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	40.0	A	39.9	A	39.9	A	39.6	A	39.6	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	39.9	A	39.7	A	39.7	A	39.6	A	39.5	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	68.0	D	66.5	D	67.5	D	79.8	D	80.5	E
3	Parsons Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	34.9	A	34.7	A	34.7	A	34.9	A	34.9	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	35.0	A	34.8	A	34.8	A	34.9	A	34.9	A
4	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	30.0	A	30.0	A	29.9	A	30.0	A	30.0	A
			From Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	30.0	A	30.0	A	30.0	A	30.0	A	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	30.0	A	29.9	A	29.8	A	29.8	A	29.8	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	30.0	A	29.5	A	29.5	A	30.0	A	30.0	A
5	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	35.0	A	35.0	A	35.0	A	35.0	A	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	35.0	A	35.0	A	35.0	A	35.0	A	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
6	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness
b. LOS = Level of Service

Table ES 2-D
PM Peak Hour Roadway Segment Level of Service Summary

No.	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	Existing		2010 Background Condition		2010 Background with Project Condition		2030 Cumulative No Project Condition		2030 Cumulative with Project Condition	
					MOE [a]	LOS [b]	MOE	LOS	MOE	LOS	MOE	LOS	MOE	LOS
6	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	45.0	A	45.0	A	45.0	A	45.0	A	45.0	A
7	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	34.5	A	34.6	A	30.4	A	31.6	A	31.6	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	34.9	A	34.1	A	34.0	A	30.1	A	29.7	B
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	34.9	A	32.4	A	32.4	A	34.4	A	34.4	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	35.0	A	34.6	A	35.0	A	33.8	A	33.6	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	40.0	A	40.0	A	40.0	A	40.0	A	40.0	A
8	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	34.5	A	35.0	A	35.0	A	35.0	A	34.9	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	34.9	A	35.0	A	35.0	A	34.4	A	33.9	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	35.0	A	35.0	A	35.0	A	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	n/a	n/a	35.0	A	35.0	A	35.0	A	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a	35.0	A	35.0	A
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a	35.0	A	35.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness
b. LOS = Level of Service

1. INTRODUCTION

The report provides an evaluation of the potential transportation impacts due to the proposed Wal-Mart regional distribution center in the City of Merced. The proposed project consists of a 1.1 million square foot regional distribution warehouse, a 37,000 square foot office and support facility, a 17,000 square foot truck maintenance building and a 1,600 square foot fire pump house. The project site plan is illustrated in **Figure 1**.

The project is located at the southern end of the City of Merced, approximately three miles from downtown and two miles east of State Route 99(SR 99). The project site is bounded by Childs Avenue to the north, Gerard Avenue to the south, Tower Road to the east and approximately a quarter mile east of the future Campus Parkway. Based on the City of Merced General Plan, the project site is designated for "Manufacturing Industrial" land uses and is part of the "Heavy Industrial District".

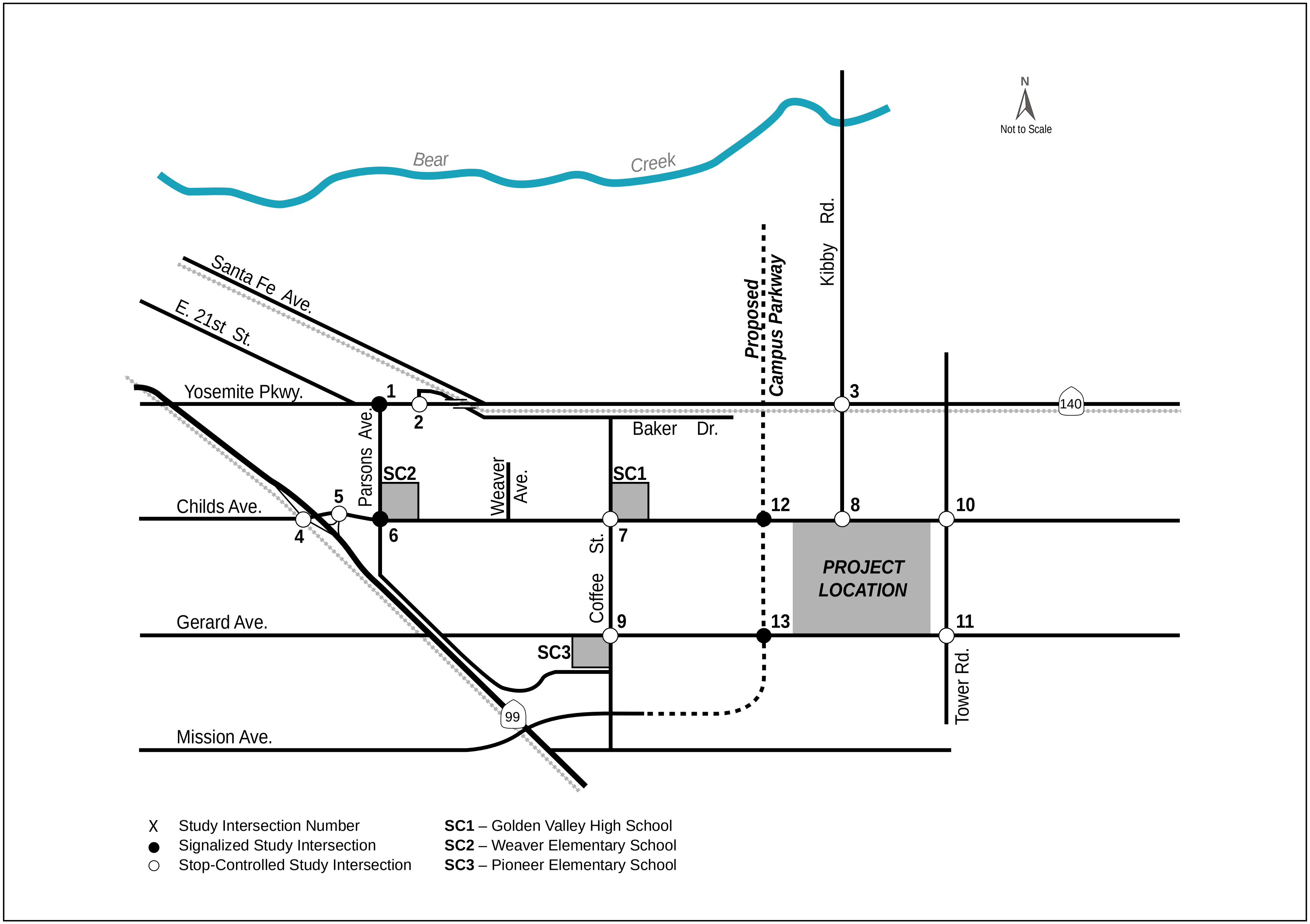
The transportation analysis represented in this study follows review and incorporation, where appropriate, of data provided by the City of Merced, the County of Merced, data collection from WILTEC in October, 2008, and *Traffic Impact Analysis for Merced Distribution Center* report prepared for CARTER & BURGESS, INC. by kdANDERSON Transportation Engineers in June, 2005.

1.1 Analysis Methodology

The following intersections and roadway segments were evaluated to determine the traffic conditions during the weekday AM and PM peak hours. It is assumed that the first phase of Campus Parkway would be built by year 2010 and will connect to the new Mission Interchange and end at Childs Ave. Therefore, the intersections of Childs Avenue at Campus Parkway and Gerard Avenue at Campus Parkway were analyzed only under the future scenarios.

Study Intersections:

1. SR 140 (Yosemite Parkway) / Parsons Avenue
2. SR 140 / Baker Drive
3. SR 140 / Kibby Road
4. Childs Avenue / SR 99 Southbound Off-Ramp
5. Childs Avenue / SR 99 Northbound Off-Ramp
6. Childs Avenue / Parsons Avenue
7. Childs Avenue / Coffee Street
8. Childs Avenue / Kibby Road
9. Childs Avenue / Tower Road
10. Gerard Avenue / Coffee Street
11. Gerard Avenue / Tower Road
12. Mission Avenue / SR 99 Southbound Off-Ramp
13. Mission Avenue / SR 99 Northbound Off-Ramp
14. Mission Avenue / Coffee Street
15. Childs Avenue / Campus Parkway
16. Gerard Avenue / Campus Parkway



06120-000•Merced Base Map.ai•10/2/07

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Figure 1
Study Locations and Project Location

Roadway and Freeway Segments:

1. SR 99 between SR 140 and Mission Avenue
2. SR 140 between SR 99 and Parsons Avenue
3. SR 140 between Parsons Avenue and Santa Fe Avenue
4. SR 140 between Santa Fe Avenue and Kibby Road
5. Parsons Avenue between Childs Avenue and SR140
6. Coffee Street between Baker Drive and Childs Avenue
7. Coffee Street between Childs Avenue to Gerard Avenue
8. Gerard Avenue between Parsons Avenue and Coffee Street
9. Gerard Avenue between Coffee Street to project site
10. Kibby Road between SR 140 and Childs Avenue
11. Childs Avenue between SR-99 and Parsons Avenue
12. Childs Avenue between Parsons Avenue and Coffee Street
13. Childs Avenue between Coffee Street and Kibby Road
14. Childs Avenue between Kibby Road and Tower Road
15. Campus Parkway between Coffee Street and Gerard Avenue
16. Campus Parkway between Gerard Avenue and Childs Avenue
17. Campus Parkway between Childs Avenue and SR-140

Intersections and roadway segments were evaluated for the following traffic scenarios:

Existing Condition – Operation analysis based on existing peak hour volumes and intersection and roadway segment lane geometry.

2010 Background Condition – Based on forecasted 2010 traffic volumes plus net-new trips related to approved residential projects in the vicinity of the proposed project.

2010 Background with Project Condition – 2010 Background Condition plus project-generated traffic estimated for the Wal-Mart Distribution Center project.

2030 Cumulative No Project Condition – Based on growth factors estimated from the County of Merced's Transportation Demand Model plus net-new trips related to approved residential project in the vicinity of the proposed project.

2030 Cumulative with Project Condition – 2030 Cumulative No Project Condition plus project generated traffic estimated for the Wal-Mart Distribution Center.

1.2 Project Trip Generation

The project trip generation was estimated based on a week-long trip generation survey conducted at the Wal-Mart distribution center in Apple Valley, San Bernardino County, in August 2006. It was assumed the number of trips generated by the project is proportional to the total number of employees.

1.3 Data Collection

1.3.1 Peak Hour Traffic Volumes

Intersection Volumes: Intersection turning movement volumes for the study intersections for the AM and PM peak hours were obtained from vehicle turning movement counts conducted by WILTEC in September, 2008. AM and PM peak hours were included for analysis since it is expected that daily staff shift changes will occur during these two periods. It should be noted that local schools were in session when the data were collected.

Freeway Volumes: Existing peak hour traffic volumes on SR 99 were obtained from the California Department of Transportation (Caltrans), District 10. The counts were conducted in August, 2005.

1.3.2 Trip Generation Survey at Existing Wal-Mart Distribution Center

A trip generation survey was conducted at the Wal-Mart distribution center in Apple Valley, San Bernardino County between August 9, 2006 and August 15, 2006. Based on the information obtained from Wal-Mart Stores, Inc., this distribution center currently has 1,201 employees including associates and drivers. **Table 1** summarizes the number of daily and peak hour trips automobile and truck trips entering and exiting the distribution center. The number of employees was used as the factor to determine the trip generation at Merced Wal-Mart Distribution Center.

Table 1
Surveyed Trip Generation
Wal-Mart Distribution Center in Apple Valley

	Daily Trips			AM (7:00-9:00 AM)			PM (4:00-6:00 PM)		
Direction	**Trucks**	**Auto**	**Total**	**Trucks**	**Auto**	**Total**	**Trucks**	**Auto**	**Total**
Inbound	365	846	**1211**	32	55	**87**	20	25	**45**
Outbound	278	910	**1188**	28	28	**56**	24	259	**283**
Total	643	1756	**2399**	60	83	**143**	44	284	**328**

Source: DKS Associates, August 2006

1.3.3 Intersection and Roadway Configuration

Site visits were conducted during the month of October 2008 to confirm lane configurations and traffic control at study intersections and roadway segments.

1.4 Level of Service Calculations

The Level of Service (LOS) at the selected study intersections and roadway segments was determined based on methodology described below.

1.4.1 Intersection Level of Service

The analysis of intersection Level of Service (LOS) was conducted using the *TRAFFIX* analysis program. The analysis uses procedures from the 2000 Transportation Research Board *Highway Capacity Manual* (HCM) method for signalized intersections. The correlation between average stopped delay and level of service for both signalized and unsignalized intersections is shown in **Table 2**.

Table 2
Signalized and Unsignalized Intersection LOS Thresholds

Level of Service	Vehicle Delay (seconds/vehicle)		Description
	Signalized Intersections	Unsignalized Intersections [a]	
A	Delay ≤ 10.0	Delay ≤ 10.0	Free Flow/Insignificant Delays: No approach phase is fully utilized and no vehicle waits longer than one red indication.
B	10 < Delay ≤ 20.0	10.0 < Delay ≤ 15.0	Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers design to feel somewhat restricted within platoon of vehicles.
C	20.0 < Delay ≤ 35.0	15.0 < Delay ≤ 25.0	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted.
D	35.0 < Delay ≤ 55.0	25.0 < Delay ≤ 35.0	Approaching Unstable/Tolerable Delays: Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delays.
E	55.0 < Delay ≤ 80.0	35.0 < Delay ≤ 50.0	Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues from upstream from intersection.
F	Delay > 80.0	Delay > 50.0	Forced flow/Excessive Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

Source: Transportation Research Board, Special Report 209, Highway Capacity Manual 2000, Chapters 16, Exhibit 16-2 and Chapter 17, Exhibit 17-2.

Note: a. For a two-way stop controlled intersection, the Level of Service is based on the delay at the worst approach.

1.4.2 Roadway Segment Level of Service

Roadway segment analysis was conducted using Highway Capacity Software (HCS 2000). The analysis uses procedures from the 2000 Transportation Research Board *Highway Capacity Manual* (HCM) methods. Three types of roadway facilities and Measure of Effectiveness (MOE) were used to determine Level of Services as described below:

Two-lane highway: an undivided roadway with two lanes, one for use by traffic in each direction. Passing a slower traffic requires use of the opposing lane as sight distance and gaps in the opposing traffic stream permit. The Level of Service of a two-lane highway is determined based on the percentage of percent time vehicles spent following the vehicle ahead and average travel speed.

Urban Street: a roadway serving as collector street and local arterial. An urban street is occasionally interrupted by control at the intersections. The Level of Service of an urban street is determined based on average through-vehicle travel speed for the segment.

Freeway Segment: a divided highway with full control of access and without signalized or stop-controlled at-grade intersections. The Level of Service of a freeway segment is determined based on the density in terms of passenger cars per mile per lane.

Tables 3 through 5 list the correlation between MOE's and LOS for each type of roadway facilities.

Table 3
Two-Lane Highway LOS Thresholds

Two-Lane Highway Class	Class I		Class II
Level of Service	Percent Time-Spent - Following	Average Travel Speed mph	Percent Time-Spent - Following
A	≤ 35	> 55	≤ 40
B	< 35-50	> 50-55	> 40-55
C	< 50-65	> 45-50	> 55-70
D	< 65-80	> 40-45	> 70-85
E	> 80	≤ 40	> 85
F	The flow rate exceeds the segment capacity		

Source: Transportation Research Board, Highway Capacity Manual 2000, Chapter 20, Exhibit 20-2 and Exhibit 20-4.

Table 4
Urban Street LOS Thresholds

Urban Street Class	Class I	Class II	Class III	Class IV
Range of Free-Flow Speed	55 to 45 mph	45 to 35 mph	35 to 30 mph	35 to 25 mph
Typical	50 mph	40 mph	35 mph	30 mph
Level of Service	Average Travel Speed (mph)			
A	> 42	> 35	> 30	> 25
B	> 34-42	> 28-35	> 24-30	> 19-25
C	> 27-34	> 22-28	> 18-24	> 13-19
D	> 21-27	> 17-22	> 14-18	> 9-13
E	> 16-21	> 13-17	> 10-14	> 7-9
F	≤ 16	≤ 13	≤ 10	≤ 7

Source: Transportation Research Board, Highway Capacity Manual 2000, Chapter 15, Exhibit 15-2.

Table 5
Basic Freeway Segment LOS Thresholds

Level of Service	Density Range (passenger car/mile/lane)
A	0-11
B	> 11-18
C	> 18-26
D	> 26-35
E	> 35-45
F	>45

Source: Transportation Research Board, Highway Capacity Manual 2000, Chapter 23.

2. EXISTING CONDITION

The following section presents an analysis of the existing conditions of various transportation system components.

2.1 Roadway Network

State Route 99 (SR 99) runs in the northwest-southeast direction through the City of Merced. It is a major regional freeway that runs parallel with Interstate 5 (I-5), serving both local and regional traffic. The north end of the freeway connects with I-5 in Red Bluff and the south end connects with I-5 in Bakersfield. Within the County of Merced, SR 99 carries a traffic volume of approximately 63,000 vehicles per day. The project site is located approximately two miles east of SR 99.

State Route 140 (SR 140/Yosemite Parkway) is a two-lane highway running in the east-west direction from the City of Merced to Yosemite National Park. A study segment of SR 140 between SR 99 and Santa Fe Avenue is classified as urban roadway. Currently, SR 140 between SR 99 and Parsons Avenue carries a traffic volume of approximately 12,300 vehicles per day. The project site is located approximately half a mile south of SR 140.

Childs Avenue is an urban street serving as a minor arterial road and includes one lane in each direction between SR 59, west of SR 99, to east of the Specific Urban Development Plan boundary, east of Tower Road. Childs Avenue runs in the east-west direction between West Avenue (west of SR 99) and Cunningham Road beyond the city's east boundary. Between SR 99 and Parson Avenue, Childs Avenue carries a traffic volume of approximately 10,700 vehicles per day. The project site is located immediately south of Childs Avenue.

Gerard Avenue is an urban street serving as a minor arterial road and includes one lane in each direction. Gerard Avenue runs in the east-west direction starting west of SR 99 in Merced and ending in Planada. Gerard Avenue terminates just west of SR 99 and continues east of SR 99. Gerard Avenue carries a traffic volume of approximately 3,900 vehicles per day between Parsons Avenue and Coffee Street. The project site is located immediately north of Gerard Avenue.

Mission Avenue is divided arterial and includes two lanes in each direction. Mission Avenue runs in the east-west direction starting west of SR 140 and ends at Coffee Street. It carries a traffic volume of approximately 1,800 vehicles per day between SR 99 and Coffee Street. The project site is located approximately one and a half mile north and east of Mission Avenue. The interchange at Mission Avenue and SR 99 and extension of Mission Avenue to Coffee Street opened in the summer of 2008.

Parsons Avenue is an urban street serving as a minor arterial road from Childs Avenue north to Old Lake Road and as a collector from Childs Avenue south to Coffee Road. and includes one lane in each direction. Parsons Avenue runs in the north-south direction between SR 140 and Gerard Avenue. It carries a traffic volume of approximately 4,600 vehicles per day between

Childs Avenue and Gerard Avenue. The project site is located approximately one and a half mile east of Parsons Avenue.

Coffee Street is an urban street serving as a local collector road and includes one lane in each direction. Coffee Street runs in the north-south direction between Baker Drive and Mission Avenue. However, there is a short interruption in the street grid between Gerard Avenue and South Parsons Avenue. It carries a traffic volume of approximately 2,000 vehicles per day between Childs Avenue and Gerard Avenue. The project site is located approximately one mile east of Coffee Street.

Kibby Road is a rural street serving as a local collector road and includes one lane in each direction. Kibby Road runs in the north-south direction between Childs Avenue and Yosemite Avenue. It carries a traffic volume of approximately 1,400 vehicles per day. The project site is located approximately immediately south of Kibby Road.

Tower Road is a two-lane rural street running in the north-south direction. The road connects to SR 140 on the north and to Gerard Avenue. on the south. Tower Road currently carries approximately 200 vehicles per day. The project site is located west of and adjacent to Tower Road.

Baker Drive is a two-lane rural street serving as a local road. Baker Drive is oriented east to west connecting SR 140 on the west and Coffee Street on the east. The road carries approximately 1,000 vehicles per day. The project site is located roughly 0.7 mile east of Baker Drive.

2.2 Existing Intersection Operating Conditions

Level of service calculations were performed for the weekday AM and PM peak hours. The AM peak hour is the highest one-hour between 7:00 and 9:00 AM. The PM peak hour is the highest one-hour traffic volume between 4:00 and 6:00 PM. **Figure 2** illustrates the existing intersection traffic volumes at each study intersection. **Table 6** summarizes the results of the intersection level of service for the existing condition. Based on the LOS results, all study intersections operate at an acceptable LOS D or better. **Appendix A** includes the detailed calculation level of service analysis sheets, including the weekday A.M. and P.M. peak hours.

2.3 Existing Roadway Segment Operating Conditions

Based on the classification of the roadway segments described in section 2.1, eight roadway segments including freeway, state highway and urban street were evaluated for the existing AM and PM peak hour operating conditions. **Table 7** provides a summary of the roadway segments operational condition under the Existing Condition. As shown in **Table 7** all roadway segments currently operate at or above LOS D. Detailed Level of Service calculations are contained in **Appendix A.**

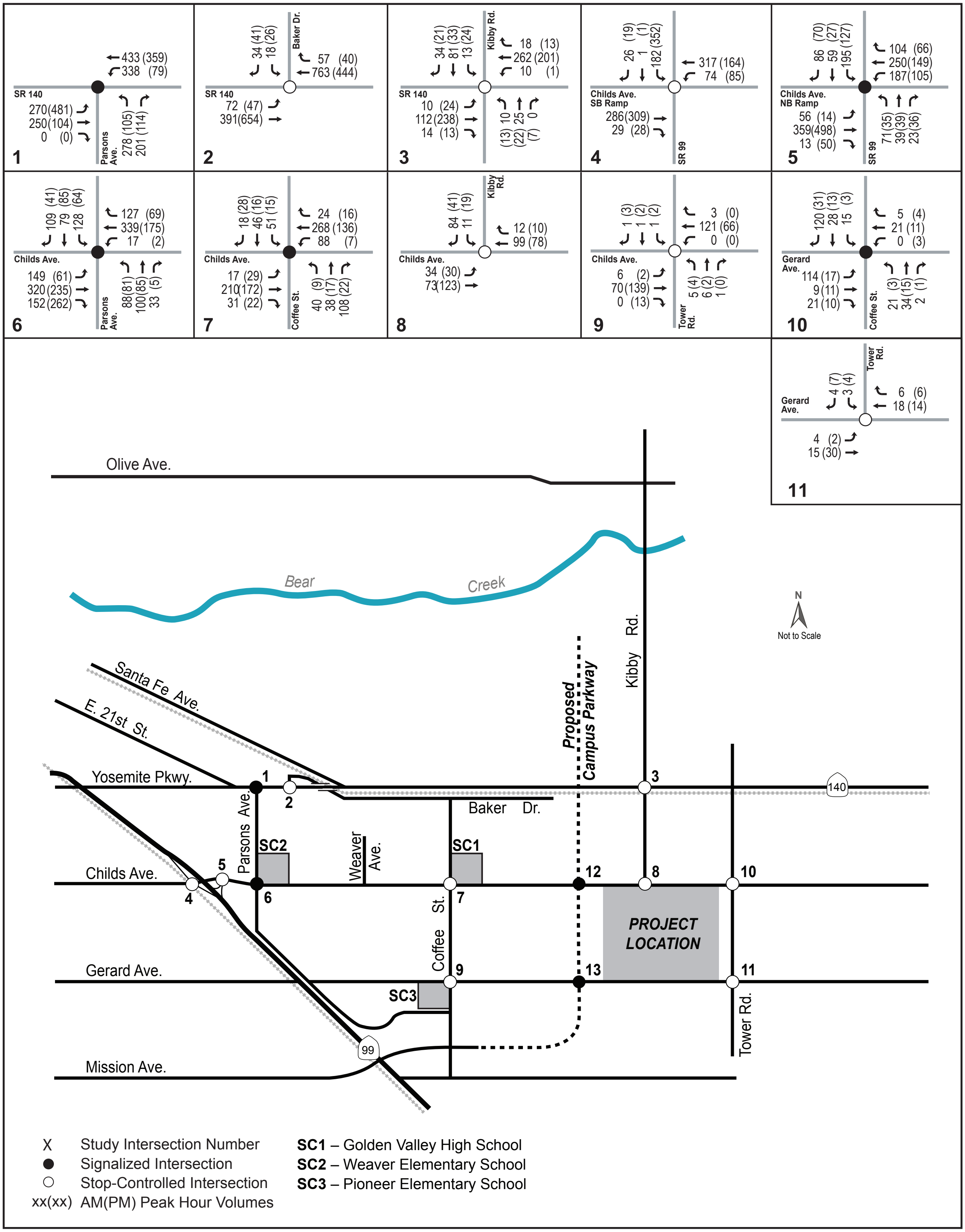

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Figure 2
Existing Condition
Weekday Peak Hour Intersection Volumes

Table 6
Existing Condition
Intersection-Level of Service Analysis

No	Intersection Location	Control	AM Peak Hour		PM Peak Hour	
			Delay [a]	LOS [b]	Delay	LOS
1	SR 140 / Parsons Avenue	Signalized	24.1	C	24.4	C
2	SR 140 / Baker Drive	Unsignalized	1.8		2.3	
	SB Approach		18.8	C	20.7	C
	EB Left		8.9	A	8.2	A
3	SR 140 / Kibby Road	Unsignalized	3.7		2.3	A
	NB Approach		13.7	B	13.1	B
	SB Approach		12.7	B	12.0	B
	EB Left		7.8	A	7.6	A
	WB Left		7.5	A	0.0	A
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [c]	12.3	B	13.0	B
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	18.5	C	18.1	C
6	Childs Avenue / Parsons Avenue	Signalized	33.8	C	32.0	C
7	Childs Avenue / Coffee Street	Signalized	30.4	C	22.8	C
8	Childs Avenue / Kibby Road	Unsignalized	3.2		2.0	
	SB Approach		9.4	A	9.2	A
	EB Left		7.5	A	7.4	A
9	Childs Avenue / Tower Road	Unsignalized	1.2		0.6	
	NB Approach		9.8	B	9.6	A
	SB Approach		9.4	A	9.6	A
	EB Left		7.4	A	7.3	A
	WB Left		0.0	A	0.0	A
10	Gerard Avenue / Coffee Street	AWSC	8.3	A	7.1	A
11	Gerard Avenue / Tower Road	Unsignalized	6.9		6.9	
	SB Approach		6.5	A	6.9	A
	EB Left		7.1	A	7.0	A
14	Mission Avenue / SR 99 Southbound	Signalized	17.8	B	17.6	B
15	Mission Avenue / SR 99 Northbound	Signalized	24.1	C	18.6	B
16	Mission Avenue / Coffee Street	AWSC	8.1	A	7.8	A

Source: DKS Associates

Notes: a. Delay is in seconds per vehicle. For signalized intersections, delay is based on average stopped delay. For unsignalized intersections, delay is based at the worst approach for two-way stop controlled intersection.
b. LOS = Level of Service
c. AWSC = All-way stop control

Table 7-A
Existing Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
1.	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	422	34.9	A	612	34.5	A
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	615	34.5	A	489	34.8	A
2.	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	737	39.9	A	482	40.0	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	437	40.0	A	632	39.9	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	422	34.9	A	612	34.5	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	615	34.5	A	489	34.8	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	1230	68	D	1176	68	D
3.	Parson Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	418	34.9	A	398	34.9	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	415	34.9	A	311	35.0	A
4.	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	146	30.0	A	75	30.0	A
			From Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	178	30.0	A	45	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	242	30.0	A	70	30.0	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	138	30.0	A	81	30.0	A
5.	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	84	35.0	A	19	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	42	35.0	A	31	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	164	40.0	A	47	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	206	40.0	A	58	40.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

Table 7-B
Existing Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
6.	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	57	45.0	A	36	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	73	45.0	A	30	45.0	A
7.	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	534	34.7	A	623	34.5	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	569	34.6	A	383	34.9	A
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	397	34.9	A	425	34.9	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	395	34.9	A	248	35.0	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	295	40.0	A	405	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	238	40.0	A	370	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	112	40.0	A	179	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	160	40.0	A	133	40.0	A
8.	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

2.4 Existing Condition Traffic Signal Warrant Analysis

A peak hour traffic signal warrant analysis was conducted at all study unsignalized intersections in accordance with *California Manual on Uniform Traffic Control Devices (MUTCD)* - Section 4C. The signal warrant is met when either of two following criteria is satisfied.

Criterion 1: The criterion is satisfied when all three of the following conditions exist in the same one hour of an average day:

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach, and
2. The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes and
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

Criterion 2: The criterion is satisfied when the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable Peak Hour Warrant Curves (illustrated in **Appendix B**) for the existing combination of approach lanes.

Table 8 summarizes the results of the signal warrant analysis. Detailed analysis results are contained in Appendix B. Based on the results, the intersection of Childs Avenue / SR 99 northbound off-ramp meets the signal warrant under the first criterion during the PM peak hour.

Table 8
Existing Condition
Signal Warrant Analysis

	Intersection	AM Peak Hour			PM Peak Hour		
		Criteria 1	Criteria 2	Warrant met	Criteria 1	Criteria 2	Warrant met
1	SR 140 / Baker Drive	No	No	No	No	No	No
2	SR 140 / Kibby Road	No	No	No	No	No	No
3	Childs Avenue / SR 99 Southbound Off-Ramp	No	No	No	No	No	No
4	Childs Avenue / SR 99 Northbound Off-Ramp	No	No	No	**Yes**	No	**Yes**
5	Childs Avenue / Kibby Road	No	No	No	No	No	No
6	Childs Avenue / Tower Road	No	No	No	No	No	No
7	Gerard Avenue / Coffee Street	No	No	No	No	No	No
8	Gerard Avenue / Tower Road	No	No	No	No	No	No
9	Mission Avenue / Coffee Street	No	No	No	No	No	No

Source: DKS Associates

2.5 Transit, Pedestrian and Bicycle Operations

2.5.1 Existing Transit Operations

The Transit Joint Powers Authority of Merced County (The BUS) has jurisdiction over public transit in the County of Merced. Currently, there are no bus routes that operate within the vicinity of the project site. The closest bus route is Route 5, "East-West City Shuttle". "East-West City Shuttle" provides weekday service between Merced Municipal Airport and Pioneer Elementary School between 9:30 AM and 5:45 PM with 45-minute frequency.

2.5.2 Pedestrian and Bicycle Circulation

Based on the field observations of traffic volumes and bicycle and pedestrian activities during the weekday AM and PM peak periods, pedestrian and bicycle activity is relatively light in the vicinity of the proposed project. There are no pedestrian sidewalks or bicycle facilities provided along the roadway segments adjacent to the project site.

2.6 Public Schools

The proposed project site is located within the Weaver Union Elementary School District for elementary and Merced Union High school District for high schools.

Elementary and Middle Schools

Pioneer Elementary School (Grades K-3) is located at the southwest corner of the Coffee Street and Gerard Avenue. Regular school days begin at 8:30 AM and end at 2:30 PM. The campus is open from 8:00 AM to 4:00 PM. Vehicular access to the site is provided via Gerard Avenue with designated area for parent pick-up/drop-off and visitor parking lot. A secondary entrance is provided via Coffee Street with designated areas for school bus pick-up/drop-off and staff parking and visitor parking for school related events.

Based on information received from school staff, several on-street parking activities including curbside and double parking occur along Gerard Avenue and Coffee Street during the after school pick-up period of 2:00-3:00 PM.

Weaver Elementary School (Grades 4-8) is located at the northeast corner of Coffee Street and Childs Avenue. Regular school days begin at 8:30 AM and end at 3:30 PM. The campus is open from 8:00 AM to 4:30 PM. Vehicular access to the site is provided via Childs Avenue with a designated area for parent pick-up/drop-off and school staff parking lot. A secondary entrance is provided via Coffee Street with designated areas for school bus pick-up/drop-off.

Based on information received from school staff, several on-street parking activities including curbside and double parking occur along Childs Avenue and Coffee Street.

High Schools

Golden Valley High School (Grades 9-12) is located at the northeast corner of Parsons Avenue and Childs Avenue. Regular school days begin at 8:00 AM and end at 3:00 PM. The campus is open from 7:00 AM to 4:00 PM. Vehicular access to the site is provided via Childs Avenue and Parsons Avenue. Vehicular accesses are provided from Parsons Avenue with designated areas for parent pick-up/drop-off, school bus pick-up/drop-off and student parking lot. The visitor and school staff parking lot is provided via Childs Avenue.

3. 2010 BACKGROUND CONDITION

This section discusses the traffic operating conditions of the study intersections and roadway segments under the 2010 Background Condition. The 2010 Background Condition includes the existing traffic volumes plus the addition of net-new trips expected to be generated by residential and commercial development projects approved by the City of Merced within the study area. The information and traffic data for these projects was provided by the City of Merced.

3.1 Roadway Improvements

Based on the information provided by Caltrans District 10 and the County of Merced, the following roadway improvements were assumed to be implemented prior to the anticipated completion data of the proposed project and thus were included in this analysis:

- Campus Parkway Phase 1 Project. The completion of this phase will provide a connection between the SR 99-Mission Interchange and Childs Avenue.
- The intersection of Mission Avenue and Coffee Street will change from all-way-stop-controlled to signalized-controlled as a measure to accommodate the construction of Campus Parkway and other approved projects near the intersection.
- Signalization of Gerard Avenue and Campus Parkway intersection. According to the Campus Parkway design plan provided by the County of Merced, each of the intersection approaches will consist of two through lanes, two left-turn lanes and one right-turn lane in each approach. Campus Parkway will be a four-lane roadway north of Gerard Avenue and will end at Childs Avenue.
- The intersection of Childs Avenue and Campus Parkway will be an unsignalized intersection.

3.2 Background Trip Generation

The trip generation for the approved residential and commercial projects in the study area was determined based on the standard trip rates published in the Institute of Transportation Engineers (ITE), *Trip Generation*, 7th Edition, 2003 for weekday conditions, as summarized in **Table 9**.

Table 9
Approved Residential Projects – Trip Generation [1]

Approved Projects	Land Use [2]	Size	Unit	Daily Trip	AM Trip			PM Trip		
					Total	Inbound	Outbound	Total	Inbound	Outbound
1. Makinson	Residential	18	Units	172	14	4	10	18	11	7
2. Sierra Vista Subdivision	Residential	224	Units	2,144	168	42	126	226	142	84
3. Rennisance II	Residential	158	Units	1,512	119	30	89	160	101	59
4. Rennisance I	Residential	167	Units	1,598	125	31	94	169	106	63
5. Tuscany East	Residential	47	Units	450	35	9	26	47	30	17
6. Hartley Crossing	Residential	28	Units	268	21	5	16	28	18	10
8. Coffee Street Annexation	Residential	292	Units	2,794	219	55	164	295	186	109
8.Crossing at River Oaks	Residential	277	Units	2,651	208	52	156	280	176	104
9. Sand Castle	Residential	334	Units	3,196	251	63	188	337	212	125
10. Matthew Homes Condos	Residential (Condo)	296	Units	1,615	130	22	108	154	103	51
11. Alfarata Ranch #2	Residential	12	Units	106	9	2	7	12	8	4
12. Steiner Development										
Parcel A	Gas Station/Store	12	fuel pump	977	60	30	30	80	40	40
	Restaurant	4,000	sq ft	509	46	24	22	44	27	17
	Hotel/Motel	128,000	sq ft	1599	128	47	81	133	72	61
	Retail	4,000	sq ft	177	-	-	-	11	5	6
Parcel B	Gas Station/Store	12	fuel pump	977	60	30	30	80	40	40
	Restaurant	8,000	sq ft	1017	92	48	44	87	53	34
	Retail	145,030	sq ft	6428	-	-	-	393	173	220
Parcel C	Retail	11,950	sq ft	530	-	-	-	32	14	18
Total				**28,720**	**1,676**	**492**	**1,184**	**2,574**	**1,509**	**1,065**

Note: 1. The project descriptions were provided by the City of Merced
2. Trip generations were determined based on ITE Land Use 210 (Single-Family Detached Housing) for Residential Land Use, Land Uses 230 (Residential Condominium/Townhouse) for Residential (Condo), Land Use 814 (Special Retail Center) for Retail, Land Use 945 (Gasoline/Service Station with Convenience Market) for Gasoline/Store, Land Use 932 (High-Turnover (Sitdown) Restaurant) for Restaurant and Land Use 320 (Motel) for Hotel/Motel.

3.3 Background Trip Distribution

Table 10 provides a summary of the trip distribution estimates of the approved residential projects within the study area. The trip distribution of the Steiner Development Project was based on the Project Trip Distribution discussed in *General Plan Amendment #00-01 for Steiner Development Expanded Initial Study#005* , with some adjustments based on the future year 2010 roadway network. **Table 11** provides a summary of the trip distribution estimates of this commercial development.

Table 10
Approved Residential Projects – Trip Distribution Assumptions

Original/Destination	Distribution Percentage
SR 99 North	14.0 %
SR 99 South	14.0 %
SR 140 East	10.0 %
SR 140 West	25.0 %
16 th Street North	25.0 %
Kibby Road north	2.0%
Childs Avenue East	2.0%
Childs Avenue West	8.0%
Total	100.0 %

Source: Traffic Impact Analysis for Merced Distribution Center prepared by KdANDERSON Transportation Engineering in June 2005, based on MCAG Travel Forecast Model data.

Table 11
Approved Commercial Development Projects – Trip Distribution Assumptions

Original/Destination	Distribution Percentage
SR 99 North	30 %
SR 99 South	30 %
North Merced	20 %
Childs Avenue West	10 %
Childs Avenue East	10 %
Total	100.0 %

Source: General Plan Amendment #00-01 for Steiner Development Expanded Initial Study #00-05

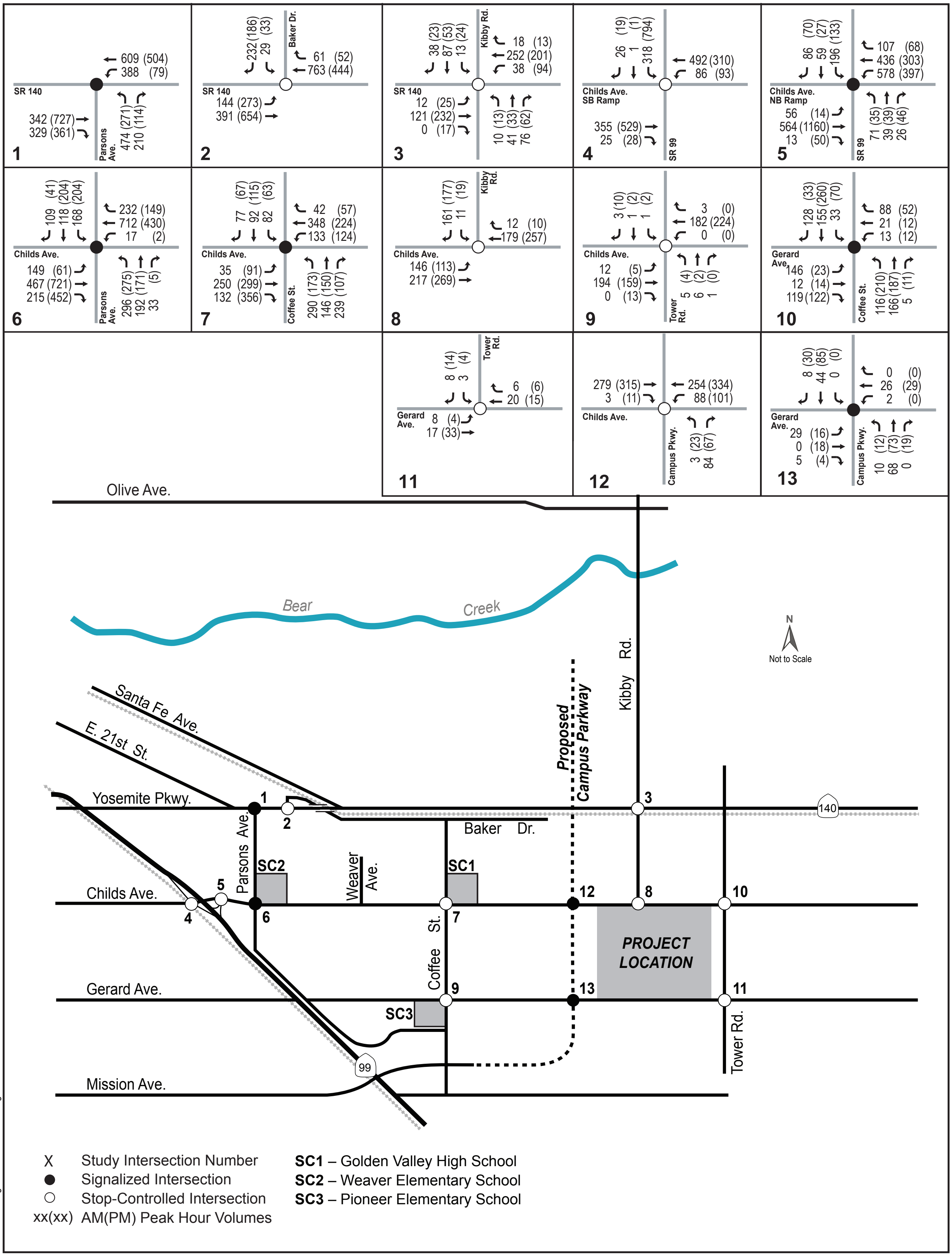
3.4 Background Traffic Volumes

3.4.1 Intersection Volumes

The study incorporated forecasted traffic volumes and distribution patterns from a prior traffic impact analysis report prepared by KdANDERSON Transportation Engineering in June, 2005. DKS reviewed the report, its assumptions, data and findings prior to incorporating relevant portions with the approved background project trips for the analysis. **Figure 3** illustrates the background condition traffic volumes at each study intersection.

3.4.2 Freeway Volumes

The 2010 Background Condition peak hour traffic volumes on SR 99 were developed from the existing traffic volumes, assuming a growth rate of 2.5 percent per year. The growth rate is based on a comparison of 2003 and 2005 traffic volumes provided by Caltrans.



P06120-000•Fig 3 Merced 2010 Background Vols.ai•10/2/07

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TRANSPORTATION SOLUTIONS

Figure 3
2010 Background Condition
Weekday Peak Hour Intersection Volumes

3.5 Intersection Operating Conditions

Table 12 summarizes the results of the intersection Level of Service calculations for the 2010 Background Condition. Detailed Level of Service calculations for the Background Condition are contained in **Appendix A**.

Under 2010 Background Conditions, two intersections, SR 140 at Baker Drive and Childs Avenue at SR 99 northbound off-ramp would deteriorate from an acceptable LOS (LOS D or better) to a deficient LOS (LOS E or F) during the AM peak hours. Three intersections during the PM peak hour, SR 140 at Baker Drive, Childs Avenue at SR 99 southbound off-ramp, and Childs Avenue at SR 99 northbound off-ramp would deteriorate from an acceptable LOS (LOS D or better) to LOS F. All other study intersections in both peak hours would continue to operate at acceptable LOS (LOS D or better).

3.6 Roadway Segment Operating Conditions

Table 13 summarizes the analysis results for the study roadway segments under the 2010 Background Condition. Based on the results, all of the study roadway segments would continue to operate at acceptable LOS (LOS D or better).

3.13 2010 Background Condition Traffic Signal Warrant Analysis

A traffic signal warrant analysis was conducted per the Manual of Uniform Traffic Control Devices (MUTCD), California Supplement, at the three study unsignalized intersections under the 2010 Background Conditions that would operate at a deficient LOS. The analysis shows that under the 2010 Background Conditions, all of these three study intersections would meet the peak hour signal warrant during the AM and PM peak hours.

Table 14 summarizes the signal warrant analysis results. Detailed signal warrant analysis sheets are included in **Appendix B**.

Table 14
2010 Background Condition
Signal Warrant Analysis

Intersection	AM Peak Hour			PM Peak Hour		
	Criteria 1	Criteria 2	Warrant met?	Criteria 1	Criteria 2	Warrant met?
SR 140 / Baker Drive	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Childs Avenue / SR 99 Southbound Off-Ramp	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**
Childs Avenue / SR 99 Northbound Off-Ramp	No	**Yes**	**Yes**	No	**Yes**	**Yes**

Source: DKS Associates

See Section 2.4 for definition of criteria.

Table 12
2010 Background Condition
Intersection-Level of Service Analysis

No	Intersection Location	Control	AM Peak Hour		PM Peak Hour	
			Delay [a]	LOS [b]	Delay	LOS
1	SR 140 / Parsons Avenue	Signalized	27.5	C	47.9	D
2	SR 140 / Baker Drive	Unsignalized	9.4		13.9	
	SB Approach		40.2	E	>50.0	F
	EB Left		9.2	A	9.2	A
3	SR 140 / Kibby Road	Unsignalized	5.2		4.7	
	NB Approach		12.2	B	13.4	B
	SB Approach		14.3	B	16.3	C
	EB Left		7.8	A	7.7	A
	WB Left		7.6	A	7.9	A
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [d]	22.0	C	>50.0	F
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	>50.0 [c]	F	>50.0	F
6	Childs Avenue / Parsons Avenue	Signalized	46.4	D	43.1	D
7	Childs Avenue / Coffee Street	Signalized	36.9	D	33.1	C
8	Childs Avenue / Kibby Road	Unsignalized	4.2		4.2	
	SB Approach		9.9	A	10.1	B
	EB Left		7.8	A	7.6	A
9	Childs Avenue / Tower Road	Unsignalized	1.1		0.6	
	NB Approach		10.3	B	10.4	B
	SB Approach		9.7	A	9.5	A
	EB Left		7.5	A	7.5	A
	WB Left		0.0	A	0.0	A
10	Gerard Avenue / Coffee Street	AWSC	9.7	A	8.4	A
11	Gerard Avenue / Tower Road	Unsignalized	6.9		6.9	
	SB Approach		6.5	A	6.9	A
	EB Left		7.1	A	7.0	A
12	Childs Avenue / Campus Parkway	Unsignalized	3.4		3.5	
	NB Approach		9.3	A	9.8	A
	WB Left		7.5	A	7.5	A
13	Gerard Avenue / Campus Parkway	Signalized	23.4	C	23.3	B
14	Mission Avenue / SR 99 Southbound	Signalized	18.3	B	13.6	B
15	Mission Avenue / SR 99 Northbound	Signalized	29.8	C	28.5	C
16	Mission Avenue / Coffee Street	Signalized	26.6	C	33.3	C

Source: DKS Associates

Notes: a. Delay is in seconds per vehicle. For signalized intersections, delay is based on average stopped delay. For unsignalized intersections, delay is based at the worst approach for two-way stop controlled intersection.
b. LOS = Level of Service
c. For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
d. AWSC = All-way stop control

Table 13-A
2010 Background Condition
Roadway Segment-Level of Service Analysis

No.	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour Volume (veh/hr)	AM Peak Hour MOE [a]	AM Peak Hour LOS [b]	PM Peak Hour Volume (veh/hr)	PM Peak Hour MOE	PM Peak Hour LOS
1.	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	1758	18.6	C	1905	20.1	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	1571	16.6	B	2688	28.4	D
2.	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	547	34.7	A	1024	31.5	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	968	32.1	A	748	33.9	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	945	39.6	A	618	39.9	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	505	40.0	A	864	39.7	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	1244	68.4	D	1183	66.5	D
3.	Parson Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	563	34.6	A	522	34.7	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	472	34.8	A	491	34.8	A
4.	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	278	29.9	A	258	30.0	A
			from Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	310	29.9	A	218	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	593	28.7	A	333	29.9	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	268	29.9	A	453	29.5	A
5.	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	127	35.0	A	162	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	140	35.0	A	111	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	196	40.0	A	139	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	313	40.0	A	128	40.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

Table 13-B
2010 Background Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
6.	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	159	45.0	A	101	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	106	45.0	A	163	45.0	A
7.	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	686	34.2	A	563	34.6	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	988	31.9	A	716	34.1	A
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	548	34.7	A	942	32.4	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	648	34.4	A	563	34.6	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	388	40.0	A	405	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	418	40.0	A	370	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	112	40.0	A	179	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	160	40.0	A	133	40.0	A
8.	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	62	35.0	A	110	35.0	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	94	35.0	A	62	35.0	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	77	35.0	A	92	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	67	35.0	A	76	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

4. **2010 BACKGROUND WITH PROJECT CONDITION**

This section evaluates the 2010 background traffic conditions plus project-generated traffic estimated for the proposed project.

4.1 Significance Criteria and Project Impacts

Based on the City of Merced's *General Plan*, an acceptable operating level of service (LOS) is defined at LOS D or better at all intersections and roadway segments.

A traffic impact would be considered significant if the project would:

- Cause an increase in traffic congestion resulting in intersection or roadway segment level of service (LOS) E or worse. For unsignalized intersections, the need for a traffic signal is to be determined based on the Manual of Uniform Traffic Control Devices Supplement to the California Traffic Manual traffic signal warrants,

- Cause an increase in the total intersection volumes or roadway segment volumes by more than five percent at an intersection or segment that is already operating at Level of Service E or F under the background condition,

- Cause an increase in traffic congestion that would exceed a level of service standard established in the countywide Congestion Management Plan or Caltrans for designated roads or highways,

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment),

- Block or fail to provide adequate emergency access,

- Result in inadequate parking capacity that would cause substantial vehicle stacking or otherwise compromise safety or,

- Conflict with adopted policies, plans, or programs supporting alternative transportation

As part of the project conditions, the City of Merced would abandon the Kibby Road right-of-way between Childs Avenue and Gerard Avenue to make way for the proposed project. As a result, Kibby Road would function in the street network as it would under existing conditions.

4.2 Trip Generation

Trip generation for the proposed project was based on the number of the employees estimated to be employed at the distribution center. According to the information provided by Wal-Mart Stores, Inc., the proposed project would employ approximately 1,200 employees as outlined in **Table 15**. The trip generation estimate also takes into consideration the number of heavy vehicles trips that would be part of the project. Due to the different vehicle characteristics between heavy vehicles and passenger cars, heavy vehicles were converted to passenger-car-equivalents (PCE's) by the ratio of 4 vehicle trips per one (1) truck trip. **Table 16** summarizes the trip generation for the proposed project.

Table 15
Employees by Title and Division

Title/Division	Number of Employees
Drivers in Transportation	150
Associates in Transportation	64
Associates in Other Departments	986
Total Employees	1,200

Source: Wal-Mart Stores, Inc

Table 16
Proposed Project trip Generation

	Daily Trips			AM Peak Hour			PM Peak Hour		
Direction	**Trucks**	**Auto**	**Total**	**Trucks**	**Auto**	**Total**	**Trucks**	**Auto**	**Total**
Expressed as Vehicles									
Inbound	365	846	**1,211**	32	55	**87**	20	25	**45**
Outbound	278	910	**1,188**	28	28	**56**	24	259	**283**
Total	643	1756	**2,399**	60	83	**143**	44	284	**328**
Passenger Car Equivalent									
Inbound	1,460	846	**2,306**	128	55	**183**	80	25	**105**
Outbound	1,112	910	**2,022**	112	28	**140**	96	259	**355**
Total	2,572	1,756	**4,328**	240	83	**323**	176	284	**460**

Source: DKS Associates

As a comparison, a shopping center of 49,500 square feet would generate 4,300 trips per day and 103 AM peak hour trips and 394 PM peak hour trips.

4.3 Trip Distribution

The direction of approach and departure for project trips of the proposed Wal-Mart Distribution Center were estimated based on regional distribution of residences in Merced County and around the study area. Based on prevailing traffic patterns, roadway capacity, consultation with the City of Merced and Wal-Mart Stores, Inc, SR 99, SR 140 and SR 152 were designated as the major routes that would service the proposed project site.

Table 17 shows the trip distribution patterns assumed for the proposed project. The project truck trips having their origins or destinations on SR 99 and SR 152 (ninety percent of the truck trips) would be assumed to access the project site via the Mission interchange and Campus Parkway. The other ten percent of truck trips from and to SR 140 West would be assumed to continue on SR 140 and use Tower Road. No trucks were assumed to travel along Parsons Avenue, Coffee Street, Childs Avenue and Gerard Avenue (west of Campus Parkway), based on the most direct access routes to and from the project site. Also the City has designated truck routes (per Chapter 10.40.010 of the City of Merced Municipal Code). Of these streets, only

Parsons Avenue between Yosemite Parkway and Childs Avenue is a designated truck route. Coffee Street, Childs Avenue and Gerard Avenue are not designated truck routes.

For trucks, full site access is proposed along Gerard Avenue between Tower Road and the future Campus Parkway, approximately a quarter mile east of Campus Parkway. The employee entrance is also along Gerard Avenue between Tower Road and the future Campus Parkway, approximately 1500 feet west of Tower Road and would include full access.

Table 17
Proposed Project Trip Distribution Assumption

Origin/ Destination	Percentage of Total Traffic (%)	
	Autos	Trucks
North Via State Route 99	40.0	31.0
East via SR 140	10.0	-
West via SR 140	3.0	10.0
West via SR 152	-	27.0
South via SR 99	20.0	32.0
North via E 16th Street	5.0	-
North via Santa Fe/ E 21st	5.0	-
North via Kibby Road	10.0	-
East via Childs Avenue	2.0	-
West via Childs Avenue	5.0	-
Total	**100.0**	**100.0**

Source: Traffic Impact Analysis for Merced Distribution Center

Figures 4 illustrates the project trips at each of the study intersections. **Figure 5** illustrates the total 2010 background with project condition traffic volumes at each of the study intersections for the AM and PM peak hours.

4.4 Intersection Operating Conditions

Intersection operational levels of service along with their associated delays are summarized in **Table 18**. **Appendix A** includes the detailed calculation level of service analysis sheets, including the weekday A.M. and P.M. peak hours.

The study intersections that operate at an acceptable LOS (LOS D or better) under the 2010 Background Condition would continue to operate at acceptable LOS under the 2010 Background with Project Condition. The addition of traffic generated by the proposed project would not result in any significant changes to intersection levels during either of the peak hours analyzed.

For the intersections that operate at LOS E or F under the 2010 Background Condition, the proposed project would not contribute more than five percent of the intersection total volume. Therefore, the proposed project would not result in any significant impact at the intersections.

4.5 Roadway Segment Operating Condition

Table 19 provides a summary of the roadway segments operation conditions, including MOE's and LOS. Appendix B includes the detailed LOS calculation sheets. The addition of project generated trips would not worsen the level of service of the study roadway segments. All roadway segments would continue to operate at an acceptable LOS. The project would not result in a significant impact to the study roadway segments.

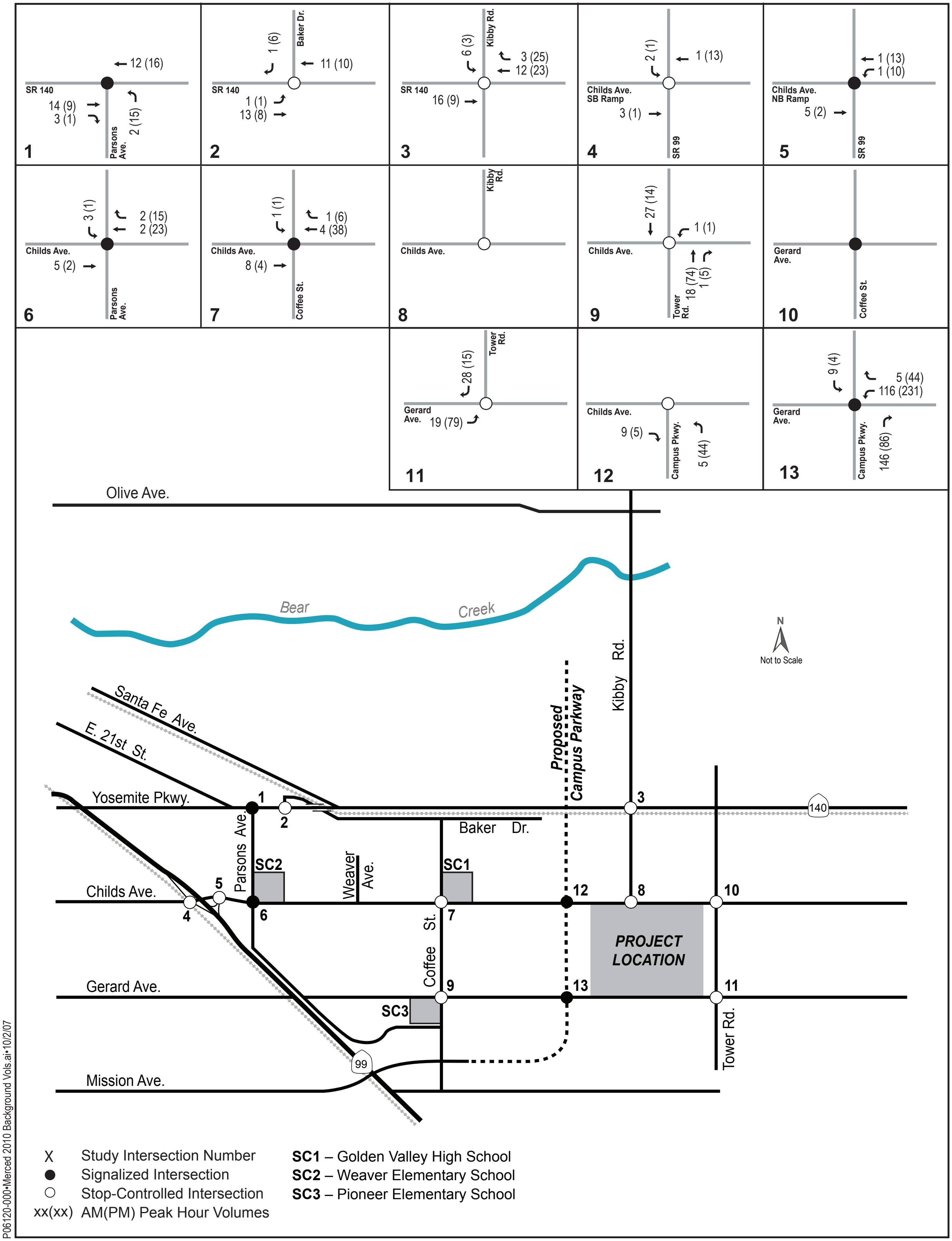

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Figure 4
Project Trip Assignment
2010 Background Condition

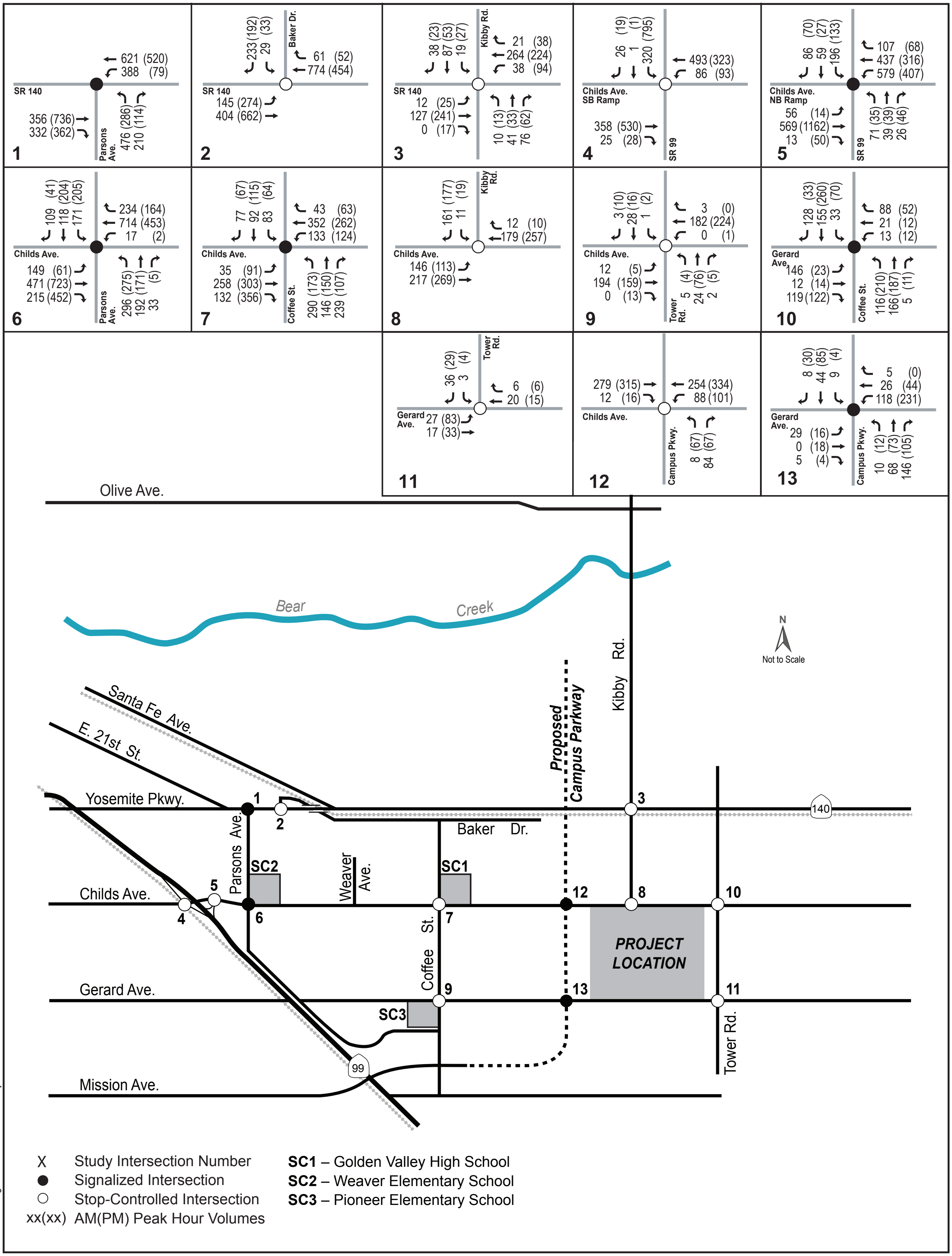

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Figure 5
2010 Background with Project Condition
Weekday Peak Hour Intersection Volumes

Table 18
2010 Background With Project Condition
Intersection-Level of Service Analysis

No	Intersection Location	Control	AM Peak Hour				PM Peak Hour			
			Delay[a]	LOS[b]	% Vol Incr[c]	Project Impact	Delay	LOS	% Vol Incr[c]	Project Impact
1	SR 140 / Parsons Avenue	Signalized	27.8	C		No	49.9	D		No
2	SR 140 / Baker Drive	Unsignalized	10.0		1.8	No	15.3		1.7	No
	SB Approach		43.2	E			>50.0	F		
	EB Left		9.2	A			9.2	A		
3	SR 140 / Kibby Road	Unsignalized	5.2			No	4.5			No
	NB Approach		12.5	B			13.9	B		
	SB Approach		15.2	C			17.4	C		
	EB Left		7.9	A			7.8	A		
	WB Left		7.6	A			7.9	A		
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [e]	22.3	C		No	>50.0	F	1.0	No
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	>50.0 [d]	F	0.4	No	>50.0	F	1.2	No
6	Childs Avenue / Parsons Avenue	Signalized	46.6	D		No	43.3	D		No
7	Childs Avenue / Coffee Street	Signalized	37.1	D		No	34.2	C		No
8	Childs Avenue / Kibby Road	Unsignalized	4.2			No	4.2			No
	SB Approach		9.9	A			10.1	B		
	EB Left		7.8	A			7.6	A		
9	Childs Avenue / Tower Road	Unsignalized	2.5			No	3.1			No
	NB Approach		10.7	B			11.7	B		
	SB Approach		10.5	B			10.6	B		
	EB Left		7.5	A			7.5	A		
	WB Left		7.4	A			7.5	A		
10	Gerard Avenue / Coffee Street	AWSC	9.8	A		No	8.5	A		No
11	Gerard Avenue / Tower Road	Unsignalized	6.9			No	7.4			No
	SB Approach		6.5	A			6.7	A		
	EB Left		7.3	A			7.6	A		
12	Childs Avenue / Campus Parkway	Unsignalized	3.4			No	3.7			No
	NB Approach		9.3	A			10.0	A		
	WB Left		7.4	A			7.5	A		
13	Gerard Avenue / Campus Parkway	Signalized	30.6	C		No	34.9	C		No
14	Mission Ave / SR 99 Southbound Off-Ramp	Signalized	19.2	B		No	15.3	B		No
15	Mission Ave / SR 99 Northbound Off-Ramp	Signalized	27.9	C		No	34.6	C		No
16	Mission Ave / Coffee Street	Signalized	28.8	C		No	33.4	C		No

Source: DKS Associates

Notes:
a. Delay is in seconds per vehicle. For signalized intersections, delay is based on average stopped delay. For unsignalized intersections, delay is based at the worst approach for two-way stop controlled intersection.
b. LOS = Level of Service
c. % Vol Incr = percent increase in the intersection traffic volumes due to the project trips. Percent increase is reported only at any of the intersections that would already operate at an unacceptable LOS without the project.
d. For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
e. AWSC = All-way stop control

Table 19-A
2010 Background With Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
1.	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	1758	18.6	C	1905	20.1	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	1632	17.2	B	2723	28.7	D
2.	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	564	34.6	A	1034	31.3	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	982	32.0	A	779	33.7	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	957	39.5	A	634	39.9	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	519	40.0	A	873	39.7	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	1272	69.2	D	1215	67.5	D
3.	Parson Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	683	34.2	A	400	34.9	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	565	34.6	A	537	34.7	A
4.	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	475	34.8	A	492	34.8	A
			from Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	279	29.9	A	264	29.9	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	311	29.9	A	219	30.0	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	597	28.7	A	364	29.8	A
5.	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	274	29.9	A	456	29.5	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	127	35.0	A	162	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	140	35.0	A	111	35.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	203	40.0	A	142	40.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

Table 19-B
2010 Background With Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
6.	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	159	45.0	A	101	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	106	45.0	A	163	45.0	A
7.	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	691	34.2	A	1102	30.4	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	991	31.9	A	739	34.0	A
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	556	34.7	A	945	32.4	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	893	32.9	A	328	35.0	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	391	40.0	A	406	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	419	40.0	A	383	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	112	40.0	A	179	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	160	40.0	A	133	40.0	A
8.	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	211	35.0	A	196	35.0	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	210	35.0	A	293	35.0	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	78	35.0	A	105	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	70	35.0	A	77	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	n/a	n/a	n/a	n/a	n/a	n/a

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

4.6 2010 Background Condition with Project Traffic Signal Warrant Analysis

Table 20 summarizes the traffic signal warrant analysis results. Detailed traffic signal warrant analysis sheets are included in **Appendix B**. Similar to the 2010 background condition, all three unsignalized intersections that would operate at deficient LOS would continue to meet the peak hour signal warrant during the AM and PM peak hours.

Table 20
2010 Background with Project Condition
Signal Warrant Analysis

Intersection	AM Peak Hour			PM Peak Hour		
	Criteria 1	Criteria 2	Warrant met?	Criteria 1	Criteria 2	Warrant met?
SR 140 / Baker Drive	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Childs Avenue / SR 99 Southbound Off-Ramp	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Childs Avenue / SR 99 Northbound Off-Ramp	No	**Yes**	**Yes**	No	**Yes**	**Yes**

Source: DKS Associates

See Section 2.4 for definition of criteria.

4.7 State Highway Analysis

The project-related traffic increment utilizing area state highways is below the Caltrans State Highway trips at state highway facilities. As a result, state highway analysis based on the *Caltrans Guide for the Preparation of Traffic Impact Studies (State of California Department of Transportation, December 2002)* is not required and not included in this study.

4.8 Truck Turning Radii Evaluation

A truck turning radii analysis was conducted to evaluate the potential affect of Wal-Mart trucks at the intersection of Gerard Avenue and Campus Parkway and also at the new Mission Interchange at SR 99.

It is anticipated that truck traffic to the proposed Wal-Mart Distribution Center would access the project site via SR 99, SR 140 and new Campus Parkway. Intersection layouts at both of these locations were provided by the California Department of Transportation, District 10, the County of Merced, and also the City of Merced.

Following the Surface Transportation Assistance Act (STAA) truck turning radii standard, the CAD based Auto-Turn program was used to generate turning paths of a standard semi-trailer truck, at particular approaches. It was determined that the standard semi-trailer trucks would be able to perform adequate turning movements at SR 99/ Mission Avenue interchange and at Gerard Avenue/ Campus Parkway intersection. The illustrations of the truck turning paths are included in **Appendix C.**

4.9 Delivery Truck Parking Area

During the weekday operating hours, there would be merchandise trucks arriving at the Wal-Mart Distribution Center for delivery purposes. These trucks would be scheduled to arrive at a certain hour before their delivery appointment time. If non-Wal-Mart trucks arrive more than one hour prior to their scheduled appointment, then these delivery trucks would have to stop and wait somewhere outside the distribution center. In general, truck parking activities could potentially create access and circulation impacts in the area. According to the site plan received from the Wal-Mart Stores, Inc., it is expected that these delivery trucks would stop along the access roadway to the trailer parking and warehouse. As a means to accommodate these trucks, the access roadway may be widened to include a lay-by or parking lane for trucks waiting to pass through the security gate. Therefore, it is expected that these delivery trucks would not cause any access or circulation impacts to the nearby streets within the study area.

4.10 The Potential Conflict of School Buses and Wal-Mart Trucks

Based on the designated truck routes to and from the proposed Wal-Mart Distribution Center and school bus routes, school buses and Wal-Mart Trucks would share the same roadway segment of SR 140 between SR 99 and Tower Road and a segment of Mission Avenue between SR 99/Mission Avenue Interchange and Coffee Street.

SR 140 between SR 99 and Tower Road

The Golden Valley High School Bus Route 20 runs between the north end of the City of Merced and the school from 6:00 AM and 8:05 AM and between 3:05 PM and 5:10 PM. The bus travels along SR 140 segment between Parsons Avenue and Kibby Road for a short period between 6:15 AM and 6:25 AM and between 4:00 PM and 4:05 PM.

The Pioneer Elementary School Bus Route 8 runs between the school and SR 140 at Arbodeda Drive from 2:00 PM to 3:18 PM. The bus travels on the SR 140 segment between Kibby Road and Tower Road for a short period between 3:18 PM and 4:00 PM.

Mission Avenue between SR 99/Mission Avenue Interchange and Coffee Street

The Golden Valley High School Bus Route 24 runs between the south end of the City of Merced and the school between 5:50 AM and 8:05 AM and between 2:45 PM and 5:15 PM. The bus travels on the Mission Avenue segment between SR 99/Mission Avenue Interchange and Coffee Street for a short period between 6:40 AM and 6:50 AM.

The Weaver Elementary School Bus Route 8 runs between the school and Bear Creek Drive at Arbodeda Drive from 3:40 PM to 4:28 PM. The bus travels on the SR 140 segment between Kibby Road and Tower Road for a short period between 4:25 PM and 4:28 PM.

4.11 Parking Analysis

Parking demand at the proposed project was estimated based on the number of the employees, as a proportion to the number of employees at an analogous Wal-Mart Distribution Center in Apple Valley, San Bernardino County. According to the information provided by the Wal-Mart Stores, Inc., the proposed project would employ the same number of employees as the Wal-Mart Distribution Center in Apple Valley. Therefore, it was assumed that the parking demands for both distribution centers would be the same. **Table 21** summarizes the projected parking demand for the largest shift, and the parking supply at the proposed Wal-Mart Distribution Center. Compared to the number of off-street parking spaces required based on the City of Merced Municipal Code, the proposed project would satisfy the City of Merced off-street parking requirements.

Table 21
Parking Analysis
Wal-Mart Distribution Center

Parking Area	Parking Demand [a] (spaces)	Parking Supply [b] (spaces)	The City of Merced Code Requirement [c]	
			Rate	Requirement (Spaces)
Employee /Visitor	380	850	One for each two employees and one for each vehicle used to conduct business.	180 [d]
Truck/Trailer Parking	1,227	1,600		1,227 [e]
Non-Truck Parking	138	200		138 [e]
Loading Dock	189	300		189 [e]
Total	**1,934**	**2,950**	-	**1,734**

Source: DKS Associates, August 2006

Note: a. Parking demand based on parking demand surveyed conducted at Wal-Mart Distribution Center in Apple Valley.
b. Parking Supply is based on the information provided by Wal-Mart Stores, Inc.
c. City of Merced Municipal Code Title 20. Zoning, Industrial use-Warehouse (20.58.150).
d. The required spaces were estimated based on the largest shift of 359 employees at the proposed project.
e. Assumed the surveyed demand represents the number of vehicle activities.

4.12 Transit, Pedestrian and Bicycle Review

Transit Operation

Route 5, "East-West City Shuttle", runs within the project study area on Parsons Avenue between Childs Avenue and SR 140 and on SR 140 between Parsons Avenue and Santa Fe Avenue. The Parsons Avenue segment would serve as a potential route for the project auto trips, while the SR 140 segment would serve both the project auto and truck trips. The increase in the traffic volumes on these roadway segments, however, would be relatively low and, therefore, is not expected to cause in a significant impact to the transit service. Please see the "Roadway Segment – Level of Service Analysis" for further analysis.

Pedestrian and Bicycle

Currently the pedestrian and bicycle activities in the vicinity of the project are relatively light. However, due to the approved residential projects located west of the project site, an increase in pedestrian and bicycle activities would be anticipated, especially on Gerard Avenue and the future Campus Parkway. The Merced County Association of Governments provides the City of Merced bikeway map as illustrated in Appendix E.

4.13 Construction Traffic Impacts

Construction period trip generation estimates were based on the size of the building area to be constructed on the site. Using a factor of 0.42 trips per day per 1,000 square feet of industrial construction (provided by the City of Merced), the estimated number of vehicle trips would be 486 per day (based on 1,155,600 square feet of total building area to be constructed). It was assumed that all construction workers would work the same eight hour shift, and arrive or depart during off-peak hours to avoid conflicts with adjacent street peak traffic conditions. This is a typical assumption based on construction trip behavior at large construction sites in the Central Valley, which have conditions limiting time periods of construction activity. It was also assumed that truck trips would be evenly spaced throughout the day such that ten percent of truck trips would arrive or depart during each peak hour of construction activity. Also, parking would be required for construction related activities, including workers and trucks.

By comparison, the number of construction trips would be about one-fifth of the daily number of trips, compared to the condition after the proposed project is built and occupied.

5. 2030 CUMULATIVE NO PROJECT CONDITION

This section discusses the traffic operating conditions of the study intersections and roadway segments under the 2030 Cumulative Condition. The forecasted intersection and roadway segment traffic volumes were developed from the MCAG travel demand forecast model plus the addition of net-new trips expected to be generated by approved projects within the study area.

5.1 Roadway Improvements

In addition to the roadway improvement discussed in Section 3, the following roadway improvements were assumed to be implemented after the anticipated completion date of the proposed project, and thus were included in this analysis.

- Extension of Campus Parkway with two lanes in each direction north of Childs Avenue to connect to SR 140 by providing two loop ramps on the north side of SR 140.
- Access from Campus Parkway to the new University of California Merced and the development areas north of Merced.
- New traffic signal at the intersection of Childs Avenue and Campus Parkway.
- SR 99 would be upgraded to a 6-lane facility with three lanes in each direction.
- Replacement of the Bradley Overhead Bridge on SR 140 with a four-lane facility with a continuous left-turn lane including SR 140 from Parsons Avenue to past Santa Fe Avenue
- Realignment and upgrading of Baker Drive and Santa Fe Avenue with signals at Kelly Avenue and Santa Fe Avenue.

5.2 2030 Cumulative Background Trip Generation

In addition to the approved projects described in Section 3, it was assumed the Merced Gateway Park project would be developed by year 2030 and, therefore, included in the 2030 Cumulative Condition. The trip generation for the Merced Gateway Park was determined based on the standard trip rates published in the Institute of Transportation Engineers (ITE), *Trip Generation*, 7th Edition, 2003 for weekday conditions, as summarized in **Table 22**.

Table 22
Merced Gateway Park – Trip Generation [1]

Project Location	Land Use [2]	Size	Unit	Daily Trip	AM Trip			PM Trip		
					Total	Inbound	Outbound	Total	Inbound	Outbound
North Site	Retail	553,000	sq ft	24,509	-	-	-	*1499*	*660*	*839*
	Internal Trip Reduction				-	-	-	*-120*	*-59*	*-61*
	Net External Trip							1379	601	778
	Restaurant	56,000	sq ft	7,120	645	335	310	612	373	239
	Hotel	42,000	sq ft	760	52	32	20	55	29	26
	Theatre	3600	Seats	-	-	-	-	252	98	154
	Sub-Total	**651,000**	sq ft	**32,389**	**697**	**367**	**330**	**2298**	**1101**	**1197**
South Site	Retail	150,000	sq ft	6,648	-	-	-	*407*	*179*	*228*
	Internal Trip Reduction				-	-	-	*-93*	*-40*	*-53*
	Net External Trip							314	139	175
	Restaurant	18,000	sq ft	2,289	207	108	99	197	120	77
	Office	472,000	sq ft	5,197	732	644	88	703	120	583
	Internal Trip Reduction				-	-	-	*-49*	*-32*	*-17*
	Net External Trip				-	-	-	654	88	566
	Hotel	83,500	sq ft	1,520	104	63	41	110	58	52
	Sub-Total	**723,500**	sq ft	**15,654**	**1043**	**815**	**228**	**1275**	**405**	**870**
Total		**1,374,500**	sq ft	**48,043**	**1,740**	**1,182**	**558**	**3,573**	**1,506**	**2,067**

Note: 1. The project descriptions were provided by the City of Merced
2. Trip generations were determined based on ITE Land Use 814 (Special Retail Center) for Retail, Land Use 932 (High-Turnover (Sitdown) Restaurant) for Restaurant, Land Use 310 (Hotel) for Hotel, Land Use 444 (Movie Theater with Matinee) for Theatre and Land Use 710 (General Office) for Office.

5.3 2030 Cumulative Trip Distribution

It was assumed that the trip distribution patterns of Merced Gateway Park would be similar to Steiner Commercial Development project, as described in Section 3.3.

Figure 6 illustrates the 2030 cumulative condition traffic volumes at each of the study intersections.

5.4 Intersection Operating Conditions

Table 23 summarizes the results of the intersection level of service calculations for the 2030 Cumulative No Project Condition. Detailed Level of Service calculations sheets are included in **Appendix A**.

Cumulative traffic growth would cause five of the sixteen study intersections to operate at an unacceptable LOS (LOS E or F) during both AM and PM peak hours. These intersections are:

- SR 140 at Baker Drive
- SR 140 at Kibby Road
- Childs Avenue at SR 99 southbound off-ramp
- Childs Avenue at SR 99 northbound off-ramp
- Childs Avenue at Parsons Avenue

In addition, the intersection of SR 140 and Parsons Avenue would operate under an unacceptable LOS F during the AM peak hour only.

All other intersections would continue to operate at acceptable LOS (LOS D or better).

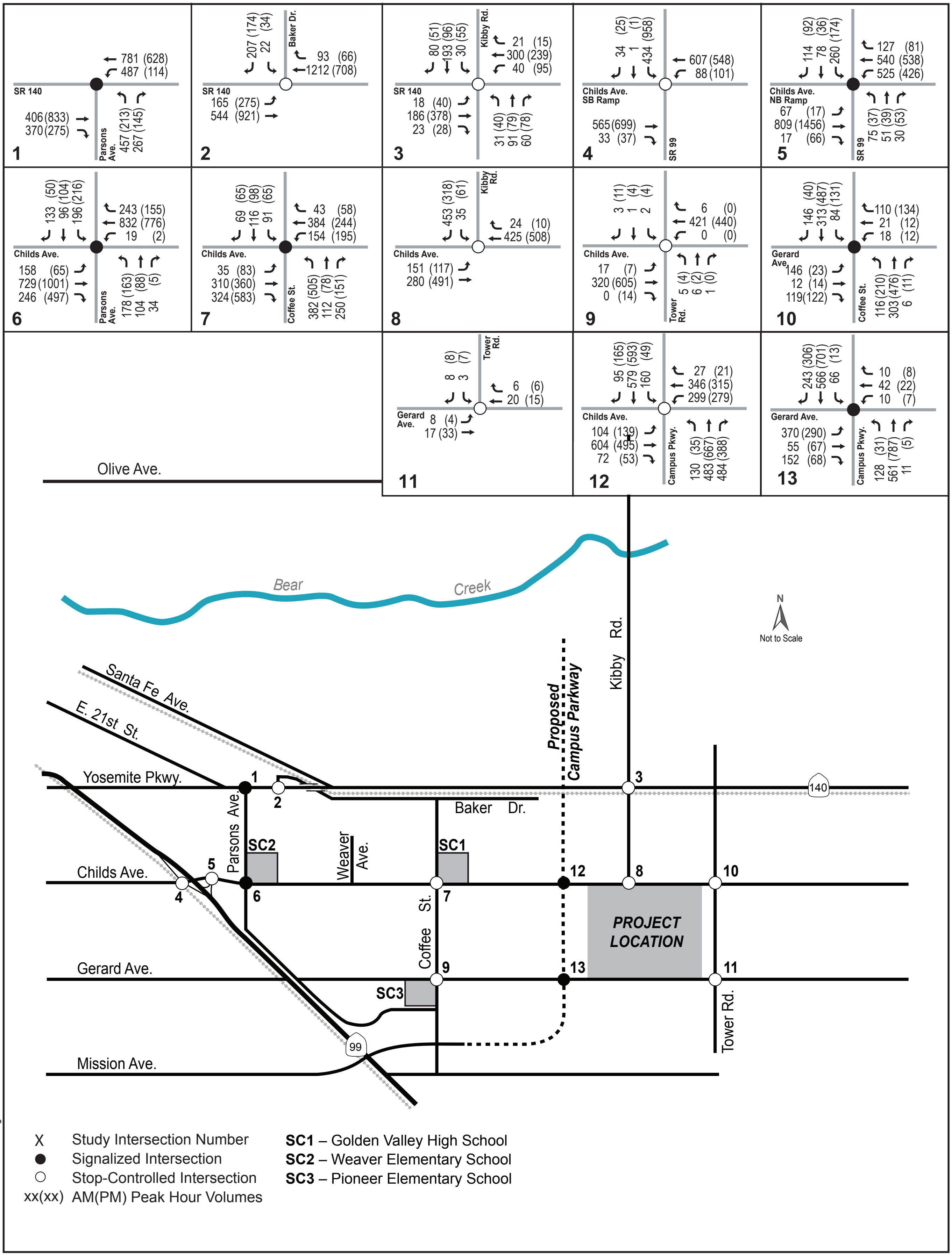

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Figure 6
2030 Cumulative No Project Condition
Weekday Peak Hour Intersection Volumes

Table 23
2030 Cumulative No Project Condition
Intersection Level of Service Analysis

No	Intersection Location	Control	AM Peak Hour		PM Peak Hour	
			Delay [a]	LOS [b]	Delay	LOS
1	SR 140 / Parsons Avenue	Signalized	89.8	F	37.7	D
2	SR 140 / Baker Drive	Unsignalized	5.4		6.1	
	SB Approach		>50.0 [c]	F	>50.0	F
	EB Left		10.2	B	9.6	B
3	SR 140 / Kibby Road	Unsignalized	39.1		3.1	
	NB Approach		>50.0 [c]	F	>50.0	F
	SB Approach		>50.0 [c]	F	36.6	E
	EB Left		9.6	A	9.1	A
	WB Left		9.7	A	0.0	A
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC [d]	>50.0	F	>50.0	F
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	>50.0	F	>50.0	F
6	Childs Avenue / Parsons Avenue	Signalized	66.0	E	61.8	E
7	Childs Avenue / Coffee Street	Signalized	28.6	C	32.2	C
8	Childs Avenue / Kibby Road	Unsignalized	2.5		1.8	
	SB Approach		10.3	B	12.1	B
	EB Left		7.7	A	7.8	A
9	Childs Avenue / Tower Road	Unsignalized	1.2		0.5	
	NB Approach		11.1	B	12.8	B
	SB Approach		10.1	B	12.8	B
	EB Left		7.6	A	7.7	A
	WB Left		0.0	A	0.0	A
10	Gerard Avenue / Coffee Street	AWSC	9.5	A	9.8	A
11	Gerard Avenue / Tower Road	Unsignalized	7.1		7.1	
	SB Approach		6.7	A	7.0	A
	EB Left		7.2	A	7.1	A
12	Childs Avenue / Campus Parkway	Signalized	27.4	C	28.0	C
13	Gerard Avenue / Campus Parkway	Signalized	28.8	C	29.8	C
14	Mission Avenue / SR 99 Southbound	Signalized	20.6	C	21.5	B
15	Mission Avenue / SR 99 Northbound	Signalized	28.3	C	39.6	D
16	Mission Avenue / Coffee Street	Signalized	37.1	D	45.8	D

Source: DKS Associates

Notes: a. Delay is in seconds per vehicle. For signalized intersections, delay is based on average stopped delay. For unsignalized intersections, delay is based at the worst approach for two-way stop controlled intersection.
b. LOS = Level of Service
c. For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
d. AWSC = All-way stop control

5.5 Roadway Segment Operating Conditions

Table 24 summarizes the roadway segment operating level of service under the 2030 Cumulative No Project Condition. The detailed level of service calculations are included in **Appendix B**. The addition of cumulative growth traffic would cause the roadway segment of SR 140 between Santa Fe Avenue and Kibby Road to deteriorate from LOS D to LOS E during the AM peak hour. All other study roadway segments would continue to operate at an acceptable LOS (LOS D or better).

Table 24-A
2030 Cumulative No Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
1.	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	2531	17.4	C	3164	21.7	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	2712	18.6	C	4173	28.7	D
2.	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	1179	29.2	B	989	31.9	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	959	32.2	A	924	32.6	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	1096	39.1	A	919	39.6	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	1157	38.8	A	955	39.6	A
		Two-lane Highway Class I	between Santa Fe Ave. and Kibby Rd	Percent Time-Spent-Following	1871	82.3	E	1729	79.8	D
3.	Parson Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	514	34.8	A	422	34.9	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	473	34.8	A	408	34.9	A
4.	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	96	30.0	A	92	30.0	A
			from Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	200	30.0	A	50	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	206	30.0	A	365	29.8	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	270	29.9	A	232	30.0	A
5.	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	157	35.0	A	148	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	60	35.0	A	59	35.0	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	350	40.0	A	305	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	267	40.0	A	366	40.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

Table 24-B
2030 Cumulative No Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
6.	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	70	45.0	A	69	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	110	45.0	A	76	45.0	A
7.	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	1125	30.1	A	1013	31.6	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	1109	30.3	A	1125	30.1	A
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	783	33.7	A	644	34.4	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	850	33.2	A	770	33.8	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	297	40.0	A	221	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	280	40.0	A	233	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	133	40.0	A	355	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	231	40.0	A	236	40.0	A
8.	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	576	35.0	A	643	35.0	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	707	34.9	A	1264	34.4	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	612	35.0	A	536	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	554	35.0	A	464	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	581	35.0	A	662	35.0	A
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	528	35.0	A	494	35.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

5.6 2030 Cumulative No Project Condition Traffic Signal Warrant Analysis

Table 24 summarizes the traffic signal warrant analysis performed at the five unsignalized intersections that would operate at unacceptable level of service under the 2030 Cumulative No Project Condition. Detailed traffic signal warrant analysis sheets are included in **Appendix B**. Based on the signal warrant analysis results, all five intersections would meet the signal warrant during the AM peak hour while four intersections would meet the signal criteria during the PM peak hour.

Table 24
2030 Cumulative No Project Condition
Signal Warrant Analysis

Intersection	AM Peak Hour			PM Peak Hour		
	Criteria 1	Criteria 2	Warrant met?	Criteria 1	Criteria 2	Warrant met?
SR 140 / Baker Drive	No	**Yes**	**Yes**	No	**Yes**	**Yes**
SR 140 / Kibby Road	**Yes**	**Yes**	**Yes**	No	No	No
Childs Avenue / SR 99 Southbound Off-Ramp	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Childs Avenue / SR 99 Northbound Off-Ramp	No	**Yes**	**Yes**	No	**Yes**	**Yes**
Mission Avenue / Coffee Street	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Source: DKS Associates

See Section 2.4 for definition of criteria.

6. 2030 CUMULATIVE WITH PROJECT CONDITION

This section evaluates the 2030 Cumulative with Project Condition. In addition, all roadway improvements are assumed to be implemented and thus were included in this analysis. An adjustment was made to the distribution and assignment of trips to account for the extension of the Campus Parkway corridor and to allow for more circulation via Campus Parkway rather than via Parsons Avenue. The truck trips were also adjusted to allow for circulation via Campus Parkway between SR 140 and Gerard Avenue rather than Tower Road.

Figures 7 and 8 illustrate the estimated project trips and peak hour traffic volumes at each of the study intersections for the 2030 Cumulative with Project Condition.

6.1 Intersection Operating Conditions

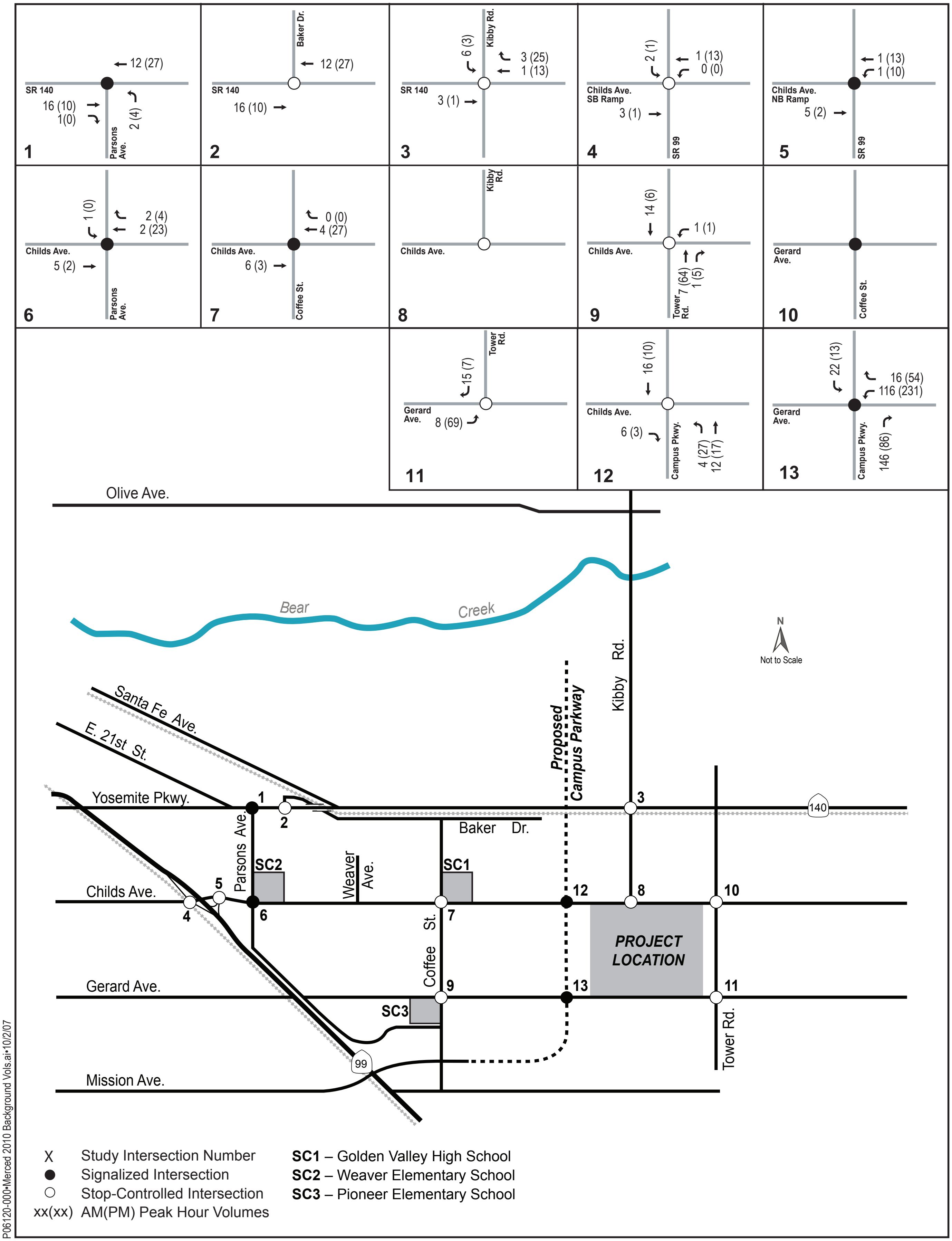
Intersection operational levels of service along with their associated delays are summarized in **Table 25. Appendix A** includes the detailed calculation level of service analysis sheets, including the weekday A.M. and P.M. peak hours.

The study intersections that would operate at acceptable LOS (LOS D or better) under the 2030 Cumulative No Project Condition would continue to operate at acceptable LOS under the 2030 Cumulative with Project Condition with the exception of one intersection. At the intersection of Mission Avenue at SR 99 northbound off-ramp, the LOS would deteriorate from D to E.

For the intersections that would operate at LOS E or F under the 2030 Cumulative No Project Condition, the proposed project would not contribute more than five percent of the intersection total volume at any of the intersections during either the AM or PM peak hours. Overall, the proposed project would result in significant cumulative impacts at one intersection during the PM peak hour.

6.2 Roadway Segment Operating Condition

Table 26 provides a summary of the roadway segments operation conditions, including MOE's and LOS. **Appendix B** includes the detailed LOS calculation sheets. The addition of project traffic would cause the segment of SR 99 between Santa Fe Avenue and Kibby Road to deteriorate from LOS D under the 2030 Cumulative No Project Condition to LOS E during the PM Peak hour. This would be a significant cumulative project impact. All other study roadway segments would operate at an acceptable LOS (LOS D or better).



P06120-000•Merced 2010 Background Vols.ai•10/2/07

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Figure 7
Project Trip Assignment
2030 Cumulative Condition

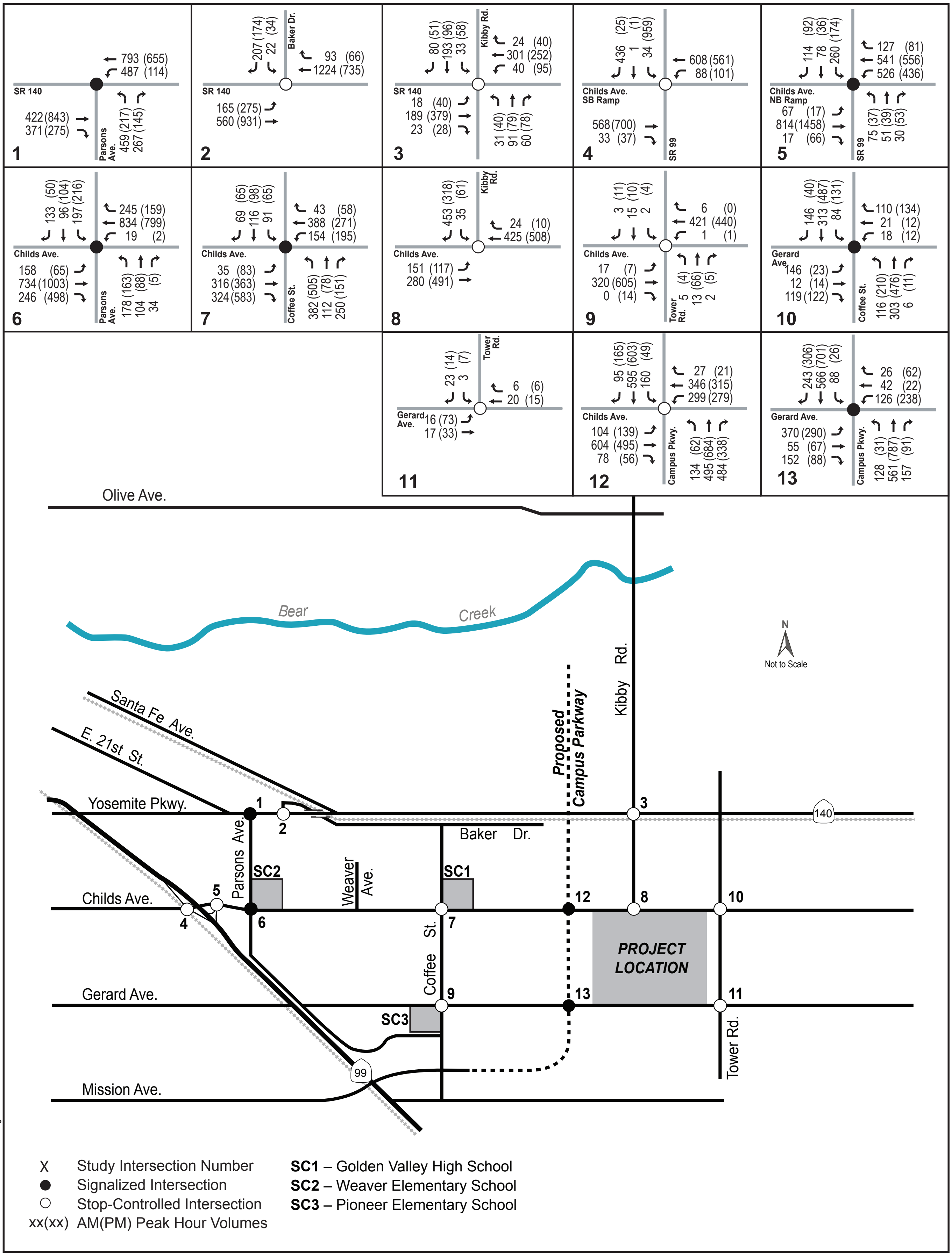

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Figure 8
2030 Cumulative with Project Condition
Weekday Peak Hour Intersection Volumes

Table 25
2030 Cumulative With Project Condition
Intersection Level of Service Analysis

No	Intersection Location	Control	AM Peak Hour				PM Peak Hour			
			Delay[a]	LOS[b]	% Vol Incr[c]	Project Impact	Delay	LOS	% Vol Incr[c]	Project Impact
1	SR 140 / Parsons Avenue	Signalized	93.1	F	1.2	No	38.7	D		No
2	SR 140 / Baker Drive	Unsignalized	5.8		1.5	No	6.6		2.0	No
	SB Approach		>50.0 [d]	F			>50.0	F		
	EB Left		10.3	B			9.7	A		
3	SR 140 / Kibby Road	Unsignalized	46.2		0.7	No	3.3		2.8	No
	NB Approach		>50.0	F			>50.0	F		
	SB Approach		>50.0	F			44.8	E		
	EB Left		9.6	A			9.2	A		
	WB Left		9.7	A			0.0	A		
4	Childs Avenue / SR 99 Southbound Off-Ramp	AWSC	>50.0	F	0.2	No	>50.0	F	0.6	No
5	Childs Avenue / SR 99 Northbound Off-Ramp	AWSC	>50.0	F	0.2	No	>50.0	F	0.9	No
6	Childs Avenue / Parsons Avenue	Signalized	66.4	E	0.4	No	64.8	E	1.2	No
7	Childs Avenue / Coffee Street	Signalized	28.6	C		No	32.7	C		No
8	Childs Avenue / Kibby Road	Unsignalized	2.5			No	1.8			No
	SB Approach		10.3	B			12.1	B		
	EB Left		7.7	A			7.8	A		
9	Childs Avenue / Tower Road	Unsignalized	1.7			No	2.1			No
	NB Approach		11.2	B			15.0	B		
	SB Approach		10.7	B			13.5	B		
	EB Left		7.6	A			7.7	A		
	WB Left		7.5	A			8.0	A		
10	Gerard Avenue / Coffee Street	AWSC [e]	9.5	A		No	10.0	A		No
11	Gerard Avenue / Tower Road	Unsignalized	7.1			No	7.5			No
	SB Approach		6.6	A			6.9	A		
	EB Left		7.3	A			7.7	A		
12	Childs Avenue / Campus Parkway	Signalized	27.6	C		No	28.4	C		No
13	Gerard Avenue / Campus Parkway	Signalized	31.0	C		No	51.2	D		No
14	Mission Avenue / SR 99 Southbound Off-Ramp	Signalized	21.2	C		No	22.1	D		No
15	Mission Avenue / SR 99 Northbound Off-Ramp	Signalized	30.6	C		No	55.1	E		**Yes**
16	Mission Avenue / Coffee Street	Signalized	37.7	D		No	48.5	D		No

Source: DKS Associates

Notes:
a. Delay is in seconds per vehicle. For signalized intersections, delay is based on average stopped delay. For unsignalized intersections, delay is based at the worst approach for two-way stop controlled intersection.
b. LOS = Level of Service
c. % Vol Incr = percent increase in the intersection traffic volumes due to the project trips. Percent increase is reported only at any of the intersections that would already operate at an unacceptable LOS without the project.
d. For unsignalized intersections, delays >50 are beyond the upper limits of LOS delay estimation equations under the HCM 2000 methodologies.
e. AWSC = All-way stop control

Table 26-A
2030 Cumulative With Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
1.	SR 99	Freeway	from Mission Ave. to SR 140	Density (pc/mi/ln)	2531	17.4	C	3164	21.7	C
			from SR 140 to Mission Ave.	Density (pc/mi/ln)	2773	19.0	C	4208	29.0	D
2.	SR 140	Urban Class III	from SR 99 to Parsons Ave.	Travel Speed (mi/hr)	1196	28.9	B	999	31.8	A
			from Parsons Ave. to SR 99	Travel Speed (mi/hr)	973	32.1	A	955	32.3	A
		Urban Class II	from Parsons Ave. to Santa Fe Ave.	Travel Speed (mi/hr)	1109	39.1	A	944	39.6	A
			from Santa Fe Ave. to Parsons Ave.	Travel Speed (mi/hr)	1173	38.8	A	964	39.5	A
		Two-lane Highway Class I	from Santa Fe Ave. to Kibby Rd	Percent Time-Spent-Following	1899	82.7	E	1766	80.5	E
3.	Parson Avenue	Urban Class III	from Childs Avenue and SR 140	Travel Speed (mi/hr)	515	34.7	A	428	34.9	A
			from SR 140 and Childs Ave.	Travel Speed (mi/hr)	474	34.8	A	409	34.9	A
4.	Coffee Street	Urban Class IV	from Baker Dr. to Childs Ave.	Travel Speed (mi/hr)	96	30.0	A	92	30.0	A
			from Childs Ave. to Baker Dr.	Travel Speed (mi/hr)	200	30.0	A	50	30.0	A
		Urban Class IV	from Childs Ave. to Gerard Ave.	Travel Speed (mi/hr)	208	30.0	A	381	29.8	A
			from Gerard Ave. and Childs Ave.	Travel Speed (mi/hr)	273	29.9	A	234	30.0	A
5.	Gerard Avenue	Urban Class III	from Parson Ave. and Coffee Str.	Travel Speed (mi/hr)	157	35.0	A	148	35.0	A
			from Coffee Str. to Parson Ave.	Travel Speed (mi/hr)	60	35	A	59	35	A
		Urban Class II	from Coffee Str. to Project Site	Travel Speed (mi/hr)	353	40.0	A	307	40.0	A
			from Project Site to Coffee Str.	Travel Speed (mi/hr)	269	40.0	A	382	40.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

Table 26-B
2030 Cumulative With Project Condition
Roadway Segment-Level of Service Analysis

	Roadway Segment	Type of Facilities	Location	Measure of Effectiveness (MOE)	AM Peak Hour			PM Peak Hour		
					Volume (veh/hr)	MOE [a]	LOS [b]	Volume (veh/hr)	MOE	LOS
6.	Kibby Road	Urban Class II	from SR 140 to Childs Ave.	Travel Speed (mi/hr)	70	45.0	A	69	45.0	A
			from Childs Ave. to SR 140	Travel Speed (mi/hr)	110	45.0	A	76	45.0	A
7.	Childs Avenue	Urban Class III	from SR 99 to Parsons Ave	Travel Speed (mi/hr)	1130	30.0	B	1015	31.6	A
			from Parsons Ave to SR 99	Travel Speed (mi/hr)	1112	30.3	A	1148	29.7	B
		Urban Class III	from Parsons Ave to Coffee Str	Travel Speed (mi/hr)	789	33.7	A	647	34.4	A
			from Coffee Str to Parsons Ave	Travel Speed (mi/hr)	854	33.2	A	799	33.6	A
		Urban Class II	from Coffee Str to Kibby Rd	Travel Speed (mi/hr)	300	40.0	A	222	40.0	A
			from Kibby Rd to Coffee Str	Travel Speed (mi/hr)	281	40.0	A	246	40.0	A
		Urban Class II	from Kibby Rd to Tower Rd	Travel Speed (mi/hr)	133	40.0	A	355	40.0	A
			from Tower Rd to Kibby Rd	Travel Speed (mi/hr)	231	40.0	A	236	40.0	A
8.	Campus Pkwy	Urban Class III	from Coffee Str to Gerard Ave	Travel Speed (mi/hr)	722	34.9	A	729	34.9	A
			from Gerard Ave to Coffee Str	Travel Speed (mi/hr)	823	34.9	A	1495	33.9	A
		Urban Class III	from Gerard Ave to Childs Ave	Travel Speed (mi/hr)	626	35.0	A	573	35.0	A
			from Childs Ave to Gerard Ave	Travel Speed (mi/hr)	573	35.0	A	475	35.0	A
		Urban Class III	from Childs Ave to SR 140	Travel Speed (mi/hr)	594	35.0	A	687	35.0	A
			from SR 140 to Childs Ave	Travel Speed (mi/hr)	544	35.0	A	503	35.0	A

Source: DKS Associates

Notes: a. MOE= Measures of Effectiveness. For freeway facilities, MOE is measured in density (passenger cars per mile per lane). For urban facilities, MOE is measured in travel speed (miles per hour). For two-lane highway facilities, MOE is measured in percent time-spent following (percent).
b. LOS = Level of Service is based on Transportation Research Board, Highway Capacity Manual 2000.

6.3 2030 Cumulative with Project Condition Traffic Signal Warrant Analysis

Table 27 summarizes the traffic signal warrant analysis performed at the five unsignalized intersections that would operate at an unacceptable level of service under the 2030 Cumulative No Project Condition. Detailed traffic signal warrant analysis sheets are included in **Appendix B**. Similar to the 2030 Cumulative No Project Condition, a signal warrant would be met at all five intersections during the AM peak hour and four intersections during the PM peak hour.

Table 27
2030 Cumulative with Project Condition
Signal Warrant Analysis

Intersection	AM Peak Hour			PM Peak Hour		
	Criteria 1	Criteria 2	Warrant met?	Criteria 1	Criteria 2	Warrant met?
SR 140 / Baker Drive	No	**Yes**	**Yes**	No	**Yes**	**Yes**
SR 140 / Kibby Road	**Yes**	**Yes**	**Yes**	No	No	No
Childs Avenue / SR 99 Southbound Off-Ramp	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Childs Avenue / SR 99 Northbound Off-Ramp	No	**Yes**	**Yes**	No	**Yes**	**Yes**
Mission Avenue/ Coffee Street	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Source: DKS Associates

See Section 2.4 for definition of criteria.

7. MITIGATION MEASURES

Mitigation measures are recommended for the project impacts and projected transportation deficiencies.

7.1 Intersection Mitigation Measures

7.1.1 Intersection Mitigation Measure 1 – Mission Avenue at SR 99 Northbound Off-Ramp

Under the 2030 Cumulative with Project Condition PM peak hour, the intersection would deteriorate from LOS D to E, resulting in a significant impact. Under this condition, traffic would increase in the westbound-right movement and northbound-right movements traveling between NB SR 99 and the proposed project site.

Restriping the northbound and westbound approaches would mitigate the impact at this intersection. It is proposed to restripe the northbound approach from a left-through turning movement and a right-only turning movement to a left-through-right turning movement and a right-only turning movement. The westbound approach would be restriped from two through lanes and one right-turn only lane to one through lane, one through-right lane, and one right-turn only lane. Restriping could be accomplished within the existing right-of-way.

With these mitigation measures, the intersection of Mission Avenue at SR 99 northbound off-ramps would operate under LOS C conditions, fully mitigating the impact occurring in the PM peak hour under 2030 Cumulative with Project Conditions.

7.1.2 Intersection Mitigation Measure 2 - Intersection of SR 140 and Parsons Avenue

Under the 2030 Cumulative No Project Conditions, traffic on SR 140 would operate at deficient LOS F due to high traffic volumes along SR 140. In order to achieve acceptable levels of service, the intersection would have to have a revised traffic signal timing plan as part of a regular signal maintenance routine. This measure would improve the intersection to operate at an acceptable LOS of D during the AM peak hour for the 2030 Cumulative No Project Condition.

7.1.3 Intersection Mitigation Measure 3 - Intersection of SR 140 and Baker Drive

Under the 2010 Background and 2030 Cumulative No Project Conditions, traffic on Baker Drive would operate at deficient LOS (LOS E or F) due to high traffic volumes on SR 140. The intersection would also meet the traffic signal warrant under both 2010 Background and 2030 Cumulative No Project Conditions. In order to achieve acceptable levels of service, the intersection would have to be signalized to accommodate the southbound left-turn traffic. This measure would improve the intersection to LOS C during both AM and PM peak hours under the 2010 Background Conditions and the 2030 Cumulative No Project Conditions.

7.1.4 Intersection Mitigation Measure 4 – Intersection of SR 140 and Kibby Road

Under the 2030 Cumulative No Project Conditions, the northbound and southbound traffic on Kibby Road would deteriorate to deficient LOS. Even though the peak hour traffic volumes on SR 140 would be relatively light, the operating condition would not be improved by lane re-striping or adding a lane in any direction. The intersection would also meet the traffic signal warrant under the 2030 Cumulative No Project Conditions. In order to achieve acceptable levels of service, the intersection would have to be signalized and the signal would need to be synchronized with the railroad signal just south of the intersection. The measure would improve the operating condition on Kibby Road approaches to acceptable LOS (LOS D or better) and maintain the intersection operating conditions at LOS B during both AM and PM peak hours.

7.1.5 Intersection Mitigation Measure 5 - Intersection of Childs Avenue and SR 99 northbound off-ramp

This intersection would operate at LOS F under the 2010 Background and 2030 Cumulative No Project Conditions during both AM and PM peak hours. The intersection would also meet the peak hour traffic signal warrant under both 2010 Background and 2030 Cumulative No Project Conditions. In order to achieve acceptable levels of service under 2010 Background Conditions, the intersection would have to be signalized and the eastbound approach would have to widened to two lanes. The intersection would operate at acceptable levels of service under 2030 Cumulative No Project Conditions by adding the second westbound left-turn lane in addition to widening the eastbound approach. The mitigation measure, however, may not be feasible within the existing right-of-way due to the overcross structure. The measures would improve the intersection to LOS C during the AM and PM peak hours under both the 2010 Background Conditions and the 2030 Cumulative No Project Conditions.

7.1.6 Intersection Mitigation Measure 6 - Intersection of Childs Avenue and SR 99 southbound off-ramp

This intersection would operate at LOS F during the PM peak hour and would meet a peak hour signal warrant under the 2010 Background Conditions. This intersection would operate at LOS F the 2030 Cumulative No Project Conditions during the both AM and PM peak hours.

The mitigation measure would require adding a second left-turn lane to the southbound approach, adding a westbound left-turn lane, and that the intersection be signalized and coordinated with the intersection of Childs Avenue at SR 99 northbound off-ramp. The measures would improve the intersection to LOS C during the PM peak hour under the 2010 Background Conditions and for both peak hours for the 2030 Cumulative No Project Condition.

7.1.7 Intersection Mitigation Measure 7 - Intersection of Childs Avenue and Parsons Avenue

Under 2030 Cumulative No Project Conditions, traffic at the intersection would deteriorate to LOS E for both of the AM and PM peak hours. In order to achieve acceptable levels of service, the signalized intersection would need a revised signal timing plan as part of a regular signal maintenance routine. This measure would improve the intersection to operate at an acceptable LOS D during the AM and PM peak hours for the 2030 Cumulative No Project Condition.

7.2 Roadway Segment Mitigation Measures

7.2.1 Roadway Mitigation Measure 1 - SR 140 between Santa Fe Avenue and Kibby Road

It was determined that the roadway segment of SR 140 between Santa Fe Avenue and Kibby Road would operate at LOS E and D during the AM and PM peak hours respectively, under the 2030 Cumulative No Project Condition. An increase in traffic volume due to the project development would deteriorate the segment to LOS E during the PM peak hour. The roadway is currently classified as a two-lane highway. By adding one lane in each direction in this segment, the roadway would be improved to operate at an acceptable LOS A. The widening of the roadway, however, may require right of way acquisition, the need for utility relocation and, approval by Caltrans.

7.2.2 Roadway Mitigation Measure 3 -Tower Road between SR 140 and Gerard Avenue

Tower Road would be one of the truck access routes to the proposed Wal-Mart Distribution Center. Based on field observations, this roadway segment has poor pavement conditions, and the pavement markings along the middle of the road are faded. It is recommended that the roadway segment between SR 140 and Gerard Avenue be improved to address these issues. In addition, the Tower Road approaches to the intersection at Gerard Avenue (and the approaches along Gerard Avenue to Tower Road) should be improved to provide proper turning radii for standard trucks as classified under the Surface Transportation Assistance Act (STAA). It is also recommended that the intersection of Tower Road and SR 140 be widened to accommodate truck turning activities (such as providing turn bays and acceleration lane). The mitigation measure would help maintain traffic flow on SR 140. As a Caltrans facility, the roadway widening on SR 140 shall follow Caltrans design standards and will need to be approved by Caltrans.

7.3 Mitigation Fees

As per the City of Merced Standards and the Municipal Code requirements, WalMart will be required to comply with the following:

- Full right-of-way dedication and street improvements around the perimeter of the site, including Gerard Avenue, Childs Avenue, and Tower Road
- The City of Merced's Public Facilities Impact Fees (PFIF) (in 2009 dollars but will increase over time with annual adjustments each January, etc.), which are calculated at a 2009 rate of $3,812 per every 1,000 square feet of building area for a Light Industrial use, of which $2,900 per 1,000 square feet are set aside for traffic signals and roadway improvements (the rest covers fire, police, and parks/bikeways);
- The Regional Transportation Impact Fees (RTIF), which are calculated at a September 2008 of $1,409 per each 1,000 square feet of building area, and are also subject to annual increases in July of each year;
- The special fee for a traffic signal at Highway 140 and Kibby Road spelled out in Section 3.06 of the Development Agreement for Lyons Investments (dated October 19, 1998) to which this property is a part. Section 3.06 reads as follows:

"In lieu of having to install a traffic signal at Highway 140 and Kibby Road, Owner agrees to pay the City the sum of Three Hundred and Fifty Thousand Dollars ($350,000), increased by percent change in the All Urban Consumers Index, U.S. City Average (USCA), as supplied by the Bureau of Labor Statistics and payable at building permit at $0.125 per square feet of building. For example, for 10,000 square feet of construction, Owner would pay $1,250 adjusted by multiplying $1,250 by current quarter CPI (USCA divided by the base index. The funds collected shall be used for the signal at Highway 140 and Kibby Road and/or arterial roads, Eastern Beltway [now known as Campus Parkway], or collection streets within the vicinity of the Property."

7.4 Delivery Truck Parking Area

According to the site plan received from the Wal-Mart Stores, Inc., it is expected that non Wal-Mart delivery trucks would stop along the access roadway to the trailer parking and warehouse. It is recommended that the access roadway be designed to have a temporary parking area located between Gerard Avenue and the truck entrance. The parking area should be paved and marked as a designated temporary parking for delivery trucks. This would alleviate potential access and circulation issues along the access roadway.

7.5 Update of Safe Routes to School Plans

It is recommended that school bus and pedestrian routes in the vicinity of the Wal-Mart Distribution Center be updated taking into account the potential truck routes. Updating the Safe Route to School Plans would help minimize potential conflicts between school and Wal-Mart traffic.

7.6 Project's Share of Traffic

Table 28 provides a breakdown of project traffic for the purposes of calculating the fiar share contribution towards any mitigation measures.

Table 28
Project's Share of Traffic
2030 Cumulative with Project Condition

No	Study Intersection	Trips (veh/hr)						Percentages(%)					
		Project		2030 Cumulative		Total		Project		2030 Cumulative		Total	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	SR 140 / Parsons Avenue	31	41	2620	2302	2651	2343	1.2%	1.7%	98.8%	98.3%	100.0%	100.0%
2	SR 140 / Baker Drive	29	34	2028	1745	2057	1779	1.4%	1.9%	98.6%	98.1%	100.0%	100.0%
3	SR 140 / Kibby Road	13	43	1942	1580	1955	1623	0.7%	2.6%	99.3%	97.4%	100.0%	100.0%
4	Childs Avenue / SR 99 SB Off-Ramp	6	15	2588	2376	2594	2391	0.2%	0.6%	99.8%	99.4%	100.0%	100.0%
5	Childs Avenue / SR 99 NB Off-Ramp	7	25	2842	2725	2849	2750	0.2%	0.9%	99.8%	99.1%	100.0%	100.0%
6	Childs Avenue / Parsons Avenue	10	32	2765	2667	2775	2699	0.4%	1.2%	99.6%	98.8%	100.0%	100.0%
7	Childs Avenue / Coffee Street	9	32	1110	1075	1119	1107	0.8%	2.9%	99.2%	97.1%	100.0%	100.0%
8	Childs Avenue / Kibby Road	0	0	469	665	469	665	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%
9	Childs Avenue / Tower Road	23	77	405	679	428	756	5.4%	10.2%	94.6%	89.8%	100.0%	100.0%
10	Gerard Avenue / Coffee Street	5	18	693	749	698	767	0.7%	2.3%	99.3%	97.7%	100.0%	100.0%
11	Gerard Avenue / Tower Road	23	77	117	161	140	238	16.4%	32.4%	83.6%	67.6%	100.0%	100.0%
12	Mission Avenue / SR 99 SB Off-Ramps	165	165	2032	2332	2197	2497	7.5%	6.6%	92.5%	93.4%	100.0%	100.0%
13	Mission Avenue / SR 99 NB Off-Ramps	263	317	2656	3447	2919	3764	9.0%	8.4%	91.0%	91.6%	100.0%	100.0%
14	Mission Avenue / Coffee Street	262	317	2665	3493	2927	3810	9.0%	8.3%	91.0%	91.7%	100.0%	100.0%
15	Campus Parkway / Childs Avenue	300	383	1876	1916	2176	2299	13.8%	16.7%	86.2%	83.3%	100.0%	100.0%
16	Campus Parkway / Childs Avenue	33	48	1397	1415	1430	1463	2.3%	3.3%	97.7%	96.7%	100.0%	100.0%

PROPOSED PROJECT ALTERNATIVES

Project alternatives were developed to reduce or eliminate the potentially significant adverse environment impact of the project while attempting to meet the project objectives. The alternatives would either relocate the project site to different location or continue to develop the project at the same location as the proposed project with a project size reduction. This section discusses the potential operational impacts to the intersections and roadways in the vicinity of the alternative project sites.

8.1 No Project - Alternative

This alternative assumes that the site will not be developed with the proposed project. The project site is designated for industrial use under the Merced General Plan and zoning ordinance. Therefore, it is assumed that under this alternative, the project site would be developed with a project that includes approximately one million square feet of warehouse or industrial use.

Transportation Related Impact

For the purposes of this analysis, it was assumed that the General Plan land use would result in similar transportation impacts as the proposed project, as the trip generation would be approximately the same. It was assumed that the site would accommodate an industrial or warehouse land use of a size similar to the proposed project. And based on the location of the site and its proximity to SR 99, it would function similarly to the proposed project in terms of the number of employees, trucks trips and auto traffic

8.2 Redesigned Site Plan – Alternative

The alternative would shift project facilities including truck loading area, trailer parking areas and the employee parking lot to the eastern edge of the proposed project site. Driveway access to the project site for tractor trailers would be shifted from the west edge of the project site to a point near the eastern edge of the project site.

Transportation Related Impact

By shifting project activities towards the east, there would be some moderate shift in travel patterns for vehicles accessing the site. Study intersections that would potentially be affected are along Childs, Gerard, Tower and Campus Parkway in the immediate site vicinity. However, based on the analysis of the proposed project, these intersections would continue to operate at the same levels of service regardless of where the access points, buildings and parking lots are located on the site. There would be some differences in traffic volumes at the nearby intersections, based on whether the vehicles access the site from one street compared to another, but not enough to result in a change in service level compared to the proposed project analysis. Further away from the project site there would be no changes in intersection operating conditions based on the redesigned site plan, as the site plan changes would not result in changes to circulation patterns away from the site. On site, truck queuing issues would still need to be addressed, as with the proposed project.

8.3 Reduced Site Plan and Operations – Alternative

The alternative assumes that the project site would be developed with a reduction of the project site plan and it operations. The following revision would be made to the proposed project.

- Building size would be reduced by 25 percent to 825,000 square feet
- Total impervious surface area would be reduced by 25 to approximately 52.5 acres
- Number of employees would be reduced by 25 percent to approximately 900 employees
- Number of tractor trailer daily trips to and from the project site would be reduced by 25 percent to approximately 782 daily trips

Transportation Related Impact

A reduced site plan and operations alternative would result in proportionately less traffic. The number of employee trips and truck trips would be reduced as noted above. However, the reduced site plan would not result in less transportation impacts compared to the proposed project. Traffic signal warrants would still be met at the same unsignalized intersections, as they would be satisfied regardless of the proposed project or its alternatives. It is also likely that the cumulative intersection impact at the intersection of Mission Avenue and SR 99 southbound off-ramps would also occur under this alternative.

8.4 Alternative Site 1

This alternative site is located immediately south of the project site between Mission Avenue and Gerard Ave. Figure 9 illustrates alternative project locations relative to the proposed project site. This site is within the Merced city limits.

Transportation Related Impact

Under this alternative it assumed that both auto and truck trips would use the same routes to travel to or from the site as they would under the proposed project location. However, auto trips from SR 99 north would now be assumed to access the site vicinity through the SR 99/Mission interchange instead of the SR 99/Childs Avenue interchange. While this may result in slightly better intersection operations at the Childs/Parsons and Childs/ Coffee intersections, no additional transportation impacts would be anticipated under this alternative.

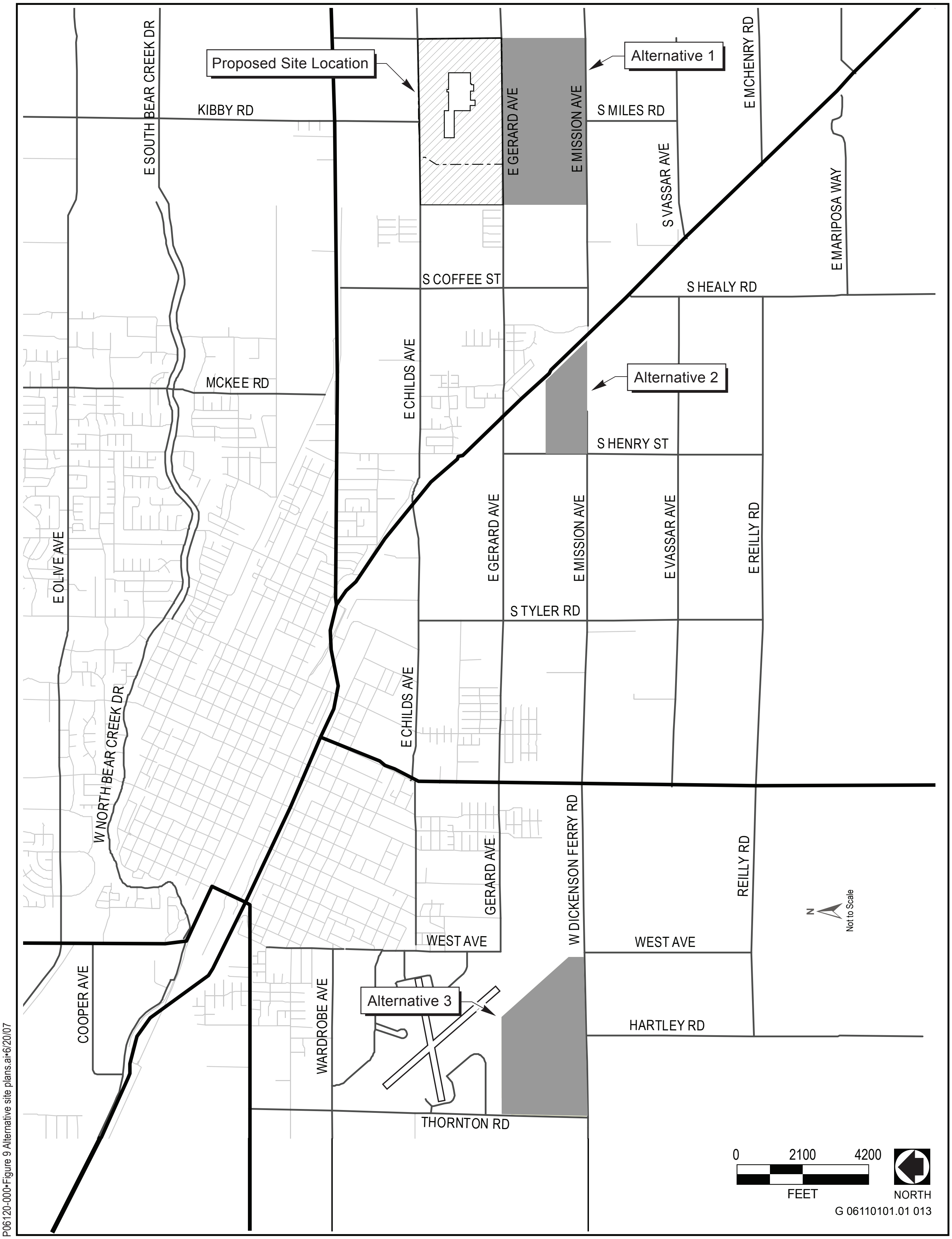
8.5 Alternative Site 2

The alternative site is located on the west side of Highway 99, approximately 1.8 miles west of the project site. It is bounded by Highway 99 to the east, Mission Avenue to the south and Henry St to the west. Figure 9 illustrates alternative project locations relative to the proposed project site. This site is in unincorporated Merced County.

Transportation Related Impact

More truck trips from SR 99 and SR 140 would now be assumed to use the SR 99/Mission interchange to access the site. Truck trips from SR 152 would be assumed to use California

Highway 59 and Mission Avenue. It was assumed that auto trips from Kibby Road, SR 140 East, Childs Avenue east of Tower would use Campus Parkway as a major route to the project site.



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TRANSPORTATION SOLUTIONS

Figure 9
Project Alternative Site Locations

Auto trips from SR 140 between Parsons Avenue and Santa Fe Avenue were assumed to use SR 99 via Parsons Avenue and Childs Avenue. The auto trips from other area were assumed to use SR 99. A few trips Childs Avenue, west of SR 99 would be expected to use Tyler Road and Mission Avenue.

As a result, it is anticipated that traffic conditions at the study intersections along Childs Avenue (at Parsons Avenue and SR 99 northbound and southbound ramps) would worsen when compared to the proposed project site location. However, an increase in traffic volumes due to the project trips would not be trigger any new impacts at these intersections and thus no significant impacts at any of the study intersections would be anticipated.

8.6 Alternative Site 3

The alternative site is located approximately 5.8 miles west of the project site. It is between Dickenson Ferry Road, Thornton Road, and immediately south of Merced Municipal Airport, as illustrated in Figure 9. This site is in unincorporated Merced County.

Transportation Related Impact

Most truck trips would access the project site via the SR 99/ Mission interchange. Truck trips from SR 140 West and SR 152 would be assumed to use Thornton Road and California Highway 59 respectively. It was assumed that auto trips from the area north of the project site would access the project site via SR 140 West, Thornton Road, Childs Avenue and California Highway 59.

The study intersections analyzed under the proposed project condition would not be significantly impacted by the project trips for this alternative, and many would experience less traffic as the alternative site is much further west. However, an increase in traffic volumes due to the project would be expected along a different set of travel routes. Because the analysis of the proposed project did not extend this far west, the potential transportation impacts of this alternative site would need to be investigated at several additional intersections and roadway segments not previously analyzed. These include those listed below:

Intersections:

- Dickenson Ferry/Thornton.
- Thornton/ SR 140
- Dickenson Ferry-Mission/ California Highway 59
- Childs/California Highway 59

Roadway Segments

- Thornton Rd between SR 140 and Dickenson Ferry Road
- California Highway 59 between Mission Avenue and Childs Avenue
- Childs Avenue between California Highway 59 and SR 99
- Mission Avenue between Thornton Road and SR 99

9. CONCLUSION

This section summarizes the potential traffic impacts identified in the previous sections and presents recommended mitigation measures.

The study determined the potential transportation impacts of the proposed Wal-Mart Distribution Center. Sixteen study intersections and seventeen roadway segments were selected to evaluate their operating conditions under Existing Condition, 2010 Background Condition, 2010 Background with Project Conditions, 2030 Cumulative No Project Condition and 2030 Cumulative with Project Conditions. In addition, two new intersections along Campus Parkway at Childs Avenue and at Gerard Avenue were also included in this study.

The City and County of Merced has proposed to construct a new Campus Parkway corridor that will connect the Mission Interchange at SR 99 to the area north of Merced. Based on the information provided by the County of Merced, Campus Parkway Phase 1 would be constructed between Mission Interchange and Childs Avenue and would be finished before 2010. It was expected that by year 2030, the Campus Parkway corridor would be completed and extended beyond Childs Avenue, connecting SR 140 by two loop ramps on the north side of SR 140.

The project trips generated by Wal-Mart Distribution Center were estimated based on the current trip generation of a similar Wal-Mart distribution center, in Apple Valley, San Bernardino County. It was assumed that Wal-Mart truck routes to the project site would be via SR99, SR 140, Campus Parkway, Tower Road and Gerard Avenue (between Campus Parkway and Tower Road).

Following the *Guide for the Preparation of Traffic Impact Studies* developed by State of California Department of Transportation (Caltrans), the study used several Measures of Effectiveness (MOE) to evaluate the Level of Services (LOS) of the study intersections and roadway segments under different study conditions. The study concluded that the proposed development of the Wal-Mart Distribution Center would result in a significant cumulative project transportation impact to the roadway segment of SR 140 between Santa Fe Avenue and Kibby Road under 2030 Cumulative with Project Condition, during the PM peak hour. Adding a lane in each direction would fully mitigate this impact and return the roadway segment LOS to acceptable levels. In addition, one other roadway segment mitigation measure has been proposed to restore the LOS to acceptable levels.

To address operating deficiencies and the cumulative project impact, mitigation measures were recommended that would improve the operating conditions of intersections that are currently or projected to be deficient. One intersection, Mission Avenue at SR 99 northbound off-ramp would experience a significant impact as a result of the proposed project during the 2030 Cumulative with Project Condition, during the PM peak hour. However, restriping at this intersection would fully mitigate this impact and return the intersection LOS to acceptable levels. For six intersections experiencing operating deficiencies under various non-project conditions, mitigation measures have been suggested to restore the LOS to acceptable levels. In addition, several project alternatives were evaluated to determine the potential transportation related impacts.

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APPENDIX A

Merced Wal-Mart Distribution Center

Level of Service Calculation

Existing Condition
AM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	Existing AM
Command:	Default Command
Volume:	Existing AM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/C	Future LOS	Future Del/ Veh	Future V/C	Change in
# 1 SR 140 / Parsons	C	24.1	0.556	C	24.1	0.556	+ 0.000 D/V
# 2 SR 140 / Baker	C	18.8	0.000	C	18.8	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	B	13.7	0.000	B	13.7	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	B	12.3	0.508	B	12.3	0.508	+ 0.000 V/C
# 5 Childs / SR 99 NB	C	18.5	0.784	C	18.5	0.784	+ 0.000 V/C
# 6 Childs / Parsons	D	51.9	0.713	D	51.9	0.713	+ 0.000 D/V
# 7 Childs / Coffee	C	30.4	0.340	C	30.4	0.340	+ 0.000 D/V
# 8 Childs / KIbby	A	9.4	0.000	A	9.4	0.000	+ 0.000 D/V
# 9 Childs / Tower	A	9.8	0.000	A	9.8	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	8.3	0.257	A	8.3	0.257	+ 0.000 V/C
# 11 Gerard / Tower	A	6.9	0.019	A	6.9	0.019	+ 0.000 V/C
# 12 MIssion / SR 99 SB	B	17.8	0.083	B	17.8	0.083	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	24.1	0.040	C	24.1	0.040	+ 0.000 D/V
# 14 Mission / Coffee	A	8.1	0.127	A	8.1	0.127	+ 0.000 V/C
# 15 Gerard / Campus Parkway		0.0	0.000		0.0	0.000	+ 0.000 V/C
# 42 Childs / Campus Parkway		0.0	0.000		0.0	0.000	+ 0.000 V/C

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                 Level Of Service Computation Report
        2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 SR 140 / Parsons
********************************************************************************
Cycle (sec):        100            Critical Vol./Cap.(X):        0.556
Loss Time (sec):     15 (Y+R=4.0 sec) Average Delay (sec/veh):    24.1
Optimal Cycle:       57            Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    20    0    20    0    0     0    0   17    17    5   20     0
Lanes:        1  0  0  0  1   0  0  0  0  0   0  0  0  1  0   1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     156    0   152    0    0     0    0  285   137  278  459     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  156    0   152    0    0     0    0  285   137  278  459     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   156    0   152    0    0     0    0  285   137  278  459     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  156    0   152    0    0     0    0  285   137  278  459     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  156    0   152    0    0     0    0  285   137  278  459     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 1.00  0.85 1.00 1.00  1.00 1.00 0.96  0.96 0.95 1.00  1.00
Lanes:       1.00 0.00  1.00 0.00 0.00  0.00 0.00 0.68  0.32 1.00 1.00  0.00
Final Sat.:  1805    0  1615    0    0     0    0 1227   590 1805 1900     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.00  0.09 0.00 0.00  0.00 0.00 0.23  0.23 0.15 0.24  0.00
Crit Moves:  ****                                ****         ****
Green/Cycle: 0.20 0.00  0.20 0.00 0.00  0.00 0.00 0.39  0.39 0.26 0.65  0.00
Volume/Cap:  0.43 0.00  0.47 0.00 0.00  0.00 0.00 0.59  0.59 0.59 0.37  0.00
Uniform Del: 35.0  0.0  35.3  0.0  0.0   0.0  0.0 24.2  24.2 32.4  8.1   0.0
IncremntDel:  0.8  0.0   1.1  0.0  0.0   0.0  0.0  1.4   1.4  2.1  0.2   0.0
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00 0.00 0.00  0.00 0.00 1.00  1.00 1.00 1.00  0.00
Delay/Veh:   35.9  0.0  36.4  0.0  0.0   0.0  0.0 25.5  25.5 34.5  8.3   0.0
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  35.9  0.0  36.4  0.0  0.0   0.0  0.0 25.5  25.5 34.5  8.3   0.0
LOS by Move:    D    A     D    A    A     A    A    C     C    C    A     A
HCM2kAvgQ:      5    0     5    0    0     0    0   11    11    8    6     0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```



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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                 Level Of Service Computation Report
        2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #2 SR 140 / Baker
********************************************************************************
Average Delay (sec/veh):       1.8     Worst Case Level Of Service: C[ 18.8]
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0   0  0  1! 0  0   1  0  1  0  0   1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       2    1     5   24    0    64   37  391     0    0  588    30
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    2    1     5   24    0    64   37  391     0    0  588    30
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:     2    1     5   24    0    64   37  391     0    0  588    30
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
FinalVolume:    2    1     5   24    0    64   37  391     0    0  588    30
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2  7.1  6.5   6.2  4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3  3.5  4.0   3.3  2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1100 1083   391 1071 1068   603  618 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:  191  219   662  200  223   503  972 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:    162  211   662  192  215   503  972 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.01 0.00  0.01 0.12 0.00  0.13 0.04 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx xxxx xxxx xxxxx  0.1 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx  8.9 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *    *    *     *    A    *     *    *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx  325 xxxxx xxxx  349 xxxxx xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.1 xxxxx xxxxx  1.0 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 16.4 xxxxx xxxxx 18.8 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    C     *    *    C     *    *    *     *    *    *     *
ApproachDel:       16.4             18.8           xxxxxx          xxxxxx
ApproachLOS:          C                C                *               *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
---------------------------------------------------------------------------
---------------------------------------------------------------------------
                  Level Of Service Computation Report
         2000 HCM Unsignalized Method (Base Volume Alternative)
***************************************************************************
Intersection #3 SR 140 / Kibby
***************************************************************************
Average Delay (sec/veh):      3.7      Worst Case Level Of Service: B[ 13.7]
***************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
-----------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  1   0  0  1! 0  0   1  0  0  1  0   1  0  1  0  1
-----------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      18   39    0   17   47   37   23  125   24    2  253   17
Growth Adj:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:   18   39    0   17   47   37   23  125   24    2  253   17
User Adj:    1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume:    18   39    0   17   47   37   23  125   24    2  253   17
Reduct Vol:     0    0    0    0    0    0    0    0    0    0    0    0
FinalVolume:   18   39    0   17   47   37   23  125   24    2  253   17
-----------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5  6.2  7.1  6.5  6.2  4.1 xxxx xxxxx  4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0  3.3  3.5  4.0  3.3  2.2 xxxx xxxxx  2.2 xxxx xxxxx
-----------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  491  457  137  460  452  253  270 xxxx xxxxx  149 xxxx xxxxx
Potent Cap.:  492  503  917  515  506  791 1305 xxxx xxxxx 1445 xxxx xxxxx
Move Cap.:    428  493  917  477  497  791 1305 xxxx xxxxx 1445 xxxx xxxxx
Volume/Cap:  0.04 0.08 0.00 0.04 0.09 0.05 0.02 xxxx  xxxx 0.00 xxxx  xxxx
-----------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx xxxx xxxx xxxxx  0.1 xxxx xxxxx  0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx  7.8 xxxx xxxxx  7.5 xxxx xxxxx
LOS by Move:    *    *    *    *    *    *    A    *    *    A    *    *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.:  471 xxxx xxxxx xxxx  570 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx
SharedQueue:  0.4 xxxx xxxxx xxxxx  0.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel: 13.7 xxxx xxxxx xxxxx 12.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     B    *    *    *    B    *    *    *    *    *    *    *
ApproachDel:       13.7             12.7           xxxxxx           xxxxxx
ApproachLOS:          B                B                *                *
***************************************************************************
Note: Queue reported is the number of cars per lane.
***************************************************************************
```



```
---------------------------------------------------------------------------
---------------------------------------------------------------------------
                  Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
***************************************************************************
Intersection #4 Childs / SR 99 SB
***************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        0.508
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):      12.3
Optimal Cycle:          0              Level Of Service:                 B
***************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
-----------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0    0    0    0    0    0    0    0    0    0
Lanes:        0  0  0  0  0   0  1  0  0  1   0  0  0  1  0   0  1  0  0  0
-----------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0    0  188    8   21    0  286   24   56  300    0
Growth Adj:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:    0    0    0  188    8   21    0  286   24   56  300    0
User Adj:    1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume:     0    0    0  188    8   21    0  286   24   56  300    0
Reduct Vol:     0    0    0    0    0    0    0    0    0    0    0    0
Reduced Vol:    0    0    0  188    8   21    0  286   24   56  300    0
PCE Adj:     1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume:    0    0    0  188    8   21    0  286   24   56  300    0
-----------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes:       0.00 0.00 0.00 0.96 0.04 1.00 0.00 0.92 0.08 0.16 0.84 0.00
Final Sat.:     0    0    0  505   21  634    0  645   54  110  590    0
-----------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx xxxx 0.37 0.37 0.03 xxxx 0.44 0.44 0.51 0.51 xxxx
Crit Moves:                 ****                ****           ****
Delay/Veh:    0.0  0.0  0.0 12.7 12.7  8.2  0.0 11.7 11.7 12.8 12.8  0.0
Delay Adj:   1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh:   0.0  0.0  0.0 12.7 12.7  8.2  0.0 11.7 11.7 12.8 12.8  0.0
LOS by Move:    *    *    *    B    B    A    *    B    B    B    B    *
ApproachDel:     xxxxxx           12.2             11.7             12.8
Delay Adj:        xxxxx           1.00             1.00             1.00
ApprAdjDel:      xxxxxx           12.2             11.7             12.8
LOS by Appr:        *                B                B                B
AllWayAvgQ:   0.0  0.0  0.0  0.5  0.5  0.0  0.7  0.7  0.7  0.9  0.9  0.9
***************************************************************************
Note: Queue reported is the number of cars per lane.
***************************************************************************
```

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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
              2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #5 Childs / SR 99 NB
*******************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):        0.784
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):       18.5
Optimal Cycle:          0               Level Of Service:                 C
*******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:         0  1  0  0  1    0  1  0  0  1    1  0  1  0  1    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      15    35    37   101    40    76    80   396    24   213   266    90
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   15    35    37   101    40    76    80   396    24   213   266    90
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    15    35    37   101    40    76    80   396    24   213   266    90
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   15    35    37   101    40    76    80   396    24   213   266    90
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   15    35    37   101    40    76    80   396    24   213   266    90
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       0.30  0.70  1.00  0.72  0.28  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Final Sat.:   127   295   468   315   125   503   464   505   546   471   505   553
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12  0.12  0.08  0.32  0.32  0.15  0.17  0.78  0.04  0.45  0.53  0.16
Crit Moves:        ****              ****              ****              ****
Delay/Veh:   11.5  11.5  10.3  13.8  13.8  10.5  11.7  29.7   9.3  15.9  16.8  10.1
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  11.5  11.5  10.3  13.8  13.8  10.5  11.7  29.7   9.3  15.9  16.8  10.1
LOS by Move:    B     B     B     B     B     B     B     D     A     C     C     B
ApproachDel:       11.0              12.7              25.8              15.4
Delay Adj:         1.00              1.00              1.00              1.00
ApprAdjDel:        11.0              12.7              25.8              15.4
LOS by Appr:          B                 B                 D                 C
AllWayAvgQ:   0.1   0.1   0.1   0.4   0.4   0.2   0.2   2.8   0.0   0.8   1.0   0.2
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```



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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #6 Childs / Parsons
*******************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):        0.713
Loss Time (sec):       17 (Y+R=4.0 sec) Average Delay (sec/veh):       51.9
Optimal Cycle:         73               Level Of Service:                 D
*******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    4    22    22    4    24    24    4    20    20    4    23    23
Lanes:         1  0  0  1  0    1  0  1  0  1    0  0  1! 0  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     178   132    11   121    71   131   170   231    99    19   260   116
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:  178   132    11   121    71   131   170   231    99    19   260   116
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:   178   132    11   121    71   131   170   231    99    19   260   116
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  178   132    11   121    71   131   170   231    99    19   260   116
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:  178   132    11   121    71   131   170   231    99    19   260   116
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900
Adjustment:  0.95  0.99  0.99  0.95  1.00  0.85  0.96  0.96  0.96  0.95  1.00  0.85
Lanes:       1.00  0.92  0.08  1.00  1.00  1.00  0.34  0.46  0.20  1.00  1.00  1.00
Final Sat.:  1805  1733   144  1805  1900  1615   618   840   360  1805  1900  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10  0.08  0.08  0.07  0.04  0.08  0.28  0.28  0.28  0.01  0.14  0.07
Crit Moves:  ****                          ****  ****                    ****
Green/Cycle: 0.09  0.26  0.26  0.08  0.24  0.24  0.27  0.43  0.43  0.06  0.23  0.23
Volume/Cap:  1.04  0.30  0.30  0.86  0.16  0.34  1.04  0.64  0.64  0.17  0.59  0.31
Uniform Del: 45.3  29.9  29.9  45.5  30.0  31.4  36.7  22.2  22.2  44.4  34.3  31.9
IncremntDel: 79.2   0.3   0.3  37.3   0.2   0.5  51.3   1.7   1.7   0.7   2.2   0.5
InitQueuDel:  0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Delay/Veh:  124.4  30.2  30.2  82.8  30.2  32.0  88.0  24.0  24.0  45.1  36.6  32.4
User DelAdj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh: 124.4  30.2  30.2  82.8  30.2  32.0  88.0  24.0  24.0  45.1  36.6  32.4
LOS by Move:    F     C     C     F     C     C     F     C     C     D     D     C
HCM2kAvgQ:     10     4     4     6     2     4    23    13    13     1     8     3
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                   Level Of Service Computation Report
          2000 HCM Operations Method (Base Volume Alternative)
******************************************************************************
Intersection #7 Childs / Coffee
******************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.340
Loss Time (sec):       17 (Y+R=4.0 sec) Average Delay (sec/veh):       30.4
Optimal Cycle:         67              Level Of Service:                  C
******************************************************************************
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    6    19    19    6    19    19    6    19    19    6    19    19
Lanes:       1  0  0  1  0    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     101    79    62    27    69    82    57   176    35    34   194    10
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:  101    79    62    27    69    82    57   176    35    34   194    10
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:   101    79    62    27    69    82    57   176    35    34   194    10
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  101    79    62    27    69    82    57   176    35    34   194    10
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:  101    79    62    27    69    82    57   176    35    34   194    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900
Adjustment:  0.95  0.93  0.93  0.95  0.92  0.92  0.95  0.98  0.98  0.95  0.99  0.99
Lanes:       1.00  0.56  0.44  1.00  0.46  0.54  1.00  0.83  0.17  1.00  0.95  0.05
Final Sat.:  1805   994   780  1805   798   948  1805  1545   307  1805  1794    92
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06  0.08  0.08  0.01  0.09  0.09  0.03  0.11  0.11  0.02  0.11  0.11
Crit Moves:  ****                    ****        ****                    ****
Green/Cycle: 0.16  0.32  0.32  0.10  0.25  0.25  0.09  0.31  0.31  0.10  0.32  0.32
Volume/Cap:  0.34  0.25  0.25  0.15  0.34  0.34  0.34  0.36  0.36  0.19  0.34  0.34
Uniform Del: 37.0  25.2  25.2  41.1  30.4  30.4  42.5  26.7  26.7  41.4  26.1  26.1
IncremntDel:  0.7   0.2   0.2   0.4   0.5   0.5   1.2   0.4   0.4   0.5   0.3   0.3
InitQueuDel:  0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Delay/Veh:   37.6  25.5  25.5  41.4  30.9  30.9  43.7  27.1  27.1  41.9  26.4  26.4
User DelAdj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  37.6  25.5  25.5  41.4  30.9  30.9  43.7  27.1  27.1  41.9  26.4  26.4
LOS by Move:    D     C     C     D     C     C     D     C     C     D     C     C
HCM2kAvgQ:      3     3     3     1     4     4     2     5     5     1     5     5
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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------------------------------------------------------------------------------
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                   Level Of Service Computation Report
         2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #8 Childs / KIbby
******************************************************************************
Average Delay (sec/veh):       3.2      Worst Case Level Of Service: A[  9.4]
******************************************************************************
Street Name:                  Kibby                            Childs
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:       0  0  0  0  0    0  0  1! 0  0    0  1  0  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0     0     0     8     0    65    40    62     0     0   118    17
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:    0     0     0     8     0    65    40    62     0     0   118    17
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:     0     0     0     8     0    65    40    62     0     0   118    17
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
FinalVolume:    0     0     0     8     0    65    40    62     0     0   118    17
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx  xxxx xxxxx   6.4   6.5   6.2   4.1  xxxx xxxxx xxxxx  xxxx xxxxx
FollowUpTim:xxxxx  xxxx xxxxx   3.5   4.0   3.3   2.2  xxxx xxxxx xxxxx  xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx  xxxx xxxxx   269   269   127   135  xxxx xxxxx  xxxx  xxxx xxxxx
Potent Cap.: xxxx  xxxx xxxxx   725   641   929  1462  xxxx xxxxx  xxxx  xxxx xxxxx
Move Cap.:   xxxx  xxxx xxxxx   710   623   929  1462  xxxx xxxxx  xxxx  xxxx xxxxx
Volume/Cap:  xxxx  xxxx  xxxx  0.01  0.00  0.07  0.03  xxxx  xxxx  xxxx  xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx  xxxx xxxxx  xxxx  xxxx xxxxx   0.1  xxxx xxxxx  xxxx  xxxx xxxxx
Control Del:xxxxx  xxxx xxxxx xxxxx  xxxx xxxxx   7.5  xxxx xxxxx xxxxx  xxxx xxxxx
LOS by Move:    *     *     *     *     *     *     A     *     *     *     *     *
Movement:      LT  - LTR - RT    LT  - LTR - RT    LT  - LTR - RT    LT  - LTR - RT
Shared Cap.: xxxx  xxxx xxxxx  xxxx   899 xxxxx  xxxx  xxxx xxxxx  xxxx  xxxx xxxxx
SharedQueue:xxxxx  xxxx xxxxx xxxxx   0.3 xxxxx   0.1  xxxx xxxxx xxxxx  xxxx xxxxx
Shrd ConDel:xxxxx  xxxx xxxxx xxxxx   9.4 xxxxx   7.5  xxxx xxxxx xxxxx  xxxx xxxxx
Shared LOS:     *     *     *     *     A     *     A     *     *     *     *     *
ApproachDel:      xxxxxx              9.4             xxxxxx           xxxxxx
ApproachLOS:         *                 A                 *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Childs / Tower
********************************************************************************
Average Delay (sec/veh):       1.2       Worst Case Level Of Service: A[  9.8]
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        5    2    1     4    4   11     2   68    1     0  119    4
Growth Adj:   1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:     5    2    1     4    4   11     2   68    1     0  119    4
User Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:      1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:      5    2    1     4    4   11     2   68    1     0  119    4
Reduct Vol:      0    0    0     0    0    0     0    0    0     0    0    0
FinalVolume:     5    2    1     4    4   11     2   68    1     0  119    4
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5  6.2   7.1  6.5  6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0  3.3   3.5  4.0  3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  201  196   69   195  194  121   123 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:  762  703 1000   769  705  936  1477 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:    749  703 1000   765  704  936  1477 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.01 0.00 0.00  0.01 0.01 0.01  0.00 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     *    *    *     *    *    *     A    *    *     *    *    *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  760 xxxxx  xxxx  838 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.0 xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx  9.8 xxxxx xxxxx  9.4 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    A    *     *    A    *     *    *    *     *    *    *
ApproachDel:        9.8              9.4            xxxxxx           xxxxxx
ApproachLOS:         A                A                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Gerard / Coffee
********************************************************************************
Cycle (sec):         100             Critical Vol./Cap.(X):         0.257
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):        8.3
Optimal Cycle:         0             Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:      0    0    0     0    0    0     0    0    0     0    0    0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        3   22   87    14   15    1    11   63   10   146   38   22
Growth Adj:   1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:     3   22   87    14   15    1    11   63   10   146   38   22
User Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:      1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:      3   22   87    14   15    1    11   63   10   146   38   22
Reduct Vol:      0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:     3   22   87    14   15    1    11   63   10   146   38   22
PCE Adj:      1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:      1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
FinalVolume:     3   22   87    14   15    1    11   63   10   146   38   22
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:   1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Lanes:        0.03 0.19 0.78  0.47 0.50 0.03  0.13 0.75 0.12  0.71 0.18 0.11
Final Sat.:     22  162  642   334  358   24   104  595   94   569  148   86
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.14 0.14 0.14  0.04 0.04 0.04  0.11 0.11 0.11  0.26 0.26 0.26
Crit Moves:        ****             ****             ****       ****
Delay/Veh:     7.7  7.7  7.7   7.9  7.9  7.9   7.9  7.9  7.9   8.8  8.8  8.8
Delay Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:    7.7  7.7  7.7   7.9  7.9  7.9   7.9  7.9  7.9   8.8  8.8  8.8
LOS by Move:     A    A    A     A    A    A     A    A    A     A    A    A
ApproachDel:        7.7              7.9              7.9              8.8
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:         7.7              7.9              7.9              8.8
LOS by Appr:         A                A                A                A
AllWayAvgQ:    0.1  0.1  0.1   0.0  0.0  0.0   0.1  0.1  0.1   0.3  0.3  0.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
               2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #11 Gerard / Tower
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap.(X):        0.019
Loss Time (sec):      0 (Y+R=4.0 sec) Average Delay (sec/veh):        6.9
Optimal Cycle:        0               Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        0  0  1! 0  0   0  0  1! 0  0   0  1  0  0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0     0     0     1     0     4     6     8     0     0    14     4
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:    0     0     0     1     0     4     6     8     0     0    14     4
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:     0     0     0     1     0     4     6     8     0     0    14     4
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:    0     0     0     1     0     4     6     8     0     0    14     4
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:    0     0     0     1     0     4     6     8     0     0    14     4
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       0.00  1.00  0.00  0.20  0.00  0.80  0.43  0.57  0.00  0.00  0.78  0.22
Final Sat.:     0   900     0   203     0   811   384   512     0     0   738   211
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx  0.00  xxxx  0.00  xxxx  0.00  0.02  0.02  xxxx  xxxx  0.02  0.02
Crit Moves:        ****        ****                    ****                    ****
Delay/Veh:    0.0   0.0   0.0   6.5   0.0   6.5   7.1   7.1   0.0   0.0   6.9   6.9
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:   0.0   0.0   0.0   6.5   0.0   6.5   7.1   7.1   0.0   0.0   6.9   6.9
LOS by Move:    *     *     *     A     *     A     A     A     *     *     A     A
ApproachDel:     xxxxxx              6.5              7.1              6.9
Delay Adj:        xxxxx             1.00             1.00             1.00
ApprAdjDel:      xxxxxx              6.5              7.1              6.9
LOS by Appr:        *                 A                A                A
AllWayAvgQ:   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```



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                      Level Of Service Computation Report
               2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #12 MIssion / SR 99 SB
********************************************************************************
Cycle (sec):        100               Critical Vol./Cap.(X):        0.083
Loss Time (sec):     11 (Y+R=4.0 sec) Average Delay (sec/veh):       17.8
Optimal Cycle:       41               Level Of Service:                 B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0     0     0     5     5     5     0    19    19     6     6     0
Lanes:        0  0  0  0  0   0  1  0  0  1   0  0  1  1  0   0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0     0     0    33     0    31     0    99    18     1    72     6
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:    0     0     0    33     0    31     0    99    18     1    72     6
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:     0     0     0    33     0    31     0    99    18     1    72     6
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:    0     0     0    33     0    31     0    99    18     1    72     6
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:    0     0     0    33     0    31     0    99    18     1    72     6
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900
Adjustment:  1.00  1.00  1.00  0.95  1.00  0.85  1.00  0.93  0.93  0.94  0.94  0.94
Lanes:       0.00  0.00  0.00  1.00  0.00  1.00  0.00  1.69  0.31  0.03  1.82  0.15
Final Sat.:     0     0     0  1809     0  1615     0  2984   543    45  3251   271
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00  0.00  0.00  0.02  0.00  0.02  0.00  0.03  0.03  0.02  0.02  0.02
Crit Moves:                    ****                    ****        ****
Green/Cycle: 0.00  0.00  0.00  0.22  0.00  0.22  0.00  0.40  0.40  0.27  0.67  0.67
Volume/Cap:  0.00  0.00  0.00  0.08  0.00  0.09  0.00  0.08  0.08  0.08  0.03  0.03
Uniform Del:  0.0   0.0   0.0  30.9   0.0  31.0   0.0  18.5  18.5  27.4   5.6   5.6
IncremntDel:  0.0   0.0   0.0   0.1   0.0   0.1   0.0   0.0   0.0   0.0   0.0   0.0
InitQueuDel:  0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
Delay Adj:   0.00  0.00  0.00  1.00  0.00  1.00  0.00  1.00  1.00  1.00  1.00  1.00
Delay/Veh:    0.0   0.0   0.0  31.0   0.0  31.1   0.0  18.6  18.6  27.4   5.6   5.6
User DelAdj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:   0.0   0.0   0.0  31.0   0.0  31.1   0.0  18.6  18.6  27.4   5.6   5.6
LOS by Move:    A     A     A     C     A     C     A     B     B     C     A     A
HCM2kAvgQ:      0     0     0     1     0     1     0     1     1     1     0     0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.040
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	24.1
Optimal Cycle:	43	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1 0 0 1			0 0 0 0 0			1 0 2 0 0			0 0 2 0 1		
Volume Module:												
Base Vol:	26	0	13	0	0	0	58	70	0	0	53	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	0	13	0	0	0	58	70	0	0	53	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	0	13	0	0	0	58	70	0	0	53	69
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	0	13	0	0	0	58	70	0	0	53	69
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	0	13	0	0	0	58	70	0	0	53	69
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1809	0	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.01	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.01	0.04
Crit Moves:	****							****		****		
Green/Cycle:	0.36	0.00	0.36	0.00	0.00	0.00	0.22	0.49	0.00	0.00	0.27	0.27
Volume/Cap:	0.04	0.00	0.02	0.00	0.00	0.00	0.14	0.04	0.00	0.00	0.06	0.16
Uniform Del:	20.7	0.0	20.5	0.0	0.0	0.0	31.3	13.4	0.0	0.0	27.3	28.1
IncremntDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	20.7	0.0	20.5	0.0	0.0	0.0	31.4	13.4	0.0	0.0	27.3	28.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	20.7	0.0	20.5	0.0	0.0	0.0	31.4	13.4	0.0	0.0	27.3	28.3
LOS by Move:	C	A	C	A	A	A	C	B	A	A	C	C
HCM2kAvgQ:	1	0	0	0	0	0	1	1	0	0	1	2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.127
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	8.1
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1! 0 0			0 0 0 1 0			1 0 0 0 1			0 0 1! 0 0		
Volume Module:												
Base Vol:	26	19	0	0	10	96	75	0	11	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	19	0	0	10	96	75	0	11	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	19	0	0	10	96	75	0	11	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	19	0	0	10	96	75	0	11	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	19	0	0	10	96	75	0	11	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.16	0.84	0.00	0.00	0.09	0.91	1.00	0.00	1.00	0.00	1.00	0.00
Final Sat.:	1429	-102	0	0	79	756	658	0	843	0	704	0
Capacity Analysis Module:												
Vol/Sat:	0.02	-0.19	xxxx	xxxx	0.13	0.13	0.11	xxxx	0.01	xxxx	0.00	xxxx
Crit Moves:	****				****		****				****	
Delay/Veh:	8.2	8.3	0.0	0.0	7.8	7.8	8.7	0.0	6.9	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.2	8.3	0.0	0.0	7.8	7.8	8.7	0.0	6.9	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	*	A	*	*	*
ApproachDel:		8.2			7.8			8.5			xxxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		8.2			7.8			8.5			xxxxxx	
LOS by Appr:		A			A			A			*	
AllWayAvgQ:	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

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Existing AM                 Wed Nov 19, 2008 17:17:58                  Page 17-1
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
              2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Gerard / Campus Parkway
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        0.000
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        0.0
Optimal Cycle:          0              Level Of Service:
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  0  0  0  0    0  0  0  0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0    0     0     0    0     0
Growth Adj:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Initial Bse:    0    0     0     0    0     0     0    0     0     0    0     0
User Adj:    0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Volume:     0    0     0     0    0     0     0    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0     0    0     0     0    0     0     0    0     0
PCE Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
MLF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
FinalVolume:    0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Final Sat.:     0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Crit Moves:
Delay/Veh:    0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
LOS by Move:
ApproachDel:       0.0              0.0              0.0              0.0
Delay Adj:        0.00             0.00             0.00             0.00
ApprAdjDel:        0.0              0.0              0.0              0.0
LOS by Appr:
AllWayAvgQ:   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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Existing AM                 Wed Nov 19, 2008 17:17:58                  Page 18-1
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
              2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #42 Childs / Campus Parkway
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        0.000
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        0.0
Optimal Cycle:          0              Level Of Service:
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  0  0  0  0    0  0  0  0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0    0     0     0    0     0
Growth Adj:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Initial Bse:    0    0     0     0    0     0     0    0     0     0    0     0
User Adj:    0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Volume:     0    0     0     0    0     0     0    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0     0    0     0     0    0     0     0    0     0
PCE Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
MLF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
FinalVolume:    0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Final Sat.:     0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Crit Moves:
Delay/Veh:    0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
LOS by Move:
ApproachDel:       0.0              0.0              0.0              0.0
Delay Adj:        0.00             0.00             0.00             0.00
ApprAdjDel:        0.0              0.0              0.0              0.0
LOS by Appr:
AllWayAvgQ:   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2005
Description: Existing Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1313	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	365	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	824	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	824	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	13.9	pc/mi/ln
Level of service, LOS	B	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2005
Description: Existing Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1172	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	326	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	735	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	735	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	12.4	pc/mi/ln
Level of service, LOS	B	

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

HCS2000: Two-Lane Highways Release 4.1a

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period AM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2005
Description Existing Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1230 veh/h
Directional split 67 / 33 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1313 pc/h
Highest directional split proportion (note-2) 880 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 44.6 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1295 pc/h
Highest directional split proportion (note-2) 868
Base percent time-spent-following, BPTSF 68.0 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 68.0 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	421	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1599	veh-mi
Peak 15-min total travel time, TT15	9.4	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Existing Condition
PM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	Existing PM
Command:	Default Command
Volume:	Existing PM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	C	24.4	0.620	C	24.4	0.620	+ 0.000 D/V
# 2 SR 140 / Baker	C	20.7	0.000	C	20.7	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	B	13.1	0.000	B	13.1	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	B	13.0	0.545	B	13.0	0.545	+ 0.000 V/C
# 5 Childs / SR 99 NB	C	18.1	0.800	C	18.1	0.800	+ 0.000 V/C
# 6 Childs / Parsons	E	60.4	0.670	E	60.4	0.670	+ 0.000 D/V
# 7 Childs / Coffee	C	22.8	0.180	C	22.8	0.180	+ 0.000 D/V
# 8 Childs / KIbby	A	9.2	0.000	A	9.2	0.000	+ 0.000 D/V
# 9 Childs / Tower	A	9.6	0.000	A	9.6	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	7.1	0.066	A	7.1	0.066	+ 0.000 V/C
# 11 Gerard / Tower	A	6.9	0.017	A	6.9	0.017	+ 0.000 V/C
# 12 MIssion / SR 99 SB	B	17.6	0.060	B	17.6	0.060	+ 0.000 D/V
# 13 Mission / SR 99 NB	B	18.6	0.041	B	18.6	0.041	+ 0.000 D/V
# 14 Mission / Coffee	A	7.9	0.096	A	7.9	0.096	+ 0.000 V/C
# 15 Gerard / Campus Parkway		0.0	0.000		0.0	0.000	+ 0.000 V/C
# 42 Childs / Campus Parkway		0.0	0.000		0.0	0.000	+ 0.000 V/C

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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                  Level Of Service Computation Report
          2000 HCM Operations Method (Base Volume Alternative)
******************************************************************************
Intersection #1 SR 140 / Parsons
******************************************************************************
Cycle (sec):        100             Critical Vol./Cap.(X):         0.620
Loss Time (sec):     15 (Y+R=4.0 sec) Average Delay (sec/veh):       24.4
Optimal Cycle:       57             Level Of Service:                  C
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:   20    0    20     0    0     0     0   17    17     5   20     0
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     179    0   159     0    0     0     0  473   139   172  310     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  179    0   159     0    0     0     0  473   139   172  310     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   179    0   159     0    0     0     0  473   139   172  310     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  179    0   159     0    0     0     0  473   139   172  310     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  179    0   159     0    0     0     0  473   139   172  310     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  0.85  1.00 1.00  1.00  1.00 0.97  0.97  0.95 1.00  1.00
Lanes:       1.00 0.00  1.00  0.00 0.00  0.00  0.00 0.77  0.23  1.00 1.00  0.00
Final Sat.:  1805    0  1615     0    0     0     0 1423   418  1805 1900     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.00  0.10  0.00 0.00  0.00  0.00 0.33  0.33  0.10 0.16  0.00
Crit Moves:  ****                                   ****        ****
Green/Cycle: 0.20 0.00  0.20  0.00 0.00  0.00  0.00 0.51  0.51  0.14 0.65  0.00
Volume/Cap:  0.50 0.00  0.49  0.00 0.00  0.00  0.00 0.66  0.66  0.66 0.25  0.00
Uniform Del: 35.5  0.0  35.5   0.0  0.0   0.0   0.0 18.3  18.3  40.4  7.3   0.0
IncremntDel:  1.1  0.0   1.2   0.0  0.0   0.0   0.0  1.7   1.7   6.0  0.1   0.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.00  1.00  1.00 1.00  0.00
Delay/Veh:   36.6  0.0  36.7   0.0  0.0   0.0   0.0 20.1  20.1  46.4  7.4   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  36.6  0.0  36.7   0.0  0.0   0.0   0.0 20.1  20.1  46.4  7.4   0.0
LOS by Move:    D    A     D     A    A     A     A    C     C     D    A     A
HCM2kAvgQ:      5    0     5     0    0     0     0   14    14     6    4     0
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```



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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                  Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #2 SR 140 / Baker
******************************************************************************
Average Delay (sec/veh):      2.3      Worst Case Level Of Service: C[ 20.7]
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  0  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      12    0    12    43    0    46    37  533     0     0  397    26
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   12    0    12    43    0    46    37  533     0     0  397    26
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    12    0    12    43    0    46    37  533     0     0  397    26
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   12    0    12    43    0    46    37  533     0     0  397    26
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1040 1030   533  1023 1017   410   423 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:  210  235   551   216  239   646  1147 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:    190  228   551   206  232   646  1147 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.06 0.00  0.02  0.21 0.00  0.07  0.03 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.2 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  283 xxxxx  xxxx  318 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.3 xxxxx xxxxx  1.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 18.9 xxxxx xxxxx 20.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    C     *     *    C     *     *    *     *     *    *     *
ApproachDel:       18.9             20.7            xxxxxx           xxxxxx
ApproachLOS:         C                C                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

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------------------------------------------------------------------------------------
------------------------------------------------------------------------------------
                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
************************************************************************************
Intersection #3 SR 140 / Kibby
************************************************************************************
Average Delay (sec/veh):      2.3       Worst Case Level Of Service: B[ 13.1]
************************************************************************************
Approach:      North Bound       South Bound       East Bound        West Bound
Movement:     L  -  T  -  R     L  -  T  -  R     L  -  T  -  R     L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign         Stop Sign        Uncontrolled      Uncontrolled
Rights:           Include           Include           Include           Include
Lanes:        0  1  0  0  1     0  0  1! 0  0     1  0  0  1  0     1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       11   25     0     15   19    16     20  229     7      0  185    11
Growth Adj:   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Initial Bse:    11   25     0     15   19    16     20  229     7      0  185    11
User Adj:     1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Volume:     11   25     0     15   19    16     20  229     7      0  185    11
Reduct Vol:      0    0     0      0    0     0      0    0     0      0    0     0
FinalVolume:    11   25     0     15   19    16     20  229     7      0  185    11
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:   7.1  6.5   6.2    7.1  6.5   6.2    4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:   3.5  4.0   3.3    3.5  4.0   3.3    2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   481  469   233    470  461   185    196 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   499  495   812    507  500   862   1389 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     470  488   812    482  493   862   1389 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:   0.02 0.05  0.00   0.03 0.04  0.02   0.01 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx xxxx xxxxx  xxxx xxxx xxxxx    0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx    7.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     *    *     *      *    *     *      A    *     *      *    *     *
Movement:     LT - LTR - RT     LT - LTR - RT     LT - LTR - RT     LT - LTR - RT
Shared Cap.:   483 xxxx xxxxx   xxxx  567 xxxxx   xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:   0.2 xxxx xxxxx  xxxxx  0.3 xxxxx  xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:  13.1 xxxx xxxxx  xxxxx 12.0 xxxxx  xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      B    *     *      *    B     *      *    *     *      *    *     *
ApproachDel:       13.1              12.0            xxxxxx            xxxxxx
ApproachLOS:         B                 B                *                 *
************************************************************************************
Note: Queue reported is the number of cars per lane.
************************************************************************************
```



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------------------------------------------------------------------------------------
------------------------------------------------------------------------------------
                    Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
************************************************************************************
Intersection #4 Childs / SR 99 SB
************************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.545
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):        13.0
Optimal Cycle:         0               Level Of Service:                  B
************************************************************************************
Approach:      North Bound       South Bound       East Bound        West Bound
Movement:     L  -  T  -  R     L  -  T  -  R     L  -  T  -  R     L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign         Stop Sign         Stop Sign         Stop Sign
Rights:           Include           Include           Include           Include
Min. Green:      0    0     0      0    0     0      0    0     0      0    0     0
Lanes:        0  0  0  0  0     0  1  0  0  1     0  0  0  1  0     0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0    0     0    305    0    23      0  289    20     29  174     0
Growth Adj:   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Initial Bse:     0    0     0    305    0    23      0  289    20     29  174     0
User Adj:     1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Volume:      0    0     0    305    0    23      0  289    20     29  174     0
Reduct Vol:      0    0     0      0    0     0      0    0     0      0    0     0
Reduced Vol:     0    0     0    305    0    23      0  289    20     29  174     0
PCE Adj:      1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
MLF Adj:      1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
FinalVolume:     0    0     0    305    0    23      0  289    20     29  174     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Lanes:        0.00 0.00  0.00   1.00 0.00  1.00   0.00 0.94  0.06   0.14 0.86  0.00
Final Sat.:      0    0     0    559    0   686      0  630    44     92  549     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      xxxx xxxx  xxxx   0.55 xxxx  0.03   xxxx 0.46  0.46   0.32 0.32  xxxx
Crit Moves:                     ****                         ****   ****
Delay/Veh:     0.0  0.0   0.0   15.7  0.0   7.9    0.0 12.2  12.2   10.7 10.7   0.0
Delay Adj:    1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
AdjDel/Veh:    0.0  0.0   0.0   15.7  0.0   7.9    0.0 12.2  12.2   10.7 10.7   0.0
LOS by Move:     *    *     *      C    *     A      *    B     B      B    B     *
ApproachDel:     xxxxxx             15.1              12.2              10.7
Delay Adj:        xxxxx             1.00              1.00              1.00
ApprAdjDel:      xxxxxx             15.1              12.2              10.7
LOS by Appr:        *                 C                 B                 B
AllWayAvgQ:    0.0  0.0   0.0    1.1  1.1   0.0    0.8  0.8   0.8    0.4  0.4   0.4
************************************************************************************
Note: Queue reported is the number of cars per lane.
************************************************************************************
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--------------------------------------------------------------------------------
                     Level Of Service Computation Report
               2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Childs / SR 99 NB
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.800
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):       18.1
Optimal Cycle:          0              Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  1  0  0  1   0  1  0  0  1   1  0  1  0  1   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      23    31    46    95    23    62   130   437    27   185   106    92
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   23    31    46    95    23    62   130   437    27   185   106    92
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    23    31    46    95    23    62   130   437    27   185   106    92
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   23    31    46    95    23    62   130   437    27   185   106    92
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   23    31    46    95    23    62   130   437    27   185   106    92
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       0.43  0.57  1.00  0.81  0.19  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Final Sat.:   188   253   496   360    87   515   501   546   597   467   496   549
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12  0.12  0.09  0.26  0.26  0.12  0.26  0.80  0.05  0.40  0.21  0.17
Crit Moves:  ****              ****                    ****        ****
Delay/Veh:   11.3  11.3  10.0  12.8  12.8  10.0  12.1  29.5   8.8  14.7  11.4  10.1
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  11.3  11.3  10.0  12.8  12.8  10.0  12.1  29.5   8.8  14.7  11.4  10.1
LOS by Move:    B     B     B     B     B     B     B     D     A     B     B     B
ApproachDel:       10.7              11.8              24.7              12.7
Delay Adj:         1.00              1.00              1.00              1.00
ApprAdjDel:        10.7              11.8              24.7              12.7
LOS by Appr:         B                 B                 C                 B
AllWayAvgQ:   0.1   0.1   0.1   0.3   0.3   0.1   0.3   3.1   0.0   0.6   0.2   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                     Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Childs / Parsons
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.670
Loss Time (sec):       17 (Y+R=4.0 sec) Average Delay (sec/veh):       60.4
Optimal Cycle:         72              Level Of Service:                 E
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    4    22    22    4    24    24    4    20    20    4    23    23
Lanes:        1  0  0  1  0   1  0  1  0  1   0  0  1! 0  0   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     137   133     3   102    94    90   176   320   127     3   156    89
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:  137   133     3   102    94    90   176   320   127     3   156    89
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:   137   133     3   102    94    90   176   320   127     3   156    89
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  137   133     3   102    94    90   176   320   127     3   156    89
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:  137   133     3   102    94    90   176   320   127     3   156    89
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900
Adjustment:  0.95  1.00  1.00  0.95  1.00  0.85  0.96  0.96  0.96  0.95  1.00  0.85
Lanes:       1.00  0.98  0.02  1.00  1.00  1.00  0.28  0.52  0.20  1.00  1.00  1.00
Final Sat.:  1805  1853    42  1805  1900  1615   514   935   371  1805  1900  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08  0.07  0.07  0.06  0.05  0.06  0.34  0.34  0.34  0.00  0.08  0.06
Crit Moves:  ****                          ****  ****                    ****
Green/Cycle: 0.07  0.24  0.24  0.06  0.24  0.24  0.29  0.47  0.47  0.05  0.23  0.23
Volume/Cap:  1.16  0.30  0.30  0.91  0.21  0.23  1.16  0.73  0.73  0.03  0.36  0.24
Uniform Del: 46.7  30.9  30.9  46.6  30.4  30.6  35.3  21.4  21.4  44.7  32.3  31.4
IncremntDel:132.6   0.4   0.4  56.1   0.2   0.3  91.7   3.2   3.2   0.1   0.5   0.3
InitQueuDel:  0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Delay/Veh:  179.4  31.2  31.2 102.6  30.6  30.9 126.9  24.6  24.6  44.9  32.8  31.7
User DelAdj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh: 179.4  31.2  31.2 102.6  30.6  30.9 126.9  24.6  24.6  44.9  32.8  31.7
LOS by Move:    F     C     C     F     C     C     F     C     C     D     C     C
HCM2kAvgQ:      9     3     3     6     2     2    33    16    16     0     4     2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                  Level Of Service Computation Report
           2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #7 Childs / Coffee
*******************************************************************************
Cycle (sec):        100             Critical Vol./Cap.(X):        0.180
Loss Time (sec):     17 (Y+R=4.0 sec) Average Delay (sec/veh):     22.8
Optimal Cycle:       67             Level Of Service:                 C
*******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    6    19    19    6    19    19    6    19    19    6    19    19
Lanes:       1  0  0  1  0    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      26   27    17     6   21    18    34  148    40    20  144    14
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   26   27    17     6   21    18    34  148    40    20  144    14
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    26   27    17     6   21    18    34  148    40    20  144    14
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   26   27    17     6   21    18    34  148    40    20  144    14
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   26   27    17     6   21    18    34  148    40    20  144    14
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.94  0.94  0.95 0.93  0.93  0.95 0.97  0.97  0.95 0.99  0.99
Lanes:       1.00 0.61  0.39  1.00 0.54  0.46  1.00 0.79  0.21  1.00 0.91  0.09
Final Sat.:  1805 1098   692  1805  952   816  1805 1448   391  1805 1709   166
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.02  0.02  0.00 0.02  0.02  0.02 0.10  0.10  0.01 0.08  0.08
Crit Moves:  ****                  ****              ****        ****
Green/Cycle: 0.07 0.20  0.20  0.06 0.19  0.19  0.14 0.51  0.51  0.06 0.43  0.43
Volume/Cap:  0.20 0.12  0.12  0.05 0.12  0.12  0.14 0.20  0.20  0.18 0.20  0.20
Uniform Del: 43.7 32.9  32.9  44.1 33.5  33.5  38.0 13.5  13.5  44.7 17.6  17.6
IncremntDel:  0.8  0.2   0.2   0.2  0.2   0.2   0.3  0.1   0.1   0.8  0.1   0.1
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   44.5 33.1  33.1  44.3 33.7  33.7  38.3 13.6  13.6  45.5 17.7  17.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  44.5 33.1  33.1  44.3 33.7  33.7  38.3 13.6  13.6  45.5 17.7  17.7
LOS by Move:    D    C     C     D    C     C     D    B     B     D    B     B
HCM2kAvgQ:      1    1     1     0    1     1     1    3     3     1    3     3
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                  Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
*******************************************************************************
Intersection #8 Childs / KIbby
*******************************************************************************
Average Delay (sec/veh):     2.0     Worst Case Level Of Service: A[  9.2]
*******************************************************************************
Street Name:                Kibby                            Childs
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:       0  0  0  0  0    0  0  1! 0  0    0  1  0  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    14    0    16    25  108     0     0   56    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    14    0    16    25  108     0     0   56    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    14    0    16    25  108     0     0   56    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    14    0    16    25  108     0     0   56    11
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   220  220    62    67 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   773  682  1009  1547 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   764  671  1009  1547 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.02 0.00  0.02  0.02 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  877 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.1 xxxxx   0.0 xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx  9.2 xxxxx   7.4 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    A     *     A    *     *     *    *     *
ApproachDel:       xxxxxx              9.2            xxxxxx           xxxxxx
ApproachLOS:          *                 A                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
*******************************************************************************
Intersection #9 Childs / Tower
*******************************************************************************
Average Delay (sec/veh):       0.6       Worst Case Level Of Service: A[  9.6]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0   0  1!  0   0  0   0  1!  0   0  0   0  1!  0   0  0   0   0   1   0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        3    3     2    1    2     1    1  117     4    0   64     2
Growth Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:     3    3     2    1    2     1    1  117     4    0   64     2
User Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:      3    3     2    1    2     1    1  117     4    0   64     2
Reduct Vol:      0    0     0    0    0     0    0    0     0    0    0     0
FinalVolume:     3    3     2    1    2     1    1  117     4    0   64     2
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:   7.1  6.5   6.2  7.1  6.5   6.2  4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:   3.5  4.0   3.3  3.5  4.0   3.3  2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   188  187   119  189  188    65   66 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   777  711   938  776  710  1005 1549 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     775  711   938  772  710  1005 1549 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:   0.00 0.00  0.00 0.00 0.00  0.00 0.00 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx xxxx xxxxx xxxx xxxx xxxxx  0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx  7.3 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     *    *     *    *    *     *    A    *     *     *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx  782 xxxxx  xxxx  783 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.0 xxxxx xxxxx  0.0 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx  9.6 xxxxx xxxxx  9.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    A     *    *    A     *    *    *     *     *    *     *
ApproachDel:          9.6             9.6           xxxxxx           xxxxxx
ApproachLOS:            A               A               *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Gerard / Coffee
*******************************************************************************
Cycle (sec):          100             Critical Vol./Cap.(X):         0.066
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):       7.1
Optimal Cycle:          0             Level Of Service:                  A
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:      0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0   0  1!  0   0  0   0  1!  0   0  0   0   0   1   0  0   0  1!  0   0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        1    5    28    2    3     1    0   17     2   28   29     1
Growth Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:     1    5    28    2    3     1    0   17     2   28   29     1
User Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:      1    5    28    2    3     1    0   17     2   28   29     1
Reduct Vol:      0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:     1    5    28    2    3     1    0   17     2   28   29     1
PCE Adj:      1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:      1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:     1    5    28    2    3     1    0   17     2   28   29     1
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:        0.03 0.15  0.82 0.33 0.50  0.17 0.00 0.89  0.11 0.48 0.50  0.02
Final Sat.:     29  145   813  290  435   145    0  803    94  422  437    15
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.03 0.03  0.03 0.01 0.01  0.01 xxxx 0.02  0.02 0.07 0.07  0.07
Crit Moves:   ****                 ****                  ****      ****
Delay/Veh:     6.7  6.7   6.7  7.1  7.1   7.1  0.0  7.0   7.0  7.4  7.4   7.4
Delay Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:    6.7  6.7   6.7  7.1  7.1   7.1  0.0  7.0   7.0  7.4  7.4   7.4
LOS by Move:     A    A     A    A    A     A    *    A     A    A    A     A
ApproachDel:        6.7              7.1              7.0              7.4
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:         6.7              7.1              7.0              7.4
LOS by Appr:          A                A                A                A
AllWayAvgQ:    0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.1  0.1   0.1
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #11 Gerard / Tower
*******************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         0.017
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):         6.9
Optimal Cycle:          0               Level Of Service:                  A
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:       0  0  1! 0  0    0  0  1! 0  0    0  1  0  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0     0     0    3     0     2    4    11     0    0     9     4
Growth Adj:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Initial Bse:   0     0     0    3     0     2    4    11     0    0     9     4
User Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Volume:    0     0     0    3     0     2    4    11     0    0     9     4
Reduct Vol:    0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:   0     0     0    3     0     2    4    11     0    0     9     4
PCE Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
FinalVolume:   0     0     0    3     0     2    4    11     0    0     9     4
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Lanes:       0.00  1.00  0.00 0.60  0.00  0.40 0.27  0.73  0.00 0.00  0.69  0.31
Final Sat.:    0   902     0  559     0   373  241   663     0    0   665   296
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx  0.00  xxxx 0.01  xxxx  0.01 0.02  0.02  xxxx xxxx  0.01  0.01
Crit Moves:        ****       ****                   ****             ****
Delay/Veh:    0.0   0.0   0.0  6.9   0.0   6.9  7.0   7.0   0.0  0.0   6.8   6.8
Delay Adj:   1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
AdjDel/Veh:   0.0   0.0   0.0  6.9   0.0   6.9  7.0   7.0   0.0  0.0   6.8   6.8
LOS by Move:   *     *     *    A     *     A    A     A     *    *     A     A
ApproachDel:      xxxxxx             6.9              7.0              6.8
Delay Adj:         xxxxx            1.00             1.00             1.00
ApprAdjDel:       xxxxxx             6.9              7.0              6.8
LOS by Appr:         *                A                A                A
AllWayAvgQ:   0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```



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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #12 MIssion / SR 99 SB
*******************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         0.060
Loss Time (sec):       11 (Y+R=4.0 sec) Average Delay (sec/veh):        17.6
Optimal Cycle:         35               Level Of Service:                  B
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    0     0     0    5     5     5    0    19    19    6     6     0
Lanes:       0  0  0  0  0    0  1  0  0  1    0  0  1  1  0    0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0     0     0   56     1    22    0    55    14    0    38     7
Growth Adj:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Initial Bse:   0     0     0   56     1    22    0    55    14    0    38     7
User Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Volume:    0     0     0   56     1    22    0    55    14    0    38     7
Reduct Vol:    0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:   0     0     0   56     1    22    0    55    14    0    38     7
PCE Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
FinalVolume:   0     0     0   56     1    22    0    55    14    0    38     7
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900  1900
Adjustment:  1.00  1.00  1.00 0.89  0.89  0.85 1.00  0.92  0.92 1.00  0.93  0.93
Lanes:       0.00  0.00  0.00 0.98  0.02  1.00 0.00  1.59  0.41 0.00  1.69  0.31
Final Sat.:    0     0     0 1669    30  1615    0  2791   710    0  2978   549
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00  0.00  0.00 0.03  0.03  0.01 0.00  0.02  0.02 0.00  0.01  0.01
Crit Moves:                   ****                   ****       ****
Green/Cycle: 0.00  0.00  0.00 0.56  0.56  0.56 0.00  0.33  0.33 0.00  0.33  0.33
Volume/Cap:  0.00  0.00  0.00 0.06  0.06  0.02 0.00  0.06  0.06 0.00  0.04  0.04
Uniform Del:  0.0   0.0   0.0 10.0  10.0   9.8  0.0  22.9  22.9  0.0  22.8  22.8
IncremntDel:  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0
InitQueuDel:  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0
Delay Adj:   0.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  1.00 0.00  1.00  1.00
Delay/Veh:    0.0   0.0   0.0 10.0  10.0   9.8  0.0  23.0  23.0  0.0  22.8  22.8
User DelAdj: 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
AdjDel/Veh:   0.0   0.0   0.0 10.0  10.0   9.8  0.0  23.0  23.0  0.0  22.8  22.8
LOS by Move:   A     A     A    B     B     A    A     C     C    A     C     C
HCM2kAvgQ:     0     0     0    1     1     0    0     1     1    0     0     0
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.041
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	18.6
Optimal Cycle:	43	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0	0 1	0 0	0	0 0	1 0	2	0 0	0 0	2	0 1
Volume Module:												
Base Vol:	20	0	15	0	0	0	26	85	0	0	25	29
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	0	15	0	0	0	26	85	0	0	25	29
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	20	0	15	0	0	0	26	85	0	0	25	29
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	0	15	0	0	0	26	85	0	0	25	29
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	0	15	0	0	0	26	85	0	0	25	29
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1809	0	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.01	0.02
Crit Moves:	****							****		****		
Green/Cycle:	0.27	0.00	0.27	0.00	0.00	0.00	0.26	0.58	0.00	0.00	0.32	0.32
Volume/Cap:	0.04	0.00	0.03	0.00	0.00	0.00	0.05	0.04	0.00	0.00	0.02	0.06
Uniform Del:	26.8	0.0	26.8	0.0	0.0	0.0	27.6	9.1	0.0	0.0	23.6	23.9
IncremntDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	26.9	0.0	26.8	0.0	0.0	0.0	27.6	9.1	0.0	0.0	23.6	23.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	26.9	0.0	26.8	0.0	0.0	0.0	27.6	9.1	0.0	0.0	23.6	23.9
LOS by Move:	C	A	C	A	A	A	C	A	A	A	C	C
HCM2kAvgQ:	0	0	0	0	0	0	1	1	0	0	0	1

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.096
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	7.9
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1!	0 0	0 0	0	1 0	1 0	0	0 1	0 0	1!	0 0
Volume Module:												
Base Vol:	23	10	0	0	12	31	66	0	34	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	10	0	0	12	31	66	0	34	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	23	10	0	0	12	31	66	0	34	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	10	0	0	12	31	66	0	34	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	10	0	0	12	31	66	0	34	0	0	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.39	0.61	0.00	0.00	0.28	0.72	1.00	0.00	1.00	0.00	1.00	0.00
Final Sat.:	1574	-254	0	0	226	585	686	0	890	0	738	0
Capacity Analysis Module:												
Vol/Sat:	0.01	-0.04	xxxx	xxxx	0.05	0.05	0.10	xxxx	0.04	xxxx	0.00	xxxx
Crit Moves:	****					****	****				****	
Delay/Veh:	8.2	8.3	0.0	0.0	7.6	7.6	8.4	0.0	6.8	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.2	8.3	0.0	0.0	7.6	7.6	8.4	0.0	6.8	0.0	0.0	0.0
LOS by Move:	A	A	*	*	A	A	A	*	A	*	*	*
ApproachDel:		8.2			7.6			7.9			xxxxxx	
Delay Adj:		1.00			1.00			1.00			xxxxx	
ApprAdjDel:		8.2			7.6			7.9			xxxxxx	
LOS by Appr:		A			A			A			*	
AllWayAvgQ:	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

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                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Gerard / Campus Parkway
********************************************************************************
Cycle (sec):           100               Critical Vol./Cap.(X):         0.000
Loss Time (sec):         0 (Y+R=4.0 sec) Average Delay (sec/veh):         0.0
Optimal Cycle:           0               Level Of Service:
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  0  0  0  0    0  0  0  0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0    0     0     0    0     0
Growth Adj:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Initial Bse:    0    0     0     0    0     0     0    0     0     0    0     0
User Adj:    0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Volume:     0    0     0     0    0     0     0    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0     0    0     0     0    0     0     0    0     0
PCE Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
MLF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
FinalVolume:    0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Final Sat.:     0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Crit Moves:
Delay/Veh:    0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
LOS by Move:
ApproachDel:      0.0              0.0              0.0              0.0
Delay Adj:       0.00             0.00             0.00             0.00
ApprAdjDel:       0.0              0.0              0.0              0.0
LOS by Appr:
AllWayAvgQ:   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #42 Childs / Campus Parkway
********************************************************************************
Cycle (sec):           100               Critical Vol./Cap.(X):         0.000
Loss Time (sec):         0 (Y+R=4.0 sec) Average Delay (sec/veh):         0.0
Optimal Cycle:           0               Level Of Service:
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  0  0  0  0    0  0  0  0  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0    0     0     0    0     0
Growth Adj:  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Initial Bse:    0    0     0     0    0     0     0    0     0     0    0     0
User Adj:    0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
PHF Volume:     0    0     0     0    0     0     0    0     0     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0     0    0     0     0    0     0     0    0     0
PCE Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
MLF Adj:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
FinalVolume:    0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Final Sat.:     0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00  0.00 0.00  0.00
Crit Moves:
Delay/Veh:    0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
LOS by Move:
ApproachDel:      0.0              0.0              0.0              0.0
Delay Adj:       0.00             0.00             0.00             0.00
ApprAdjDel:       0.0              0.0              0.0              0.0
LOS by Appr:
AllWayAvgQ:   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2005
Description: Existing Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1462	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	406	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	917	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	917	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	15.4	pc/mi/ln
Level of service, LOS	B	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2005
Description: Existing Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1649	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	458	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1034	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1034	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	17.4	pc/mi/ln
Level of service, LOS	B	

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

HCS2000: Two-Lane Highways Release 4.1a

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period PM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2005
Description Existing Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1176 veh/h
Directional split 59 / 41 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1255 pc/h
Highest directional split proportion (note-2) 740 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 45.0 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1238 pc/h
Highest directional split proportion (note-2) 730
Base percent time-spent-following, BPTSF 66.3 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 66.3 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.39	
Peak 15-min vehicle-miles of travel, VMT15	402	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1529	veh-mi
Peak 15-min total travel time, TT15	8.9	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2010 Background Condition
AM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2010 Background AM
Command:	Default Command
Volume:	Background NP AM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/Veh	Base V/C	Future LOS	Future Del/Veh	Future V/C	Change in
# 1 SR 140 / Parsons	C	27.5	0.733	C	27.5	0.733	+ 0.000 D/V
# 2 SR 140 / Baker	E	40.2	0.000	E	40.2	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	B	14.3	0.000	B	14.3	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	C	22.0	0.770	C	22.0	0.770	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	76.9	1.200	F	76.9	1.200	+ 0.000 V/C
# 6 Childs / Parsons	F	128.9	1.102	F	128.9	1.102	+ 0.000 D/V
# 7 Childs / Coffee	D	36.9	0.681	D	36.9	0.681	+ 0.000 D/V
# 8 Childs / KIbby	A	9.9	0.000	A	9.9	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	10.3	0.000	B	10.3	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	9.7	0.420	A	9.7	0.420	+ 0.000 V/C
# 11 Gerard / Tower	A	6.9	0.019	A	6.9	0.019	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	22.8	0.229	C	22.8	0.229	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	29.8	0.123	C	29.8	0.123	+ 0.000 D/V
# 14 Mission / Coffee	B	10.6	0.420	B	10.6	0.420	+ 0.000 V/C
# 15 Gerard / Campus Parkway	A	7.4	0.076	A	7.4	0.076	+ 0.000 V/C
# 42 Childs / Campus Parkway	A	7.6	0.145	A	7.6	0.145	+ 0.000 V/C

```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #1 SR 140 / Parsons
*******************************************************************************
Cycle (sec):         100             Critical Vol./Cap.(X):        0.733
Loss Time (sec):      15 (Y+R=4.0 sec) Average Delay (sec/veh):       27.5
Optimal Cycle:        72             Level Of Service:                 C
*******************************************************************************
Approach:     North Bound     South Bound      East Bound       West Bound
Movement:    L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected       Protected       Protected       Protected
Rights:          Include         Include         Include         Include
Min. Green:   20     0    20    0     0     0    0    17    17    5    20     0
Lanes:       1  0  0  0  1   0  0  0  0  0   0  0  0  1  0   1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     301     0   152    0     0     0    0   353   194  278   667     0
Growth Adj:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Initial Bse:  301     0   152    0     0     0    0   353   194  278   667     0
User Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Volume:   301     0   152    0     0     0    0   353   194  278   667     0
Reduct Vol:     0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:  301     0   152    0     0     0    0   353   194  278   667     0
PCE Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
FinalVolume:  301     0   152    0     0     0    0   353   194  278   667     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900  1900
Adjustment:  0.95  1.00  0.85 1.00  1.00  1.00 1.00  0.95  0.95 0.95  1.00  1.00
Lanes:       1.00  0.00  1.00 0.00  0.00  0.00 0.00  0.65  0.35 1.00  1.00  0.00
Final Sat.:  1805     0  1615    0     0     0    0  1167   642 1805  1900     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.17  0.00  0.09 0.00  0.00  0.00 0.00  0.30  0.30 0.15  0.35  0.00
Crit Moves:  ****                                   ****         ****
Green/Cycle: 0.23  0.00  0.23 0.00  0.00  0.00 0.00  0.41  0.41 0.21  0.62  0.00
Volume/Cap:  0.73  0.00  0.41 0.00  0.00  0.00 0.00  0.73  0.73 0.73  0.56  0.00
Uniform Del: 35.8   0.0  32.9  0.0   0.0   0.0  0.0  24.7  24.7 36.9  11.0   0.0
IncremntDel:  6.7   0.0   0.8  0.0   0.0   0.0  0.0   3.8   3.8  7.2   0.6   0.0
InitQueuDel:  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0
Delay Adj:   1.00  0.00  1.00 0.00  0.00  0.00 0.00  1.00  1.00 1.00  1.00  0.00
Delay/Veh:   42.5   0.0  33.7  0.0   0.0   0.0  0.0  28.5  28.5 44.1  11.6   0.0
User DelAdj: 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
AdjDel/Veh:  42.5   0.0  33.7  0.0   0.0   0.0  0.0  28.5  28.5 44.1  11.6   0.0
LOS by Move:    D     A     C    A     A     A    A     C     C    D     B     A
HCM2kAvgQ:     10     0     4    0     0     0    0    15    15   10    12     0
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```



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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
*******************************************************************************
Intersection #2 SR 140 / Baker
*******************************************************************************
Average Delay (sec/veh):      9.4     Worst Case Level Of Service: E[ 40.2]
*******************************************************************************
Approach:     North Bound     South Bound      East Bound       West Bound
Movement:    L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign       Stop Sign      Uncontrolled     Uncontrolled
Rights:          Include         Include         Include         Include
Lanes:       0  0  1! 0  0   0  0  1! 0  0   1  0  1  0  0   1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       2     1     5   35     0   272  105   391     0    0   588    34
Growth Adj:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Initial Bse:    2     1     5   35     0   272  105   391     0    0   588    34
User Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Volume:     2     1     5   35     0   272  105   391     0    0   588    34
Reduct Vol:     0     0     0    0     0     0    0     0     0    0     0     0
FinalVolume:    2     1     5   35     0   272  105   391     0    0   588    34
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1   6.5   6.2  7.1   6.5   6.2  4.1  xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5   4.0   3.3  3.5   4.0   3.3  2.2  xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1342  1223   391 1209  1206   605  622  xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:  131   181   662  161   185   501  969  xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     55   161   662  146   165   501  969  xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.04  0.01  0.01 0.24  0.00  0.54 0.11  xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx  xxxx xxxxx xxxx  xxxx xxxxx  0.4  xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx  xxxx xxxxx xxxxx xxxx xxxxx  9.2  xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *     *     *    *     *     *    A     *     *    *     *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx   159 xxxxx xxxx   392 xxxxx xxxx  xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx   0.2 xxxxx xxxxx  6.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx  28.8 xxxxx xxxxx 40.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *     D     *    *     E     *    *     *     *    *     *     *
ApproachDel:        28.8             40.2            xxxxxx           xxxxxx
ApproachLOS:          D                E                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                  Level Of Service Computation Report
         2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #3 SR 140 / Kibby
******************************************************************************
Average Delay (sec/veh):       5.2       Worst Case Level Of Service: B[ 14.3]
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:            Include          Include          Include          Include
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      18   57    84    17   53    38    25  134    24    29  256    17
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   18   57    84    17   53    38    25  134    24    29  256    17
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    18   57    84    17   53    38    25  134    24    29  256    17
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   18   57    84    17   53    38    25  134    24    29  256    17
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  564  527   146   581  522   256   273 xxxx xxxxx   158 xxxx xxxxx
Potent Cap.:  439  459   906   428  462   788  1302 xxxx xxxxx  1434 xxxx xxxxx
Move Cap.:    369  441   906   340  444   788  1302 xxxx xxxxx  1434 xxxx xxxxx
Volume/Cap:  0.05 0.13  0.09  0.05 0.12  0.05  0.02 xxxx  xxxx  0.02 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx   0.3  xxxx xxxx xxxxx   0.1 xxxx xxxxx   0.1 xxxx xxxxx
Control Del:xxxxx xxxx   9.4 xxxxx xxxx xxxxx   7.8 xxxx xxxxx   7.6 xxxx xxxxx
LOS by Move:    *    *     A     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:  421 xxxx xxxxx  xxxx  496 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.6 xxxx xxxxx xxxxx  0.8 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel: 15.4 xxxx xxxxx xxxxx 14.3 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     C    *     *     *    B     *     *    *     *     *    *     *
ApproachDel:       12.2             14.3           xxxxxx           xxxxxx
ApproachLOS:          B                B                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```



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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                  Level Of Service Computation Report
         2000 HCM 4-Way Stop Method (Base Volume Alternative)
******************************************************************************
Intersection #4 Childs / SR 99 SB
******************************************************************************
Cycle (sec):        100              Critical Vol./Cap.(X):         0.770
Loss Time (sec):      0 (Y+R=4.0 sec) Average Delay (sec/veh):       22.0
Optimal Cycle:        0              Level Of Service:                  C
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   293   69    21     0  329    24    68  399     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   293   69    21     0  329    24    68  399     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   293   69    21     0  329    24    68  399     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   293   69    21     0  329    24    68  399     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   293   69    21     0  329    24    68  399     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.81 0.19  1.00  0.00 0.93  0.07  0.15 0.85  0.00
Final Sat.:     0    0     0   406   96   592     0  548    40    88  518     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx  0.72 0.72  0.04  xxxx 0.60  0.60  0.77 0.77  xxxx
Crit Moves:                   ****                  ****        ****
Delay/Veh:    0.0  0.0   0.0  24.4 24.4   8.8   0.0 16.9  16.9  24.7 24.7   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  24.4 24.4   8.8   0.0 16.9  16.9  24.7 24.7   0.0
LOS by Move:    *    *     *     C    C     A     *    C     C     C    C     *
ApproachDel:     xxxxxx            23.6             16.9             24.7
Delay Adj:        xxxxx            1.00             1.00             1.00
ApprAdjDel:      xxxxxx            23.6             16.9             24.7
LOS by Appr:        *                 C                C                C
AllWayAvgQ:   0.0  0.0   0.0   2.1  2.1   0.0   1.3  1.3   1.3   2.7  2.7   2.7
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                    Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Childs / SR 99 NB
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):         1.200
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):       76.9
Optimal Cycle:         0              Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  0  1   0  1  0  0  1   1  0  1  0  1   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      15   35    40   102   40    76    80  544    24   517  377    93
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   15   35    40   102   40    76    80  544    24   517  377    93
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    15   35    40   102   40    76    80  544    24   517  377    93
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   15   35    40   102   40    76    80  544    24   517  377    93
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   15   35    40   102   40    76    80  544    24   517  377    93
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.30 0.70  1.00  0.72 0.28  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Sat.:   120  280   442   296  116   469   418  453   484   455  485   528
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.12  0.09  0.34 0.34  0.16  0.19 1.20  0.05  1.14 0.78  0.18
Crit Moves:       ****              ****              ****        ****
Delay/Veh:   12.7 12.7  11.4  15.6 15.6  11.6  13.1  135  10.3 111.5 31.3  10.8
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  12.7 12.7  11.4  15.6 15.6  11.6  13.1  135  10.3 111.5 31.3  10.8
LOS by Move:    B    B     B     C    C     B     B    F     B     F    D     B
ApproachDel:      12.1              14.2             115.4              71.4
Delay Adj:        1.00              1.00              1.00              1.00
ApprAdjDel:       12.1              14.2             115.4              71.4
LOS by Appr:         B                 B                 F                 F
AllWayAvgQ:   0.1  0.1   0.1   0.5  0.5   0.2   0.2 15.7   0.0  12.8  2.9   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```



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--------------------------------------------------------------------------------
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                    Level Of Service Computation Report
          2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Childs / Parsons
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):         1.102
Loss Time (sec):      17 (Y+R=4.0 sec) Average Delay (sec/veh):      128.9
Optimal Cycle:       180              Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     4   22    22     4   24    24     4   20    20     4   23    23
Lanes:        1  0  0  1  0   1  0  1  0  1   0  0  1! 0  0   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     228  153    11   161   89   131   170  376   140    19  629   240
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  228  153    11   161   89   131   170  376   140    19  629   240
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   228  153    11   161   89   131   170  376   140    19  629   240
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  228  153    11   161   89   131   170  376   140    19  629   240
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  228  153    11   161   89   131   170  376   140    19  629   240
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.99  0.99  0.95 1.00  0.85  0.96 0.96  0.96  0.95 1.00  0.85
Lanes:       1.00 0.93  0.07  1.00 1.00  1.00  0.25 0.55  0.20  1.00 1.00  1.00
Final Sat.:  1805 1755   126  1805 1900  1615   452 1000   372  1805 1900  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.09  0.09  0.09 0.05  0.08  0.38 0.38  0.38  0.01 0.33  0.15
Crit Moves:  ****                          ****  ****                   ****
Green/Cycle: 0.09 0.23  0.23  0.10 0.24  0.24  0.27 0.45  0.45  0.05 0.23  0.23
Volume/Cap:  1.41 0.37  0.37  0.94 0.20  0.34  1.41 0.83  0.83  0.22 1.41  0.63
Uniform Del: 45.5 32.1  32.1  45.0 30.3  31.4  36.7 24.0  24.0  45.8 38.3  34.4
IncremntDel:218.1  0.5   0.5  50.9  0.2   0.5 197.5  7.1   7.1   1.3  199   3.5
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:  263.6 32.6  32.6  95.8 30.5  32.0 234.2 31.2  31.2  47.1  237  37.9
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 263.6 32.6  32.6  95.8 30.5  32.0 234.2 31.2  31.2  47.1  237  37.9
LOS by Move:    F    C     C     F    C     C     F    C     C     D    F     D
HCM2kAvgQ:     17    4     4     8    2     4    47   21    21     1   43     8
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.681
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	36.9
Optimal Cycle:	69	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0 0 1 0			1 0 0 1 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	341	153	99	64	105	141	76	225	104	59	310	49
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	341	153	99	64	105	141	76	225	104	59	310	49
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	341	153	99	64	105	141	76	225	104	59	310	49
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	341	153	99	64	105	141	76	225	104	59	310	49
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	341	153	99	64	105	141	76	225	104	59	310	49
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.91	0.91	0.95	0.95	0.95	0.95	0.98	0.98
Lanes:	1.00	0.61	0.39	1.00	0.43	0.57	1.00	0.68	0.32	1.00	0.86	0.14
Final Sat.:	1805	1086	702	1805	741	995	1805	1238	572	1805	1608	254
Capacity Analysis Module:												
Vol/Sat:	0.19	0.14	0.14	0.04	0.14	0.14	0.04	0.18	0.18	0.03	0.19	0.19
Crit Moves:	****				****		****				****	
Green/Cycle:	0.28	0.37	0.37	0.12	0.21	0.21	0.06	0.26	0.26	0.08	0.28	0.28
Volume/Cap:	0.68	0.38	0.38	0.30	0.68	0.68	0.68	0.69	0.69	0.40	0.68	0.68
Uniform Del:	32.2	23.2	23.2	40.5	36.5	36.5	45.9	33.3	33.3	43.5	31.8	31.8
IncremntDel:	3.8	0.4	0.4	0.8	5.2	5.2	15.8	4.4	4.4	1.7	3.6	3.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	36.0	23.6	23.6	41.3	41.8	41.8	61.8	37.7	37.7	45.2	35.5	35.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.0	23.6	23.6	41.3	41.8	41.8	61.8	37.7	37.7	45.2	35.5	35.5
LOS by Move:	D	C	C	D	D	D	E	D	D	D	D	D
HCM2kAvgQ:	10	6	6	2	8	8	4	10	10	2	11	11

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 4.2 Worst Case Level Of Service: A[9.9]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	8	0	98	142	104	0	0	143	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	8	0	98	142	104	0	0	143	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	8	0	98	142	104	0	0	143	17
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	8	0	98	142	104	0	0	143	17
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	540	540	152	160	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	507	452	900	1432	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	465	403	900	1432	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.11	0.10	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	841	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.9	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:		xxxxxx			9.9			xxxxxx			xxxxxx	
ApproachLOS:		*			A			*			*	

Note: Queue reported is the number of cars per lane.

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                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Childs / Tower
********************************************************************************
Average Delay (sec/veh):       1.1       Worst Case Level Of Service: B[ 10.3]
********************************************************************************
Approach:     North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:       0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       5    2     1     4    4    12     7  105     1     0  142     4
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    5    2     1     4    4    12     7  105     1     0  142     4
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     5    2     1     4    4    12     7  105     1     0  142     4
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    5    2     1     4    4    12     7  105     1     0  142     4
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  272  266   106   265  264   144   146 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:  685  643   954   692  645   909  1448 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:    670  640   954   687  642   909  1448 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.01 0.00  0.00  0.01 0.01  0.01  0.00 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.5 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  688 xxxxx  xxxx  792 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.0 xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 10.3 xxxxx xxxxx  9.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    B     *     *    A     *     *    *     *     *    *     *
ApproachDel:      10.3              9.7            xxxxxx           xxxxxx
ApproachLOS:         B                A                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Gerard / Coffee
********************************************************************************
Cycle (sec):          100                 Critical Vol./Cap.(X):          0.420
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):          9.7
Optimal Cycle:          0                 Level Of Service:                  A
********************************************************************************
Approach:     North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:       0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      11   61    89    39   19    70    42   68    17   146   59   108
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   11   61    89    39   19    70    42   68    17   146   59   108
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    11   61    89    39   19    70    42   68    17   146   59   108
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   11   61    89    39   19    70    42   68    17   146   59   108
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   11   61    89    39   19    70    42   68    17   146   59   108
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.07 0.38  0.55  0.30 0.15  0.55  0.33 0.54  0.13  0.47 0.19  0.34
Final Sat.:    48  264   385   207  101   372   225  365    91   348  141   257
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.23 0.23  0.23  0.19 0.19  0.19  0.19 0.19  0.19  0.42 0.42  0.42
Crit Moves:       ****        ****                  ****                   ****
Delay/Veh:    9.1  9.1   9.1   8.9  8.9   8.9   9.0  9.0   9.0  10.7 10.7  10.7
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   9.1  9.1   9.1   8.9  8.9   8.9   9.0  9.0   9.0  10.7 10.7  10.7
LOS by Move:    A    A     A     A    A     A     A    A     A     B    B     B
ApproachDel:       9.1              8.9              9.0             10.7
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:        9.1              8.9              9.0             10.7
LOS by Appr:         A                A                A                B
AllWayAvgQ:   0.3  0.3   0.3   0.2  0.2   0.2   0.2  0.2   0.2   0.6  0.6   0.6
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #11 Gerard / Tower
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):          0.019
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):          6.9
Optimal Cycle:          0                Level Of Service:                   A
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  1  0  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0     0     0    1     0     4    6     8     0    0    14     4
Growth Adj:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Initial Bse:    0     0     0    1     0     4    6     8     0    0    14     4
User Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Volume:     0     0     0    1     0     4    6     8     0    0    14     4
Reduct Vol:     0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:    0     0     0    1     0     4    6     8     0    0    14     4
PCE Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
FinalVolume:    0     0     0    1     0     4    6     8     0    0    14     4
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Lanes:       0.00  1.00  0.00 0.20  0.00  0.80 0.43  0.57  0.00 0.00  0.78  0.22
Final Sat.:     0   900     0  203     0   811  384   512     0    0   738   211
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx  0.00  xxxx 0.00  xxxx  0.00 0.02  0.02  xxxx xxxx  0.02  0.02
Crit Moves:        ****       ****                   ****              ****
Delay/Veh:    0.0   0.0   0.0  6.5   0.0   6.5  7.1   7.1   0.0  0.0   6.9   6.9
Delay Adj:   1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
AdjDel/Veh:   0.0   0.0   0.0  6.5   0.0   6.5  7.1   7.1   0.0  0.0   6.9   6.9
LOS by Move:    *     *     *    A     *     A    A     A     *    *     A     A
ApproachDel:     xxxxxx             6.5              7.1              6.9
Delay Adj:        xxxxx            1.00             1.00             1.00
ApprAdjDel:      xxxxxx             6.5              7.1              6.9
LOS by Appr:        *                A                A                A
AllWayAvgQ:   0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
           2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #12 MIssion / SR 99 SB
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):          0.229
Loss Time (sec):       11 (Y+R=4.0 sec)  Average Delay (sec/veh):         22.8
Optimal Cycle:         41                Level Of Service:                   C
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0    5     5     5    0    19    19    6     6     0
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  1  1  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0     0     0   94    12    31    0    99    18  189    72     6
Growth Adj:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Initial Bse:    0     0     0   94    12    31    0    99    18  189    72     6
User Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Volume:     0     0     0   94    12    31    0    99    18  189    72     6
Reduct Vol:     0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:    0     0     0   94    12    31    0    99    18  189    72     6
PCE Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
FinalVolume:    0     0     0   94    12    31    0    99    18  189    72     6
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900  1900
Adjustment:  1.00  1.00  1.00 0.90  0.90  0.85 1.00  0.93  0.93 0.91  0.91  0.91
Lanes:       0.00  0.00  0.00 0.89  0.11  1.00 0.00  1.69  0.31 1.00  0.92  0.08
Final Sat.:     0     0     0 1511   193  1615    0  2984   543 1738  1605   134
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00  0.00  0.00 0.06  0.06  0.02 0.00  0.03  0.03 0.11  0.04  0.04
Crit Moves:                   ****                   ****       ****
Green/Cycle: 0.00  0.00  0.00 0.25  0.25  0.25 0.00  0.19  0.19 0.45  0.64  0.64
Volume/Cap:  0.00  0.00  0.00 0.24  0.24  0.08 0.00  0.17  0.17 0.24  0.07  0.07
Uniform Del:  0.0   0.0   0.0 29.6  29.6  28.3  0.0  33.9  33.9 17.3   7.0   7.0
IncremntDel:  0.0   0.0   0.0  0.3   0.3   0.1  0.0   0.1   0.1  0.1   0.0   0.0
InitQueuDel:  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0
Delay Adj:   0.00  0.00  0.00 1.00  1.00  1.00 0.00  1.00  1.00 1.00  1.00  1.00
Delay/Veh:    0.0   0.0   0.0 29.9  29.9  28.4  0.0  34.1  34.1 17.4   7.0   7.0
User DelAdj: 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
AdjDel/Veh:   0.0   0.0   0.0 29.9  29.9  28.4  0.0  34.1  34.1 17.4   7.0   7.0
LOS by Move:    A     A     A    C     C     C    A     C     C    B     A     A
HCM2kAvgQ:      0     0     0    3     3     1    0     2     2    4     1     1
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                   Level Of Service Computation Report
          2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #13 Mission / SR 99 NB
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):          0.123
Loss Time (sec):       15 (Y+R=4.0 sec) Average Delay (sec/veh):         29.8
Optimal Cycle:         43               Level Of Service:                   C
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    5    5     5    0    0     0    5   23     0    0    6     6
Lanes:        0  1  0  0  1   0  0  0  0  0   1  0  2  0  0   0  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     26    3   110    0    0     0   58  131     0    0  241   146
Growth Adj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  26    3   110    0    0     0   58  131     0    0  241   146
User Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   26    3   110    0    0     0   58  131     0    0  241   146
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  26    3   110    0    0     0   58  131     0    0  241   146
PCE Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  26    3   110    0    0     0   58  131     0    0  241   146
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:   1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment: 0.97 0.97  0.85 1.00 1.00  1.00 0.95 0.95  1.00 1.00 0.95  0.85
Lanes:      0.90 0.10  1.00 0.00 0.00  0.00 1.00 2.00  0.00 0.00 2.00  1.00
Final Sat.: 1656  191  1615    0    0     0 1805 3610     0    0 3610  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:    0.02 0.02  0.07 0.00 0.00  0.00 0.03 0.04  0.00 0.00 0.07  0.09
Crit Moves:            ****                      ****           ****
Green/Cycle: 0.55 0.55 0.55 0.00 0.00  0.00 0.11 0.30  0.00 0.00 0.19  0.19
Volume/Cap: 0.03 0.03  0.12 0.00 0.00  0.00 0.31 0.12  0.00 0.00 0.35  0.48
Uniform Del: 10.1 10.1 10.6  0.0  0.0   0.0 41.4 25.8   0.0  0.0 35.1  36.0
IncremntDel: 0.0  0.0   0.1  0.0  0.0   0.0  0.9  0.1   0.0  0.0  0.3   1.2
InitQueuDel: 0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:  1.00 1.00  1.00 0.00 0.00  0.00 1.00 1.00  0.00 0.00 1.00  1.00
Delay/Veh:  10.1 10.1  10.7  0.0  0.0   0.0 42.3 25.8   0.0  0.0 35.4  37.2
User DelAdj: 1.00 1.00 1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh: 10.1 10.1  10.7  0.0  0.0   0.0 42.3 25.8   0.0  0.0 35.4  37.2
LOS by Move:   B    B     B    A    A     A    D    C     A    A    D     D
HCM2kAvgQ:     0    0     2    0    0     0    2    2     0    0    4     4
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                   Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #14 Mission / Coffee
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):          0.420
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):         10.6
Optimal Cycle:          0               Level Of Service:                   B
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  1! 0  0   0  0  1! 0  0   0  1  0  1  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     26   19     0   10   10   276  178   54    11    0   85     9
Growth Adj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  26   19     0   10   10   276  178   54    11    0   85     9
User Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   26   19     0   10   10   276  178   54    11    0   85     9
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  26   19     0   10   10   276  178   54    11    0   85     9
PCE Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  26   19     0   10   10   276  178   54    11    0   85     9
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:      1.16 0.84  0.00 0.03 0.03  0.94 1.00 0.91  0.09 0.00 0.90  0.10
Final Sat.: 1163  -83     0   24   24   657  580  580    58    0  543    58
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:    0.02-0.23  xxxx 0.42 0.42  0.42 0.31 0.09  0.19 xxxx 0.16  0.16
Crit Moves: ****                 ****           ****                 ****
Delay/Veh:   9.2  9.3   0.0 11.3 11.3  11.3 11.2  8.7   8.7  0.0  9.6   9.6
Delay Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  9.2  9.3   0.0 11.3 11.3  11.3 11.2  8.7   8.7  0.0  9.6   9.6
LOS by Move:   A    A     *    B    B     B    B    A     A    *    A     A
ApproachDel:      9.2              11.3             10.5              9.6
Delay Adj:       1.00              1.00             1.00             1.00
ApprAdjDel:       9.2              11.3             10.5              9.6
LOS by Appr:        A                 B                B                A
AllWayAvgQ:  0.0  0.0   0.0  0.7  0.7   0.7  0.4  0.1   0.1  0.2  0.2   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Gerard / Campus Parkway
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):       0.076
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):      7.4
Optimal Cycle:          0              Level Of Service:                A
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:       L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Lanes:          0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    1  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      17    48     0    0    59     8   29     0    23   12     0     0
Growth Adj:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Initial Bse:   17    48     0    0    59     8   29     0    23   12     0     0
User Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Volume:    17    48     0    0    59     8   29     0    23   12     0     0
Reduct Vol:     0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:   17    48     0    0    59     8   29     0    23   12     0     0
PCE Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
FinalVolume:   17    48     0    0    59     8   29     0    23   12     0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Lanes:       0.26  0.74  0.00 0.00  0.88  0.12 0.56  0.00  0.44 1.00  0.00  0.00
Final Sat.:   223   631     0    0   775   105  483     0   383  791     0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08  0.08  xxxx xxxx  0.08  0.08 0.06  xxxx  0.06 0.02  xxxx  xxxx
Crit Moves:        ****             ****       ****             ****
Delay/Veh:    7.5   7.5   0.0  0.0   7.3   7.3  7.3   0.0   7.3  7.5   0.0   0.0
Delay Adj:   1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
AdjDel/Veh:   7.5   7.5   0.0  0.0   7.3   7.3  7.3   0.0   7.3  7.5   0.0   0.0
LOS by Move:    A     A     *    *     A     A    A     *     A    A     *     *
ApproachDel:        7.5              7.3              7.3              7.5
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:         7.5              7.3              7.3              7.5
LOS by Appr:          A                A                A                A
AllWayAvgQ:   0.1   0.1   0.1  0.1   0.1   0.1  0.1   0.1   0.1  0.0   0.0   0.0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #42 Childs / Campus Parkway
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):       0.145
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):      7.6
Optimal Cycle:          0              Level Of Service:                A
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:       L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Lanes:          0  0  1! 0  0    0  0  0  0  0    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      27     0    50    0     0     0    0   101    27   30    39     0
Growth Adj:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Initial Bse:   27     0    50    0     0     0    0   101    27   30    39     0
User Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Volume:    27     0    50    0     0     0    0   101    27   30    39     0
Reduct Vol:     0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:   27     0    50    0     0     0    0   101    27   30    39     0
PCE Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
FinalVolume:   27     0    50    0     0     0    0   101    27   30    39     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Lanes:       0.35  0.00  0.65 0.00  0.00  0.00 0.00  0.79  0.21 0.43  0.57  0.00
Final Sat.:   305     0   565    0     0     0    0   698   186  360   468     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09  xxxx  0.09 xxxx  xxxx  xxxx xxxx  0.14  0.14 0.08  0.08  xxxx
Crit Moves:  ****                                    ****             ****
Delay/Veh:    7.3   0.0   7.3  0.0   0.0   0.0  0.0   7.7   7.7  7.6   7.6   0.0
Delay Adj:   1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
AdjDel/Veh:   7.3   0.0   7.3  0.0   0.0   0.0  0.0   7.7   7.7  7.6   7.6   0.0
LOS by Move:    A     *     A    *     *     *    *     A     A    A     A     *
ApproachDel:        7.3           xxxxxx              7.7              7.6
Delay Adj:         1.00            xxxxx             1.00             1.00
ApprAdjDel:         7.3           xxxxxx              7.7              7.6
LOS by Appr:          A                *                A                A
AllWayAvgQ:   0.1   0.1   0.1  0.0   0.0   0.0  0.2   0.2   0.2  0.1   0.1   0.1
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1758	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	488	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1103	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1103	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	18.6	pc/mi/ln
Level of service, LOS	C	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1571	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	436	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	985	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	985	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	16.6	pc/mi/ln
Level of service, LOS	B	

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

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period AM Peak
Highway SR 140
From/To Santa Fe Ave to Kibby Rd
Jurisdiction Merced
Analysis Year 2010
Description 2010 Background Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1244 veh/h
Directional split 66 / 34 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1328 pc/h
Highest directional split proportion (note-2) 876 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 44.4 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1309 pc/h
Highest directional split proportion (note-2) 864
Base percent time-spent-following, BPTSF 68.4 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 68.4 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	426	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1617	veh-mi
Peak 15-min total travel time, TT15	9.6	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Background Condition
PM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2010 Background PM
Command:	Default Command
Volume:	Background NP PM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/C	Future LOS	Future Del/ Veh	Future V/C	Change in
# 1 SR 140 / Parsons	D	47.9	0.971	D	47.9	0.971	+ 0.000 D/V
# 2 SR 140 / Baker	F	73.3	0.000	F	73.3	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	C	16.3	0.000	C	16.3	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	153.4	1.555	F	153.4	1.555	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	198.7	1.880	F	198.7	1.880	+ 0.000 V/C
# 6 Childs / Parsons	F	184.2	1.214	F	184.2	1.214	+ 0.000 D/V
# 7 Childs / Coffee	C	33.1	0.655	C	33.1	0.655	+ 0.000 D/V
# 8 Childs / KIbby	B	10.1	0.000	B	10.1	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	10.4	0.000	B	10.4	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	8.4	0.211	A	8.4	0.211	+ 0.000 V/C
# 11 Gerard / Tower	A	6.9	0.017	A	6.9	0.017	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	24.8	0.322	C	24.8	0.322	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	28.5	0.295	C	28.5	0.295	+ 0.000 D/V
# 14 Mission / Coffee	C	18.1	0.741	C	18.1	0.741	+ 0.000 V/C
# 15 Gerard / Campus Parkway	A	7.4	0.126	A	7.4	0.126	+ 0.000 V/C
# 42 Childs / Campus Parkway	A	8.0	0.219	A	8.0	0.219	+ 0.000 V/C

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--------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 SR 140 / Parsons
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):          0.971
Loss Time (sec):       15 (Y+R=4.0 sec) Average Delay (sec/veh):        47.9
Optimal Cycle:        154              Level Of Service:                  D
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    20     0     20    0     0     0    0    17    17    5    20     0
Lanes:         1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     302     0   159     0     0     0     0   705   319   172   446     0
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:  302     0   159     0     0     0     0   705   319   172   446     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:   302     0   159     0     0     0     0   705   319   172   446     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  302     0   159     0     0     0     0   705   319   172   446     0
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:  302     0   159     0     0     0     0   705   319   172   446     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900
Adjustment:  0.95  1.00  0.85  1.00  1.00  1.00  1.00  0.96  0.96  0.95  1.00  1.00
Lanes:       1.00  0.00  1.00  0.00  0.00  0.00  0.00  0.69  0.31  1.00  1.00  0.00
Final Sat.:  1805     0  1615     0     0     0     0  1253   567  1805  1900     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.17  0.00  0.10  0.00  0.00  0.00  0.00  0.56  0.56  0.10  0.23  0.00
Crit Moves:  ****                                      ****        ****
Green/Cycle: 0.20  0.00  0.20  0.00  0.00  0.00  0.00  0.56  0.56  0.09  0.65  0.00
Volume/Cap:  0.84  0.00  0.49  0.00  0.00  0.00  0.00  1.01  1.01  1.01  0.36  0.00
Uniform Del: 38.4   0.0  35.5   0.0   0.0   0.0   0.0  22.2  22.2  45.3   8.0   0.0
IncremntDel: 15.6   0.0   1.2   0.0   0.0   0.0   0.0  31.3  31.3  72.2   0.2   0.0
InitQueuDel:  0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
Delay Adj:   1.00  0.00  1.00  0.00  0.00  0.00  0.00  1.00  1.00  1.00  1.00  0.00
Delay/Veh:   54.0   0.0  36.7   0.0   0.0   0.0   0.0  53.5  53.5 117.5   8.2   0.0
User DelAdj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  54.0   0.0  36.7   0.0   0.0   0.0   0.0  53.5  53.5 117.5   8.2   0.0
LOS by Move:    D     A     D     A     A     A     A     D     D     F     A     A
HCM2kAvgQ:     12     0     5     0     0     0     0    41    41    10     6     0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```



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--------------------------------------------------------------------------------
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                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #2 SR 140 / Baker
********************************************************************************
Average Delay (sec/veh):      13.9      Worst Case Level Of Service: F[ 73.3]
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:         0  0  1! 0  0    0  0  1! 0  0    1  0  1  0  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      12     0    12    50     0   182   269   533     0     0   397    38
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   12     0    12    50     0   182   269   533     0     0   397    38
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    12     0    12    50     0   182   269   533     0     0   397    38
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
FinalVolume:   12     0    12    50     0   182   269   533     0     0   397    38
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1   6.5   6.2   7.1   6.5   6.2   4.1  xxxx xxxxx xxxxx  xxxx xxxxx
FollowUpTim:  3.5   4.0   3.3   3.5   4.0   3.3   2.2  xxxx xxxxx xxxxx  xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1578  1506   533  1493  1487   416   435  xxxx xxxxx  xxxx  xxxx xxxxx
Potent Cap.:   90   122   551   103   126   641  1135  xxxx xxxxx  xxxx  xxxx xxxxx
Move Cap.:     52    93   551    82    96   641  1135  xxxx xxxxx  xxxx  xxxx xxxxx
Volume/Cap:  0.23  0.00  0.02  0.61  0.00  0.28  0.24  xxxx  xxxx  xxxx  xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx  xxxx xxxxx  xxxx  xxxx xxxxx   0.9  xxxx xxxxx  xxxx  xxxx xxxxx
Control Del:xxxxx  xxxx xxxxx xxxxx  xxxx xxxxx   9.2  xxxx xxxxx xxxxx  xxxx xxxxx
LOS by Move:    *     *     *     *     *     *     A     *     *     *     *     *
Movement:      LT  - LTR  - RT    LT  - LTR  - RT    LT  - LTR  - RT    LT  - LTR  - RT
Shared Cap.: xxxx    96 xxxxx  xxxx   260 xxxxx  xxxx  xxxx xxxxx  xxxx  xxxx xxxxx
SharedQueue:xxxxx   0.9 xxxxx xxxxx   7.8 xxxxx xxxxx  xxxx xxxxx xxxxx  xxxx xxxxx
Shrd ConDel:xxxxx  54.8 xxxxx xxxxx  73.3 xxxxx xxxxx  xxxx xxxxx xxxxx  xxxx xxxxx
Shared LOS:     *     F     *     *     F     *     *     *     *     *     *     *
ApproachDel:       54.8              73.3             xxxxxx            xxxxxx
ApproachLOS:          F                 F                 *                 *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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---------------------------------------------------------------------------------
                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
*********************************************************************************
Intersection #3 SR 140 / Kibby
*********************************************************************************
Average Delay (sec/veh):       4.7      Worst Case Level Of Service: C[ 16.3]
*********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      11   36    54    15   39    18    21  235     7    93  195    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   11   36    54    15   39    18    21  235     7    93  195    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    11   36    54    15   39    18    21  235     7    93  195    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   11   36    54    15   39    18    21  235     7    93  195    11
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  696  673   239   707  665   195   206 xxxx xxxxx   242 xxxx xxxxx
Potent Cap.:  359  379   805   353  383   851  1377 xxxx xxxxx  1336 xxxx xxxxx
Move Cap.:    301  348   805   284  351   851  1377 xxxx xxxxx  1336 xxxx xxxxx
Volume/Cap:  0.04 0.10  0.07  0.05 0.11  0.02  0.02 xxxx  xxxx  0.07 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx xxxx   0.2  xxxx xxxx xxxxx   0.0 xxxx xxxxx   0.2 xxxx xxxxx
Control Del:xxxxx xxxx   9.8 xxxxx xxxx xxxxx   7.7 xxxx xxxxx   7.9 xxxx xxxxx
LOS by Move:    *    *     A     *    *     *     A    *     *     A    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:  336 xxxx xxxxx  xxxx  389 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.5 xxxx xxxxx xxxxx  0.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel: 17.5 xxxx xxxxx xxxxx 16.3 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     C    *     *     *    C     *     *    *     *     *    *     *
ApproachDel:       13.4             16.3            xxxxxx           xxxxxx
ApproachLOS:          B                C                *                *
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
```



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---------------------------------------------------------------------------------
---------------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
*********************************************************************************
Intersection #4 Childs / SR 99 SB
*********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):          1.555
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):        153.4
Optimal Cycle:          0               Level Of Service:                  F
*********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   638  166    23     0  419    20    37  268     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   638  166    23     0  419    20    37  268     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   638  166    23     0  419    20    37  268     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   638  166    23     0  419    20    37  268     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   638  166    23     0  419    20    37  268     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.79 0.21  1.00  0.00 0.95  0.05  0.12 0.88  0.00
Final Sat.:     0    0     0   410  107   612     0  540    26    65  473     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx  1.56 1.56  0.04  xxxx 0.78  0.78  0.57 0.57  xxxx
Crit Moves:                        ****               ****        ****
Delay/Veh:    0.0  0.0   0.0 277.7  278   8.8   0.0 27.7  27.7  17.8 17.8   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0 277.7  278   8.8   0.0 27.7  27.7  17.8 17.8   0.0
LOS by Move:    *    *     *     F    F     A     *    D     D     C    C     *
ApproachDel:     xxxxxx           270.2             27.7             17.8
Delay Adj:        xxxxx            1.00             1.00             1.00
ApprAdjDel:      xxxxxx           270.2             27.7             17.8
LOS by Appr:        *                F                D                C
AllWayAvgQ:   0.0  0.0   0.0  38.5 38.5   0.0   2.9  2.9   2.9   1.2  1.2   1.2
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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                     Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
**********************************************************************************
Intersection #5 Childs / SR 99 NB
**********************************************************************************
Cycle (sec):          100            Critical Vol./Cap.(X):         1.880
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):    198.7
Optimal Cycle:          0            Level Of Service:                  F
**********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0    0    0     0    0    0     0    0    0     0    0    0
Lanes:        0  1  0  0  1   0  1  0  0  1   1  0  1  0  1   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      23   31   56    99   23   62   130  900   27   414  208   94
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:   23   31   56    99   23   62   130  900   27   414  208   94
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:    23   31   56    99   23   62   130  900   27   414  208   94
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:   23   31   56    99   23   62   130  900   27   414  208   94
PCE Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
FinalVolume:   23   31   56    99   23   62   130  900   27   414  208   94
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Lanes:       0.43 0.57 1.00  0.81 0.19 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Final Sat.:   173  234  454   334   78  471   439  479  510   454  481  528
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.13 0.12  0.30 0.30 0.13  0.30 1.88 0.05  0.91 0.43 0.18
Crit Moves:       ****            ****             ****        ****
Delay/Veh:   12.5 12.5 11.4  14.7 14.7 11.2  14.0  422  9.9  50.9 15.6 10.8
Delay Adj:   1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:  12.5 12.5 11.4  14.7 14.7 11.2  14.0  422  9.9  50.9 15.6 10.8
LOS by Move:    B    B    B     B    B    B     B    F    A     F    C    B
ApproachDel:      11.9             13.5            360.9             35.4
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:       11.9             13.5            360.9             35.4
LOS by Appr:        B                B                F                E
AllWayAvgQ:   0.1  0.1  0.1   0.4  0.4  0.1   0.4 54.7  0.1   5.1  0.7  0.2
**********************************************************************************
Note: Queue reported is the number of cars per lane.
**********************************************************************************
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                     Level Of Service Computation Report
           2000 HCM Operations Method (Base Volume Alternative)
**********************************************************************************
Intersection #6 Childs / Parsons
**********************************************************************************
Cycle (sec):          100            Critical Vol./Cap.(X):         1.214
Loss Time (sec):       17 (Y+R=4.0 sec) Average Delay (sec/veh):    184.2
Optimal Cycle:        180            Level Of Service:                  F
**********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    4   22   22     4   24   24     4   20   20     4   23   23
Lanes:        1  0  0  1  0   1  0  1  0  1   0  0  1! 0  0   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     235  177    3   240  136   90   176  699  225     3  391  169
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:  235  177    3   240  136   90   176  699  225     3  391  169
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:   235  177    3   240  136   90   176  699  225     3  391  169
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:  235  177    3   240  136   90   176  699  225     3  391  169
PCE Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
FinalVolume:  235  177    3   240  136   90   176  699  225     3  391  169
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900
Adjustment:  0.95 1.00 1.00  0.95 1.00 0.85  0.96 0.96 0.96  0.95 1.00 0.85
Lanes:       1.00 0.98 0.02  1.00 1.00 1.00  0.16 0.64 0.20  1.00 1.00 1.00
Final Sat.:  1805 1863   32  1805 1900 1615   293 1164  375  1805 1900 1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.10 0.10  0.13 0.07 0.06  0.60 0.60 0.60  0.00 0.21 0.10
Crit Moves:  ****                 ****        ****                  ****
Green/Cycle: 0.06 0.22 0.22  0.08 0.24 0.24  0.30 0.49 0.49  0.04 0.23 0.23
Volume/Cap:  2.03 0.43 0.43  1.58 0.30 0.23  2.03 1.24 1.24  0.04 0.89 0.45
Uniform Del: 46.8 33.6 33.6  45.8 31.1 30.6  35.2 25.7 25.7  46.2 37.3 33.1
IncremntDel:492.1  0.7  0.7 290.1  0.4  0.3 469.7  116 115.8  0.2 20.4  0.9
InitQueuDel:  0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0
Delay Adj:   1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Delay/Veh:  538.9 34.3 34.3 335.9 31.5 30.9 504.9  142 141.5 46.4 57.7 34.0
User DelAdj: 1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh: 538.9 34.3 34.3 335.9 31.5 30.9 504.9  142 141.5 46.4 57.7 34.0
LOS by Move:    F    C    C     F    C    C     F    F    F     D    E    C
HCM2kAvgQ:     23    5    5    20    4    2   102   61   61     0   15    5
**********************************************************************************
Note: Queue reported is the number of cars per lane.
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                     Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
*********************************************************************************
Intersection #7 Childs / Coffee
*********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        0.655
Loss Time (sec):       17 (Y+R=4.0 sec) Average Delay (sec/veh):      33.1
Optimal Cycle:         67              Level Of Service:                 C
*********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:      6    19    19    6    19    19    6    19    19    6    19    19
Lanes:         1  0  0  1  0    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      173    96    64    58   103    57    97   283   277    73   232    65
Growth Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   173    96    64    58   103    57    97   283   277    73   232    65
User Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:      1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    173    96    64    58   103    57    97   283   277    73   232    65
Reduct Vol:      0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   173    96    64    58   103    57    97   283   277    73   232    65
PCE Adj:      1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:      1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   173    96    64    58   103    57    97   283   277    73   232    65
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:     1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900
Adjustment:   0.95  0.94  0.94  0.95  0.95  0.95  0.95  0.93  0.93  0.95  0.97  0.97
Lanes:        1.00  0.60  0.40  1.00  0.64  0.36  1.00  0.51  0.49  1.00  0.78  0.22
Final Sat.:   1805  1072   714  1805  1158   641  1805   889   870  1805  1435   402
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.10  0.09  0.09  0.03  0.09  0.09  0.05  0.32  0.32  0.04  0.16  0.16
Crit Moves:   ****                    ****              ****        ****
Green/Cycle:  0.13  0.25  0.25  0.08  0.19  0.19  0.12  0.45  0.45  0.06  0.38  0.38
Volume/Cap:   0.71  0.36  0.36  0.41  0.47  0.47  0.44  0.71  0.71  0.67  0.42  0.42
Uniform Del:  41.5  31.2  31.2  43.9  36.0  36.0  40.8  22.5  22.5  46.0  22.6  22.6
IncremntDel:   9.7   0.5   0.5   2.0   1.0   1.0   1.4   3.1   3.1  15.5   0.4   0.4
InitQueueDel:  0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
Delay Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Delay/Veh:    51.1  31.7  31.7  45.9  37.0  37.0  42.2  25.7  25.7  61.5  23.0  23.0
User DelAdj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:   51.1  31.7  31.7  45.9  37.0  37.0  42.2  25.7  25.7  61.5  23.0  23.0
LOS by Move:     D     C     C     D     D     D     D     C     C     E     C     C
HCM2kAvgQ:       7     4     4     2     5     5     3    15    15     4     7     7
*********************************************************************************
Note: Queue reported is the number of cars per lane.
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                     Level Of Service Computation Report
             2000 HCM Unsignalized Method (Base Volume Alternative)
*********************************************************************************
Intersection #8 Childs / KIbby
*********************************************************************************
Average Delay (sec/veh):      4.2      Worst Case Level Of Service: B[ 10.1]
*********************************************************************************
Street Name:                  Kibby                            Childs
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:         0  0  0  0  0    0  0  1! 0  0    0  1  0  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0     0     0    14     0   149    91   165     0     0   122    11
Growth Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:     0     0     0    14     0   149    91   165     0     0   122    11
User Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:      1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:      0     0     0    14     0   149    91   165     0     0   122    11
Reduct Vol:      0     0     0     0     0     0     0     0     0     0     0     0
FinalVolume:     0     0     0    14     0   149    91   165     0     0   122    11
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx  xxxx xxxxx    6.4   6.5   6.2   4.1  xxxx xxxxx xxxxx  xxxx xxxxx
FollowUpTim:xxxxx  xxxx xxxxx    3.5   4.0   3.3   2.2  xxxx xxxxx xxxxx  xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  xxxx  xxxx xxxxx   475   475   128   133  xxxx xxxxx  xxxx  xxxx xxxxx
Potent Cap.:  xxxx  xxxx xxxxx   552   492   928  1464  xxxx xxxxx  xxxx  xxxx xxxxx
Move Cap.:    xxxx  xxxx xxxxx   525   459   928  1464  xxxx xxxxx  xxxx  xxxx xxxxx
Volume/Cap:   xxxx  xxxx  xxxx  0.03  0.00  0.16  0.06  xxxx  xxxx  xxxx  xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx  xxxx xxxxx  xxxx  xxxx xxxxx   0.2  xxxx xxxxx  xxxx  xxxx xxxxx
Control Del:xxxxx  xxxx xxxxx xxxxx  xxxx xxxxx   7.6  xxxx xxxxx xxxxx  xxxx xxxxx
LOS by Move:     *     *     *     *     *     *     A     *     *     *     *     *
Movement:       LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:  xxxx  xxxx xxxxx  xxxx   871 xxxxx  xxxx  xxxx xxxxx  xxxx  xxxx xxxxx
SharedQueue:xxxxx  xxxx xxxxx xxxxx   0.7 xxxxx   0.2  xxxx xxxxx xxxxx  xxxx xxxxx
Shrd ConDel:xxxxx  xxxx xxxxx xxxxx  10.1 xxxxx   7.6  xxxx xxxxx xxxxx  xxxx xxxxx
Shared LOS:      *     *     *     *     B     *     A     *     *     *     *     *
ApproachDel:        xxxxxx             10.1             xxxxxx           xxxxxx
ApproachLOS:           *                  B                *                *
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #9 Childs / Tower
******************************************************************************
Average Delay (sec/veh):       0.6      Worst Case Level Of Service: B[ 10.4]
******************************************************************************
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:       0   0  1! 0   0   0  0  1! 0   0   0  0  1! 0   0   0  0  0  1   0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3    3    2     1    2    7     4  171    4     0  124    2
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:    3    3    2     1    2    7     4  171    4     0  124    2
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:     3    3    2     1    2    7     4  171    4     0  124    2
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
FinalVolume:    3    3    2     1    2    7     4  171    4     0  124    2
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5  6.2   7.1  6.5  6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0  3.3   3.5  4.0  3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  311  307  173   309  308  125   126 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:  646  610  876   648  609  931  1473 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:    638  609  876   643  608  931  1473 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.00 0.00 0.00  0.00 0.00 0.01  0.00 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.5 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *    *     *    *    *     A    *    *     *    *    *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx  671 xxxxx  xxxx  809 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.0 xxxxx xxxxx  0.0 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 10.4 xxxxx xxxxx  9.5 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    B    *     *    A    *     *    *    *     *    *    *
ApproachDel:      10.4              9.5            xxxxxx           xxxxxx
ApproachLOS:        B                A                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
******************************************************************************
Intersection #10 Gerard / Coffee
******************************************************************************
Cycle (sec):         100                 Critical Vol./Cap.(X):        0.211
Loss Time (sec):       0 (Y+R=4.0 sec)   Average Delay (sec/veh):        8.4
Optimal Cycle:         0                 Level Of Service:                 A
******************************************************************************
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0     0    0    0     0    0    0     0    0    0
Lanes:       0   0  1! 0   0   0  0  1! 0   0   0  0  1! 0   0   0  0  1! 0   0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       5   24   29    73   21   64    88   37   37    30   42   56
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:    5   24   29    73   21   64    88   37   37    30   42   56
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:     5   24   29    73   21   64    88   37   37    30   42   56
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:    5   24   29    73   21   64    88   37   37    30   42   56
PCE Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
FinalVolume:    5   24   29    73   21   64    88   37   37    30   42   56
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Lanes:       0.09 0.41 0.50  0.46 0.13 0.41  0.54 0.23 0.23  0.23 0.33 0.44
Final Sat.:    65  314  379   355  102  311   417  175  175   185  259  346
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08 0.08  0.21 0.21 0.21  0.21 0.21 0.21  0.16 0.16 0.16
Crit Moves:       ****                  ****  ****                  ****
Delay/Veh:    7.8  7.8  7.8   8.5  8.5  8.5   8.6  8.6  8.6   8.1  8.1  8.1
Delay Adj:   1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:   7.8  7.8  7.8   8.5  8.5  8.5   8.6  8.6  8.6   8.1  8.1  8.1
LOS by Move:    A    A    A     A    A    A     A    A    A     A    A    A
ApproachDel:        7.8              8.5              8.6              8.1
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:         7.8              8.5              8.6              8.1
LOS by Appr:         A                A                A                A
AllWayAvgQ:   0.1  0.1  0.1   0.2  0.2  0.2   0.2  0.2  0.2   0.2  0.2  0.2
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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                    Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
*********************************************************************************
Intersection #11 Gerard / Tower
*********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.017
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        6.9
Optimal Cycle:          0              Level Of Service:                  A
*********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0     0     0     0     0     0     0     0     0     0     0     0
Lanes:       0  0  1! 0  0    0  0  1! 0  0    0  1  0  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0     0     0     3     0     2     4    11     0     0     9     4
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   0     0     0     3     0     2     4    11     0     0     9     4
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1,00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    0     0     0     3     0     2     4    11     0     0     9     4
Reduct Vol:    0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   0     0     0     3     0     2     4    11     0     0     9     4
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   0     0     0     3     0     2     4    11     0     0     9     4
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       0.00  1.00  0.00  0.60  0.00  0.40  0.27  0.73  0.00  0.00  0.69  0.31
Final Sat.:    0   902     0   559     0   373   241   663     0     0   665   296
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx  0.00  xxxx  0.01  xxxx  0.01  0.02  0.02  xxxx  xxxx  0.01  0.01
Crit Moves:        ****        ****                    ****              ****
Delay/Veh:    0.0   0.0   0.0   6.9   0.0   6.9   7.0   7.0   0.0   0.0   6.8   6.8
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:   0.0   0.0   0.0   6.9   0.0   6.9   7.0   7.0   0.0   0.0   6.8   6.8
LOS by Move:   *     *     *     A     *     A     A     A     *     *     A     A
ApproachDel:     xxxxxx            6.9              7.0              6.8
Delay Adj:        xxxxx           1.00             1.00             1.00
ApprAdjDel:      xxxxxx            6.9              7.0              6.8
LOS by Appr:        *               A                A                A
AllWayAvgQ:   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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                    Level Of Service Computation Report
           2000 HCM Operations Method (Base Volume Alternative)
*********************************************************************************
Intersection #12 MIssion / SR 99 SB
*********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.322
Loss Time (sec):       11 (Y+R=4.0 sec) Average Delay (sec/veh):       24.8
Optimal Cycle:         41              Level Of Service:                  C
*********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0     0     0     5     5     5     0    19    19     6     6     0
Lanes:       0  0  0  0  0    0  1  0  0  1    0  0  1  1  0    0  1  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0     0     0   222     9    22     0    55    14   219    38     0
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   0     0     0   222     9    22     0    55    14   219    38     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    0     0     0   222     9    22     0    55    14   219    38     0
Reduct Vol:    0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   0     0     0   222     9    22     0    55    14   219    38     0
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   0     0     0   222     9    22     0    55    14   219    38     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900
Adjustment:  1.00  1.00  1.00  0.87  0.87  0.85  1.00  0.92  0.92  0.91  0.91  1.00
Lanes:       0.00  0.00  0.00  0.96  0.04  1.00  0.00  1.59  0.41  1.00  1.00  0.00
Final Sat.:    0     0     0  1585    64  1615     0  2791   710  1731  1731     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00  0.00  0.00  0.14  0.14  0.01  0.00  0.02  0.02  0.13  0.02  0.00
Crit Moves:                    ****                    ****        ****
Green/Cycle: 0.00  0.00  0.00  0.37  0.37  0.37  0.00  0.19  0.19  0.33  0.52  0.00
Volume/Cap:  0.00  0.00  0.00  0.38  0.38  0.04  0.00  0.10  0.10  0.38  0.04  0.00
Uniform Del:  0.0   0.0   0.0  23.2  23.2  20.3   0.0  33.5  33.5  25.5  11.7   0.0
IncremntDel:  0.0   0.0   0.0   0.4   0.4   0.0   0.0   0.1   0.1   0.4   0.0   0.0
InitQueuDel:  0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
Delay Adj:   0.00  0.00  0.00  1.00  1.00  1.00  0.00  1.00  1.00  1.00  1.00  0.00
Delay/Veh:    0.0   0.0   0.0  23.6  23.6  20.3   0.0  33.5  33.5  25.9  11.7   0.0
User DelAdj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:   0.0   0.0   0.0  23.6  23.6  20.3   0.0  33.5  33.5  25.9  11.7   0.0
LOS by Move:   A     A     A     C     C     C     A     C     C     C     B     A
HCM2kAvgQ:     0     0     0     5     5     0     0     1     1     6     1     0
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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                    Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
*********************************************************************************
Intersection #13 Mission / SR 99 NB
*********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):          0.295
Loss Time (sec):       15 (Y+R=4.0 sec)  Average Delay (sec/veh):         28.5
Optimal Cycle:         43                Level Of Service:                   C
*********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     5     5     5    0     0     0    5    23     0    0     6     6
Lanes:        0  1  0  0  1    0  0  0  0  0    1  0  2  0  0    0  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      20    10   292     0     0     0    26   251     0     0   237   164
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   20    10   292     0     0     0    26   251     0     0   237   164
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    20    10   292     0     0     0    26   251     0     0   237   164
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   20    10   292     0     0     0    26   251     0     0   237   164
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   20    10   292     0     0     0    26   251     0     0   237   164
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900
Adjustment:  0.99  0.99  0.85  1.00  1.00  1.00  0.95  0.95  1.00  1.00  0.95  0.85
Lanes:       0.67  0.33  1.00  0.00  0.00  0.00  1.00  2.00  0.00  0.00  2.00  1.00
Final Sat.:  1255   628  1615     0     0     0  1805  3610     0     0  3610  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02  0.02  0.18  0.00  0.00  0.00  0.01  0.07  0.00  0.00  0.07  0.10
Crit Moves:              ****                          ****        ****
Green/Cycle: 0.61  0.61  0.61  0.00  0.00  0.00  0.08  0.24  0.00  0.00  0.16  0.16
Volume/Cap:  0.03  0.03  0.29  0.00  0.00  0.00  0.18  0.29  0.00  0.00  0.42  0.64
Uniform Del:  7.6   7.6   9.1   0.0   0.0   0.0  43.1  31.4   0.0   0.0  37.9  39.4
IncremntDel:  0.0   0.0   0.2   0.0   0.0   0.0   0.6   0.2   0.0   0.0   0.5   5.5
InitQueuDel:  0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
Delay Adj:   1.00  1.00  1.00  0.00  0.00  0.00  1.00  1.00  0.00  0.00  1.00  1.00
Delay/Veh:    7.6   7.6   9.3   0.0   0.0   0.0  43.8  31.6   0.0   0.0  38.4  44.9
User DelAdj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:   7.6   7.6   9.3   0.0   0.0   0.0  43.8  31.6   0.0   0.0  38.4  44.9
LOS by Move:    A     A     A     A     A     A     D     C     A     A     D     D
HCM2kAvgQ:      0     0     4     0     0     0     1     3     0     0     4     6
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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                    Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
*********************************************************************************
Intersection #14 Mission / Coffee
*********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):          0.741
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):         18.1
Optimal Cycle:          0                Level Of Service:                   C
*********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        1  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      23    10     0    22    12   337   420    88    34     0    41    21
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   23    10     0    22    12   337   420    88    34     0    41    21
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    23    10     0    22    12   337   420    88    34     0    41    21
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   23    10     0    22    12   337   420    88    34     0    41    21
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   23    10     0    22    12   337   420    88    34     0    41    21
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       1.39  0.61  0.00  0.06  0.03  0.91  1.00  0.87  0.13  0.00  0.66  0.34
Final Sat.:  1083  -176     0    37    20   564   567   547    78     0   355   182
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 -0.06  xxxx  0.60  0.60  0.60  0.74  0.16  0.43  xxxx  0.12  0.12
Crit Moves:  ****              ****              ****                          ****
Delay/Veh:   10.3  10.4   0.0  16.1  16.1  16.1  24.0   9.7   9.7   0.0  10.0  10.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  10.3  10.4   0.0  16.1  16.1  16.1  24.0   9.7   9.7   0.0  10.0  10.0
LOS by Move:    B     B     *     C     C     C     C     A     A     *     B     B
ApproachDel:       10.3              16.1              20.8              10.0
Delay Adj:         1.00              1.00              1.00              1.00
ApprAdjDel:        10.3              16.1              20.8              10.0
LOS by Appr:          B                 C                 C                 B
AllWayAvgQ:   0.0   0.0   0.0   1.3   1.3   1.3   2.4   0.2   0.2   0.1   0.1   0.1
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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-------------------------------------------------------------------------------
                     Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #15 Gerard / Campus Parkway
*******************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.126
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        7.4
Optimal Cycle:          0              Level Of Service:                  A
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  1  0  0  0    0  0  0  1  0    0  0  1! 0  0    1  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      34    76     0     0    46    30    16     0    12     4     0     0
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   34    76     0     0    46    30    16     0    12     4     0     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    34    76     0     0    46    30    16     0    12     4     0     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   34    76     0     0    46    30    16     0    12     4     0     0
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   34    76     0     0    46    30    16     0    12     4     0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       0.31  0.69  0.00  0.00  0.61  0.39  0.57  0.00  0.43  1.00  0.00  0.00
Final Sat.:   269   601     0     0   561   366   478     0   358   769     0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13  0.13  xxxx  xxxx  0.08  0.08  0.03  xxxx  0.03  0.01  xxxx  xxxx
Crit Moves:        ****              ****        ****              ****
Delay/Veh:    7.7   7.7   0.0   0.0   7.2   7.2   7.3   0.0   7.3   7.5   0.0   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:   7.7   7.7   0.0   0.0   7.2   7.2   7.3   0.0   7.3   7.5   0.0   0.0
LOS by Move:    A     A     *     *     A     A     A     *     A     A     *     *
ApproachDel:        7.7               7.2               7.3               7.5
Delay Adj:         1.00              1.00              1.00              1.00
ApprAdjDel:         7.7               7.2               7.3               7.5
LOS by Appr:          A                 A                 A                 A
AllWayAvgQ:   0.1   0.1   0.1   0.1   0.1   0.1   0.0   0.0   0.0   0.0   0.0   0.0
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```



```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #42 Childs / Campus Parkway
*******************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.219
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        8.0
Optimal Cycle:          0              Level Of Service:                  A
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  0  1! 0  0    0  0  0  0  0    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      36     0    47     0     0     0     0    82    14    60   123     0
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   36     0    47     0     0     0     0    82    14    60   123     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    36     0    47     0     0     0     0    82    14    60   123     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   36     0    47     0     0     0     0    82    14    60   123     0
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   36     0    47     0     0     0     0    82    14    60   123     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       0.43  0.00  0.57  0.00  0.00  0.00  0.00  0.85  0.15  0.33  0.67  0.00
Final Sat.:   351     0   459     0     0     0     0   720   123   273   561     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10  xxxx  0.10  xxxx  xxxx  xxxx  xxxx  0.11  0.11  0.22  0.22  xxxx
Crit Moves:  ****                                    ****        ****
Delay/Veh:    7.7   0.0   7.7   0.0   0.0   0.0   0.0   7.7   7.7   8.4   8.4   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:   7.7   0.0   7.7   0.0   0.0   0.0   0.0   7.7   7.7   8.4   8.4   0.0
LOS by Move:    A     *     A     *     *     *     *     A     A     A     A     *
ApproachDel:        7.7            xxxxxx               7.7               8.4
Delay Adj:         1.00             xxxxx              1.00              1.00
ApprAdjDel:         7.7            xxxxxx               7.7               8.4
LOS by Appr:          A                 *                 A                 A
AllWayAvgQ:   0.1   0.1   0.1   0.0   0.0   0.0   0.1   0.1   0.1   0.3   0.3   0.3
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Ben Mitrsongkroh
Agency or Company:	DKS Associates
Date Performed:	10/19/2006
Analysis Time Period:	PM Peak
Freeway/Direction:	NB SR99
From/To:	Misson Ave to Childs
Jurisdiction:	Merced
Analysis Year:	2010
Description:	2010 Background Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1905	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	529	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1195	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1195	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	20.1	pc/mi/ln
Level of service, LOS	C	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: SB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2688	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	747	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1686	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1686	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.4	mi/h
Number of lanes, N	2	
Density, D	28.4	pc/mi/ln
Level of service, LOS	D	

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

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period PM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2010
Description 2010 Background Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1183 veh/h
Directional split 58 / 42 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1263 pc/h
Highest directional split proportion (note-2) 733 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 44.9 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1245 pc/h
Highest directional split proportion (note-2) 722
Base percent time-spent-following, BPTSF 66.5 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 66.5 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.39	
Peak 15-min vehicle-miles of travel, VMT15	405	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1538	veh-mi
Peak 15-min total travel time, TT15	9.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2010 Background with Project Condition
AM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2010 Background Proj AM
Command:	Default Command
Volume:	Background WP AM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/C	Future LOS	Future Del/ Veh	Future V/C	Change in
# 1 SR 140 / Parsons	C	27.8	0.745	C	27.8	0.745	+ 0.000 D/V
# 2 SR 140 / Baker	E	43.2	0.000	E	43.2	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	C	15.2	0.000	C	15.2	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	C	22.3	0.773	C	22.3	0.773	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	78.5	1.211	F	78.5	1.211	+ 0.000 V/C
# 6 Childs / Parsons	F	130.2	1.106	F	130.2	1.106	+ 0.000 D/V
# 7 Childs / Coffee	D	37.1	0.685	D	37.1	0.685	+ 0.000 D/V
# 8 Childs / KIbby	A	9.9	0.000	A	9.9	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	10.7	0.000	B	10.7	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	9.8	0.426	A	9.8	0.426	+ 0.000 V/C
# 11 Gerard / Tower	A	6.9	0.038	A	6.9	0.038	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	23.8	0.307	C	23.8	0.307	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	27.9	0.191	C	27.9	0.191	+ 0.000 D/V
# 14 Mission / Coffee	B	12.1	0.478	B	12.1	0.478	+ 0.000 V/C
# 15 Gerard / Campus Parkway	A	8.3	0.245	A	8.3	0.245	+ 0.000 V/C
# 42 Childs / Campus Parkway	A	7.6	0.148	A	7.6	0.148	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100 Critical Vol./Cap.(X): 0.745
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 27.8
Optimal Cycle: 74 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	20	0	20	0	0	0	0	17	17	5	20	0
Lanes:	1 0	0	0 1	0 0	0	0 0	0 0	0	1 0	1 0	1	0 0
Volume Module:												
Base Vol:	303	0	152	0	0	0	0	367	197	278	679	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	303	0	152	0	0	0	0	367	197	278	679	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	303	0	152	0	0	0	0	367	197	278	679	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	303	0	152	0	0	0	0	367	197	278	679	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	303	0	152	0	0	0	0	367	197	278	679	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.65	0.35	1.00	1.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	1178	632	1805	1900	0
Capacity Analysis Module:												
Vol/Sat:	0.17	0.00	0.09	0.00	0.00	0.00	0.00	0.31	0.31	0.15	0.36	0.00
Crit Moves:	****							****		****		
Green/Cycle:	0.23	0.00	0.23	0.00	0.00	0.00	0.00	0.42	0.42	0.21	0.62	0.00
Volume/Cap:	0.75	0.00	0.42	0.00	0.00	0.00	0.00	0.75	0.75	0.75	0.57	0.00
Uniform Del:	36.1	0.0	33.1	0.0	0.0	0.0	0.0	24.6	24.6	37.2	11.0	0.0
IncremntDel:	7.3	0.0	0.8	0.0	0.0	0.0	0.0	4.1	4.1	8.0	0.7	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	43.4	0.0	33.9	0.0	0.0	0.0	0.0	28.6	28.6	45.2	11.6	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	43.4	0.0	33.9	0.0	0.0	0.0	0.0	28.6	28.6	45.2	11.6	0.0
LOS by Move:	D	A	C	A	A	A	A	C	C	D	B	A
HCM2kAvgQ:	10	0	4	0	0	0	0	16	16	10	12	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 10.0 Worst Case Level Of Service: E[43.2]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1!	0 0	0 0	1!	0 0	1 0	1	0 0	1 0	0	1 0
Volume Module:												
Base Vol:	2	1	5	35	0	273	106	404	0	0	599	34
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	1	5	35	0	273	106	404	0	0	599	34
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	1	5	35	0	273	106	404	0	0	599	34
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	2	1	5	35	0	273	106	404	0	0	599	34
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1369	1249	404	1235	1232	616	633	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	125	175	651	155	179	494	960	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	51	155	651	140	159	494	960	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.04	0.01	0.01	0.25	0.00	0.55	0.11	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	151	xxxxx	xxxx	384	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	7.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	30.2	xxxxx	xxxxx	43.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	D	*	*	E	*	*	*	*	*	*	*
ApproachDel:		30.2			43.2			xxxxxx			xxxxxx	
ApproachLOS:		D			E			*			*	

Note: Queue reported is the number of cars per lane.

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----------------------------------------------------------------------------
----------------------------------------------------------------------------
                 Level Of Service Computation Report
        2000 HCM Unsignalized Method (Base Volume Alternative)
****************************************************************************
Intersection #3 SR 140 / Kibby
****************************************************************************
Average Delay (sec/veh):       5.2       Worst Case Level Of Service: C[ 15.2]
****************************************************************************
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:       0  1  0  0  1    0  0  1! 0  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      18   57    84     23   53    38     25  150    24     29  269    20
Growth Adj:  1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Initial Bse:   18   57    84     23   53    38     25  150    24     29  269    20
User Adj:    1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Volume:    18   57    84     23   53    38     25  150    24     29  269    20
Reduct Vol:     0    0     0      0    0     0      0    0     0      0    0     0
FinalVolume:   18   57    84     23   53    38     25  150    24     29  269    20
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2    7.1  6.5   6.2    4.1 xxxx xxxxx    4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3    3.5  4.0   3.3    2.2 xxxx xxxxx    2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  595  559   162    610  551   269    289 xxxx xxxxx    174 xxxx xxxxx
Potent Cap.:  419  440   888    410  445   775   1284 xxxx xxxxx   1415 xxxx xxxxx
Move Cap.:    350  423   888    323  427   775   1284 xxxx xxxxx   1415 xxxx xxxxx
Volume/Cap:  0.05 0.13  0.09   0.07 0.12  0.05   0.02 xxxx  xxxx   0.02 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx   0.3   xxxx xxxx xxxxx    0.1 xxxx xxxxx    0.1 xxxx xxxxx
Control Del:xxxxx xxxx   9.5  xxxxx xxxx xxxxx    7.9 xxxx xxxxx    7.6 xxxx xxxxx
LOS by Move:    *    *     A      *    *     *      A    *     *      A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:  403 xxxx xxxxx   xxxx  467 xxxxx   xxxx xxxx xxxxx   xxxx xxxx xxxxx
SharedQueue:  0.7 xxxx xxxxx  xxxxx  0.9 xxxxx  xxxxx xxxx xxxxx  xxxxx xxxx xxxxx
Shrd ConDel: 16.0 xxxx xxxxx  xxxxx 15.2 xxxxx  xxxxx xxxx xxxxx  xxxxx xxxx xxxxx
Shared LOS:     C    *     *      *    C     *      *    *     *      *    *     *
ApproachDel:       12.5              15.2            xxxxxx            xxxxxx
ApproachLOS:          B                 C                 *                 *
****************************************************************************
Note: Queue reported is the number of cars per lane.
****************************************************************************
```



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2010 Background Proj AM    Wed Nov 19, 2008 17:19:30              Page 6-1
----------------------------------------------------------------------------
----------------------------------------------------------------------------
                 Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
****************************************************************************
Intersection #4 Childs / SR 99 SB
****************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.773
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):        22.3
Optimal Cycle:         0               Level Of Service:                  C
****************************************************************************
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0      0    0     0      0    0     0      0    0     0
Lanes:       0  0  0  0  0    0  1  0  0  1    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    295   69    21      0  332    24     68  400     0
Growth Adj:  1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Initial Bse:    0    0     0    295   69    21      0  332    24     68  400     0
User Adj:    1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Volume:     0    0     0    295   69    21      0  332    24     68  400     0
Reduct Vol:     0    0     0      0    0     0      0    0     0      0    0     0
Reduced Vol:    0    0     0    295   69    21      0  332    24     68  400     0
PCE Adj:     1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
FinalVolume:    0    0     0    295   69    21      0  332    24     68  400     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Lanes:       0.00 0.00  0.00   0.81 0.19  1.00   0.00 0.93  0.07   0.15 0.85  0.00
Final Sat.:     0    0     0    406   95   591      0  547    40     88  517     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx   0.73 0.73  0.04   xxxx 0.61  0.61   0.77 0.77  xxxx
Crit Moves:                         ****                    ****        ****
Delay/Veh:    0.0  0.0   0.0   24.8 24.8   8.8    0.0 17.1  17.1   25.0 25.0   0.0
Delay Adj:   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0   24.8 24.8   8.8    0.0 17.1  17.1   25.0 25.0   0.0
LOS by Move:    *    *     *      C    C     A      *    C     C      C    C     *
ApproachDel:     xxxxxx            23.9              17.1              25.0
Delay Adj:        xxxxx            1.00              1.00              1.00
ApprAdjDel:      xxxxxx            23.9              17.1              25.0
LOS by Appr:        *                 C                 C                 C
AllWayAvgQ:   0.0  0.0   0.0    2.1  2.1   0.0    1.3  1.3   1.3    2.7  2.7   2.7
****************************************************************************
Note: Queue reported is the number of cars per lane.
****************************************************************************
```

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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                  Level Of Service Computation Report
        2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #5 Childs / SR 99 NB
*******************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):          1.211
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):         78.5
Optimal Cycle:         0               Level Of Service:                   F
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  1  0  0  1   0  1  0  0  1   1  0  1  0  1   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     15   35    40  102   40    76   80  549    24  518  378    93
Growth Adj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  15   35    40  102   40    76   80  549    24  518  378    93
User Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   15   35    40  102   40    76   80  549    24  518  378    93
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  15   35    40  102   40    76   80  549    24  518  378    93
PCE Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  15   35    40  102   40    76   80  549    24  518  378    93
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:      0.30 0.70  1.00 0.72 0.28  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Final Sat.:  120  280   442  296  116   469  418  453   484  455  485   528
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:    0.12 0.12  0.09 0.34 0.34  0.16 0.19 1.21  0.05 1.14 0.78  0.18
Crit Moves:      ****            ****            ****       ****
Delay/Veh:  12.7 12.7  11.4 15.6 15.6  11.7 13.1  139  10.3 112.3 31.4 10.8
Delay Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh: 12.7 12.7  11.4 15.6 15.6  11.7 13.1  139  10.3 112.3 31.4 10.8
LOS by Move:   B    B     B    C    C     B    B    F     B    F    D     B
ApproachDel:      12.1             14.2            119.2             71.9
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:       12.1             14.2            119.2             71.9
LOS by Appr:        B                B                F                F
AllWayAvgQ:   0.1  0.1   0.1  0.5  0.5   0.2  0.2 16.2   0.0 12.9  2.9   0.2
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```



```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                  Level Of Service Computation Report
        2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #6 Childs / Parsons
*******************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):          1.106
Loss Time (sec):      17 (Y+R=4.0 sec) Average Delay (sec/veh):        130.2
Optimal Cycle:       180               Level Of Service:                   F
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    4   22    22    4   24    24    4   20    20    4   23    23
Lanes:        1  0  0  1  0   1  0  1  0  1   0  0  1! 0  0   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:    228  153    11  164   89   131  170  381   140   19  632   242
Growth Adj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse: 228  153    11  164   89   131  170  381   140   19  632   242
User Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:  228  153    11  164   89   131  170  381   140   19  632   242
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol: 228  153    11  164   89   131  170  381   140   19  632   242
PCE Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume: 228  153    11  164   89   131  170  381   140   19  632   242
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:   1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment: 0.95 0.99  0.99 0.95 1.00  0.85 0.96 0.96  0.96 0.95 1.00  0.85
Lanes:      1.00 0.93  0.07 1.00 1.00  1.00 0.25 0.55  0.20 1.00 1.00  1.00
Final Sat.: 1805 1755   126 1805 1900  1615  449 1007   370 1805 1900  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:    0.13 0.09  0.09 0.09 0.05  0.08 0.38 0.38  0.38 0.01 0.33  0.15
Crit Moves: ****                       **** ****                  ****
Green/Cycle: 0.09 0.23 0.23 0.10 0.24  0.24 0.27 0.45  0.45 0.05 0.23  0.23
Volume/Cap: 1.42 0.37  0.37 0.94 0.20  0.34 1.42 0.83  0.83 0.22 1.42  0.64
Uniform Del: 45.5 32.2 32.2 44.9 30.3  31.4 36.7 24.1  24.1 45.8 38.3  34.5
IncremntDel:221.0 0.5   0.5 52.2  0.2   0.5 200.4 7.4   7.4  1.3  201   3.6
InitQueuDel: 0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Delay/Veh: 266.5 32.8  32.8 97.1 30.5  32.0 237.0 31.4 31.4 47.1  240  38.1
User DelAdj: 1.00 1.00 1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh: 266.5 32.8 32.8 97.1 30.5  32.0 237.0 31.4 31.4 47.1  240  38.1
LOS by Move:   F    C     C    F    C     C    F    C     C    D    F     D
HCM2kAvgQ:    17    4     4    8    2     4   48   21    21    1   44     8
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 0.685
Loss Time (sec): 17 (Y+R=4.0 sec) Average Delay (sec/veh): 37.1
Optimal Cycle: 69 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0	1 0	0 1	0
Volume Module:												
Base Vol:	344	154	99	64	106	141	76	228	109	59	311	49
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	344	154	99	64	106	141	76	228	109	59	311	49
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	344	154	99	64	106	141	76	228	109	59	311	49
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	344	154	99	64	106	141	76	228	109	59	311	49
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	344	154	99	64	106	141	76	228	109	59	311	49
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.91	0.91	0.95	0.95	0.95	0.95	0.98	0.98
Lanes:	1.00	0.61	0.39	1.00	0.43	0.57	1.00	0.68	0.32	1.00	0.86	0.14
Final Sat.:	1805	1088	700	1805	745	991	1805	1224	585	1805	1609	253
Capacity Analysis Module:												
Vol/Sat:	0.19	0.14	0.14	0.04	0.14	0.14	0.04	0.19	0.19	0.03	0.19	0.19
Crit Moves:	****				****		****				****	
Green/Cycle:	0.28	0.37	0.37	0.12	0.21	0.21	0.06	0.26	0.26	0.08	0.28	0.28
Volume/Cap:	0.68	0.38	0.38	0.30	0.68	0.68	0.68	0.71	0.71	0.40	0.68	0.68
Uniform Del:	32.2	23.2	23.2	40.4	36.6	36.6	46.0	33.5	33.5	43.5	31.9	31.9
IncremntDel:	3.9	0.4	0.4	0.8	5.4	5.4	16.3	5.1	5.1	1.7	3.7	3.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	36.1	23.5	23.5	41.3	42.0	42.0	62.3	38.6	38.6	45.2	35.7	35.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.1	23.5	23.5	41.3	42.0	42.0	62.3	38.6	38.6	45.2	35.7	35.7
LOS by Move:	D	C	C	D	D	D	E	D	D	D	D	D
HCM2kAvgQ:	10	6	6	2	8	8	4	11	11	2	11	11

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 4.2 Worst Case Level Of Service: A[9.9]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0	0 0	0 0	1!	0 0	0 1	0	0 0	0 0	0	1 0
Volume Module:												
Base Vol:	0	0	0	8	0	98	142	104	0	0	143	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	8	0	98	142	104	0	0	143	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	8	0	98	142	104	0	0	143	17
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	8	0	98	142	104	0	0	143	17
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	540	540	152	160	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	507	452	900	1432	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	465	403	900	1432	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.11	0.10	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	841	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.9	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			9.9			xxxxxx			xxxxxx		
ApproachLOS:	*			A			*			*		

Note: Queue reported is the number of cars per lane.

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                     Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Childs / Tower
********************************************************************************
Average Delay (sec/veh):       2.5       Worst Case Level Of Service: B[ 10.7]
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       5   20     2     4   30    12     7  105     1     1  142     4
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    5   20     2     4   30    12     7  105     1     1  142     4
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     5   20     2     4   30    12     7  105     1     1  142     4
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    5   20     2     4   30    12     7  105     1     1  142     4
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  287  268   106   277  266   144   146 xxxx xxxxx   106 xxxx xxxxx
Potent Cap.:  670  642   954   680  643   909  1448 xxxx xxxxx  1498 xxxx xxxxx
Move Cap.:    635  638   954   660  640   909  1448 xxxx xxxxx  1498 xxxx xxxxx
Volume/Cap:  0.01 0.03  0.00  0.01 0.05  0.01  0.00 xxxx  xxxx  0.00 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.5 xxxx xxxxx   7.4 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     A    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  654 xxxxx  xxxx  695 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.1 xxxxx xxxxx  0.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 10.7 xxxxx xxxxx 10.5 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    B     *     *    B     *     *    *     *     *    *     *
ApproachDel:       10.7             10.5            xxxxxx           xxxxxx
ApproachLOS:         B                B                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```



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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Gerard / Coffee
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         0.426
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):         9.8
Optimal Cycle:          0                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      11   61    89    46   19    70    42   68    17   146   59   111
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   11   61    89    46   19    70    42   68    17   146   59   111
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    11   61    89    46   19    70    42   68    17   146   59   111
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   11   61    89    46   19    70    42   68    17   146   59   111
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   11   61    89    46   19    70    42   68    17   146   59   111
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.07 0.38  0.55  0.34 0.14  0.52  0.33 0.54  0.13  0.46 0.19  0.35
Final Sat.:    47  262   383   230   95   350   224  362    91   343  139   261
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.23 0.23  0.23  0.20 0.20  0.20  0.19 0.19  0.19  0.43 0.43  0.43
Crit Moves:       ****        ****                  ****              ****
Delay/Veh:    9.1  9.1   9.1   9.0  9.0   9.0   9.0  9.0   9.0  10.8 10.8  10.8
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   9.1  9.1   9.1   9.0  9.0   9.0   9.0  9.0   9.0  10.8 10.8  10.8
LOS by Move:    A    A     A     A    A     A     A    A     A     B    B     B
ApproachDel:        9.1              9.0              9.0             10.8
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:         9.1              9.0              9.0             10.8
LOS by Appr:          A                A                A                B
AllWayAvgQ:   0.3  0.3   0.3   0.2  0.2   0.2   0.2  0.2   0.2   0.7  0.7   0.7
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec):	100	Critical Vol./Cap.(X):	0.038
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	6.9
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:		0 0 1! 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0	
Volume Module:												
Base Vol:	0	0	0	1	0	31	25	8	0	0	14	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	1	0	31	25	8	0	0	14	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	1	0	31	25	8	0	0	14	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	1	0	31	25	8	0	0	14	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	1	0	31	25	8	0	0	14	4
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.03	0.00	0.97	0.76	0.24	0.00	0.00	0.78	0.22
Final Sat.:	0	881	0	32	0	1003	656	210	0	0	720	206
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.03	xxxx	0.03	0.04	0.04	xxxx	xxxx	0.02	0.02
Crit Moves:		****		****				****			****	
Delay/Veh:	0.0	0.0	0.0	6.5	0.0	6.5	7.3	7.3	0.0	0.0	6.9	6.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	6.5	0.0	6.5	7.3	7.3	0.0	0.0	6.9	6.9
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:		xxxxxx			6.5			7.3			6.9	
Delay Adj:		xxxxx			1.00			1.00			1.00	
ApprAdjDel:		xxxxxx			6.5			7.3			6.9	
LOS by Appr:		*			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.307
Loss Time (sec):	11 (Y+R=4.0 sec)	Average Delay (sec/veh):	23.8
Optimal Cycle:	41	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Protected			Protected			Protected			Protected	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:		0 0 0 0 0			0 1 0 0 1			0 0 1 1 0			0 1 0 1 0	
Volume Module:												
Base Vol:	0	0	0	153	12	31	0	134	18	230	102	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	153	12	31	0	134	18	230	102	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	153	12	31	0	134	18	230	102	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	153	12	31	0	134	18	230	102	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	153	12	31	0	134	18	230	102	6
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.88	0.88	0.85	1.00	0.93	0.93	0.92	0.92	0.92
Lanes:	0.00	0.00	0.00	0.93	0.07	1.00	0.00	1.76	0.24	1.00	0.94	0.06
Final Sat.:	0	0	0	1556	122	1615	0	3125	420	1740	1644	97
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.10	0.10	0.02	0.00	0.04	0.04	0.13	0.06	0.06
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.19	0.19	0.40	0.59	0.59
Volume/Cap:	0.00	0.00	0.00	0.33	0.33	0.06	0.00	0.23	0.23	0.33	0.10	0.10
Uniform Del:	0.0	0.0	0.0	27.3	27.3	25.1	0.0	34.3	34.3	20.6	8.9	8.9
IncremntDel:	0.0	0.0	0.0	0.4	0.4	0.1	0.0	0.2	0.2	0.2	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	0.0	0.0	0.0	27.7	27.7	25.1	0.0	34.4	34.4	20.8	8.9	8.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	27.7	27.7	25.1	0.0	34.4	34.4	20.8	8.9	8.9
LOS by Move:	A	A	A	C	C	C	A	C	C	C	A	A
HCM2kAvgQ:	0	0	0	4	4	1	0	2	2	5	1	1

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.191
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	27.9
Optimal Cycle:	43	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0	0 1	0 0	0	0 0	1 0	2	0 0	0 0	2	0 1
Volume Module:												
Base Vol:	26	3	162	0	0	0	58	225	0	0	313	191
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	3	162	0	0	0	58	225	0	0	313	191
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	3	162	0	0	0	58	225	0	0	313	191
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	3	162	0	0	0	58	225	0	0	313	191
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	3	162	0	0	0	58	225	0	0	313	191
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.98	0.98	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	0.90	0.10	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1669	193	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.10	0.00	0.00	0.00	0.03	0.06	0.00	0.00	0.09	0.12
Crit Moves:			****					****		****		
Green/Cycle:	0.52	0.52	0.52	0.00	0.00	0.00	0.10	0.33	0.00	0.00	0.23	0.23
Volume/Cap:	0.03	0.03	0.19	0.00	0.00	0.00	0.33	0.19	0.00	0.00	0.38	0.52
Uniform Del:	11.5	11.5	12.6	0.0	0.0	0.0	42.1	24.2	0.0	0.0	32.5	33.7
IncremntDel:	0.0	0.0	0.1	0.0	0.0	0.0	1.1	0.1	0.0	0.0	0.3	1.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	11.5	11.5	12.7	0.0	0.0	0.0	43.3	24.3	0.0	0.0	32.8	35.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.5	11.5	12.7	0.0	0.0	0.0	43.3	24.3	0.0	0.0	32.8	35.0
LOS by Move:	B	B	B	A	A	A	D	C	A	A	C	C
HCM2kAvgQ:	0	0	3	0	0	0	2	3	0	0	4	6

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.478
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	12.1
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1!	0 0	0 0	1!	0 0	0 1	0	1 0	0 0	0	1 0
Volume Module:												
Base Vol:	26	19	0	10	10	276	178	200	11	0	201	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	19	0	10	10	276	178	200	11	0	201	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	19	0	10	10	276	178	200	11	0	201	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	19	0	10	10	276	178	200	11	0	201	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	19	0	10	10	276	178	200	11	0	201	9
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.16	0.84	0.00	0.03	0.03	0.94	0.91	1.03	0.06	0.00	0.96	0.04
Final Sat.:	1007	-72	0	21	21	578	515	622	34	0	551	25
Capacity Analysis Module:												
Vol/Sat:	0.03	-0.26	xxxx	0.48	0.48	0.48	0.35	0.32	0.32	xxxx	0.36	0.36
Crit Moves:	****				****		****				****	
Delay/Veh:	10.1	10.1	0.0	13.1	13.1	13.1	12.0	11.0	11.0	0.0	12.2	12.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.1	10.1	0.0	13.1	13.1	13.1	12.0	11.0	11.0	0.0	12.2	12.2
LOS by Move:	B	B	*	B	B	B	B	B	B	*	B	B
ApproachDel:		10.1			13.1			11.5			12.2	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		10.1			13.1			11.5			12.2	
LOS by Appr:		B			B			B			B	
AllWayAvgQ:	0.0	0.0	0.0	0.8	0.8	0.8	0.5	0.4	0.4	0.5	0.5	0.5

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec):	100	Critical Vol./Cap.(X):	0.245
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	8.3
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:		0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0	
Volume Module:												
Base Vol:	17	48	146	3	59	8	29	7	23	128	3	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	48	146	3	59	8	29	7	23	128	3	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	48	146	3	59	8	29	7	23	128	3	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	48	146	3	59	8	29	7	23	128	3	1
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	48	146	3	59	8	29	7	23	128	3	1
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.08	0.23	0.69	0.04	0.85	0.11	0.49	0.12	0.39	0.97	0.02	0.01
Final Sat.:	69	196	597	33	644	87	369	89	293	701	16	5
Capacity Analysis Module:												
Vol/Sat:	0.24	0.24	0.24	0.09	0.09	0.09	0.08	0.08	0.08	0.18	0.18	0.18
Crit Moves:		****			****			****			****	
Delay/Veh:	8.3	8.3	8.3	7.9	7.9	7.9	7.9	7.9	7.9	8.7	8.7	8.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.3	8.3	8.3	7.9	7.9	7.9	7.9	7.9	7.9	8.7	8.7	8.7
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		8.3			7.9			7.9			8.7	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		8.3			7.9			7.9			8.7	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec):	100	Critical Vol./Cap.(X):	0.148
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	7.6
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:		0 0 1! 0 0			0 0 0 0 0			0 0 0 1 0			0 1 0 0 0	
Volume Module:												
Base Vol:	28	0	50	0	0	0	0	101	30	30	39	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	28	0	50	0	0	0	0	101	30	30	39	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	28	0	50	0	0	0	0	101	30	30	39	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	0	50	0	0	0	0	101	30	30	39	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	28	0	50	0	0	0	0	101	30	30	39	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.36	0.00	0.64	0.00	0.00	0.00	0.00	0.77	0.23	0.43	0.57	0.00
Final Sat.:	311	0	555	0	0	0	0	683	203	359	467	0
Capacity Analysis Module:												
Vol/Sat:	0.09	xxxx	0.09	xxxx	xxxx	xxxx	xxxx	0.15	0.15	0.08	0.08	xxxx
Crit Moves:	****								****	****		
Delay/Veh:	7.4	0.0	7.4	0.0	0.0	0.0	0.0	7.7	7.7	7.6	7.6	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.4	0.0	7.4	0.0	0.0	0.0	0.0	7.7	7.7	7.6	7.6	0.0
LOS by Move:	A	*	A	*	*	*	*	A	A	A	A	*
ApproachDel:		7.4			xxxxxx			7.7			7.6	
Delay Adj:		1.00			xxxxx			1.00			1.00	
ApprAdjDel:		7.4			xxxxxx			7.7			7.6	
LOS by Appr:		A			*			A			A	
AllWayAvgQ:	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1

Note: Queue reported is the number of cars per lane.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1758	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	488	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1103	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1103	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	18.6	pc/mi/ln
Level of service, LOS	C	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Ben Mitrsongkroh
Agency or Company:	DKS Associates
Date Performed:	10/19/2006
Analysis Time Period:	PM Peak
Freeway/Direction:	NB SR99
From/To:	Misson Ave to Childs
Jurisdiction:	Merced
Analysis Year:	2010

Description: 2010 Background with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1905	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	529	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1195	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1195	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	20.1	pc/mi/ln
Level of service, LOS	C	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1632	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	453	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1024	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1024	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	17.2	pc/mi/ln
Level of service, LOS	B	

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

2010 Background with Project Condition
PM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2010 Background Proj PM
Command:	Default Command
Volume:	Background WP PM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	D	49.9	0.987	D	49.9	0.987	+ 0.000 D/V
# 2 SR 140 / Baker	F	81.2	0.000	F	81.2	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	C	17.4	0.000	C	17.4	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	154.9	1.565	F	154.9	1.565	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	201.3	1.897	F	201.3	1.897	+ 0.000 V/C
# 6 Childs / Parsons	F	184.7	1.230	F	184.7	1.230	+ 0.000 D/V
# 7 Childs / Coffee	C	34.2	0.674	C	34.2	0.674	+ 0.000 D/V
# 8 Childs / KIbby	B	10.1	0.000	B	10.1	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	11.7	0.000	B	11.7	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	8.5	0.214	A	8.5	0.214	+ 0.000 V/C
# 11 Gerard / Tower	A	7.4	0.109	A	7.4	0.109	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	25.4	0.406	C	25.4	0.406	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	34.6	0.335	C	34.6	0.335	+ 0.000 D/V
# 14 Mission / Coffee	C	21.7	0.803	C	21.7	0.803	+ 0.000 V/C
# 15 Gerard / Campus Parkway	A	9.5	0.377	A	9.5	0.377	+ 0.000 V/C
# 42 Childs / Campus Parkway	A	8.1	0.221	A	8.1	0.221	+ 0.000 V/C

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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                     Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
******************************************************************************
Intersection #1 SR 140 / Parsons
******************************************************************************
Cycle (sec):         100                 Critical Vol./Cap.(X):         0.987
Loss Time (sec):      15 (Y+R=4.0 sec)   Average Delay (sec/veh):        49.9
Optimal Cycle:       168                 Level Of Service:                  D
******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    20    0    20    0    0     0    0   17    17    5   20     0
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     317    0   159    0    0     0    0  714   320   172  462     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  317    0   159    0    0     0    0  714   320   172  462     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   317    0   159    0    0     0    0  714   320   172  462     0
Reduct Vol:     0    0     0    0    0     0    0    0     0     0    0     0
Reduced Vol:  317    0   159    0    0     0    0  714   320   172  462     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  317    0   159    0    0     0    0  714   320   172  462     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  0.85 1.00 1.00  1.00 1.00 0.96  0.96  0.95 1.00  1.00
Lanes:       1.00 0.00  1.00 0.00 0.00  0.00 0.00 0.69  0.31  1.00 1.00  0.00
Final Sat.:  1805    0  1615    0    0     0    0 1257   563  1805 1900     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.18 0.00  0.10 0.00 0.00  0.00 0.00 0.57  0.57  0.10 0.24  0.00
Crit Moves:  ****                                  ****        ****
Green/Cycle: 0.20 0.00  0.20 0.00 0.00  0.00 0.00 0.56  0.56  0.09 0.65  0.00
Volume/Cap:  0.88 0.00  0.49 0.00 0.00  0.00 0.00 1.02  1.02  1.02 0.37  0.00
Uniform Del: 38.8  0.0  35.5  0.0  0.0   0.0  0.0 22.2  22.2  45.3  8.1   0.0
IncremntDel: 20.9  0.0   1.2  0.0  0.0   0.0  0.0 33.6  33.6  74.8  0.2   0.0
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00 0.00 0.00  0.00 0.00 1.00  1.00  1.00 1.00  0.00
Delay/Veh:   59.7  0.0  36.7  0.0  0.0   0.0  0.0 55.7  55.7 120.1  8.3   0.0
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  59.7  0.0  36.7  0.0  0.0   0.0  0.0 55.7  55.7 120.1  8.3   0.0
LOS by Move:    E    A     D    A    A     A    A    E     E     F    A     A
HCM2kAvgQ:     13    0     5    0    0     0    0   41    41    10    7     0
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```



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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #2 SR 140 / Baker
******************************************************************************
Average Delay (sec/veh):      15.3      Worst Case Level Of Service: F[ 81.2]
******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  0  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      12    0    12   50    0   188  270  541     0     0  407    38
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   12    0    12   50    0   188  270  541     0     0  407    38
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    12    0    12   50    0   188  270  541     0     0  407    38
Reduct Vol:     0    0     0    0    0     0    0    0     0     0    0     0
FinalVolume:   12    0    12   50    0   188  270  541     0     0  407    38
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2  7.1  6.5   6.2  4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3  3.5  4.0   3.3  2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1601 1526   541 1513 1507   426  445 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   86  119   545   99  122   633 1126 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     49   90   545   79   93   633 1126 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.24 0.00  0.02 0.63 0.00  0.30 0.24 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx xxxx xxxx xxxxx  0.9 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx  9.2 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *    *    *     *    A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx   91 xxxxx xxxx  256 xxxxx xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  1.0 xxxxx xxxxx  8.4 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 58.4 xxxxx xxxxx 81.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    F     *    *    F     *    *    *     *     *    *     *
ApproachDel:      58.4             81.2            xxxxxx           xxxxxx
ApproachLOS:         F                F                 *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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                   Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #3 SR 140 / Kibby
********************************************************************************
Average Delay (sec/veh):       4.5       Worst Case Level Of Service: C[ 17.4]
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign        Stop Sign      Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      11   36   54    18   39   18    21  244    7    93  218   37
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:   11   36   54    18   39   18    21  244    7    93  218   37
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:    11   36   54    18   39   18    21  244    7    93  218   37
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
FinalVolume:   11   36   54    18   39   18    21  244    7    93  218   37
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5  6.2   7.1  6.5  6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0  3.3   3.5  4.0  3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  741  731  248   739  697  218   255 xxxx xxxxx   251 xxxx xxxxx
Potent Cap.:  335  351  796   336  367  827  1322 xxxx xxxxx  1326 xxxx xxxxx
Move Cap.:    280  322  796   268  336  827  1322 xxxx xxxxx  1326 xxxx xxxxx
Volume/Cap:  0.04 0.11 0.07  0.07 0.12 0.02  0.02 xxxx  xxxx  0.07 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx  0.2  xxxx xxxx xxxxx  0.0 xxxx xxxxx   0.2 xxxx xxxxx
Control Del:xxxxx xxxx  9.9 xxxxx xxxx xxxxx  7.8 xxxx xxxxx   7.9 xxxx xxxxx
LOS by Move:    *    *    A     *    *    *     A    *    *     A    *    *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:  311 xxxx xxxxx  xxxx  366 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:  0.5 xxxx xxxxx xxxxx  0.8 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel: 18.6 xxxx xxxxx xxxxx 17.4 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     C    *    *     *    C    *     *    *    *     *    *    *
ApproachDel:       13.9             17.4            xxxxxx           xxxxxx
ApproachLOS:         B                C                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```



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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                   Level Of Service Computation Report
              2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Childs / SR 99 SB
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         1.565
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):       154.9
Optimal Cycle:          0               Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0    0     0    0    0     0    0    0     0    0    0
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0    0   639  166   23     0  420   20    37  281    0
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:    0    0    0   639  166   23     0  420   20    37  281    0
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:     0    0    0   639  166   23     0  420   20    37  281    0
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:    0    0    0   639  166   23     0  420   20    37  281    0
PCE Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
FinalVolume:    0    0    0   639  166   23     0  420   20    37  281    0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Lanes:       0.00 0.00 0.00  0.79 0.21 1.00  0.00 0.95 0.05  0.12 0.88 0.00
Final Sat.:     0    0    0   408  106  608     0  538   26    63  475    0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx xxxx  1.57 1.57 0.04  xxxx 0.78 0.78  0.59 0.59 xxxx
Crit Moves:                       ****            ****             ****
Delay/Veh:    0.0  0.0  0.0 282.2  282  8.9   0.0 28.2 28.2  18.6 18.6  0.0
Delay Adj:   1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:   0.0  0.0  0.0 282.2  282  8.9   0.0 28.2 28.2  18.6 18.6  0.0
LOS by Move:    *    *    *     F    F    A     *    D    D     C    C    *
ApproachDel:     xxxxxx           274.6             28.2             18.6
Delay Adj:        xxxxx            1.00             1.00             1.00
ApprAdjDel:      xxxxxx           274.6             28.2             18.6
LOS by Appr:        *                F                D                C
AllWayAvgQ:   0.0  0.0  0.0  38.9 38.9  0.0   2.9  2.9  2.9   1.3  1.3  1.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Childs / SR 99 NB
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         1.897
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):      201.3
Optimal Cycle:          0              Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  0  1    0  1  0  0  1    1  0  1  0  1    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      23   31    56    99   23    62   130  902    27   424  221    94
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   23   31    56    99   23    62   130  902    27   424  221    94
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    23   31    56    99   23    62   130  902    27   424  221    94
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   23   31    56    99   23    62   130  902    27   424  221    94
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   23   31    56    99   23    62   130  902    27   424  221    94
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.43 0.57  1.00  0.81 0.19  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Final Sat.:   173  233   453   334   78   470   436  476   508   453  481   528
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.13  0.12  0.30 0.30  0.13  0.30 1.90  0.05  0.94 0.46  0.18
Crit Moves:       ****              ****              ****        ****
Delay/Veh:   12.6 12.6  11.4  14.7 14.7  11.3  14.1  429   9.9  55.2 16.2  10.8
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  12.6 12.6  11.4  14.7 14.7  11.3  14.1  429   9.9  55.2 16.2  10.8
LOS by Move:    B    B     B     B    B     B     B    F     A     F    C     B
ApproachDel:      12.0              13.6             367.5              37.9
Delay Adj:        1.00              1.00              1.00              1.00
ApprAdjDel:       12.0              13.6             367.5              37.9
LOS by Appr:         B                 B                 F                 E
AllWayAvgQ:   0.1  0.1   0.1   0.4  0.4   0.1   0.4 55.3   0.1   5.6  0.8   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Childs / Parsons
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         1.230
Loss Time (sec):       17 (Y+R=4.0 sec) Average Delay (sec/veh):      184.7
Optimal Cycle:        180              Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     4   22    22     4   24    24     4   20    20     4   23    23
Lanes:        1  0  0  1  0    1  0  1  0  1    0  0  1! 0  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     235  177     3   241  136    90   176  701   225     3  414   184
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  235  177     3   241  136    90   176  701   225     3  414   184
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   235  177     3   241  136    90   176  701   225     3  414   184
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  235  177     3   241  136    90   176  701   225     3  414   184
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  235  177     3   241  136    90   176  701   225     3  414   184
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  1.00  0.95 1.00  0.85  0.96 0.96  0.96  0.95 1.00  0.85
Lanes:       1.00 0.98  0.02  1.00 1.00  1.00  0.16 0.64  0.20  1.00 1.00  1.00
Final Sat.:  1805 1863    32  1805 1900  1615   293 1165   374  1805 1900  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.10  0.10  0.13 0.07  0.06  0.60 0.60  0.60  0.00 0.22  0.11
Crit Moves:  ****                   ****       ****                   ****
Green/Cycle: 0.06 0.22  0.22  0.08 0.24  0.24  0.30 0.49  0.49  0.04 0.23  0.23
Volume/Cap:  2.03 0.43  0.43  1.59 0.30  0.23  2.03 1.24  1.24  0.04 0.95  0.50
Uniform Del: 46.8 33.6  33.6  45.8 31.1  30.6  35.2 25.7  25.7  46.2 37.9  33.5
IncremntDel:493.5  0.7   0.7 293.7  0.4   0.3 471.1  117 116.7   0.2 30.0   1.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:  540.3 34.3  34.3 339.5 31.5  30.9 506.3  142 142.4  46.4 67.9  34.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh: 540.3 34.3  34.3 339.5 31.5  30.9 506.3  142 142.4  46.4 67.9  34.5
LOS by Move:    F    C     C     F    C     C     F    F     F     D    E     C
HCM2kAvgQ:     23    5     5    20    4     2   103   62    62     0   17     5
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #7 Childs / Coffee
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):          0.674
Loss Time (sec):       17 (Y+R=4.0 sec) Average Delay (sec/veh):        34.2
Optimal Cycle:         68              Level Of Service:                  C
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     6   19    19     6   19    19     6   19    19     6   19    19
Lanes:         1  0  0  1  0   1  0  0  1  0   1  0  0  1  0   1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     198  102    64    58  104    57    97  284   279    73  245    65
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  198  102    64    58  104    57    97  284   279    73  245    65
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   198  102    64    58  104    57    97  284   279    73  245    65
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  198  102    64    58  104    57    97  284   279    73  245    65
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  198  102    64    58  104    57    97  284   279    73  245    65
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.94  0.94  0.95 0.95  0.95  0.95 0.93  0.93  0.95 0.97  0.97
Lanes:       1.00 0.61  0.39  1.00 0.65  0.35  1.00 0.50  0.50  1.00 0.79  0.21
Final Sat.:  1805 1100   690  1805 1162   637  1805  888   872  1805 1455   386
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.11 0.09  0.09  0.03 0.09  0.09  0.05 0.32  0.32  0.04 0.17  0.17
Crit Moves:  ****                  ****              ****        ****
Green/Cycle: 0.15 0.26  0.26  0.08 0.19  0.19  0.12 0.43  0.43  0.06 0.37  0.37
Volume/Cap:  0.74 0.36  0.36  0.40 0.47  0.47  0.46 0.74  0.74  0.67 0.45  0.45
Uniform Del: 40.8 30.4  30.4  43.6 36.0  36.0  41.1 23.7  23.7  46.0 23.6  23.6
IncremntDel: 10.5  0.5   0.5   1.8  1.0   1.0   1.5  3.9   3.9  15.5  0.5   0.5
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   51.3 30.9  30.9  45.4 37.1  37.1  42.6 27.6  27.6  61.5 24.0  24.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  51.3 30.9  30.9  45.4 37.1  37.1  42.6 27.6  27.6  61.5 24.0  24.0
LOS by Move:    D    C     C     D    D     D     D    C     C     E    C     C
HCM2kAvgQ:      8    4     4     2    5     5     3   16    16     4    7     7
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #8 Childs / KIbby
********************************************************************************
Average Delay (sec/veh):      4.2      Worst Case Level Of Service: B[ 10.1]
********************************************************************************
Street Name:                 Kibby                            Childs
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:         0  0  0  0  0   0  0  1! 0  0   0  1  0  0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    14    0   149    91  165     0     0  122    11
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    14    0   149    91  165     0     0  122    11
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    14    0   149    91  165     0     0  122    11
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    14    0   149    91  165     0     0  122    11
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   475  475   128   133 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   552  492   928  1464 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   525  459   928  1464 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.03 0.00  0.16  0.06 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.2 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:      LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  871 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.7 xxxxx   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx 10.1 xxxxx   7.6 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    B     *     A    *     *     *    *     *
ApproachDel:      xxxxxx            10.1            xxxxxx           xxxxxx
ApproachLOS:        *                 B               *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                  Level Of Service Computation Report
        2000 HCM Unsignalized Method (Base Volume Alternative)
*********************************************************************************
Intersection #9 Childs / Tower
*********************************************************************************
Average Delay (sec/veh):       3.1       Worst Case Level Of Service: B[ 11.7]
*********************************************************************************
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign      Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:       0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3   77     7     1   16     7     4  171     4     1  124     2
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    3   77     7     1   16     7     4  171     4     1  124     2
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     3   77     7     1   16     7     4  171     4     1  124     2
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    3   77     7     1   16     7     4  171     4     1  124     2
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  320  309   173   350  310   125   126 xxxx xxxxx   175 xxxx xxxxx
Potent Cap.:  637  609   876   608  608   931  1473 xxxx xxxxx  1414 xxxx xxxxx
Move Cap.:    618  607   876   543  606   931  1473 xxxx xxxxx  1414 xxxx xxxxx
Volume/Cap:  0.00 0.13  0.01  0.00 0.03  0.01  0.00 xxxx  xxxx  0.00 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.5 xxxx xxxxx   7.5 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  622 xxxxx  xxxx  671 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.5 xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 11.7 xxxxx xxxxx 10.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    B     *     *    B     *     *    *     *     *    *     *
ApproachDel:       11.7             10.6           xxxxxx           xxxxxx
ApproachLOS:         B                B               *                *
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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                  Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
*********************************************************************************
Intersection #10 Gerard / Coffee
*********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):         0.214
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):        8.5
Optimal Cycle:         0              Level Of Service:                  A
*********************************************************************************
Approach:     North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:       0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       5   24    29    76   21    64    88   37    37    30   42    87
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    5   24    29    76   21    64    88   37    37    30   42    87
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     5   24    29    76   21    64    88   37    37    30   42    87
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    5   24    29    76   21    64    88   37    37    30   42    87
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    5   24    29    76   21    64    88   37    37    30   42    87
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.09 0.41  0.50  0.47 0.13  0.40  0.54 0.23  0.23  0.19 0.26  0.55
Final Sat.:    64  307   370   355   98   299   412  173   173   151  212   438
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.08  0.21 0.21  0.21  0.21 0.21  0.21  0.20 0.20  0.20
Crit Moves:       ****        ****             ****                  ****
Delay/Veh:    7.9  7.9   7.9   8.7  8.7   8.7   8.7  8.7   8.7   8.3  8.3   8.3
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   7.9  7.9   7.9   8.7  8.7   8.7   8.7  8.7   8.7   8.3  8.3   8.3
LOS by Move:    A    A     A     A    A     A     A    A     A     A    A     A
ApproachDel:        7.9              8.7              8.7              8.3
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:         7.9              8.7              8.7              8.3
LOS by Appr:          A                A                A                A
AllWayAvgQ:   0.1  0.1   0.1   0.2  0.2   0.2   0.2  0.2   0.2   0.2  0.2   0.2
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
```

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec):	100	Critical Vol./Cap.(X):	0.109
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	7.4
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	3	0	17	84	11	0	0	9	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	3	0	17	84	11	0	0	9	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	3	0	17	84	11	0	0	9	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	3	0	17	84	11	0	0	9	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	3	0	17	84	11	0	0	9	4
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.15	0.00	0.85	0.88	0.12	0.00	0.00	0.69	0.31
Final Sat.:	0	847	0	144	0	817	768	101	0	0	643	286
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.02	xxxx	0.02	0.11	0.11	xxxx	xxxx	0.01	0.01
Crit Moves:		****		****			****				****	
Delay/Veh:	0.0	0.0	0.0	6.7	0.0	6.7	7.6	7.6	0.0	0.0	6.9	6.9
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	6.7	0.0	6.7	7.6	7.6	0.0	0.0	6.9	6.9
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:		xxxxxx			6.7			7.6			6.9	
Delay Adj:		xxxxx			1.00			1.00			1.00	
ApprAdjDel:		xxxxxx			6.7			7.6			6.9	
LOS by Appr:		*			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.406
Loss Time (sec):	11 (Y+R=4.0 sec)	Average Delay (sec/veh):	25.4
Optimal Cycle:	41	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:	0 0 0 0 0			0 1 0 0 1			0 0 1 1 0			0 1 1 0 0		
Volume Module:												
Base Vol:	0	0	0	256	9	22	0	77	14	302	64	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	256	9	22	0	77	14	302	64	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	256	9	22	0	77	14	302	64	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	256	9	22	0	77	14	302	64	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	256	9	22	0	77	14	302	64	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.87	0.87	0.85	1.00	0.93	0.93	0.91	0.91	1.00
Lanes:	0.00	0.00	0.00	0.97	0.03	1.00	0.00	1.69	0.31	1.00	1.00	0.00
Final Sat.:	0	0	0	1590	56	1615	0	2984	543	1733	1733	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.16	0.16	0.01	0.00	0.03	0.03	0.17	0.04	0.00
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.34	0.34	0.34	0.00	0.19	0.19	0.36	0.55	0.00
Volume/Cap:	0.00	0.00	0.00	0.48	0.48	0.04	0.00	0.14	0.14	0.48	0.07	0.00
Uniform Del:	0.0	0.0	0.0	26.3	26.3	22.3	0.0	33.7	33.7	24.5	10.3	0.0
IncremntDel:	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.1	0.1	0.5	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	26.9	26.9	22.4	0.0	33.8	33.8	25.0	10.3	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	26.9	26.9	22.4	0.0	33.8	33.8	25.0	10.3	0.0
LOS by Move:	A	A	A	C	C	C	A	C	C	C	B	A
HCM2kAvgQ:	0	0	0	7	7	0	0	1	1	8	1	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.335
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	34.6
Optimal Cycle:	43	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Protected			Protected			Protected			Protected	
Rights:		Include			Include			Include			Include	
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1 0 0 1			0 0 0 0 0			1 0 2 0 0			0 0 2 0 1		
Volume Module:												
Base Vol:	20	10	323	0	0	0	26	306	0	0	345	287
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	10	323	0	0	0	26	306	0	0	345	287
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	20	10	323	0	0	0	26	306	0	0	345	287
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	10	323	0	0	0	26	306	0	0	345	287
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	10	323	0	0	0	26	306	0	0	345	287
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.99	0.99	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	0.67	0.33	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1255	628	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.02	0.02	0.20	0.00	0.00	0.00	0.01	0.08	0.00	0.00	0.10	0.18
Crit Moves:			****					****		****		
Green/Cycle:	0.60	0.60	0.60	0.00	0.00	0.00	0.06	0.25	0.00	0.00	0.20	0.20
Volume/Cap:	0.03	0.03	0.34	0.00	0.00	0.00	0.26	0.34	0.00	0.00	0.48	0.90
Uniform Del:	8.3	8.3	10.2	0.0	0.0	0.0	45.3	30.5	0.0	0.0	35.6	39.2
IncremntDel:	0.0	0.0	0.2	0.0	0.0	0.0	1.4	0.2	0.0	0.0	0.5	26.8
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	8.3	8.3	10.4	0.0	0.0	0.0	46.6	30.7	0.0	0.0	36.1	65.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	8.3	8.3	10.4	0.0	0.0	0.0	46.6	30.7	0.0	0.0	36.1	65.9
LOS by Move:	A	A	B	A	A	A	D	C	A	A	D	E
HCM2kAvgQ:	0	0	5	0	0	0	1	4	0	0	5	12

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.803
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	21.7
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1! 0 0			0 0 1! 0 0			0 1 0 1 0			0 0 0 1 0		
Volume Module:												
Base Vol:	23	10	0	22	12	337	420	174	34	0	272	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	10	0	22	12	337	420	174	34	0	272	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	23	10	0	22	12	337	420	174	34	0	272	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	10	0	22	12	337	420	174	34	0	272	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	23	10	0	22	12	337	420	174	34	0	272	21
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.39	0.61	0.00	0.06	0.03	0.91	1.00	0.89	0.11	0.00	0.93	0.07
Final Sat.:	925	-150	0	33	18	500	523	509	62	0	484	37
Capacity Analysis Module:												
Vol/Sat:	0.02	-0.07	xxxx	0.67	0.67	0.67	0.80	0.34	0.55	xxxx	0.56	0.56
Crit Moves:	****			****			****				****	
Delay/Veh:	11.4	11.5	0.0	20.6	20.6	20.6	31.0	12.4	12.4	0.0	17.4	17.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.4	11.5	0.0	20.6	20.6	20.6	31.0	12.4	12.4	0.0	17.4	17.4
LOS by Move:	B	B	*	C	C	C	D	B	B	*	C	C
ApproachDel:		11.4			20.6			24.9			17.4	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		11.4			20.6			24.9			17.4	
LOS by Appr:		B			C			C			C	
AllWayAvgQ:	0.0	0.0	0.0	1.7	1.7	1.7	3.1	0.6	0.6	1.1	1.1	1.1

Note: Queue reported is the number of cars per lane.

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                  Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
***************************************************************************
Intersection #15 Gerard / Campus Parkway
***************************************************************************
Cycle (sec):        100              Critical Vol./Cap.(X):        0.377
Loss Time (sec):      0 (Y+R=4.0 sec) Average Delay (sec/veh):       9.5
Optimal Cycle:        0              Level Of Service:                 A
***************************************************************************
Approach:     North Bound     South Bound      East Bound      West Bound
Movement:    L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign       Stop Sign       Stop Sign       Stop Sign
Rights:          Include         Include         Include         Include
Min. Green:    0    0    0     0    0    0     0    0    0     0    0    0
Lanes:       0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0   0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     34   76   86     1   46   30    16    3   12   235   31   13
Growth Adj: 1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:  34   76   86     1   46   30    16    3   12   235   31   13
User Adj:   1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:   34   76   86     1   46   30    16    3   12   235   31   13
Reduct Vol:    0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:  34   76   86     1   46   30    16    3   12   235   31   13
PCE Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
FinalVolume:  34   76   86     1   46   30    16    3   12   235   31   13
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment: 1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Lanes:      0.17 0.39 0.44  0.01 0.60 0.39  0.51 0.10 0.39  0.84 0.11 0.05
Final Sat.:  132  294  333     9  434  283   366   69  275   623   82   34
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:    0.26 0.26 0.26  0.11 0.11 0.11  0.04 0.04 0.04  0.38 0.38 0.38
Crit Moves:      ****            ****       ****            ****
Delay/Veh:   9.0  9.0  9.0   8.1  8.1  8.1   7.9  7.9  7.9  10.4 10.4 10.4
Delay Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:  9.0  9.0  9.0   8.1  8.1  8.1   7.9  7.9  7.9  10.4 10.4 10.4
LOS by Move:   A    A    A     A    A    A     A    A    A     B    B    B
ApproachDel:      9.0             8.1             7.9            10.4
Delay Adj:       1.00            1.00            1.00            1.00
ApprAdjDel:       9.0             8.1             7.9            10.4
LOS by Appr:        A               A               A               B
AllWayAvgQ:  0.3  0.3  0.3   0.1  0.1  0.1   0.0  0.0  0.0   0.5  0.5  0.5
***************************************************************************
Note: Queue reported is the number of cars per lane.
***************************************************************************
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                  Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
***************************************************************************
Intersection #42 Childs / Campus Parkway
***************************************************************************
Cycle (sec):        100              Critical Vol./Cap.(X):        0.221
Loss Time (sec):      0 (Y+R=4.0 sec) Average Delay (sec/veh):       8.1
Optimal Cycle:        0              Level Of Service:                 A
***************************************************************************
Approach:     North Bound     South Bound      East Bound      West Bound
Movement:    L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign       Stop Sign       Stop Sign       Stop Sign
Rights:          Include         Include         Include         Include
Min. Green:    0    0    0     0    0    0     0    0    0     0    0    0
Lanes:       0  0  1! 0  0   0  0  0  0  0   0  0  0  1  0   0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     49    0   47     0    0    0     0   82   15    60  123    0
Growth Adj: 1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:  49    0   47     0    0    0     0   82   15    60  123    0
User Adj:   1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:   49    0   47     0    0    0     0   82   15    60  123    0
Reduct Vol:    0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:  49    0   47     0    0    0     0   82   15    60  123    0
PCE Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
FinalVolume:  49    0   47     0    0    0     0   82   15    60  123    0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment: 1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Lanes:      0.51 0.00 0.49  0.00 0.00 0.00  0.00 0.85 0.15  0.33 0.67 0.00
Final Sat.:  407    0  391     0    0    0     0  706  129   271  555    0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:    0.12 xxxx 0.12  xxxx xxxx xxxx  xxxx 0.12 0.12  0.22 0.22 xxxx
Crit Moves: ****                                      ****  ****
Delay/Veh:   7.8  0.0  7.8   0.0  0.0  0.0   0.0  7.7  7.7   8.4  8.4  0.0
Delay Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:  7.8  0.0  7.8   0.0  0.0  0.0   0.0  7.7  7.7   8.4  8.4  0.0
LOS by Move:   A    *    A     *    *    *     *    A    A     A    A    *
ApproachDel:      7.8          xxxxxx             7.7             8.4
Delay Adj:       1.00           xxxxx            1.00            1.00
ApprAdjDel:       7.8          xxxxxx             7.7             8.4
LOS by Appr:        A               *               A               A
AllWayAvgQ:  0.1  0.1  0.1   0.0  0.0  0.0   0.1  0.1  0.1   0.3  0.3  0.3
***************************************************************************
Note: Queue reported is the number of cars per lane.
***************************************************************************
```

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	1905	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	529	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1195	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1195	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	20.1	pc/mi/ln
Level of service, LOS	C	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: SB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2010
Description: 2010 Background with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2723	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	756	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1708	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	59.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1708	pc/h/ln
Free-flow speed, FFS	59.5	mi/h
Average passenger-car speed, S	59.4	mi/h
Number of lanes, N	2	
Density, D	28.7	pc/mi/ln
Level of service, LOS	D	

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

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period PM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2010
Description 2010 Background Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1215 veh/h
Directional split 59 / 41 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1297 pc/h
Highest directional split proportion (note-2) 765 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 44.7 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1279 pc/h
Highest directional split proportion (note-2) 755
Base percent time-spent-following, BPTSF 67.5 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 67.5 %

________________Level of Service and Other Performance Measures________________

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	416	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1579	veh-mi
Peak 15-min total travel time, TT15	9.3	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2030 Cumulative No Project Condition
AM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2030 Cummulative AM
Command:	Default Command
Volume:	Cum NP AM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SR 140 / Parsons	F	89.8	1.051	F	89.8	1.051	+ 0.000 D/V
# 2 SR 140 / Baker	F	97.3	0.000	F	97.3	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	F	489.1	0.000	F	489.1	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	340.2	2.352	F	340.2	2.352	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	258.8	2.335	F	258.8	2.335	+ 0.000 V/C
# 6 Childs / Parsons	F	243.8	1.473	F	243.8	1.473	+ 0.000 D/V
# 7 Childs / Coffee	C	28.6	0.482	C	28.6	0.482	+ 0.000 D/V
# 8 Childs / KIbby	B	10.3	0.000	B	10.3	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	11.1	0.000	B	11.1	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	9.5	0.360	A	9.5	0.360	+ 0.000 V/C
# 11 Gerard / Tower	A	7.1	0.051	A	7.1	0.051	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	28.8	0.686	C	28.8	0.686	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	28.3	0.739	C	28.3	0.739	+ 0.000 D/V
# 14 Mission / Coffee	F	153.8	1.473	F	153.8	1.473	+ 0.000 V/C
# 15 Gerard / Campus Parkway	F	63.2	1.083	F	63.2	1.083	+ 0.000 V/C
# 42 Childs / Campus Parkway	D	30.2	0.919	D	30.2	0.919	+ 0.000 V/C

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 SR 140 / Parsons

Cycle (sec): 100   Critical Vol./Cap.(X): 1.051
Loss Time (sec): 15 (Y+R=4.0 sec)   Average Delay (sec/veh): 89.8
Optimal Cycle: 180   Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	20	0	20	0	0	0	0	17	17	5	20	0
Lanes:	1 0	0 0	1	0 0	0 0	0	0 0	0 1	0	1 0	1 0	0
Volume Module:												
Base Vol:	159	0	155	0	0	0	0	1002	177	296	800	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	159	0	155	0	0	0	0	1002	177	296	800	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	159	0	155	0	0	0	0	1002	177	296	800	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	159	0	155	0	0	0	0	1002	177	296	800	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	159	0	155	0	0	0	0	1002	177	296	800	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	1.00	0.98	0.98	0.95	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.85	0.15	1.00	1.00	0.00
Final Sat.:	1805	0	1615	0	0	0	0	1582	280	1805	1900	0
Capacity Analysis Module:												
Vol/Sat:	0.09	0.00	0.10	0.00	0.00	0.00	0.00	0.63	0.63	0.16	0.42	0.00
Crit Moves:			****					****		****		
Green/Cycle:	0.20	0.00	0.20	0.00	0.00	0.00	0.00	0.52	0.52	0.13	0.65	0.00
Volume/Cap:	0.44	0.00	0.48	0.00	0.00	0.00	0.00	1.23	1.23	1.23	0.65	0.00
Uniform Del:	35.1	0.0	35.4	0.0	0.0	0.0	0.0	24.2	24.2	43.3	10.6	0.0
IncremntDel:	0.9	0.0	1.1	0.0	0.0	0.0	0.0	111	111.2	132.9	1.2	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	36.0	0.0	36.5	0.0	0.0	0.0	0.0	135	135.4	176.2	11.8	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.0	0.0	36.5	0.0	0.0	0.0	0.0	135	135.4	176.2	11.8	0.0
LOS by Move:	D	A	D	A	A	A	A	F	F	F	B	A
HCM2kAvgQ:	5	0	5	0	0	0	0	65	65	19	15	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 SR 140 / Baker

Average Delay (sec/veh): 5.4   Worst Case Level Of Service: F[97.3]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1!	0 0	0 0	1!	0 0	1 0	1 0	0	1 0	0 1	0
Volume Module:												
Base Vol:	3	1	6	27	0	73	48	903	0	0	900	38
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3	1	6	27	0	73	48	903	0	0	900	38
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	3	1	6	27	0	73	48	903	0	0	900	38
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	1	6	27	0	73	48	903	0	0	900	38
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1955	1937	903	1922	1918	919	938	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	49	66	339	51	68	332	739	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	36	62	339	47	64	332	739	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.08	0.02	0.02	0.57	0.00	0.22	0.06	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	10.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	85	xxxxx	xxxx	127	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.4	xxxxx	xxxxx	4.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	52.6	xxxxx	xxxxx	97.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*
ApproachDel:		52.6			97.3			xxxxxx			xxxxxx	
ApproachLOS:		F			F			*			*	

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #3 SR 140 / Kibby
********************************************************************************
Average Delay (sec/veh):    39.1      Worst Case Level Of Service: F[489.1]
********************************************************************************
Approach:     North Bound     South Bound      East Bound      West Bound
Movement:    L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign       Stop Sign       Uncontrolled    Uncontrolled
Rights:         Include         Include         Include         Include
Lanes:        0  1  0  0  1   0  0  1! 0  0   1  0  0  1  0   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      22   48     0    20   55    45    47  840    47     8  773    24
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   22   48     0    20   55    45    47  840    47     8  773    24
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    22   48     0    20   55    45    47  840    47     8  773    24
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   22   48     0    20   55    45    47  840    47     8  773    24
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1809 1771   864  1771 1770   773   797 xxxx xxxxx   887 xxxx xxxxx
Potent Cap.:   62   84   357    66   84   402   834 xxxx xxxxx   772 xxxx xxxxx
Move Cap.:     23   79   357    32   79   402   834 xxxx xxxxx   772 xxxx xxxxx
Volume/Cap:  0.97 0.61  0.00  0.62 0.70  0.11  0.06 xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.2 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.6 xxxx xxxxx   9.7 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     A    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.:   44 xxxx xxxxx  xxxx   84 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:  7.0 xxxxx xxxxx xxxxx  9.3 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:489.1 xxxx xxxxx xxxxx  338 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     F    *     *     *    F     *     *    *     *     *    *     *
ApproachDel:      489.1           338.2           xxxxxx          xxxxxx
ApproachLOS:        F               F               *               *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```



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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #4 Childs / SR 99 SB
********************************************************************************
Cycle (sec):         100             Critical Vol./Cap.(X):        2.352
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):    340.2
Optimal Cycle:         0             Level Of Service:                 F
********************************************************************************
Approach:     North Bound     South Bound      East Bound      West Bound
Movement:    L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign       Stop Sign       Stop Sign       Stop Sign
Rights:         Include         Include         Include         Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0   0  1  0  0  1   0  0  0  1  0   0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   795  304   186     0  558   103    58  578     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   795  304   186     0  558   103    58  578     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   795  304   186     0  558   103    58  578     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   795  304   186     0  558   103    58  578     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   795  304   186     0  558   103    58  578     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.72 0.28  1.00  0.00 0.84  0.16  0.09 0.91  0.00
Final Sat.:     0    0     0   338  129   541     0  449    83    48  476     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx  2.35 2.35  0.34  xxxx 1.24  1.24  1.21 1.21  xxxx
Crit Moves:                   ****                        ****  ****
Delay/Veh:    0.0  0.0   0.0 631.0  631  12.8   0.0  146 145.7 135.6  136   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0 631.0  631  12.8   0.0  146 145.7 135.6  136   0.0
LOS by Move:    *    *     *     F    F     B     *    F     F     F    F     *
ApproachDel:      xxxxxx          541.5           145.7           135.6
Delay Adj:         xxxxx           1.00            1.00            1.00
ApprAdjDel:       xxxxxx          541.5           145.7           135.6
LOS by Appr:        *               F               F               F
AllWayAvgQ:   0.0  0.0   0.0  80.5 80.5   0.5  20.1 20.1  20.1  18.3 18.3  18.3
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #5 Childs / SR 99 NB
*******************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         2.335
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):      258.8
Optimal Cycle:          0              Level Of Service:                  F
*******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:         0  1  0  0  1    0  1  0  0  1    1  0  1  0  1    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      29    57    47    96    46    98   178   974   201   476   479   154
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   29    57    47    96    46    98   178   974   201   476   479   154
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    29    57    47    96    46    98   178   974   201   476   479   154
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   29    57    47    96    46    98   178   974   201   476   479   154
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   29    57    47    96    46    98   178   974   201   476   479   154
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       0.34  0.66  1.00  0.68  0.32  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Final Sat.:   124   244   403   256   122   424   391   417   449   409   434   467
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.23  0.23  0.12  0.38  0.38  0.23  0.46  2.33  0.45  1.16  1.10  0.33
Crit Moves:  ****                    ****              ****        ****
Delay/Veh:   15.0  15.0  12.5  17.5  17.5  13.5  19.1   627  16.8 125.1   102  13.9
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  15.0  15.0  12.5  17.5  17.5  13.5  19.1   627  16.8 125.1   102  13.9
LOS by Move:    C     C     B     C     C     B     C     F     C     F     F     B
ApproachDel:       14.1              15.9             456.2              99.9
Delay Adj:         1.00              1.00              1.00              1.00
ApprAdjDel:        14.1              15.9             456.2              99.9
LOS by Appr:          B                 C                 F                 F
AllWayAvgQ:   0.3   0.3   0.1   0.6   0.6   0.3   0.8  71.3   0.8  12.9  11.0   0.5
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```



```
Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)
*******************************************************************************
Intersection #6 Childs / Parsons
*******************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         1.473
Loss Time (sec):       17 (Y+R=4.0 sec) Average Delay (sec/veh):      243.8
Optimal Cycle:        180              Level Of Service:                  F
*******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    4    22    22    4    24    24    4    20    20    4    23    23
Lanes:         1  0  0  1  0    1  0  1  0  1    0  0  1! 0  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     242   152    13   136    80   157   245   634   246    23   710   117
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:  242   152    13   136    80   157   245   634   246    23   710   117
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:   242   152    13   136    80   157   245   634   246    23   710   117
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:  242   152    13   136    80   157   245   634   246    23   710   117
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:  242   152    13   136    80   157   245   634   246    23   710   117
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900  1900
Adjustment:  0.95  0.99  0.99  0.95  1.00  0.85  0.96  0.96  0.96  0.95  1.00  0.85
Lanes:       1.00  0.92  0.08  1.00  1.00  1.00  0.22  0.56  0.22  1.00  1.00  1.00
Final Sat.:  1805  1729   148  1805  1900  1615   397  1027   399  1805  1900  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13  0.09  0.09  0.08  0.04  0.10  0.62  0.62  0.62  0.01  0.37  0.07
Crit Moves:  ****                          ****  ****                    ****
Green/Cycle: 0.06  0.23  0.23  0.08  0.24  0.24  0.30  0.49  0.49  0.04  0.23  0.23
Volume/Cap:  2.09  0.39  0.39  0.97  0.18  0.41  2.09  1.27  1.27  0.32  1.62  0.31
Uniform Del: 46.8  32.8  32.8  46.0  30.1  32.0  35.2  25.7  25.7  46.7  38.5  32.0
IncremntDel:517.3   0.6   0.6  66.9   0.2   0.7 495.4   131 130.7   2.5   291   0.5
InitQueuDel:  0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Delay/Veh:  564.1  33.4  33.4 112.9  30.3  32.7 530.6   156 156.4  49.2   330  32.4
User DelAdj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh: 564.1  33.4  33.4 112.9  30.3  32.7 530.6   156 156.4  49.2   330  32.4
LOS by Move:    F     C     C     F     C     C     F     F     F     D     F     C
HCM2kAvgQ:     24     5     5     8     2     4   106    65    65     1    56     3
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.482
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	28.6
Optimal Cycle:	67	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0 0 1 0			1 0 0 1 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	118	53	35	30	78	92	31	232	152	40	228	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	118	53	35	30	78	92	31	232	152	40	228	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	118	53	35	30	78	92	31	232	152	40	228	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	118	53	35	30	78	92	31	232	152	40	228	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	118	53	35	30	78	92	31	232	152	40	228	12
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.94	0.94	0.95	0.92	0.92	0.95	0.94	0.94	0.95	0.99	0.99
Lanes:	1.00	0.60	0.40	1.00	0.46	0.54	1.00	0.60	0.40	1.00	0.95	0.05
Final Sat.:	1805	1076	710	1805	801	945	1805	1080	708	1805	1792	94
Capacity Analysis Module:												
Vol/Sat:	0.07	0.05	0.05	0.02	0.10	0.10	0.02	0.21	0.21	0.02	0.13	0.13
Crit Moves:	****				****			****		****		
Green/Cycle:	0.13	0.25	0.25	0.08	0.20	0.20	0.12	0.44	0.44	0.06	0.38	0.38
Volume/Cap:	0.49	0.20	0.20	0.21	0.49	0.49	0.14	0.49	0.49	0.37	0.34	0.34
Uniform Del:	40.2	29.4	29.4	43.1	35.6	35.6	39.4	20.1	20.1	45.2	22.1	22.1
IncremntDel:	1.6	0.2	0.2	0.7	1.1	1.1	0.3	0.5	0.5	2.1	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	41.8	29.6	29.6	43.8	36.7	36.7	39.7	20.6	20.6	47.3	22.4	22.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	41.8	29.6	29.6	43.8	36.7	36.7	39.7	20.6	20.6	47.3	22.4	22.4
LOS by Move:	D	C	C	D	D	D	D	C	C	D	C	C
HCM2kAvgQ:	4	2	2	1	5	5	1	9	9	2	5	5

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 2.5 Worst Case Level Of Service: B[10.3]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	14	0	82	23	119	0	0	217	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	14	0	82	23	119	0	0	217	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	14	0	82	23	119	0	0	217	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	14	0	82	23	119	0	0	217	14
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	389	389	224	231	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	619	549	820	1349	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	610	540	820	1349	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.10	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	781	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.3	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:		xxxxxx			10.3			xxxxxx			xxxxxx	
ApproachLOS:		*			B			*			*	

Note: Queue reported is the number of cars per lane.

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                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #9 Childs / Tower
********************************************************************************
Average Delay (sec/veh):       1.2       Worst Case Level Of Service: B[ 11.1]
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign      Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        6    5     1     5    5    19     2  130     1     0  206     2
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     6    5     1     5    5    19     2  130     1     0  206     2
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      6    5     1     5    5    19     2  130     1     0  206     2
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     6    5     1     5    5    19     2  130     1     0  206     2
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:   7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:   3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   354  343   131   345  342   207   208 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   605  583   924   614  583   839  1375 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     587  582   924   608  583   839  1375 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:   0.01 0.01  0.00  0.01 0.01  0.02  0.00 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  603 xxxxx  xxxx  735 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.1 xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 11.1 xxxxx xxxxx 10.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    B     *     *    B     *     *    *     *     *    *     *
ApproachDel:        11.1             10.1           xxxxxx           xxxxxx
ApproachLOS:           B                B                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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--------------------------------------------------------------------------------
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                    Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #10 Gerard / Coffee
********************************************************************************
Cycle (sec):           100              Critical Vol./Cap.(X):          0.360
Loss Time (sec):         0 (Y+R=4.0 sec) Average Delay (sec/veh):         9.5
Optimal Cycle:           0              Level Of Service:                   A
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:      0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        3   24    93   124   19     1    11  133    13   129   56    82
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     3   24    93   124   19     1    11  133    13   129   56    82
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      3   24    93   124   19     1    11  133    13   129   56    82
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:     3   24    93   124   19     1    11  133    13   129   56    82
PCE Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:     3   24    93   124   19     1    11  133    13   129   56    82
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:        0.02 0.20  0.78  0.86 0.13  0.01  0.07 0.85  0.08  0.48 0.21  0.31
Final Sat.:     18  143   553   556   85     4    49  597    58   358  156   228
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.17 0.17  0.17  0.22 0.22  0.22  0.22 0.22  0.22  0.36 0.36  0.36
Crit Moves:        ****              ****              ****        ****
Delay/Veh:     8.5  8.5   8.5   9.6  9.6   9.6   9.1  9.1   9.1  10.1 10.1  10.1
Delay Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:    8.5  8.5   8.5   9.6  9.6   9.6   9.1  9.1   9.1  10.1 10.1  10.1
LOS by Move:     A    A     A     A    A     A     A    A     A     B    B     B
ApproachDel:         8.5              9.6              9.1             10.1
Delay Adj:          1.00             1.00             1.00             1.00
ApprAdjDel:          8.5              9.6              9.1             10.1
LOS by Appr:           A                A                A                B
AllWayAvgQ:    0.2  0.2   0.2   0.2  0.2   0.2   0.3  0.3   0.3   0.5  0.5   0.5
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec):	100	Critical Vol./Cap.(X):	0.051
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	7.1
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:		0 0 1! 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0	
Volume Module:												
Base Vol:	0	0	0	2	0	6	10	36	0	0	35	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	2	0	6	10	36	0	0	35	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	2	0	6	10	36	0	0	35	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	2	0	6	10	36	0	0	35	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	2	0	6	10	36	0	0	35	5
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.25	0.00	0.75	0.22	0.78	0.00	0.00	0.87	0.13
Final Sat.:	0	865	0	240	0	720	195	703	0	0	809	116
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.01	xxxx	0.01	0.05	0.05	xxxx	xxxx	0.04	0.04
Crit Moves:		****		****				****			****	
Delay/Veh:	0.0	0.0	0.0	6.7	0.0	6.7	7.2	7.2	0.0	0.0	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	6.7	0.0	6.7	7.2	7.2	0.0	0.0	7.1	7.1
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:		xxxxxx			6.7			7.2			7.1	
Delay Adj:		xxxxx			1.00			1.00			1.00	
ApprAdjDel:		xxxxxx			6.7			7.2			7.1	
LOS by Appr:		*			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.686
Loss Time (sec):	11 (Y+R=4.0 sec)	Average Delay (sec/veh):	28.8
Optimal Cycle:	55	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Protected			Protected			Protected			Protected	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:		0 0 0 0 0			0 1 0 0 1			0 0 1 1 0			0 1 1 0 0	
Volume Module:												
Base Vol:	0	0	0	474	0	178	0	354	191	293	377	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	474	0	178	0	354	191	293	377	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	474	0	178	0	354	191	293	377	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	474	0	178	0	354	191	293	377	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	474	0	178	0	354	191	293	377	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	1.00	0.90	0.90	0.93	0.93	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.30	0.70	0.87	1.13	0.00
Final Sat.:	0	0	0	1809	0	1615	0	2223	1199	1546	1989	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.26	0.00	0.11	0.00	0.16	0.16	0.19	0.19	0.00
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.38	0.00	0.38	0.00	0.23	0.23	0.28	0.51	0.00
Volume/Cap:	0.00	0.00	0.00	0.69	0.00	0.29	0.00	0.69	0.69	0.69	0.37	0.00
Uniform Del:	0.0	0.0	0.0	25.9	0.0	21.5	0.0	35.1	35.1	32.3	14.9	0.0
IncremntDel:	0.0	0.0	0.0	2.9	0.0	0.3	0.0	2.5	2.5	2.1	0.1	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	28.8	0.0	21.7	0.0	37.6	37.6	34.4	15.1	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	28.8	0.0	21.7	0.0	37.6	37.6	34.4	15.1	0.0
LOS by Move:	A	A	A	C	A	C	A	D	D	C	B	A
HCM2kAvgQ:	0	0	0	13	0	4	0	9	9	11	7	0

Note: Queue reported is the number of cars per lane.

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                  Level Of Service Computation Report
          2000 HCM Operations Method (Base Volume Alternative)
******************************************************************************
Intersection #13 Mission / SR 99 NB
******************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):          0.739
Loss Time (sec):      15 (Y+R=4.0 sec) Average Delay (sec/veh):        28.3
Optimal Cycle:        73              Level Of Service:                   C
******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     5    5     5     0    0     0     5   23     0     0    6     6
Lanes:        0  1  0  0  1    0  0  0  0  0    1  0  2  0  0    0  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     214    0   536     0    0     0   134  694     0     0  456   359
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  214    0   536     0    0     0   134  694     0     0  456   359
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   214    0   536     0    0     0   134  694     0     0  456   359
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  214    0   536     0    0     0   134  694     0     0  456   359
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  214    0   536     0    0     0   134  694     0     0  456   359
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  0.85  1.00 1.00  1.00  0.95 0.95  1.00  1.00 0.95  0.85
Lanes:       1.00 0.00  1.00  0.00 0.00  0.00  1.00 2.00  0.00  0.00 2.00  1.00
Final Sat.:  1809    0  1615     0    0     0  1805 3610     0     0 3610  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.00  0.33  0.00 0.00  0.00  0.07 0.19  0.00  0.00 0.13  0.22
Crit Moves:             ****                   ****                        ****
Green/Cycle: 0.45 0.00  0.45  0.00 0.00  0.00  0.10 0.40  0.00  0.00 0.30  0.30
Volume/Cap:  0.26 0.00  0.74  0.00 0.00  0.00  0.74 0.48  0.00  0.00 0.42  0.74
Uniform Del: 17.2  0.0  22.7   0.0  0.0   0.0  43.7 22.2   0.0   0.0 28.0  31.4
IncremntDel:  0.2  0.0   4.1   0.0  0.0   0.0  14.9  0.3   0.0   0.0  0.3   6.0
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00  0.00 0.00  0.00  1.00 1.00  0.00  0.00 1.00  1.00
Delay/Veh:   17.4  0.0  26.8   0.0  0.0   0.0  58.6 22.5   0.0   0.0 28.3  37.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  17.4  0.0  26.8   0.0  0.0   0.0  58.6 22.5   0.0   0.0 28.3  37.4
LOS by Move:    B    A     C     A    A     A     E    C     A     A    C     D
HCM2kAvgQ:      4    0    15     0    0     0     6    8     0     0    6    11
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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                  Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
******************************************************************************
Intersection #14 Mission / Coffee
******************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):          1.473
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):       153.8
Optimal Cycle:         0              Level Of Service:                   F
******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60   70    70    10   20   237   125 1014    90   118  518    71
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60   70    70    10   20   237   125 1014    90   118  518    71
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60   70    70    10   20   237   125 1014    90   118  518    71
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60   70    70    10   20   237   125 1014    90   118  518    71
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60   70    70    10   20   237   125 1014    90   118  518    71
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.30  0.70  0.04 0.07  0.89  0.20 1.65  0.15  0.17 0.73  0.10
Final Sat.:   800 -287   287    17   34   401    98  810    73    80  352    48
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08-0.24  0.24  0.59 0.59  0.59  1.27 1.25  1.24  1.47 1.47  1.47
Crit Moves:             ****  ****             ****              ****
Delay/Veh:   14.9 15.6  15.6  21.6 21.6  21.6 160.3  153 145.7 244.6  245 244.6
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  14.9 15.6  15.6  21.6 21.6  21.6 160.3  153 145.7 244.6  245 244.6
LOS by Move:    B    C     C     C    C     C     F    F     F     F    F     F
ApproachDel:      14.9             21.6            153.0            244.6
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:       14.9             21.6            153.0            244.6
LOS by Appr:         B                C                F                F
AllWayAvgQ:   0.5  0.5   0.5   1.3  1.3   1.3  20.2 18.8  18.8  31.2 31.2  31.2
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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                   Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
*********************************************************************************
Intersection #15 Gerard / Campus Parkway
*********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):          1.083
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        63.2
Optimal Cycle:          0              Level Of Service:                   F
*********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:         0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     26   468    82   28   360   166  142    54    72  145    31     2
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  26   468    82   28   360   166  142    54    72  145    31     2
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   26   468    82   28   360   166  142    54    72  145    31     2
Reduct Vol:    0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:  26   468    82   28   360   166  142    54    72  145    31     2
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  26   468    82   28   360   166  142    54    72  145    31     2
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.05 0.81  0.14 0.05 0.65  0.30 0.53 0.20  0.27 0.82 0.17  0.01
Final Sat.:   24   432    76   27   350   162  244    93   123  343    73     5
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     1.08 1.08  1.08 1.03 1.03  1.03 0.58 0.58  0.58 0.42 0.42  0.42
Crit Moves:             ****      ****             ****             ****
Delay/Veh:   88.9 88.9  88.9 71.8 71.8  71.8 20.7 20.7  20.7 17.0 17.0  17.0
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  88.9 88.9  88.9 71.8 71.8  71.8 20.7 20.7  20.7 17.0 17.0  17.0
LOS by Move:    F    F     F    F    F     F    C    C     C    C    C     C
ApproachDel:       88.9             71.8             20.7             17.0
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:        88.9             71.8             20.7             17.0
LOS by Appr:          F                F                C                C
AllWayAvgQ:  11.7 11.7  11.7  9.3  9.3   9.3  1.3  1.3   1.3  0.7  0.7   0.7
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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                   Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
*********************************************************************************
Intersection #42 Childs / Campus Parkway
*********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):          0.919
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        30.2
Optimal Cycle:          0              Level Of Service:                   D
*********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:         0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     57   494    57   33   425    70   73    13    53   27    48    14
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  57   494    57   33   425    70   73    13    53   27    48    14
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   57   494    57   33   425    70   73    13    53   27    48    14
Reduct Vol:    0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:  57   494    57   33   425    70   73    13    53   27    48    14
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  57   494    57   33   425    70   73    13    53   27    48    14
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.09 0.82  0.09 0.06 0.81  0.13 0.53 0.09  0.38 0.30 0.54  0.16
Final Sat.:   62   538    62   40   521    86  261    47   190  144   255    75
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.92 0.92  0.92 0.82 0.82  0.82 0.28 0.28  0.28 0.19 0.19  0.19
Crit Moves:       ****             ****       ****                   ****
Delay/Veh:   39.8 39.8  39.8 27.0 27.0  27.0 12.1 12.1  12.1 11.5 11.5  11.5
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  39.8 39.8  39.8 27.0 27.0  27.0 12.1 12.1  12.1 11.5 11.5  11.5
LOS by Move:    E    E     E    D    D     D    B    B     B    B    B     B
ApproachDel:       39.8             27.0             12.1             11.5
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:        39.8             27.0             12.1             11.5
LOS by Appr:          E                D                B                B
AllWayAvgQ:   5.8  5.8   5.8  3.3  3.3   3.3  0.3  0.3   0.3  0.2  0.2   0.2
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
```

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative No Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2531	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	703	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1058	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1058	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	17.4	pc/mi/ln
Level of service, LOS	B	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative No Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2712	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	753	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1134	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1134	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	18.6	pc/mi/ln
Level of service, LOS	C	

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

HCS2000: Two-Lane Highways Release 4.1a

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	Ben Mitrsongkroh
Agency/Co.	DKS
Date Performed	11/27/2006
Analysis Time Period	AM Peak
Highway	SR 140
From/To	Santa Fe Aveto Kibby Rd
Jurisdiction	Merced
Analysis Year	2030
Description	2030 Cumulative Condition

Input Data

Highway class Class 1

Shoulder width	6.0	ft	Peak-hour factor, PHF	0.95	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	1.3	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length	0.25	mi	Access points/mi	1	/mi
Up/down	3.0	%			

Two-way hourly volume, V 1871 veh/h
Directional split 70 / 30 %

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate,(note-1) vp	1997	pc/h
Highest directional split proportion (note-2)	1398	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed, BFFS	55.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	0.3	mi/h
Free-flow speed, FFS	54.8	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	39.3	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1969	pc/h
Highest directional split proportion (note-2)	1378	
Base percent time-spent-following, BPTSF	82.3	%

Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	82.3	%

_______________Level of Service and Other Performance Measures_______________

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.62	
Peak 15-min vehicle-miles of travel, VMT15	640	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2432	veh-mi
Peak 15-min total travel time, TT15	16.3	veh-h

Notes:

1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2030 Cumulative No Project Condition
PM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2030 Cummulative PM
Command:	Default Command
Volume:	Cum NP PM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/C	Future LOS	Future Del/ Veh	Future V/C	Change in
# 1 SR 140 / Parsons	D	37.7	0.872	D	37.7	0.872	+ 0.000 D/V
# 2 SR 140 / Baker	F	86.1	0.000	F	86.1	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	F	67.3	0.000	F	67.3	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	258.3	2.109	F	258.3	2.109	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	233.2	1.986	F	233.2	1.986	+ 0.000 V/C
# 6 Childs / Parsons	F	221.1	1.414	F	221.1	1.414	+ 0.000 D/V
# 7 Childs / Coffee	C	32.2	0.484	C	32.2	0.484	+ 0.000 D/V
# 8 Childs / KIbby	B	12.1	0.000	B	12.1	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	12.8	0.000	B	12.8	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	9.8	0.444	A	9.8	0.444	+ 0.000 V/C
# 11 Gerard / Tower	A	7.1	0.042	A	7.1	0.042	+ 0.000 V/C
# 12 MIssion / SR 99 SB	E	61.3	0.990	E	61.3	0.990	+ 0.000 D/V
# 13 Mission / SR 99 NB	D	39.6	0.983	D	39.6	0.983	+ 0.000 D/V
# 14 Mission / Coffee	F	452.2	2.873	F	452.2	2.873	+ 0.000 V/C
# 15 Gerard / Campus Parkway	F	57.1	1.123	F	57.1	1.123	+ 0.000 V/C
# 42 Childs / Campus Parkway	D	32.4	0.949	D	32.4	0.949	+ 0.000 V/C

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                     Level Of Service Computation Report
           2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #1 SR 140 / Parsons
********************************************************************************
Cycle (sec):         100             Critical Vol./Cap.(X):         0.872
Loss Time (sec):      15 (Y+R=4.0 sec) Average Delay (sec/veh):      37.7
Optimal Cycle:       104             Level Of Service:                 D
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    20    0    20    0    0     0    0   17    17    5   20     0
Lanes:         1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     189    0   164    0    0     0    0  791   198  184  735     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  189    0   164    0    0     0    0  791   198  184  735     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   189    0   164    0    0     0    0  791   198  184  735     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  189    0   164    0    0     0    0  791   198  184  735     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  189    0   164    0    0     0    0  791   198  184  735     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 1.00  0.85 1.00 1.00  1.00 1.00 0.97  0.97 0.95 1.00  1.00
Lanes:       1.00 0.00  1.00 0.00 0.00  0.00 0.00 0.80  0.20 1.00 1.00  0.00
Final Sat.:  1805    0  1615    0    0     0    0 1479   370 1805 1900     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.00  0.10 0.00 0.00  0.00 0.00 0.53  0.53 0.10 0.39  0.00
Crit Moves:  ****                                 ****       ****
Green/Cycle: 0.20 0.00  0.20 0.00 0.00  0.00 0.00 0.55  0.55 0.10 0.65  0.00
Volume/Cap:  0.52 0.00  0.51 0.00 0.00  0.00 0.00 0.98  0.98 0.98 0.60  0.00
Uniform Del: 35.7  0.0  35.6  0.0  0.0   0.0  0.0 22.2  22.2 44.7 10.0   0.0
IncremntDel:  1.4  0.0   1.3  0.0  0.0   0.0  0.0 23.4  23.4 59.6  0.8   0.0
InitQueuDel:  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00 0.00 0.00  0.00 0.00 1.00  1.00 1.00 1.00  0.00
Delay/Veh:   37.1  0.0  36.9  0.0  0.0   0.0  0.0 45.6  45.6 104.3 10.8  0.0
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  37.1  0.0  36.9  0.0  0.0   0.0  0.0 45.6  45.6 104.3 10.8  0.0
LOS by Move:    D    A     D    A    A     A    A    D     D    F    B     A
HCM2kAvgQ:      6    0     5    0    0     0    0   37    37   10   13     0
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```



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--------------------------------------------------------------------------------
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                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #2 SR 140 / Baker
********************************************************************************
Average Delay (sec/veh):      6.1     Worst Case Level Of Service: F[ 86.1]
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:         0  0  1! 0  0    0  0  1! 0  0    1  0  1  0  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      14    0    14   48    0    52   52  745     0    0  738    48
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   14    0    14   48    0    52   52  745     0    0  738    48
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:    14    0    14   48    0    52   52  745     0    0  738    48
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
FinalVolume:   14    0    14   48    0    52   52  745     0    0  738    48
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2  7.1  6.5   6.2  4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3  3.5  4.0   3.3  2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1637 1635   745 1618 1611   762  786 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   81  102   417   84  105   408  842 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     68   96   417   77   99   408  842 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.21 0.00  0.03 0.62 0.00  0.13 0.06 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.2 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.6 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *    *    *     *    A    *     *    *    *     *
Movement:     LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: xxxx  117 xxxxx  xxxx  134 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx
SharedQueue:xxxxx  0.9 xxxxx xxxxx  4.4 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 45.4 xxxxx xxxxx 86.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    E     *    *    F     *    *    *     *    *    *     *
ApproachDel:        45.4             86.1           xxxxxx           xxxxxx
ApproachLOS:          E                F               *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
*******************************************************************************
Intersection #3 SR 140 / Kibby
*******************************************************************************
Average Delay (sec/veh):       3.1       Worst Case Level Of Service: F[ 67.3]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      18   41     0     3    4     3    39  704    49     0  662    14
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   18   41     0     3    4     3    39  704    49     0  662    14
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    18   41     0     3    4     3    39  704    49     0  662    14
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   18   41     0     3    4     3    39  704    49     0  662    14
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1479 1483   729  1489 1493   662   676 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:  105  126   426   103  124   465   925 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     98  121   426    74  119   465   925 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.18 0.34  0.00  0.04 0.03  0.01  0.04 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.1 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:  113 xxxx xxxxx  xxxx  124 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:  2.4 xxxx xxxxx xxxxx  0.3 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel: 67.3 xxxx xxxxx xxxxx 36.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     F    *     *     *    E     *     *    *     *     *    *     *
ApproachDel:      67.3             36.6            xxxxxx           xxxxxx
ApproachLOS:        F                E                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```



```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #4 Childs / SR 99 SB
*******************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         2.109
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):       258.3
Optimal Cycle:          0               Level Of Service:                  F
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   653  361   303     0  537    68    31  408     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   653  361   303     0  537    68    31  408     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   653  361   303     0  537    68    31  408     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   653  361   303     0  537    68    31  408     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   653  361   303     0  537    68    31  408     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.64 0.36  1.00  0.00 0.89  0.11  0.07 0.93  0.00
Final Sat.:     0    0     0   310  171   555     0  484    61    37  488     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx  2.11 2.11  0.55  xxxx 1.11  1.11  0.84 0.84  xxxx
Crit Moves:                   ****                  ****              ****
Delay/Veh:    0.0  0.0   0.0 523.2  523  16.7   0.0 96.7  96.7  35.9 35.9   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0 523.2  523  16.7   0.0 96.7  96.7  35.9 35.9   0.0
LOS by Move:    *    *     *     F    F     C     *    F     F     E    E     *
ApproachDel:     xxxxxx            406.7             96.7             35.9
Delay Adj:        xxxxx             1.00             1.00             1.00
ApprAdjDel:      xxxxxx            406.7             96.7             35.9
LOS by Appr:        *                F                F                E
AllWayAvgQ:   0.0  0.0   0.0  68.5 68.5   1.2  13.2 13.2  13.2   3.8  3.8   3.8
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	1.986
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	233.2
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1 0 0 1			0 1 0 0 1			1 0 1 0 1			1 0 1 0 1		
Volume Module:												
Base Vol:	50	37	48	119	29	93	188	852	141	670	296	177
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	37	48	119	29	93	188	852	141	670	296	177
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	50	37	48	119	29	93	188	852	141	670	296	177
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	37	48	119	29	93	188	852	141	670	296	177
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	50	37	48	119	29	93	188	852	141	670	296	177
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.57	0.43	1.00	0.80	0.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	213	157	410	307	75	432	400	429	459	415	437	475
Capacity Analysis Module:												
Vol/Sat:	0.24	0.24	0.12	0.39	0.39	0.22	0.47	1.99	0.31	1.62	0.68	0.37
Crit Moves:	****				****			****		****		
Delay/Veh:	14.9	14.9	12.2	17.4	17.4	12.9	19.1	471	13.7	308.9	26.1	14.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.9	14.9	12.2	17.4	17.4	12.9	19.1	471	13.7	308.9	26.1	14.4
LOS by Move:	B	B	B	C	C	B	C	F	B	F	D	B
ApproachDel:		13.9			15.7			344.4			190.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		13.9			15.7			344.4			190.1	
LOS by Appr:		B			C			F			F	
AllWayAvgQ:	0.3	0.3	0.1	0.6	0.6	0.3	0.8	54.8	0.4	34.3	1.8	0.6

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec):	100	Critical Vol./Cap.(X):	1.414
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	221.1
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	4	22	22	4	24	24	4	20	20	4	23	23
Lanes:	1 0 0 1 0			1 0 1 0 1			0 0 1! 0 0			1 0 1 0 1		
Volume Module:												
Base Vol:	299	141	4	106	152	150	191	534	288	4	676	90
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	299	141	4	106	152	150	191	534	288	4	676	90
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	299	141	4	106	152	150	191	534	288	4	676	90
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	299	141	4	106	152	150	191	534	288	4	676	90
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	299	141	4	106	152	150	191	534	288	4	676	90
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	0.85	0.95	0.95	0.95	0.95	1.00	0.85
Lanes:	1.00	0.97	0.03	1.00	1.00	1.00	0.19	0.53	0.28	1.00	1.00	1.00
Final Sat.:	1805	1840	52	1805	1900	1615	342	955	515	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.17	0.08	0.08	0.06	0.08	0.09	0.56	0.56	0.56	0.00	0.36	0.06
Crit Moves:	****					****	****				****	
Green/Cycle:	0.08	0.25	0.25	0.07	0.24	0.24	0.28	0.47	0.47	0.04	0.23	0.23
Volume/Cap:	2.01	0.30	0.30	0.86	0.33	0.39	2.01	1.20	1.20	0.06	1.55	0.24
Uniform Del:	45.9	30.1	30.1	46.2	31.4	31.8	36.1	26.6	26.6	46.2	38.5	31.4
IncremntDel:	479.1	0.4	0.4	43.1	0.4	0.6	463.1	99.5	99.5	0.3	257	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	524.9	30.5	30.5	89.3	31.8	32.5	499.2	126	126.1	46.5	296	31.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	524.9	30.5	30.5	89.3	31.8	32.5	499.2	126	126.1	46.5	296	31.7
LOS by Move:	F	C	C	F	C	C	F	F	F	D	F	C
HCM2kAvgQ:	29	4	4	6	4	4	94	54	54	0	51	2

Note: Queue reported is the number of cars per lane.

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                    Level Of Service Computation Report
           2000 HCM Operations Method (Base Volume Alternative)
**********************************************************************************
Intersection #7 Childs / Coffee
**********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):          0.484
Loss Time (sec):      17 (Y+R=4.0 sec) Average Delay (sec/veh):        32.2
Optimal Cycle:        67              Level Of Service:                 C
**********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     6   19    19     6   19    19     6   19    19     6   19    19
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
-------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      289   35    41      7   23    20     39  173   183     26  189    18
Growth Adj:   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Initial Bse:   289   35    41      7   23    20     39  173   183     26  189    18
User Adj:     1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Volume:    289   35    41      7   23    20     39  173   183     26  189    18
Reduct Vol:      0    0     0      0    0     0      0    0     0      0    0     0
Reduced Vol:   289   35    41      7   23    20     39  173   183     26  189    18
PCE Adj:      1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
MLF Adj:      1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
FinalVolume:   289   35    41      7   23    20     39  173   183     26  189    18
-------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:     1900 1900  1900   1900 1900  1900   1900 1900  1900   1900 1900  1900
Adjustment:   0.95 0.92  0.92   0.95 0.93  0.93   0.95 0.92  0.92   0.95 0.99  0.99
Lanes:        1.00 0.46  0.54   1.00 0.53  0.47   1.00 0.49  0.51   1.00 0.91  0.09
Final Sat.:   1805  804   942   1805  945   822   1805  852   901   1805 1712   163
-------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.16 0.04  0.04   0.00 0.02  0.02   0.02 0.20  0.20   0.01 0.11  0.11
Crit Moves:   ****                   ****              ****         ****
Green/Cycle:  0.26 0.34  0.34   0.11 0.19  0.19   0.09 0.32  0.32   0.06 0.29  0.29
Volume/Cap:   0.63 0.13  0.13   0.04 0.13  0.13   0.23 0.63  0.63   0.24 0.38  0.38
Uniform Del:  33.0 22.9  22.9   40.0 33.6  33.6   42.1 28.6  28.6   44.8 28.2  28.2
IncremntDel:   2.7  0.1   0.1    0.1  0.2   0.2    0.7  2.2   2.2    1.2  0.4   0.4
InitQueuDel:   0.0  0.0   0.0    0.0  0.0   0.0    0.0  0.0   0.0    0.0  0.0   0.0
Delay Adj:    1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Delay/Veh:    35.7 23.0  23.0   40.1 33.8  33.8   42.8 30.9  30.9   46.0 28.6  28.6
User DelAdj:  1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
AdjDel/Veh:   35.7 23.0  23.0   40.1 33.8  33.8   42.8 30.9  30.9   46.0 28.6  28.6
LOS by Move:     D    C     C      D    C     C      D    C     C      D    C     C
HCM2kAvgQ:       9    2     2      0    1     1      1   10    10      1    5     5
**********************************************************************************
Note: Queue reported is the number of cars per lane.
**********************************************************************************
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                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
**********************************************************************************
Intersection #8 Childs / KIbby
**********************************************************************************
Average Delay (sec/veh):       1.8     Worst Case Level Of Service: B[ 12.1]
**********************************************************************************
Street Name:                   Kibby                           Childs
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  0  1! 0  0    0  1  0  0  0    0  0  0  1  0
-------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0    0     0     38    0    38     36  317     0      0  203    33
Growth Adj:   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
Initial Bse:     0    0     0     38    0    38     36  317     0      0  203    33
User Adj:     1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00   1.00 1.00  1.00
PHF Volume:      0    0     0     38    0    38     36  317     0      0  203    33
Reduct Vol:      0    0     0      0    0     0      0    0     0      0    0     0
FinalVolume:     0    0     0     38    0    38     36  317     0      0  203    33
-------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx    6.4  6.5   6.2    4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx    3.5  4.0   3.3    2.2 xxxx xxxxx xxxxx xxxx xxxxx
-------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    609  609   220    236 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx    462  413   825   1343 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx    452  401   825   1343 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx   0.08 0.00  0.05   0.03 xxxx  xxxx  xxxx xxxx  xxxx
-------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   xxxx xxxx xxxxx    0.1 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx     7.8 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:     *    *     *      *    *     *      A    *     *      *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx   xxxx  584 xxxxx   xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.4 xxxxx     0.1 xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx 12.1 xxxxx     7.8 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    *     *      *    B     *      A    *     *      *    *     *
ApproachDel:      xxxxxx              12.1             xxxxxx           xxxxxx
ApproachLOS:         *                  B                 *                *
**********************************************************************************
Note: Queue reported is the number of cars per lane.
**********************************************************************************
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #9 Childs / Tower
******************************************************************************
Average Delay (sec/veh):       0.5       Worst Case Level Of Service: B[ 12.8]
******************************************************************************
Approach:       North Bound       South Bound       East Bound        West Bound
Movement:      L  -  T  -  R     L  -  T  -  R     L  -  T  -  R     L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign         Stop Sign        Uncontrolled      Uncontrolled
Rights:            Include           Include           Include           Include
Lanes:         0  0  1! 0  0     0  0  1! 0  0     0  0  1! 0  0     0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        4    4    3      2    6    2      1  349    2      0  227    2
Growth Adj:   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Initial Bse:     4    4    3      2    6    2      1  349    2      0  227    2
User Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Adj:      1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Volume:      4    4    3      2    6    2      1  349    2      0  227    2
Reduct Vol:      0    0    0      0    0    0      0    0    0      0    0    0
FinalVolume:     4    4    3      2    6    2      1  349    2      0  227    2
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:   7.1  6.5  6.2    7.1  6.5  6.2    4.1 xxxx xxxxx  xxxxx xxxx xxxxx
FollowUpTim:   3.5  4.0  3.3    3.5  4.0  3.3    2.2 xxxx xxxxx  xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:   584  581  350    584  581  228    229 xxxx xxxxx   xxxx xxxx xxxxx
Potent Cap.:   426  428  698    426  428  816   1351 xxxx xxxxx   xxxx xxxx xxxxx
Move Cap.:     420  428  698    421  428  816   1351 xxxx xxxxx   xxxx xxxx xxxxx
Volume/Cap:   0.01 0.01 0.00   0.00 0.01 0.00   0.00 xxxx  xxxx   xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx   xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx    7.7 xxxx xxxxx  xxxxx xxxx xxxxx
LOS by Move:    *    *    *      *    *    *      A    *    *      *    *    *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  475 xxxxx   xxxx  471 xxxxx  xxxx xxxx xxxxx   xxxx xxxx xxxxx
SharedQueue:xxxxx  0.1 xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx  xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 12.8 xxxxx xxxxx 12.8 xxxxx xxxxx xxxx xxxxx  xxxxx xxxx xxxxx
Shared LOS:     *    B    *      *    B    *      *    *    *      *    *    *
ApproachDel:       12.8              12.8            xxxxxx            xxxxxx
ApproachLOS:          B                 B                 *                 *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                     Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
******************************************************************************
Intersection #10 Gerard / Coffee
******************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.444
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):         9.8
Optimal Cycle:         0               Level Of Service:                  A
******************************************************************************
Approach:       North Bound       South Bound       East Bound        West Bound
Movement:      L  -  T  -  R     L  -  T  -  R     L  -  T  -  R     L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign         Stop Sign         Stop Sign         Stop Sign
Rights:            Include           Include           Include           Include
Min. Green:      0    0    0      0    0    0      0    0    0      0    0    0
Lanes:         0  0  1! 0  0     0  0  1! 0  0     0  0  0  1  0     0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        1    7   41    147   16    5      0  117   31     47   53  266
Growth Adj:   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Initial Bse:     1    7   41    147   16    5      0  117   31     47   53  266
User Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Adj:      1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Volume:      1    7   41    147   16    5      0  117   31     47   53  266
Reduct Vol:      0    0    0      0    0    0      0    0    0      0    0    0
Reduced Vol:     1    7   41    147   16    5      0  117   31     47   53  266
PCE Adj:      1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
MLF Adj:      1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
FinalVolume:     1    7   41    147   16    5      0  117   31     47   53  266
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Lanes:        0.02 0.14 0.84   0.87 0.10 0.03   0.00 0.79 0.21   0.13 0.14 0.73
Final Sat.:     14   96  565    562   61   19      0  572  152    106  119  599
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.07 0.07 0.07   0.26 0.26 0.26   xxxx 0.20 0.20   0.44 0.44 0.44
Crit Moves:        ****             ****                  ****        ****
Delay/Veh:     8.1  8.1  8.1    9.9  9.9  9.9    0.0  8.9  8.9   10.4 10.4 10.4
Delay Adj:    1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
AdjDel/Veh:    8.1  8.1  8.1    9.9  9.9  9.9    0.0  8.9  8.9   10.4 10.4 10.4
LOS by Move:     A    A    A      A    A    A      *    A    A      B    B    B
ApproachDel:        8.1              9.9               8.9              10.4
Delay Adj:         1.00             1.00              1.00              1.00
ApprAdjDel:         8.1              9.9               8.9              10.4
LOS by Appr:          A                A                 A                 B
AllWayAvgQ:    0.1  0.1  0.1    0.3  0.3  0.3    0.2  0.2  0.2    0.7  0.7  0.7
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec):	100	Critical Vol./Cap.(X):	0.042
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	7.1
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Stop Sign			Stop Sign			Stop Sign			Stop Sign	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:		0 0 1! 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0	
Volume Module:												
Base Vol:	0	0	0	5	0	3	5	33	0	0	32	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	5	0	3	5	33	0	0	32	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	5	0	3	5	33	0	0	32	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	5	0	3	5	33	0	0	32	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	5	0	3	5	33	0	0	32	6
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.62	0.00	0.38	0.13	0.87	0.00	0.00	0.84	0.16
Final Sat.:	0	871	0	559	0	336	119	784	0	0	783	147
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.01	xxxx	0.01	0.04	0.04	xxxx	xxxx	0.04	0.04
Crit Moves:		****		****				****			****	
Delay/Veh:	0.0	0.0	0.0	7.0	0.0	7.0	7.1	7.1	0.0	0.0	7.0	7.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	7.0	0.0	7.0	7.1	7.1	0.0	0.0	7.0	7.0
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:		xxxxxx			7.0			7.1			7.0	
Delay Adj:		xxxxx			1.00			1.00			1.00	
ApprAdjDel:		xxxxxx			7.0			7.1			7.0	
LOS by Appr:		*			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec):	100	Critical Vol./Cap.(X):	0.990
Loss Time (sec):	11 (Y+R=4.0 sec)	Average Delay (sec/veh):	61.3
Optimal Cycle:	179	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:		Protected			Protected			Protected			Protected	
Rights:		Include			Include			Include			Include	
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:		0 0 0 0 0			0 1 0 0 1			0 0 1 1 0			0 1 1 0 0	
Volume Module:												
Base Vol:	0	0	0	546	3	120	0	251	206	725	316	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	546	3	120	0	251	206	725	316	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	546	3	120	0	251	206	725	316	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	546	3	120	0	251	206	725	316	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	546	3	120	0	251	206	725	316	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.88	0.88	0.85	1.00	0.89	0.89	0.92	0.92	1.00
Lanes:	0.00	0.00	0.00	0.99	0.01	1.00	0.00	1.10	0.90	1.00	1.00	0.00
Final Sat.:	0	0	0	1659	9	1615	0	1848	1517	1744	1744	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.33	0.33	0.07	0.00	0.14	0.14	0.42	0.18	0.00
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.31	0.31	0.31	0.00	0.19	0.19	0.39	0.58	0.00
Volume/Cap:	0.00	0.00	0.00	1.06	1.06	0.24	0.00	0.71	0.71	1.06	0.31	0.00
Uniform Del:	0.0	0.0	0.0	34.5	34.5	25.8	0.0	38.0	38.0	30.5	10.7	0.0
IncremntDel:	0.0	0.0	0.0	57.8	57.8	0.3	0.0	3.8	3.8	47.4	0.1	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	92.3	92.3	26.0	0.0	41.8	41.8	77.9	10.8	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	92.3	92.3	26.0	0.0	41.8	41.8	77.9	10.8	0.0
LOS by Move:	A	A	A	F	F	C	A	D	D	E	B	A
HCM2kAvgQ:	0	0	0	26	26	3	0	8	8	34	5	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec): 100 Critical Vol./Cap.(X): 0.983
Loss Time (sec): 15 (Y+R=4.0 sec) Average Delay (sec/veh): 39.6
Optimal Cycle: 164 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1	0	0 1	0 0	0	0 0	1 0	2	0 0	0 0	2	0 1
Volume Module:												
Base Vol:	192	0	596	0	0	0	64	733	0	0	849	696
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	192	0	596	0	0	0	64	733	0	0	849	696
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	192	0	596	0	0	0	64	733	0	0	849	696
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	192	0	596	0	0	0	64	733	0	0	849	696
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	192	0	596	0	0	0	64	733	0	0	849	696
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1809	0	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.11	0.00	0.37	0.00	0.00	0.00	0.04	0.20	0.00	0.00	0.24	0.43
Crit Moves:			****				****					****
Green/Cycle:	0.37	0.00	0.37	0.00	0.00	0.00	0.05	0.48	0.00	0.00	0.43	0.43
Volume/Cap:	0.29	0.00	1.00	0.00	0.00	0.00	0.71	0.42	0.00	0.00	0.55	1.00
Uniform Del:	22.3	0.0	31.5	0.0	0.0	0.0	46.8	16.9	0.0	0.0	21.2	28.5
IncremntDel:	0.2	0.0	36.9	0.0	0.0	0.0	22.9	0.2	0.0	0.0	0.4	34.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	22.5	0.0	68.4	0.0	0.0	0.0	69.7	17.1	0.0	0.0	21.6	62.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	22.5	0.0	68.4	0.0	0.0	0.0	69.7	17.1	0.0	0.0	21.6	62.6
LOS by Move:	C	A	E	A	A	A	E	B	A	A	C	E
HCM2kAvgQ:	4	0	25	0	0	0	3	8	0	0	10	29

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec): 100 Critical Vol./Cap.(X): 2.873
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 452.2
Optimal Cycle: 0 Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1!	0 0	0 0	1!	0 0	0 1	0	1 0	0 0	1!	0 0
Volume Module:												
Base Vol:	44	61	70	9	18	397	70	1168	75	99	1086	79
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	44	61	70	9	18	397	70	1168	75	99	1086	79
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	44	61	70	9	18	397	70	1168	75	99	1086	79
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	61	70	9	18	397	70	1168	75	99	1086	79
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	44	61	70	9	18	397	70	1168	75	99	1086	79
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.20	0.80	0.02	0.04	0.94	0.11	1.78	0.11	0.08	0.86	0.06
Final Sat.:	760	-313	313	10	19	430	48	800	52	34	378	27
Capacity Analysis Module:												
Vol/Sat:	0.06	-0.19	0.22	0.92	0.92	0.92	1.47	1.46	1.45	2.87	2.87	2.87
Crit Moves:			****		****		****				****	
Delay/Veh:	15.5	16.2	16.2	52.7	52.7	52.7	245.8	240	235.0	866.6	867	866.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.5	16.2	16.2	52.7	52.7	52.7	245.8	240	235.0	866.6	867	866.6
LOS by Move:	C	C	C	F	F	F	F	F	F	F	F	F
ApproachDel:		15.5			52.7			240.4			866.6	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		15.5			52.7			240.4			866.6	
LOS by Appr:		C			F			F			F	
AllWayAvgQ:	0.5	0.5	0.5	5.3	5.3	5.3	29.1	28.3	28.3	105	105	104.5

Note: Queue reported is the number of cars per lane.

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                    Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Gerard / Campus Parkway
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):         1.123
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):       57.1
Optimal Cycle:         0              Level Of Service:                  F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       44   370   229    23   302   139   164    22    38   169    31     2
Growth Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:    44   370   229    23   302   139   164    22    38   169    31     2
User Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:      1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:     44   370   229    23   302   139   164    22    38   169    31     2
Reduct Vol:      0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:    44   370   229    23   302   139   164    22    38   169    31     2
PCE Adj:      1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:      1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:    44   370   229    23   302   139   164    22    38   169    31     2
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:        0.07  0.57  0.36  0.05  0.65  0.30  0.73  0.10  0.17  0.84  0.15  0.01
Final Sat.:     39   330   204    27   355   163   326    44    76   363    67     4
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      1.12  1.12  1.12  0.85  0.85  0.85  0.50  0.50  0.50  0.47  0.47  0.47
Crit Moves:   ****                    ****        ****              ****
Delay/Veh:    99.6  99.6  99.6  34.8  34.8  34.8  17.3  17.3  17.3  16.8  16.8  16.8
Delay Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:   99.6  99.6  99.6  34.8  34.8  34.8  17.3  17.3  17.3  16.8  16.8  16.8
LOS by Move:     F     F     F     D     D     D     C     C     C     C     C     C
ApproachDel:        99.6              34.8              17.3              16.8
Delay Adj:          1.00              1.00              1.00              1.00
ApprAdjDel:         99.6              34.8              17.3              16.8
LOS by Appr:           F                 D                 C                 C
AllWayAvgQ:   14.4  14.4  14.4   3.8   3.8   3.8   0.8   0.8   0.8   0.7   0.7   0.7
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #42 Childs / Campus Parkway
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):         0.949
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):       32.4
Optimal Cycle:         0              Level Of Service:                  D
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0     0     0    0     0     0    0     0     0    0     0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       48   556    10    27   390    77    94    45    45    19    44    12
Growth Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:    48   556    10    27   390    77    94    45    45    19    44    12
User Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:      1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:     48   556    10    27   390    77    94    45    45    19    44    12
Reduct Vol:      0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:    48   556    10    27   390    77    94    45    45    19    44    12
PCE Adj:      1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:      1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:    48   556    10    27   390    77    94    45    45    19    44    12
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:        0.08  0.90  0.02  0.05  0.79  0.16  0.52  0.24  0.24  0.25  0.59  0.16
Final Sat.:     51   586    11    34   495    98   255   122   122   116   269    73
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.95  0.95  0.95  0.79  0.79  0.79  0.37  0.37  0.37  0.16  0.16  0.16
Crit Moves:   ****                    ****              ****              ****
Delay/Veh:    46.5  46.5  46.5  25.1  25.1  25.1  13.3  13.3  13.3  11.4  11.4  11.4
Delay Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:   46.5  46.5  46.5  25.1  25.1  25.1  13.3  13.3  13.3  11.4  11.4  11.4
LOS by Move:     E     E     E     D     D     D     B     B     B     B     B     B
ApproachDel:        46.5              25.1              13.3              11.4
Delay Adj:          1.00              1.00              1.00              1.00
ApprAdjDel:         46.5              25.1              13.3              11.4
LOS by Appr:           E                 D                 B                 B
AllWayAvgQ:    6.8   6.8   6.8   2.9   2.9   2.9   0.5   0.5   0.5   0.2   0.2   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative No Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	3164	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	879	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1323	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1323	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	21.7	pc/mi/ln
Level of service, LOS	C	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative No Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	4173	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1159	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1745	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1745	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	60.7	mi/h
Number of lanes, N	3	
Density, D	28.7	pc/mi/ln
Level of service, LOS	D	

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

HCS2000: Two-Lane Highways Release 4.1a

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period PM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2030
Description 2030 Cumulative Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1729 veh/h
Directional split 56 / 44 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1845 pc/h
Highest directional split proportion (note-2) 1033 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 40.4 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1820 pc/h
Highest directional split proportion (note-2) 1019
Base percent time-spent-following, BPTSF 79.8 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 79.8 %

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.58	
Peak 15-min vehicle-miles of travel, VMT15	591	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2248	veh-mi
Peak 15-min total travel time, TT15	14.6	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2030 Cumulative with Project Condition
AM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2030 Cummulative Proj AM
Command:	Default Command
Volume:	Cum WP AM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/C	Future LOS	Future Del/ Veh	Future V/C	Change in
# 1 SR 140 / Parsons	F	93.1	1.062	F	93.1	1.062	+ 0.000 D/V
# 2 SR 140 / Baker	F	106.7	0.000	F	106.7	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	F	501.4	0.000	F	501.4	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	341.7	2.357	F	341.7	2.357	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	261.5	2.347	F	261.5	2.347	+ 0.000 V/C
# 6 Childs / Parsons	F	245.4	1.477	F	245.4	1.477	+ 0.000 D/V
# 7 Childs / Coffee	C	28.6	0.487	C	28.6	0.487	+ 0.000 D/V
# 8 Childs / KIbby	B	10.3	0.000	B	10.3	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	11.2	0.000	B	11.2	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	9.5	0.363	A	9.5	0.363	+ 0.000 V/C
# 11 Gerard / Tower	A	7.1	0.061	A	7.1	0.061	+ 0.000 V/C
# 12 MIssion / SR 99 SB	C	30.8	0.757	C	30.8	0.757	+ 0.000 D/V
# 13 Mission / SR 99 NB	C	30.6	0.810	C	30.6	0.810	+ 0.000 D/V
# 14 Mission / Coffee	F	221.5	1.716	F	221.5	1.716	+ 0.000 V/C
# 15 Gerard / Campus Parkway	F	148.5	1.504	F	148.5	1.504	+ 0.000 V/C
# 42 Childs / Campus Parkway	D	34.1	0.947	D	34.1	0.947	+ 0.000 V/C

```
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-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM Operations Method (Base Volume Alternative)
*****************************************************************************
Intersection #1 SR 140 / Parsons
*****************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):         1.062
Loss Time (sec):       15 (Y+R=4.0 sec) Average Delay (sec/veh):        93.1
Optimal Cycle:        180               Level Of Service:                  F
*****************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    20    0    20    0    0     0    0   17    17    5   20     0
Lanes:        1  0  0  0  1   0  0  0  0  0   0  0  0  1  0   1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     160    0   155    0    0     0    0 1018   178  296  813     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  160    0   155    0    0     0    0 1018   178  296  813     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   160    0   155    0    0     0    0 1018   178  296  813     0
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  160    0   155    0    0     0    0 1018   178  296  813     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  160    0   155    0    0     0    0 1018   178  296  813     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  0.95 1.00  0.85 1.00 1.00  1.00 1.00 0.98  0.98 0.95 1.00  1.00
Lanes:       1.00 0.00  1.00 0.00 0.00  0.00 0.00 0.85  0.15 1.00 1.00  0.00
Final Sat.:  1805    0  1615    0    0     0    0 1585   277 1805 1900     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.00  0.10 0.00 0.00  0.00 0.00 0.64  0.64 0.16 0.43  0.00
Crit Moves:             ****                      ****         ****
Green/Cycle: 0.20 0.00  0.20 0.00 0.00  0.00 0.00 0.52  0.52 0.13 0.65  0.00
Volume/Cap:  0.44 0.00  0.48 0.00 0.00  0.00 0.00 1.24  1.24 1.24 0.66  0.00
Uniform Del: 35.1  0.0  35.4  0.0  0.0   0.0  0.0 24.1  24.1 43.4 10.7   0.0
IncremntDel:  0.9  0.0   1.1  0.0  0.0   0.0  0.0  117 117.1 138.6  1.3   0.0
InitQueueDel: 0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00 0.00 0.00  0.00 0.00 1.00  1.00 1.00 1.00  0.00
Delay/Veh:   36.0  0.0  36.5  0.0  0.0   0.0  0.0  141 141.2 182.0 12.0   0.0
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:  36.0  0.0  36.5  0.0  0.0   0.0  0.0  141 141.2 182.0 12.0   0.0
LOS by Move:    D    A     D    A    A     A    A    F     F    F    B     A
HCM2kAvgQ:      5    0     5    0    0     0    0   67    67   19   16     0
*****************************************************************************
Note: Queue reported is the number of cars per lane.
*****************************************************************************
```



```
2030 Cummulative Proj AM   Wed Nov 19, 2008 17:20:47                Page 4-1
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
                    Level Of Service Computation Report
           2000 HCM Unsignalized Method (Base Volume Alternative)
*****************************************************************************
Intersection #2 SR 140 / Baker
*****************************************************************************
Average Delay (sec/veh):      5.8      Worst Case Level Of Service: F[106.7]
*****************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  1! 0  0   0  0  1! 0  0   1  0  1  0  0   1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       3    1     6   27    0    73   48  919     0    0  913    38
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    3    1     6   27    0    73   48  919     0    0  913    38
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:     3    1     6   27    0    73   48  919     0    0  913    38
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
FinalVolume:    3    1     6   27    0    73   48  919     0    0  913    38
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2  7.1  6.5   6.2  4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3  3.5  4.0   3.3  2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1984 1966   919 1951 1947   932  951 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   46   64   332   49   65   326  730 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     34   59   332   45   61   326  730 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.09 0.02  0.02 0.60 0.00  0.22 0.07 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  0.2 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 10.3 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *    *    *     *    B    *     *    *    *     *
Movement:      LT - LTR - RT    LT - LTR - RT   LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx   82 xxxxx  xxxx  122 xxxxx xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.4 xxxxx xxxxx  4.9 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 55.2 xxxxx xxxxx  107 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    F     *    *    F     *    *    *     *    *    *     *
ApproachDel:        55.2            106.7            xxxxxx           xxxxxx
ApproachLOS:          F                F                *                *
*****************************************************************************
Note: Queue reported is the number of cars per lane.
*****************************************************************************
```

```
------------------------------------------------------------------------------
------------------------------------------------------------------------------
                  Level Of Service Computation Report
         2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #3 SR 140 / Kibby
******************************************************************************
Average Delay (sec/veh):     46.2     Worst Case Level Of Service: F[501.4]
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      22   48     0    26   55    45    47  843    47     8  774    27
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   22   48     0    26   55    45    47  843    47     8  774    27
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    22   48     0    26   55    45    47  843    47     8  774    27
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   22   48     0    26   55    45    47  843    47     8  774    27
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1814 1778   867  1775 1774   774   801 xxxx xxxxx   890 xxxx xxxxx
Potent Cap.:   61   83   355    65   84   402   831 xxxx xxxxx   770 xxxx xxxxx
Move Cap.:     22   78   355    32   78   402   831 xxxx xxxxx   770 xxxx xxxxx
Volume/Cap:  0.98 0.62  0.00  0.82 0.70  0.11  0.06 xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.2 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.6 xxxx xxxxx   9.7 xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     A    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:   44 xxxx xxxxx  xxxx   77 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:  7.0 xxxx xxxxx xxxxx 10.6 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:501.4 xxxx xxxxx xxxxx  430 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     F    *     *     *    F     *     *    *     *     *    *     *
ApproachDel:      501.4            429.9           xxxxxx           xxxxxx
ApproachLOS:        F                F                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```



```
------------------------------------------------------------------------------
------------------------------------------------------------------------------
                  Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
******************************************************************************
Intersection #4 Childs / SR 99 SB
******************************************************************************
Cycle (sec):          100             Critical Vol./Cap.(X):         2.357
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):     341.7
Optimal Cycle:          0             Level Of Service:                  F
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   797  304   186     0  561   103    58  579     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   797  304   186     0  561   103    58  579     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   797  304   186     0  561   103    58  579     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   797  304   186     0  561   103    58  579     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   797  304   186     0  561   103    58  579     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  0.72 0.28  1.00  0.00 0.84  0.16  0.09 0.91  0.00
Final Sat.:     0    0     0   338  129   541     0  450    83    48  476     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx  xxxx  2.36 2.36  0.34  xxxx 1.25  1.25  1.22 1.22  xxxx
Crit Moves:                        ****              ****              ****
Delay/Veh:    0.0  0.0   0.0 632.9  633  12.8   0.0  148 147.9 136.4  136   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0 632.9  633  12.8   0.0  148 147.9 136.4  136   0.0
LOS by Move:    *    *     *     F    F     B     *    F     F     F    F     *
ApproachDel:     xxxxxx            543.3            147.9            136.4
Delay Adj:        xxxxx             1.00             1.00             1.00
ApprAdjDel:      xxxxxx            543.3            147.9            136.4
LOS by Appr:        *                F                F                F
AllWayAvgQ:   0.0  0.0   0.0  80.8 80.8   0.5  20.5 20.5  20.5  18.4 18.4  18.4
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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--------------------------------------------------------------------------------
                      Level Of Service Computation Report
             2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #5 Childs / SR 99 NB
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap.(X):        2.347
Loss Time (sec):      0 (Y+R=4.0 sec) Average Delay (sec/veh):     261.5
Optimal Cycle:        0              Level Of Service:                 F
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0    0    0     0    0    0     0    0    0     0    0    0
Lanes:        0 `1  0  0  1   0  1  0  0  1   1  0  1  0  1   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      29   57   47     96   46   98    178  979  201    477  480  154
Growth Adj:  1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Initial Bse:   29   57   47     96   46   98    178  979  201    477  480  154
User Adj:    1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Volume:    29   57   47     96   46   98    178  979  201    477  480  154
Reduct Vol:     0    0    0      0    0    0      0    0    0      0    0    0
Reduced Vol:   29   57   47     96   46   98    178  979  201    477  480  154
PCE Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
FinalVolume:   29   57   47     96   46   98    178  979  201    477  480  154
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Lanes:       0.34 0.66 1.00   0.68 0.32 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Final Sat.:   124  244  403    256  122  424    391  417  449    409  434  467
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.23 0.23 0.12   0.38 0.38 0.23   0.46 2.35 0.45   1.16 1.11 0.33
Crit Moves:  ****                  ****             ****        ****
Delay/Veh:   15.0 15.0 12.5   17.5 17.5 13.5   19.1  632 16.8  126.0  103 13.9
Delay Adj:   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
AdjDel/Veh:  15.0 15.0 12.5   17.5 17.5 13.5   19.1  632 16.8  126.0  103 13.9
LOS by Move:    C    C    B      C    C    B      C    F    C      F    F    B
ApproachDel:      14.1             15.9            460.7            100.6
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:       14.1             15.9            460.7            100.6
LOS by Appr:         B                C                F                F
AllWayAvgQ:   0.3  0.3  0.1    0.6  0.6  0.3    0.8 71.9  0.8   13.0 11.1  0.5
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                      Level Of Service Computation Report
             2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #6 Childs / Parsons
********************************************************************************
Cycle (sec):        100              Critical Vol./Cap.(X):        1.477
Loss Time (sec):     17 (Y+R=4.0 sec) Average Delay (sec/veh):     245.4
Optimal Cycle:      180              Level Of Service:                 F
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    4   22   22     4   24   24     4   20   20     4   23   23
Lanes:        1  0  0  1  0   1  0  1  0  1   0  0  1! 0  0   1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     242  152   13    137   80  157    245  639  246     23  713  118
Growth Adj:  1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Initial Bse:  242  152   13    137   80  157    245  639  246     23  713  118
User Adj:    1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Volume:   242  152   13    137   80  157    245  639  246     23  713  118
Reduct Vol:     0    0    0      0    0    0      0    0    0      0    0    0
Reduced Vol:  242  152   13    137   80  157    245  639  246     23  713  118
PCE Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
FinalVolume:  242  152   13    137   80  157    245  639  246     23  713  118
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900 1900   1900 1900 1900   1900 1900 1900   1900 1900 1900
Adjustment:  0.95 0.99 0.99   0.95 1.00 0.85   0.96 0.96 0.96   0.95 1.00 0.85
Lanes:       1.00 0.92 0.08   1.00 1.00 1.00   0.22 0.56 0.22   1.00 1.00 1.00
Final Sat.:  1805 1729  148   1805 1900 1615    396 1032  397   1805 1900 1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.09 0.09   0.08 0.04 0.10   0.62 0.62 0.62   0.01 0.38 0.07
Crit Moves:  ****                       ****   ****                  ****
Green/Cycle: 0.06 0.23 0.23   0.08 0.24 0.24   0.30 0.49 0.49   0.04 0.23 0.23
Volume/Cap:  2.09 0.39 0.39   0.97 0.18 0.41   2.09 1.27 1.27   0.32 1.63 0.32
Uniform Del: 46.8 32.8 32.8   46.0 30.1 32.0   35.2 25.7 25.7   46.7 38.5 32.0
IncremntDel:519.9  0.6  0.6   67.4  0.2  0.7  498.0  132 132.3   2.5  294  0.5
InitQueuDel:  0.0  0.0  0.0    0.0  0.0  0.0    0.0  0.0  0.0    0.0  0.0  0.0
Delay Adj:   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Delay/Veh:  566.7 33.4 33.4  113.4 30.3 32.7  533.2  158 158.0  49.2  333 32.5
User DelAdj: 1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
AdjDel/Veh: 566.7 33.4 33.4  113.4 30.3 32.7  533.2  158 158.0  49.2  333 32.5
LOS by Move:    F    C    C      F    C    C      F    F    F      D    F    C
HCM2kAvgQ:     24    5    5      8    2    4    107   66   66      1   57    3
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
          2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #7 Childs / Coffee
********************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):        0.487
Loss Time (sec):        17 (Y+R=4.0 sec) Average Delay (sec/veh):     28.6
Optimal Cycle:          67             Level Of Service:                C
********************************************************************************
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    6   19    19    6   19    19    6   19    19    6   19    19
Lanes:         1  0  0  1  0   1  0  0  1  0   1  0  0  1  0   1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     120   53    35    30   78    92    31  235   155    40  229    12
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  120   53    35    30   78    92    31  235   155    40  229    12
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   120   53    35    30   78    92    31  235   155    40  229    12
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  120   53    35    30   78    92    31  235   155    40  229    12
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  120   53    35    30   78    92    31  235   155    40  229    12
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 0.94  0.94  0.95 0.92  0.92  0.95 0.94  0.94  0.95 0.99  0.99
Lanes:       1.00 0.60  0.40  1.00 0.46  0.54  1.00 0.60  0.40  1.00 0.95  0.05
Final Sat.:  1805 1076   710  1805  801   945  1805 1076   710  1805 1793    94
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.05  0.05  0.02 0.10  0.10  0.02 0.22  0.22  0.02 0.13  0.13
Crit Moves:  ****                  ****              ****        ****
Green/Cycle: 0.13 0.25  0.25  0.08 0.20  0.20  0.12 0.44  0.44  0.06 0.38  0.38
Volume/Cap:  0.50 0.20  0.20  0.21 0.50  0.50  0.14 0.50  0.50  0.37 0.34  0.34
Uniform Del: 40.2 29.5  29.5  43.1 35.8  35.8  39.4 20.1  20.1  45.2 22.0  22.0
IncremntDel:  1.6  0.2   0.2   0.7  1.1   1.1   0.3  0.5   0.5   2.1  0.3   0.3
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Delay/Veh:   41.8 29.7  29.7  43.8 36.9  36.9  39.7 20.6  20.6  47.3 22.3  22.3
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  41.8 29.7  29.7  43.8 36.9  36.9  39.7 20.6  20.6  47.3 22.3  22.3
LOS by Move:    D    C     C     D    D     D     D    C     C     D    C     C
HCM2kAvgQ:      4    2     2     1    5     5     1    9     9     2    5     5
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #8 Childs / KIbby
********************************************************************************
Average Delay (sec/veh):      2.5     Worst Case Level Of Service: B[ 10.3]
********************************************************************************
Street Name:                 Kibby                          Childs
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:         0  0  0  0  0   0  0  1! 0  0   0  1  0  0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    14    0    82    23  119     0     0  217    14
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    14    0    82    23  119     0     0  217    14
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    14    0    82    23  119     0     0  217    14
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    14    0    82    23  119     0     0  217    14
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4  6.5   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5  4.0   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   389  389   224   231 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   619  549   820  1349 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   610  540   820  1349 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.02 0.00  0.10  0.02 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.7 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx  781 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx  0.4 xxxxx   0.1 xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx 10.3 xxxxx   7.7 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    B     *     A    *     *     *    *     *
ApproachDel:     xxxxxx             10.3              xxxxxx           xxxxxx
ApproachLOS:        *                 B                 *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
*********************************************************************************
Intersection #9 Childs / Tower
*********************************************************************************
Average Delay (sec/veh):       1.7      Worst Case Level Of Service: B[ 11.2]
*********************************************************************************
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        6   12     2     5   19    19     2  130     1     1  206     2
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     6   12     2     5   19    19     2  130     1     1  206     2
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      6   12     2     5   19    19     2  130     1     1  206     2
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     6   12     2     5   19    19     2  130     1     1  206     2
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5   6.2   7.1  6.5   6.2   4.1 xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3   3.5  4.0   3.3   2.2 xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  363  345   131   351  344   207   208 xxxx xxxxx   131 xxxx xxxxx
Potent Cap.:  597  582   924   608  582   839  1375 xxxx xxxxx  1467 xxxx xxxxx
Move Cap.:    568  580   924   596  581   839  1375 xxxx xxxxx  1467 xxxx xxxxx
Volume/Cap:  0.01 0.02  0.00  0.01 0.03  0.02  0.00 xxxx  xxxx  0.00 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx   0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   7.6 xxxx xxxxx   7.5 xxxx xxxxx
LOS by Move:     *    *     *     *    *     *     A    *     *     A    *     *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  599 xxxxx  xxxx  674 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.1 xxxxx xxxxx  0.2 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 11.2 xxxxx xxxxx 10.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    B     *     *    B     *     *    *     *     *    *     *
ApproachDel:        11.2             10.7            xxxxxx           xxxxxx
ApproachLOS:           B                B                *                *
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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                    Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
*********************************************************************************
Intersection #10 Gerard / Coffee
*********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):        0.363
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        9.5
Optimal Cycle:          0               Level Of Service:                 A
*********************************************************************************
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:      0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        3   24    93   127   19     1    11  133    13   129   56    84
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     3   24    93   127   19     1    11  133    13   129   56    84
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      3   24    93   127   19     1    11  133    13   129   56    84
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:     3   24    93   127   19     1    11  133    13   129   56    84
PCE Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:     3   24    93   127   19     1    11  133    13   129   56    84
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:        0.02 0.20  0.78  0.86 0.13  0.01  0.07 0.85  0.08  0.48 0.21  0.31
Final Sat.:     18  142   552   557   83     4    49  595    58   355  154   231
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.17 0.17  0.17  0.23 0.23  0.23  0.22 0.22  0.22  0.36 0.36  0.36
Crit Moves:        ****        ****              ****              ****
Delay/Veh:     8.5  8.5   8.5   9.6  9.6   9.6   9.1  9.1   9.1  10.1 10.1  10.1
Delay Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:    8.5  8.5   8.5   9.6  9.6   9.6   9.1  9.1   9.1  10.1 10.1  10.1
LOS by Move:     A    A     A     A    A     A     A    A     A     B    B     B
ApproachDel:         8.5              9.6              9.1             10.1
Delay Adj:          1.00             1.00             1.00             1.00
ApprAdjDel:          8.5              9.6              9.1             10.1
LOS by Appr:           A                A                A                B
AllWayAvgQ:    0.2  0.2   0.2   0.3  0.3   0.3   0.3  0.3   0.3   0.5  0.5   0.5
*********************************************************************************
Note: Queue reported is the number of cars per lane.
*********************************************************************************
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                 Level Of Service Computation Report
         2000 HCM 4-Way Stop Method (Base Volume Alternative)
******************************************************************************
Intersection #11 Gerard / Tower
******************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.061
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        7.1
Optimal Cycle:          0              Level Of Service:                  A
******************************************************************************
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:    0     0     0    0     0     0    0     0     0    0     0     0
Lanes:         0  0  1! 0  0    0  0  1! 0  0    0  1  0  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0     0     0    2     0    21   18    36     0    0    35     5
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   0     0     0    2     0    21   18    36     0    0    35     5
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:    0     0     0    2     0    21   18    36     0    0    35     5
Reduct Vol:    0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:   0     0     0    2     0    21   18    36     0    0    35     5
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   0     0     0    2     0    21   18    36     0    0    35     5
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.00 1.00  0.00 0.09 0.00  0.91 0.33 0.67  0.00 0.00 0.87  0.13
Final Sat.:    0   856     0   86     0   902  295   589     0    0   798   114
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx 0.00  xxxx 0.02 xxxx  0.02 0.06 0.06  xxxx xxxx 0.04  0.04
Crit Moves:       ****       ****            ****                  ****
Delay/Veh:    0.0  0.0   0.0  6.6  0.0   6.6  7.3  7.3   0.0  0.0  7.1   7.1
Delay Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0  6.6  0.0   6.6  7.3  7.3   0.0  0.0  7.1   7.1
LOS by Move:   *     *     *    A     *     A    A     A     *    *     A     A
ApproachDel:    xxxxxx            6.6              7.3              7.1
Delay Adj:       xxxxx           1.00             1.00             1.00
ApprAdjDel:     xxxxxx            6.6              7.3              7.1
LOS by Appr:       *               A                A                A
AllWayAvgQ:   0.0  0.0   0.0  0.0  0.0   0.0  0.1  0.1   0.1  0.0  0.0   0.0
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                 Level Of Service Computation Report
          2000 HCM Operations Method (Base Volume Alternative)
******************************************************************************
Intersection #12 MIssion / SR 99 SB
******************************************************************************
Cycle (sec):          100              Critical Vol./Cap.(X):         0.757
Loss Time (sec):       11 (Y+R=4.0 sec) Average Delay (sec/veh):       30.8
Optimal Cycle:         66              Level Of Service:                  C
******************************************************************************
Approach:       North Bound      South Bound      East Bound       West Bound
Movement:      L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0     0     0    5     5     5    0    19    19    6     6     0
Lanes:         0  0  0  0  0    0  1  0  0  1    0  0  1  1  0    0  1  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0     0     0  533     0   178    0   389   191  334   407     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   0     0     0  533     0   178    0   389   191  334   407     0
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:    0     0     0  533     0   178    0   389   191  334   407     0
Reduct Vol:    0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol:   0     0     0  533     0   178    0   389   191  334   407     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   0     0     0  533     0   178    0   389   191  334   407     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900 1900 1900  1900 1900 1900  1900 1900 1900  1900
Adjustment:  1.00 1.00  1.00 0.95 1.00  0.85 1.00 0.90  0.90 0.93 0.93  1.00
Lanes:       0.00 0.00  0.00 1.00 0.00  1.00 0.00 1.34  0.66 0.90 1.10  0.00
Final Sat.:    0     0     0 1809     0  1615    0  2303  1131 1591 1939     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00 0.29 0.00  0.11 0.00 0.17  0.17 0.21 0.21  0.00
Crit Moves:                  ****                 ****       ****
Green/Cycle: 0.00 0.00  0.00 0.39 0.00  0.39 0.00 0.22  0.22 0.28 0.50  0.00
Volume/Cap:  0.00 0.00  0.00 0.76 0.00  0.28 0.00 0.76  0.76 0.76 0.42  0.00
Uniform Del:  0.0  0.0   0.0 26.4  0.0  21.0  0.0 36.3  36.3 33.0 15.8   0.0
IncremntDel:  0.0  0.0   0.0  4.7  0.0   0.2  0.0  4.4   4.4  3.4  0.2   0.0
InitQueueDel: 0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0  0.0  0.0   0.0
Delay Adj:   0.00 0.00  0.00 1.00 0.00  1.00 0.00 1.00  1.00 1.00 1.00  0.00
Delay/Veh:    0.0  0.0   0.0 31.2  0.0  21.2  0.0 40.7  40.7 36.5 15.9   0.0
User DelAdj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
AdjDel/Veh:   0.0  0.0   0.0 31.2  0.0  21.2  0.0 40.7  40.7 36.5 15.9   0.0
LOS by Move:   A     A     A    C     A     C    A     D     D    D     B     A
HCM2kAvgQ:     0     0     0   16     0     4    0    10    10   13     8     0
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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                    Level Of Service Computation Report
          2000 HCM Operations Method (Base Volume Alternative)
********************************************************************************
Intersection #13 Mission / SR 99 NB
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):          0.810
Loss Time (sec):       15 (Y+R=4.0 sec) Average Delay (sec/veh):         30.6
Optimal Cycle:         87               Level Of Service:                   C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     5    5    5     0    0    0     5   23    0     0    6    6
Lanes:        0  1  0  0  1    0  0  0  0  0    1  0  2  0  0    0  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     214    0   588     0    0     0   134  788     0     0  528   404
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  214    0   588     0    0     0   134  788     0     0  528   404
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   214    0   588     0    0     0   134  788     0     0  528   404
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  214    0   588     0    0     0   134  788     0     0  528   404
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  214    0   588     0    0     0   134  788     0     0  528   404
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.95 1.00  0.85  1.00 1.00  1.00  0.95 0.95  1.00  1.00 0.95  0.85
Lanes:       1.00 0.00  1.00  0.00 0.00  0.00  1.00 2.00  0.00  0.00 2.00  1.00
Final Sat.:  1809    0  1615     0    0     0  1805 3610     0     0 3610  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.00  0.36  0.00 0.00  0.00  0.07 0.22  0.00  0.00 0.15  0.25
Crit Moves:             ****                   ****                        ****
Green/Cycle: 0.45 0.00  0.45  0.00 0.00  0.00  0.09 0.40  0.00  0.00 0.31  0.31
Volume/Cap:  0.26 0.00  0.81  0.00 0.00  0.00  0.81 0.55  0.00  0.00 0.47  0.81
Uniform Del: 17.2  0.0  23.8   0.0  0.0   0.0  44.6 23.0   0.0   0.0 28.0  31.9
IncremntDel:  0.2  0.0   6.8   0.0  0.0   0.0  25.0  0.4   0.0   0.0  0.3   9.6
InitQueuDel:  0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0
Delay Adj:   1.00 0.00  1.00  0.00 0.00  0.00  1.00 1.00  0.00  0.00 1.00  1.00
Delay/Veh:   17.4  0.0  30.6   0.0  0.0   0.0  69.5 23.4   0.0   0.0 28.3  41.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  17.4  0.0  30.6   0.0  0.0   0.0  69.5 23.4   0.0   0.0 28.3  41.5
LOS by Move:    B    A     C     A    A     A     E    C     A     A    C     D
HCM2kAvgQ:      4    0    18     0    0     0     6   10     0     0    7    14
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                    Level Of Service Computation Report
          2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #14 Mission / Coffee
********************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):          1.716
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):        221.5
Optimal Cycle:          0               Level Of Service:                   F
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0     0    0    0     0    0    0     0    0    0
Lanes:        1  0  1! 0  0    0  0  1! 0  0    0  1  0  1  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60   70    70    10   20   237   125 1160    90   118  634    71
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60   70    70    10   20   237   125 1160    90   118  634    71
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60   70    70    10   20   237   125 1160    90   118  634    71
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60   70    70    10   20   237   125 1160    90   118  634    71
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60   70    70    10   20   237   125 1160    90   118  634    71
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.30  0.70  0.04 0.07  0.89  0.18 1.69  0.13  0.14 0.77  0.09
Final Sat.:   800 -287   287    17   34   401    88  828    65    69  370    41
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08-0.24  0.24  0.59 0.59  0.59  1.42 1.40  1.38  1.72 1.72  1.72
Crit Moves:             ****              ****  ****             ****
Delay/Veh:   14.9 15.6  15.6  21.6 21.6  21.6 221.4  213 206.1 349.6  350 349.6
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  14.9 15.6  15.6  21.6 21.6  21.6 221.4  213 206.1 349.6  350 349.6
LOS by Move:    B    C     C     C    C     C     F    F     F     F    F     F
ApproachDel:      14.9             21.6            213.7            349.6
Delay Adj:        1.00             1.00             1.00             1.00
ApprAdjDel:       14.9             21.6            213.7            349.6
LOS by Appr:        B                C                F                F
AllWayAvgQ:   0.5  0.5   0.5   1.3  1.3   1.3  28.4 27.0  27.0  45.2 45.2  45.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #15 Gerard / Campus Parkway

Cycle (sec): 100
Loss Time (sec): 0 (Y+R=4.0 sec)
Optimal Cycle: 0
Critical Vol./Cap.(X): 1.504
Average Delay (sec/veh): 148.5
Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	26	468	228	47	360	166	142	57	72	261	33	16
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	468	228	47	360	166	142	57	72	261	33	16
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	468	228	47	360	166	142	57	72	261	33	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	468	228	47	360	166	142	57	72	261	33	16
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	468	228	47	360	166	142	57	72	261	33	16
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.04	0.65	0.31	0.08	0.63	0.29	0.52	0.21	0.27	0.84	0.11	0.05
Final Sat.:	17	311	152	39	301	139	219	88	111	355	45	22
Capacity Analysis Module:												
Vol/Sat:	1.50	1.50	1.50	1.20	1.20	1.20	0.65	0.65	0.65	0.74	0.74	0.74
Crit Moves:		****			****		****				****	
Delay/Veh:	257.9	258	257.9	132.7	133	132.7	25.1	25.1	25.1	30.7	30.7	30.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	257.9	258	257.9	132.7	133	132.7	25.1	25.1	25.1	30.7	30.7	30.7
LOS by Move:	F	F	F	F	F	F	D	D	D	D	D	D
ApproachDel:	257.9			132.7			25.1			30.7		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	257.9			132.7			25.1			30.7		
LOS by Appr:	F			F			D			D		
AllWayAvgQ:	33.0	33.0	33.0	16.2	16.2	16.2	1.6	1.6	1.6	2.3	2.3	2.3

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #42 Childs / Campus Parkway

Cycle (sec): 100
Loss Time (sec): 0 (Y+R=4.0 sec)
Optimal Cycle: 0
Critical Vol./Cap.(X): 0.947
Average Delay (sec/veh): 34.1
Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	58	507	57	33	441	70	73	13	56	27	48	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	507	57	33	441	70	73	13	56	27	48	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	58	507	57	33	441	70	73	13	56	27	48	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	58	507	57	33	441	70	73	13	56	27	48	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	58	507	57	33	441	70	73	13	56	27	48	14
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.09	0.82	0.09	0.06	0.81	0.13	0.52	0.09	0.39	0.30	0.54	0.16
Final Sat.:	61	535	60	39	520	83	256	46	197	143	255	74
Capacity Analysis Module:												
Vol/Sat:	0.95	0.95	0.95	0.85	0.85	0.85	0.28	0.28	0.28	0.19	0.19	0.19
Crit Moves:		****		****			****				****	
Delay/Veh:	45.6	45.6	45.6	30.4	30.4	30.4	12.3	12.3	12.3	11.6	11.6	11.6
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	45.6	45.6	45.6	30.4	30.4	30.4	12.3	12.3	12.3	11.6	11.6	11.6
LOS by Move:	E	E	E	D	D	D	B	B	B	B	B	B
ApproachDel:	45.6			30.4			12.3			11.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	45.6			30.4			12.3			11.6		
LOS by Appr:	E			D			B			B		
AllWayAvgQ:	6.8	6.8	6.8	3.9	3.9	3.9	0.3	0.3	0.3	0.2	0.2	0.2

Note: Queue reported is the number of cars per lane.

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2531	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	703	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1058	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1058	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	17.4	pc/mi/ln
Level of service, LOS	B	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: AM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	2773	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	770	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1160	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1160	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	19.0	pc/mi/ln
Level of service, LOS	C	

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

HCS2000: Two-Lane Highways Release 4.1a

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period AM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2030
Description 2030 Cumulative with Project Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1899 veh/h
Directional split 70 / 30 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 2027 pc/h
Highest directional split proportion (note-2) 1419 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 39.0 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1999 pc/h
Highest directional split proportion (note-2) 1399
Base percent time-spent-following, BPTSF 82.7 %

Adj.for directional distribution and no-passing zones, fd/np 0.0
Percent time-spent-following, PTSF 82.7 %

_______________Level of Service and Other Performance Measures_______________

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.63	
Peak 15-min vehicle-miles of travel, VMT15	650	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2469	veh-mi
Peak 15-min total travel time, TT15	16.7	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

2030 Cumulative with Project Condition
PM Peak Hour

Highway Capacity Manual Methods

Scenario Report

Scenario:	2030 Cummulative Proj PM
Command:	Default Command
Volume:	Cum WP PM
Geometry:	Exisitng
Impact Fee:	Default Impact Fee
Trip Generation:	None
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/Veh	Base V/C	Future LOS	Future Del/Veh	Future V/C	Change in
# 1 SR 140 / Parsons	D	38.7	0.883	D	38.7	0.883	+ 0.000 D/V
# 2 SR 140 / Baker	F	96.9	0.000	F	96.9	0.000	+ 0.000 D/V
# 3 SR 140 / Kibby	F	73.6	0.000	F	73.6	0.000	+ 0.000 D/V
# 4 Childs / SR 99 SB	F	260.2	2.119	F	260.2	2.119	+ 0.000 V/C
# 5 Childs / SR 99 NB	F	237.2	1.997	F	237.2	1.997	+ 0.000 V/C
# 6 Childs / Parsons	F	227.8	1.430	F	227.8	1.430	+ 0.000 D/V
# 7 Childs / Coffee	C	32.7	0.497	C	32.7	0.497	+ 0.000 D/V
# 8 Childs / KIbby	B	12.1	0.000	B	12.1	0.000	+ 0.000 D/V
# 9 Childs / Tower	B	15.0	0.000	B	15.0	0.000	+ 0.000 D/V
# 10 Gerard / Coffee	A	10.0	0.463	A	10.0	0.463	+ 0.000 V/C
# 11 Gerard / Tower	A	7.5	0.124	A	7.5	0.124	+ 0.000 V/C
# 12 MIssion / SR 99 SB	F	83.4	1.074	F	83.4	1.074	+ 0.000 D/V
# 13 Mission / SR 99 NB	E	55.1	1.095	E	55.1	1.095	+ 0.000 D/V
# 14 Mission / Coffee	F	591.8	3.400	F	591.8	3.400	+ 0.000 V/C
# 15 Gerard / Campus Parkway	F	166.1	1.602	F	166.1	1.602	+ 0.000 V/C
# 42 Childs / Campus Parkway	E	40.8	1.015	E	40.8	1.015	+ 0.000 V/C

```
------------------------------------------------------------------------------
------------------------------------------------------------------------------
                    Level Of Service Computation Report
          2000 HCM Operations Method (Base Volume Alternative)
******************************************************************************
Intersection #1 SR 140 / Parsons
******************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):         0.883
Loss Time (sec):      15 (Y+R=4.0 sec) Average Delay (sec/veh):       38.7
Optimal Cycle:       108              Level Of Service:                  D
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:   20     0    20    0     0     0    0    17    17    5    20     0
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  0  1  0    1  0  1  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:    195     0   164    0     0     0    0   800   199  184   760     0
Growth Adj: 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Initial Bse: 195     0   164    0     0     0    0   800   199  184   760     0
User Adj:   1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Volume:  195     0   164    0     0     0    0   800   199  184   760     0
Reduct Vol:    0     0     0    0     0     0    0     0     0    0     0     0
Reduced Vol: 195     0   164    0     0     0    0   800   199  184   760     0
PCE Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
MLF Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
FinalVolume: 195     0   164    0     0     0    0   800   199  184   760     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:   1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900  1900
Adjustment: 0.95  1.00  0.85 1.00  1.00  1.00 1.00  0.97  0.97 0.95  1.00  1.00
Lanes:      1.00  0.00  1.00 0.00  0.00  0.00 0.00  0.80  0.20 1.00  1.00  0.00
Final Sat.: 1805     0  1615    0     0     0    0  1480   368 1805  1900     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:    0.11  0.00  0.10 0.00  0.00  0.00 0.00  0.54  0.54 0.10  0.40  0.00
Crit Moves: ****                                    ****         ****
Green/Cycle: 0.20 0.00  0.20 0.00  0.00  0.00 0.00  0.55  0.55 0.10  0.65  0.00
Volume/Cap: 0.54  0.00  0.51 0.00  0.00  0.00 0.00  0.99  0.99 0.99  0.62  0.00
Uniform Del: 35.9  0.0  35.6  0.0   0.0   0.0  0.0  22.3  22.3 44.8  10.2   0.0
IncremntDel:  1.7  0.0   1.3  0.0   0.0   0.0  0.0  25.3  25.3 62.3   0.9   0.0
InitQueuDel:  0.0  0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0  0.0   0.0   0.0
Delay Adj:  1.00  0.00  1.00 0.00  0.00  0.00 0.00  1.00  1.00 1.00  1.00  0.00
Delay/Veh:  37.5   0.0  36.9  0.0   0.0   0.0  0.0  47.7  47.7 107.1 11.1   0.0
User DelAdj: 1.00 1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
AdjDel/Veh: 37.5   0.0  36.9  0.0   0.0   0.0  0.0  47.7  47.7 107.1 11.1   0.0
LOS by Move:   D     A     D    A     A     A    A     D     D    F     B     A
HCM2kAvgQ:     6     0     5    0     0     0    0    38    38   10    14     0
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```



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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #2 SR 140 / Baker
******************************************************************************
Average Delay (sec/veh):      6.6      Worst Case Level Of Service: F[ 96.9]
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    1  0  1  0  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     14     0    14   48     0    52   52   754     0    0   763    48
Growth Adj: 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
Initial Bse:  14     0    14   48     0    52   52   754     0    0   763    48
User Adj:   1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Adj:    1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00
PHF Volume:   14     0    14   48     0    52   52   754     0    0   763    48
Reduct Vol:    0     0     0    0     0     0    0     0     0    0     0     0
FinalVolume:  14     0    14   48     0    52   52   754     0    0   763    48
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1   6.5   6.2  7.1   6.5   6.2  4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5   4.0   3.3  3.5   4.0   3.3  2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1671 1669   754 1652  1645   787  811 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:   77   97   412   79   101   395  824 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     64   91   412   73    94   395  824 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.22 0.00  0.03 0.66  0.00  0.13 0.06 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx xxxx xxxx xxxxx   0.2 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx  9.7 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *    *     *     *    A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  110 xxxxx xxxx   127 xxxxx xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.9 xxxxx xxxxx  4.7 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 48.4 xxxxx xxxxx 96.9 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    E     *    *     F     *    *    *     *     *    *     *
ApproachDel:       48.4             96.9           xxxxxx           xxxxxx
ApproachLOS:         E                F               *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
*******************************************************************************
Intersection #3 SR 140 / Kibby
*******************************************************************************
Average Delay (sec/veh):      3.3       Worst Case Level Of Service: F[ 73.6]
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  0  1  0    1  0  1  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      18   41    0     6    4    3    39  705   49     0  675   40
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:   18   41    0     6    4    3    39  705   49     0  675   40
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:    18   41    0     6    4    3    39  705   49     0  675   40
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
FinalVolume:   18   41    0     6    4    3    39  705   49     0  675   40
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5  6.2   7.1  6.5  6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:  3.5  4.0  3.3   3.5  4.0  3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1506 1523  730  1503 1507  675   715 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.:  100  119  426   101  122  457   895 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:     94  114  426    71  117  457   895 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  0.19 0.36 0.00  0.09 0.03 0.01  0.04 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.2 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     *    *     *     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.:  107 xxxx xxxxx  xxxx  103 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:  2.6 xxxx xxxxx xxxxx  0.4 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel: 73.6 xxxx xxxxx xxxxx 44.8 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     F    *     *     *    E     *     *    *     *     *    *     *
ApproachDel:      73.6             44.8            xxxxxx           xxxxxx
ApproachLOS:         F                E                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```



```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #4 Childs / SR 99 SB
*******************************************************************************
Cycle (sec):          100               Critical Vol./Cap.(X):        2.119
Loss Time (sec):        0 (Y+R=4.0 sec) Average Delay (sec/veh):      260.2
Optimal Cycle:          0               Level Of Service:                 F
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:          Include          Include          Include          Include
Min. Green:     0    0    0     0    0    0     0    0    0     0    0    0
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  0  1  0    0  1  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0    0   654  361  303     0  538   68    31  421    0
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:    0    0    0   654  361  303     0  538   68    31  421    0
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Volume:     0    0    0   654  361  303     0  538   68    31  421    0
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:    0    0    0   654  361  303     0  538   68    31  421    0
PCE Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
FinalVolume:    0    0    0   654  361  303     0  538   68    31  421    0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Lanes:       0.00 0.00 0.00  0.64 0.36 1.00  0.00 0.89 0.11  0.07 0.93 0.00
Final Sat.:     0    0    0   309  170  553     0  482   61    36  489    0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     xxxx xxxx xxxx  2.12 2.12 0.55  xxxx 1.12 1.12  0.86 0.86 xxxx
Crit Moves:                       ****            ****            ****
Delay/Veh:    0.0  0.0  0.0 527.5  527 16.8   0.0 99.1 99.1  39.0 39.0  0.0
Delay Adj:   1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:   0.0  0.0  0.0 527.5  527 16.8   0.0 99.1 99.1  39.0 39.0  0.0
LOS by Move:    *    *    *     F    F    C     *    F    F     E    E    *
ApproachDel:     xxxxxx           410.1             99.1             39.0
Delay Adj:        xxxxx            1.00             1.00             1.00
ApprAdjDel:      xxxxxx           410.1             99.1             39.0
LOS by Appr:        *                F                F                E
AllWayAvgQ:   0.0  0.0  0.0  68.8 68.8  1.2  13.5 13.5 13.5   4.2  4.2  4.2
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Childs / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	1.997
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	237.2
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	50	37	48	119	29	93	188	854	141	680	309	177
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	37	48	119	29	93	188	854	141	680	309	177
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	50	37	48	119	29	93	188	854	141	680	309	177
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	37	48	119	29	93	188	854	141	680	309	177
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	50	37	48	119	29	93	188	854	141	680	309	177
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.57	0.43	1.00	0.80	0.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	212	157	409	307	75	431	399	428	458	414	437	474
Capacity Analysis Module:												
Vol/Sat:	0.24	0.24	0.12	0.39	0.39	0.22	0.47	2.00	0.31	1.64	0.71	0.37
Crit Moves:		****			****			****		****		
Delay/Veh:	14.9	14.9	12.2	17.5	17.5	13.0	19.2	476	13.7	319.8	28.0	14.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.9	14.9	12.2	17.5	17.5	13.0	19.2	476	13.7	319.8	28.0	14.5
LOS by Move:	B	B	B	C	C	B	C	F	B	F	D	B
ApproachDel:		13.9			15.7			348.3			196.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		13.9			15.7			348.3			196.1	
LOS by Appr:		B			C			F			F	
AllWayAvgQ:	0.3	0.3	0.1	0.6	0.6	0.3	0.8	55.2	0.4	35.5	2.1	0.6

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Childs / Parsons

Cycle (sec):	100	Critical Vol./Cap.(X):	1.430
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	227.8
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	4	22	22	4	24	24	4	20	20	4	23	23
Lanes:	1 0	0	1 0	1 0	1	0 1	0 0	1!	0 0	1 0	1	0 1
Volume Module:												
Base Vol:	299	141	4	107	152	150	191	536	288	4	699	96
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	299	141	4	107	152	150	191	536	288	4	699	96
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	299	141	4	107	152	150	191	536	288	4	699	96
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	299	141	4	107	152	150	191	536	288	4	699	96
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	299	141	4	107	152	150	191	536	288	4	699	96
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	0.85	0.95	0.95	0.95	0.95	1.00	0.85
Lanes:	1.00	0.97	0.03	1.00	1.00	1.00	0.19	0.53	0.28	1.00	1.00	1.00
Final Sat.:	1805	1840	52	1805	1900	1615	341	957	514	1805	1900	1615
Capacity Analysis Module:												
Vol/Sat:	0.17	0.08	0.08	0.06	0.08	0.09	0.56	0.56	0.56	0.00	0.37	0.06
Crit Moves:	****					****	****				****	
Green/Cycle:	0.08	0.25	0.25	0.07	0.24	0.24	0.28	0.47	0.47	0.04	0.23	0.23
Volume/Cap:	2.02	0.30	0.30	0.87	0.33	0.39	2.02	1.20	1.20	0.06	1.60	0.26
Uniform Del:	45.9	30.2	30.2	46.1	31.4	31.8	36.1	26.6	26.6	46.2	38.5	31.5
IncremntDel:	480.4	0.4	0.4	43.4	0.4	0.6	464.5	100	100.4	0.3	280	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	526.3	30.5	30.5	89.5	31.8	32.5	500.6	127	127.0	46.5	319	31.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	526.3	30.5	30.5	89.5	31.8	32.5	500.6	127	127.0	46.5	319	31.9
LOS by Move:	F	C	C	F	C	C	F	F	F	D	F	C
HCM2kAvgQ:	29	4	4	6	4	4	94	54	54	0	55	3

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #7 Childs / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	0.497
Loss Time (sec):	17 (Y+R=4.0 sec)	Average Delay (sec/veh):	32.7
Optimal Cycle:	67	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	19	19	6	19	19	6	19	19	6	19	19
Lanes:	1 0 0 1 0			1 0 0 1 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	305	35	41	7	23	20	39	174	185	26	202	18
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	305	35	41	7	23	20	39	174	185	26	202	18
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	305	35	41	7	23	20	39	174	185	26	202	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	305	35	41	7	23	20	39	174	185	26	202	18
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	305	35	41	7	23	20	39	174	185	26	202	18
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.92	0.92	0.95	0.93	0.93	0.95	0.92	0.92	0.95	0.99	0.99
Lanes:	1.00	0.46	0.54	1.00	0.53	0.47	1.00	0.48	0.52	1.00	0.92	0.08
Final Sat.:	1805	804	942	1805	945	822	1805	850	904	1805	1724	154
Capacity Analysis Module:												
Vol/Sat:	0.17	0.04	0.04	0.00	0.02	0.02	0.02	0.20	0.20	0.01	0.12	0.12
Crit Moves:	****				****			****		****		
Green/Cycle:	0.26	0.34	0.34	0.11	0.19	0.19	0.09	0.32	0.32	0.06	0.29	0.29
Volume/Cap:	0.64	0.13	0.13	0.04	0.13	0.13	0.24	0.64	0.64	0.24	0.41	0.41
Uniform Del:	32.7	22.5	22.5	39.9	33.6	33.6	42.3	29.3	29.3	44.8	28.8	28.8
IncremntDel:	3.0	0.1	0.1	0.1	0.2	0.2	0.8	2.6	2.6	1.2	0.5	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	35.8	22.6	22.6	40.0	33.8	33.8	43.0	31.9	31.9	46.0	29.3	29.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	35.8	22.6	22.6	40.0	33.8	33.8	43.0	31.9	31.9	46.0	29.3	29.3
LOS by Move:	D	C	C	D	C	C	D	C	C	D	C	C
HCM2kAvgQ:	9	2	2	0	1	1	1	10	10	1	6	6

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Childs / KIbby

Average Delay (sec/veh): 1.8 Worst Case Level Of Service: B[12.1]

Street Name:	Kibby						Childs					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			0 1 0 0 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	0	0	38	0	38	36	317	0	0	203	33
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	38	0	38	36	317	0	0	203	33
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	38	0	38	36	317	0	0	203	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	38	0	38	36	317	0	0	203	33
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	609	609	220	236	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	462	413	825	1343	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	452	401	825	1343	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.08	0.00	0.05	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	584	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	12.1	xxxxx	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:		xxxxxx			12.1			xxxxxx			xxxxxx	
ApproachLOS:		*			B			*			*	

Note: Queue reported is the number of cars per lane.

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                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
*******************************************************************************
Intersection #9 Childs / Tower
*******************************************************************************
Average Delay (sec/veh):       2.1      Worst Case Level Of Service: B[ 15.0]
*******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       4   69    8      2   12    2      1  349    2      1  227    2
Growth Adj:  1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Initial Bse:    4   69    8      2   12    2      1  349    2      1  227    2
User Adj:    1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Volume:     4   69    8      2   12    2      1  349    2      1  227    2
Reduct Vol:     0    0    0      0    0    0      0    0    0      0    0    0
FinalVolume:    4   69    8      2   12    2      1  349    2      1  227    2
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  7.1  6.5  6.2    7.1  6.5  6.2    4.1 xxxx xxxxx    4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0  3.3    3.5  4.0  3.3    2.2 xxxx xxxxx    2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  589  583  350    621  583  228    229 xxxx xxxxx    351 xxxx xxxxx
Potent Cap.:  423  427  698    403  427  816   1351 xxxx xxxxx   1219 xxxx xxxxx
Move Cap.:    412  426  698    348  426  816   1351 xxxx xxxxx   1219 xxxx xxxxx
Volume/Cap:  0.01 0.16 0.01   0.01 0.03 0.00   0.00 xxxx  xxxx   0.00 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx    0.0 xxxx xxxxx    0.0 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx    7.7 xxxx xxxxx    8.0 xxxx xxxxx
LOS by Move:    *    *    *      *    *    *      A    *    *      A    *    *
Movement:      LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  442 xxxxx  xxxx  440 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  0.7 xxxxx xxxxx  0.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx 15.0 xxxxx xxxxx 13.5 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    B    *      *    B    *      *    *    *      *    *    *
ApproachDel:        15.0             13.5            xxxxxx           xxxxxx
ApproachLOS:          B                B                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                    Level Of Service Computation Report
              2000 HCM 4-Way Stop Method (Base Volume Alternative)
*******************************************************************************
Intersection #10 Gerard / Coffee
*******************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         0.463
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):        10.0
Optimal Cycle:          0                Level Of Service:                  A
*******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0      0    0    0      0    0    0      0    0    0
Lanes:        0  0  1! 0  0    0  0  1! 0  0    0  0  0  1  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       1    7   41    149   16    5      0  117   31     47   53  282
Growth Adj:  1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Initial Bse:    1    7   41    149   16    5      0  117   31     47   53  282
User Adj:    1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
PHF Volume:     1    7   41    149   16    5      0  117   31     47   53  282
Reduct Vol:     0    0    0      0    0    0      0    0    0      0    0    0
Reduced Vol:    1    7   41    149   16    5      0  117   31     47   53  282
PCE Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
FinalVolume:    1    7   41    149   16    5      0  117   31     47   53  282
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
Lanes:       0.02 0.14 0.84   0.88 0.09 0.03   0.00 0.79 0.21   0.12 0.14 0.74
Final Sat.:    14   95  559    558   60   19      0  569  151    101  114  609
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.07 0.07   0.27 0.27 0.27   xxxx 0.21 0.21   0.46 0.46 0.46
Crit Moves:       ****         ****                 ****             ****
Delay/Veh:    8.1  8.1  8.1   10.0 10.0 10.0    0.0  8.9  8.9   10.6 10.6 10.6
Delay Adj:   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00   1.00 1.00 1.00
AdjDel/Veh:   8.1  8.1  8.1   10.0 10.0 10.0    0.0  8.9  8.9   10.6 10.6 10.6
LOS by Move:    A    A    A      A    A    A      *    A    A      B    B    B
ApproachDel:        8.1             10.0              8.9             10.6
Delay Adj:         1.00             1.00             1.00             1.00
ApprAdjDel:         8.1             10.0              8.9             10.6
LOS by Appr:          A                A                A                B
AllWayAvgQ:   0.1  0.1  0.1    0.3  0.3  0.3    0.2  0.2  0.2    0.8  0.8  0.8
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #11 Gerard / Tower

Cycle (sec):	100	Critical Vol./Cap.(X):	0.124
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	7.5
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 1	0	0 0	0 0	0	1 0
Volume Module:												
Base Vol:	0	0	0	5	0	10	75	33	0	0	32	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	5	0	10	75	33	0	0	32	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	5	0	10	75	33	0	0	32	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	5	0	10	75	33	0	0	32	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	5	0	10	75	33	0	0	32	6
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.33	0.00	0.67	0.69	0.31	0.00	0.00	0.84	0.16
Final Sat.:	0	826	0	300	0	599	606	267	0	0	765	143
Capacity Analysis Module:												
Vol/Sat:	xxxx	0.00	xxxx	0.02	xxxx	0.02	0.12	0.12	xxxx	xxxx	0.04	0.04
Crit Moves:		****		****			****				****	
Delay/Veh:	0.0	0.0	0.0	6.9	0.0	6.9	7.7	7.7	0.0	0.0	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	6.9	0.0	6.9	7.7	7.7	0.0	0.0	7.1	7.1
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:		xxxxxx			6.9			7.7			7.1	
Delay Adj:		xxxxx			1.00			1.00			1.00	
ApprAdjDel:		xxxxxx			6.9			7.7			7.1	
LOS by Appr:		*			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #12 MIssion / SR 99 SB

Cycle (sec):	100	Critical Vol./Cap.(X):	1.074
Loss Time (sec):	11 (Y+R=4.0 sec)	Average Delay (sec/veh):	83.4
Optimal Cycle:	180	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	5	5	5	0	19	19	6	6	0
Lanes:	0 0	0	0 0	0 1	0	0 1	0 0	1	1 0	0 1	1	0 0
Volume Module:												
Base Vol:	0	0	0	580	3	120	0	273	206	808	342	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	580	3	120	0	273	206	808	342	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	580	3	120	0	273	206	808	342	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	580	3	120	0	273	206	808	342	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	580	3	120	0	273	206	808	342	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.88	0.88	0.85	1.00	0.89	0.89	0.92	0.92	1.00
Lanes:	0.00	0.00	0.00	0.99	0.01	1.00	0.00	1.14	0.86	1.00	1.00	0.00
Final Sat.:	0	0	0	1656	9	1615	0	1926	1453	1744	1744	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.35	0.35	0.07	0.00	0.14	0.14	0.46	0.20	0.00
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.19	0.19	0.40	0.59	0.00
Volume/Cap:	0.00	0.00	0.00	1.16	1.16	0.25	0.00	0.75	0.75	1.16	0.33	0.00
Uniform Del:	0.0	0.0	0.0	34.9	34.9	26.4	0.0	38.2	38.2	30.1	10.5	0.0
IncremntDel:	0.0	0.0	0.0	93.2	93.2	0.3	0.0	4.8	4.8	84.4	0.1	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	0.0	128.1	128	26.6	0.0	43.0	43.0	114.4	10.6	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	128.1	128	26.6	0.0	43.0	43.0	114.4	10.6	0.0
LOS by Move:	A	A	A	F	F	C	A	D	D	F	B	A
HCM2kAvgQ:	0	0	0	31	31	3	0	9	9	44	6	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #13 Mission / SR 99 NB

Cycle (sec):	100	Critical Vol./Cap.(X):	1.095
Loss Time (sec):	15 (Y+R=4.0 sec)	Average Delay (sec/veh):	55.1
Optimal Cycle:	180	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	5	5	5	0	0	0	5	23	0	0	6	6
Lanes:	0 1 0 0 1			0 0 0 0 0			1 0 2 0 0			0 0 2 0 1		
Volume Module:												
Base Vol:	192	0	627	0	0	0	64	788	0	0	957	819
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	192	0	627	0	0	0	64	788	0	0	957	819
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	192	0	627	0	0	0	64	788	0	0	957	819
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	192	0	627	0	0	0	64	788	0	0	957	819
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	192	0	627	0	0	0	64	788	0	0	957	819
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.85
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00	1.00
Final Sat.:	1809	0	1615	0	0	0	1805	3610	0	0	3610	1615
Capacity Analysis Module:												
Vol/Sat:	0.11	0.00	0.39	0.00	0.00	0.00	0.04	0.22	0.00	0.00	0.27	0.51
Crit Moves:			****				****					****
Green/Cycle:	0.35	0.00	0.35	0.00	0.00	0.00	0.05	0.50	0.00	0.00	0.45	0.45
Volume/Cap:	0.31	0.00	1.12	0.00	0.00	0.00	0.71	0.43	0.00	0.00	0.59	1.12
Uniform Del:	23.9	0.0	32.7	0.0	0.0	0.0	46.8	15.8	0.0	0.0	20.3	27.3
IncremntDel:	0.3	0.0	75.2	0.0	0.0	0.0	22.9	0.2	0.0	0.0	0.6	71.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Delay/Veh:	24.1	0.0	107.8	0.0	0.0	0.0	69.7	16.0	0.0	0.0	20.9	98.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	24.1	0.0	107.8	0.0	0.0	0.0	69.7	16.0	0.0	0.0	20.9	98.4
LOS by Move:	C	A	F	A	A	A	E	B	A	A	C	F
HCM2kAvgQ:	4	0	31	0	0	0	3	8	0	0	12	40

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #14 Mission / Coffee

Cycle (sec):	100	Critical Vol./Cap.(X):	3.400
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	591.8
Optimal Cycle:	0	Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1! 0 0			0 0 1! 0 0			0 1 0 1 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	44	61	70	9	18	397	70	1254	75	99	1317	79
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	44	61	70	9	18	397	70	1254	75	99	1317	79
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	44	61	70	9	18	397	70	1254	75	99	1317	79
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	61	70	9	18	397	70	1254	75	99	1317	79
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	44	61	70	9	18	397	70	1254	75	99	1317	79
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.20	0.80	0.02	0.04	0.94	0.10	1.79	0.11	0.07	0.88	0.05
Final Sat.:	760	-313	313	10	19	430	45	806	49	29	387	23
Capacity Analysis Module:												
Vol/Sat:	0.06	-0.19	0.22	0.92	0.92	0.92	1.57	1.56	1.54	3.40	3.40	3.40
Crit Moves:			****		****		****				****	
Delay/Veh:	15.5	16.2	16.2	52.7	52.7	52.7	286.7	281	275.8	1103	1103	1103
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.5	16.2	16.2	52.7	52.7	52.7	286.7	281	275.8	1103	1103	1103
LOS by Move:	C	C	C	F	F	F	F	F	F	F	F	F
ApproachDel:	15.5			52.7			281.3			1102.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	15.5			52.7			281.3			1102.6		
LOS by Appr:	C			F			F			F		
AllWayAvgQ:	0.5	0.5	0.5	5.3	5.3	5.3	34.2	33.4	33.4	133	133	133.3

Note: Queue reported is the number of cars per lane.

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                     Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #15 Gerard / Campus Parkway
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         1.602
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):       166.1
Optimal Cycle:          0                Level Of Service:                  F
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:         0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      44   370   315    34   302   139   164    24    38   400    47    39
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   44   370   315    34   302   139   164    24    38   400    47    39
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    44   370   315    34   302   139   164    24    38   400    47    39
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   44   370   315    34   302   139   164    24    38   400    47    39
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   44   370   315    34   302   139   164    24    38   400    47    39
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       0.06  0.51  0.43  0.07  0.64  0.29  0.72  0.11  0.17  0.82  0.10  0.08
Final Sat.:    27   231   197    32   286   132   285    42    66   358    42    35
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     1.60  1.60  1.60  1.06  1.06  1.06  0.58  0.58  0.58  1.12  1.12  1.12
Crit Moves:                ****  ****                    ****              ****
Delay/Veh:  301.4   301 301.4  86.2  86.2  86.2  23.9  23.9  23.9 107.3   107 107.3
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh: 301.4   301 301.4  86.2  86.2  86.2  23.9  23.9  23.9 107.3   107 107.3
LOS by Move:    F     F     F     F     F     F     C     C     C     F     F     F
ApproachDel:      301.4             86.2             23.9             107.3
Delay Adj:         1.00             1.00             1.00              1.00
ApprAdjDel:       301.4             86.2             23.9             107.3
LOS by Appr:          F                F                C                 F
AllWayAvgQ:  36.7  36.7  36.7   9.4   9.4   9.4   1.3   1.3   1.3  11.6  11.6  11.6
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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                     Level Of Service Computation Report
            2000 HCM 4-Way Stop Method (Base Volume Alternative)
********************************************************************************
Intersection #42 Childs / Campus Parkway
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         1.015
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):        40.8
Optimal Cycle:          0                Level Of Service:                  E
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Stop Sign        Stop Sign        Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:         0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      61   581    10    27   399    77    94    45    46    19    44    12
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:   61   581    10    27   399    77    94    45    46    19    44    12
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume:    61   581    10    27   399    77    94    45    46    19    44    12
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
Reduced Vol:   61   581    10    27   399    77    94    45    46    19    44    12
PCE Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj:     1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume:   61   581    10    27   399    77    94    45    46    19    44    12
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Lanes:       0.09  0.89  0.02  0.05  0.80  0.15  0.51  0.24  0.25  0.25  0.59  0.16
Final Sat.:    60   573    10    34   496    96   253   121   124   116   269    73
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     1.01  1.01  1.01  0.80  0.80  0.80  0.37  0.37  0.37  0.16  0.16  0.16
Crit Moves:          ****              ****              ****              ****
Delay/Veh:   62.3  62.3  62.3  27.4  27.4  27.4  13.6  13.6  13.6  11.6  11.6  11.6
Delay Adj:   1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
AdjDel/Veh:  62.3  62.3  62.3  27.4  27.4  27.4  13.6  13.6  13.6  11.6  11.6  11.6
LOS by Move:    F     F     F     D     D     D     B     B     B     B     B     B
ApproachDel:       62.3             27.4             13.6              11.6
Delay Adj:         1.00             1.00             1.00              1.00
ApprAdjDel:        62.3             27.4             13.6              11.6
LOS by Appr:          F                D                B                 B
AllWayAvgQ:   9.6   9.6   9.6   3.2   3.2   3.2   0.5   0.5   0.5   0.2   0.2   0.2
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: NB SR99
From/To: Misson Ave to Childs
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	3164	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	879	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1323	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1323	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	61.0	mi/h
Number of lanes, N	3	
Density, D	21.7	pc/mi/ln
Level of service, LOS	C	

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

HCS2000: Basic Freeway Segments Release 4.1a

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Ben Mitrsongkroh
Agency or Company: DKS Associates
Date Performed: 10/19/2006
Analysis Time Period: PM Peak
Freeway/Direction: SB SR99
From/To: Childs Ave to Misson Ave
Jurisdiction: Merced
Analysis Year: 2030
Description: 2030 Cumulative with Project Condition NB Traffic

Flow Inputs and Adjustments

Volume, V	4208	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1169	v
Trucks and buses	25	%
Recreational vehicles	2	%
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	0.886	
Driver population factor, vp	1.00	
Flow rate, vp	1760	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.70	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Ideal	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	1.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	61.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1760	pc/h/ln
Free-flow speed, FFS	61.0	mi/h
Average passenger-car speed, S	60.7	mi/h
Number of lanes, N	3	
Density, D	29.0	pc/mi/ln
Level of service, LOS	D	

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

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst Ben Mitrsongkroh
Agency/Co. DKS
Date Performed 11/27/2006
Analysis Time Period PM Peak
Highway SR 140
From/To Santa Fe Aveto Kibby Rd
Jurisdiction Merced
Analysis Year 2030
Description 2030 Cumulative with Project Condition

Input Data

Highway class Class 1
Shoulder width 6.0 ft Peak-hour factor, PHF 0.95
Lane width 12.0 ft % Trucks and buses 14 %
Segment length 1.3 mi % Recreational vehicles 4 %
Terrain type Level % No-passing zones 0 %
Grade: Length 0.25 mi Access points/mi 1 /mi
Up/down 3.0 %

Two-way hourly volume, V 1766 veh/h
Directional split 56 / 44 %

Average Travel Speed

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.1
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, 0.986
Two-way flow rate,(note-1) vp 1885 pc/h
Highest directional split proportion (note-2) 1056 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed, SFM - mi/h
Observed volume, Vf - veh/h
Estimated Free-Flow Speed:
Base free-flow speed, BFFS 55.0 mi/h
Adj. for lane and shoulder width, fLS 0.0 mi/h
Adj. for access points, fA 0.3 mi/h

Free-flow speed, FFS 54.8 mi/h

Adjustment for no-passing zones, fnp 0.0 mi/h
Average travel speed, ATS 40.1 mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG 1.00
PCE for trucks, ET 1.0
PCE for RVs, ER 1.0
Heavy-vehicle adjustment factor, fHV 1.000
Two-way flow rate,(note-1) vp 1859 pc/h
Highest directional split proportion (note-2) 1041
Base percent time-spent-following, BPTSF 80.5 %

Adj.for directional distribution and no-passing zones, fd/np	0.0
Percent time-spent-following, PTSF	80.5 %

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.59	
Peak 15-min vehicle-miles of travel, VMT15	604	veh-mi
Peak-hour vehicle-miles of travel, VMT60	2296	veh-mi
Peak 15-min total travel time, TT15	15.1	veh-h

Notes:

1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

APPENDIX B

Merced Wal-Mart Distribution Center

Peak Hour Signal Warrant Analysis

Existing Condition
Peak Hour Signal Warrant

MUTCD

INTERSECTION : **SR 140 @ BAKER DR** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐ No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐ No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒ No ☐

PART B

SATISFIED **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐ No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐ No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : SR 140 @ BAKER DR PM

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES ☐ NO ☒**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒	No ☐

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ KIBBY RD** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES [ ] NO [X]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [ ]	No [X]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [ ]	No [X]

PART B

SATISFIED YES [ ] NO [X]

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [ ]	No [X]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ KIBBY RD** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES ☐ NO ☒**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒	No ☐

PART B

SATISFIED YES ☐ NO ☒

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☐
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMP** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES ☐ NO ☒**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒	No ☐

PART B

SATISFIED YES ☐ NO ☒

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMP** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒	No ☐

PART B **SATISFIED** **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES ☐ NO ☒**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒	No ☐

PART B

SATISFIED YES ☐ NO ☒

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [X] NO [ ]**

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [X]	No [ ]
2. The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B **SATISFIED YES [ ] NO [X]**

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

/Hour

The plotted point falls above the curve in Figure 4C-3	Yes [ ]	No [X]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ KIBBY RD** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES ☐ NO ☒**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☐	No ☒

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

/Hour

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ KIBBY RD** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES [ ] NO [X]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [ ]	No [X]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [ ]	No [X]

PART B **SATISFIED YES [ ] NO [X]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [ ]	No [X]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @TOWER RD** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES ☐ NO ☒**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☐	No ☒

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @TOWER RD** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☐	No ☒

PART B

SATISFIED **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **GERARD AVE @ COFFEE ST** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐ No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☒ No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☐ No ☒

PART B

SATISFIED **YES** ☐ **NO** ☒

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐ No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐ No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : GERARD AVE @ COFFEE ST **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES ☐ NO ☒**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☐	No ☒

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **GERARD AVE @TOWER RD** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☐	No ☒

PART B

SATISFIED YES ☐ **NO** ☒

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **GERARD AVE @TOWER RD** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES** ☐ **NO** ☒

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☐	No ☒

PART B

SATISFIED YES ☐ **NO** ☒

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **E MISSION AVE @ COFFEE ST** **AM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES ☐ NO ☒**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒	No ☐

PART B

SATISFIED YES ☐ NO ☒

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **E MISSION AVE @ COFFEE ST** **PM**

Existing Condition

WARRANT 3 - Peak Hour **SATISFIED YES [ ] NO [X]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [ ]	No [X]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [ ]	No [X]

PART B **SATISFIED YES [ ] NO [X]**

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [ ]	No [X]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

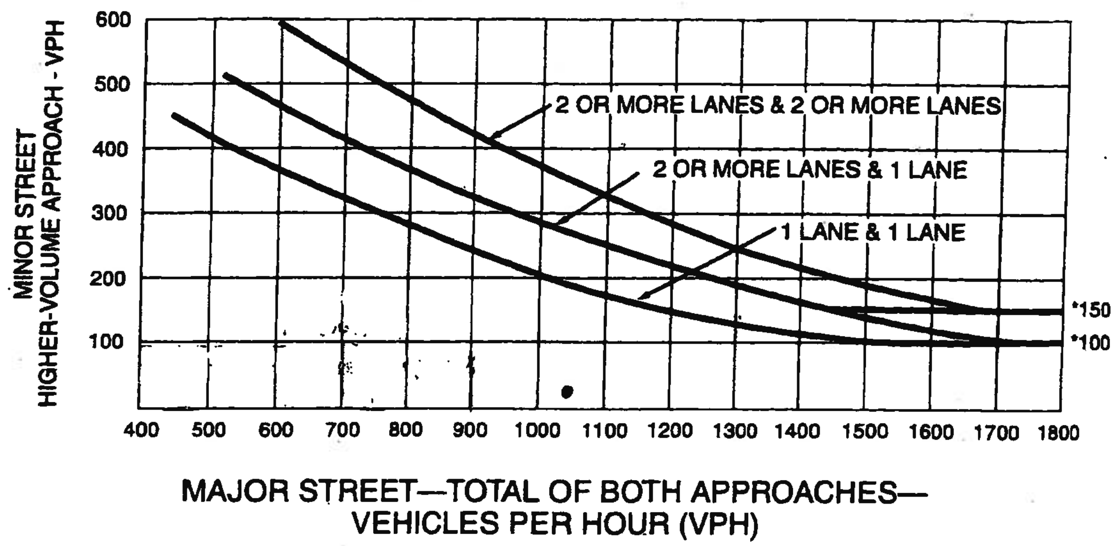
The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

Existing

Figure 4C-3. Warrant 3, Peak Hour

Baker/SR140 AM

No



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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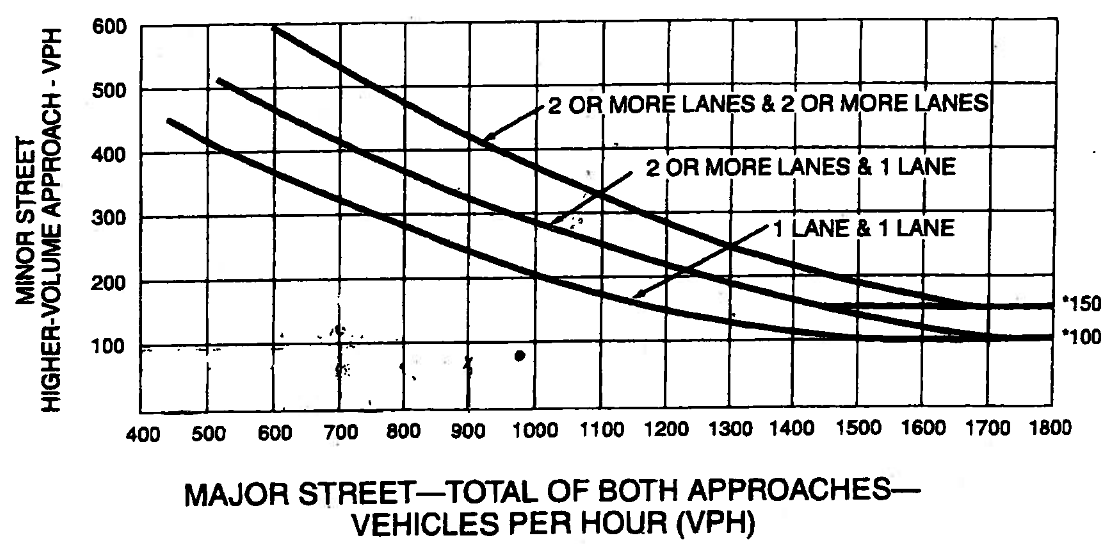
Figure 4C-3. Warrant 3, Peak Hour

PM

No

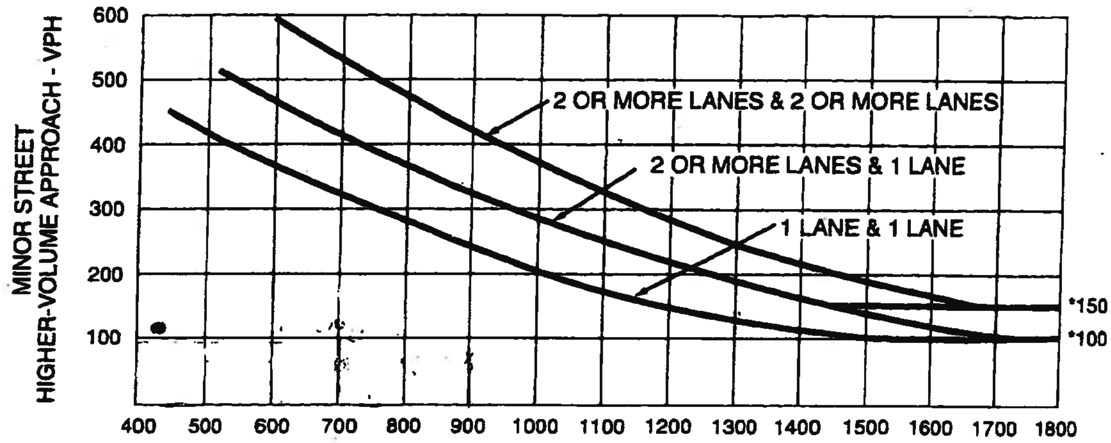


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

SR140/Kibby AM

No



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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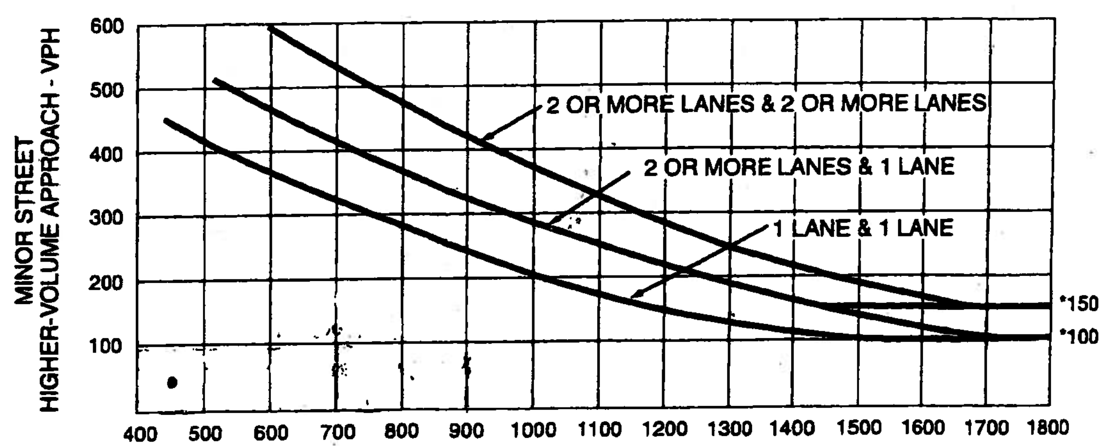
Figure 4C-3. Warrant 3, Peak Hour

PM

No



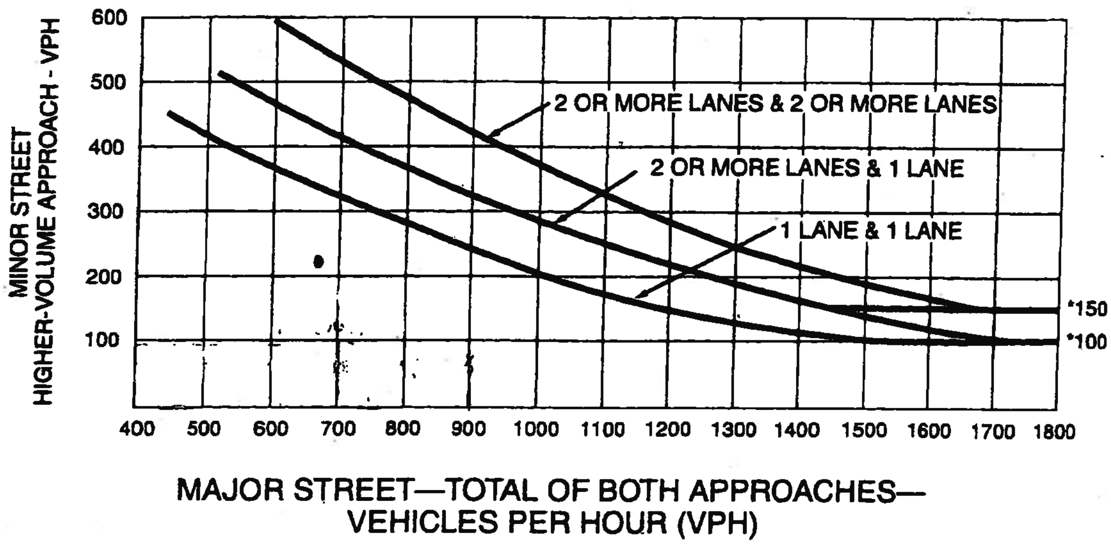
MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

B SR99/Childs AM

No



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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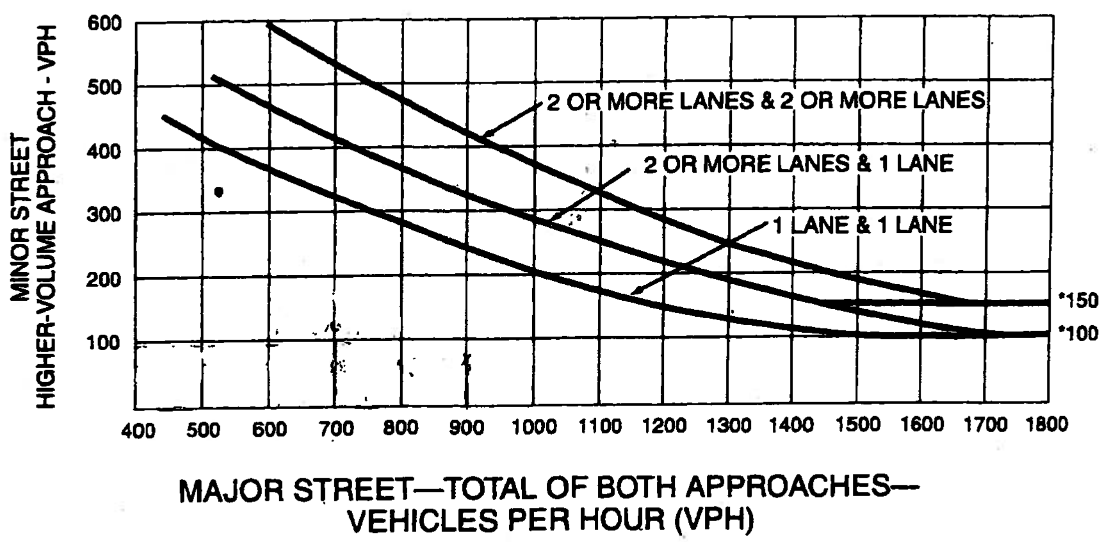
Figure 4C-3. Warrant 3, Peak Hour

PM

No

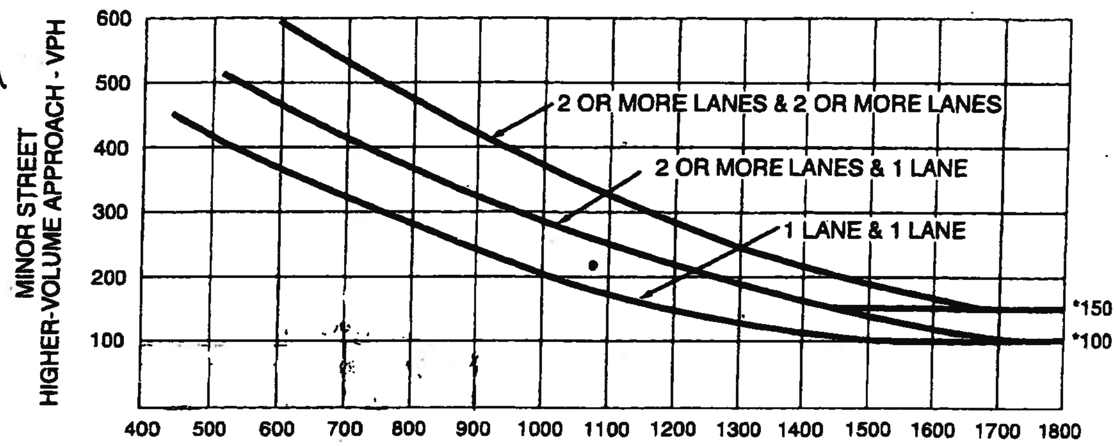


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

Carol / Childs AM

No



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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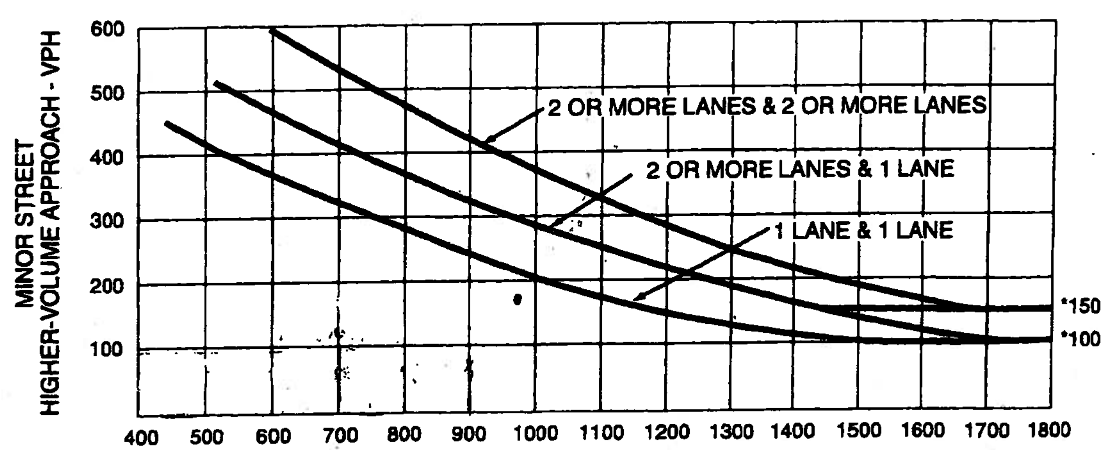
Figure 4C-3. Warrant 3, Peak Hour

No



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

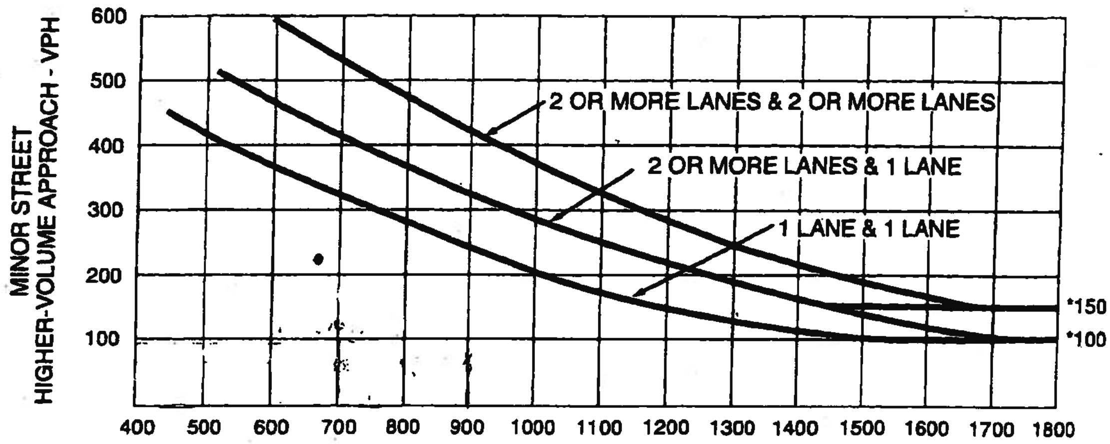
*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

Childs/Kibby

AM

No



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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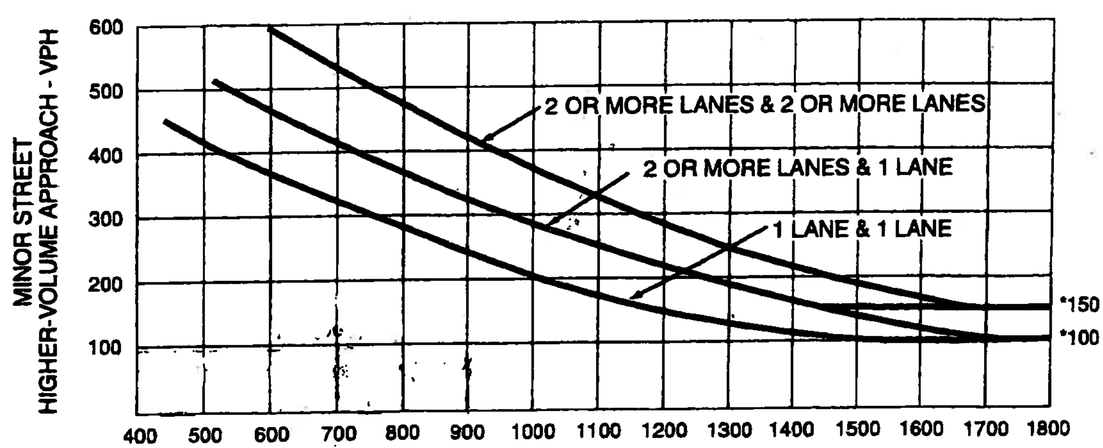
Figure 4C-3. Warrant 3, Peak Hour

PM

No

(not on graph - too low)



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

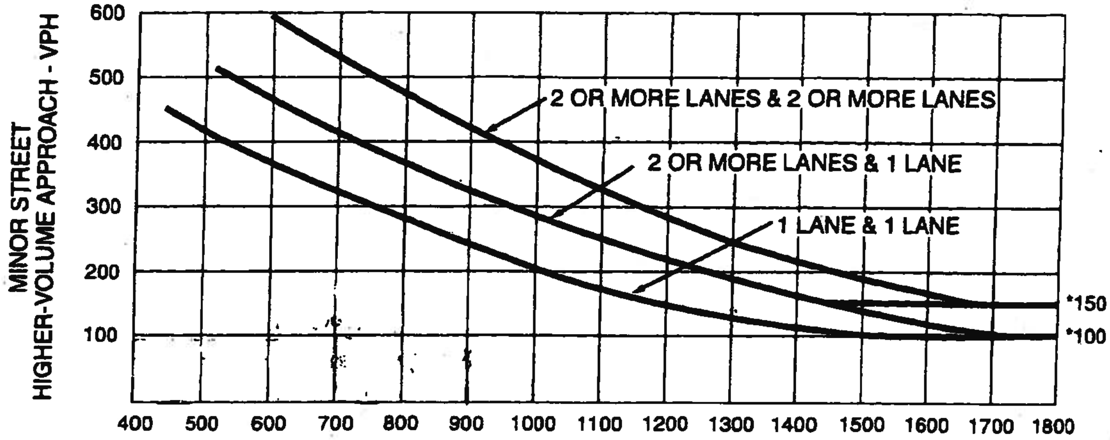
Figure 4C-3. Warrant 3, Peak Hour

Tower/Childs

AM

No

(not on graph - too low)



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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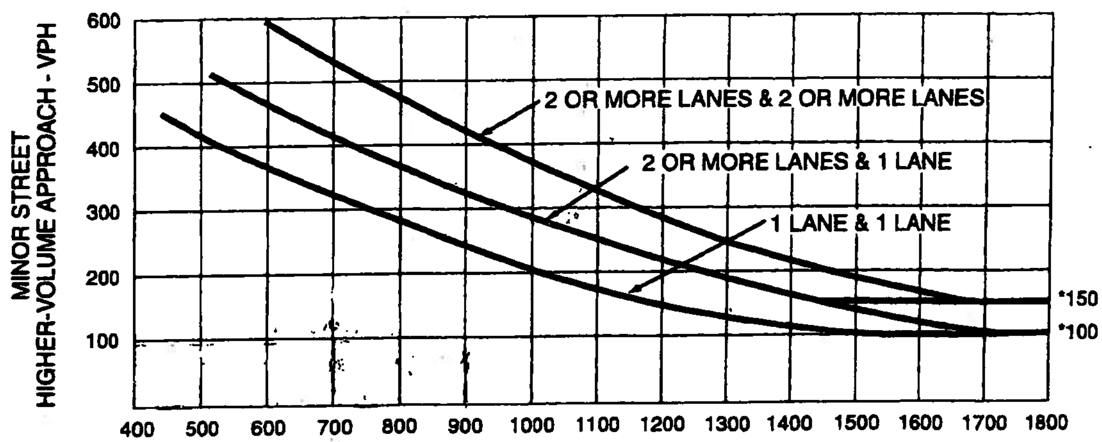
Figure 4C-3. Warrant 3, Peak Hour

PM

No

(not on graph - too low)



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

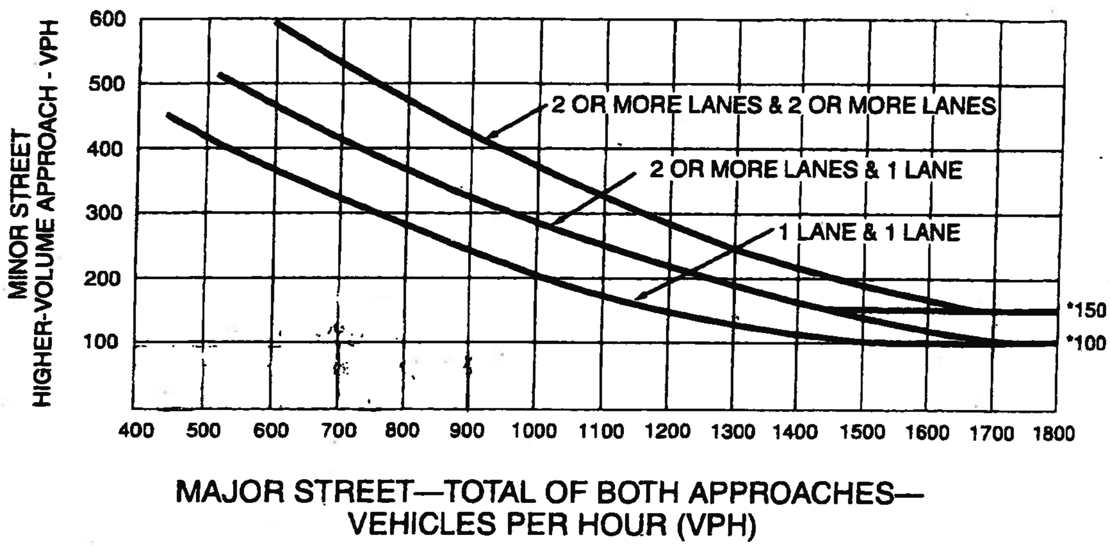
Figure 4C-3. Warrant 3, Peak Hour

Coffee/Gerrard

AM

No

(not on graph- too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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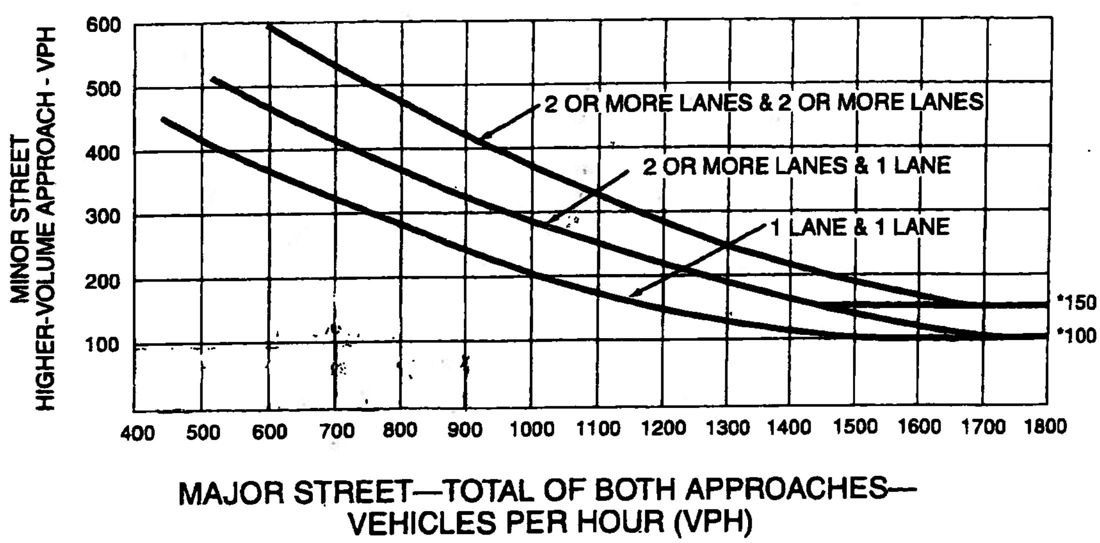
Figure 4C-3. Warrant 3, Peak Hour

PM

No

(not on graph- too low)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

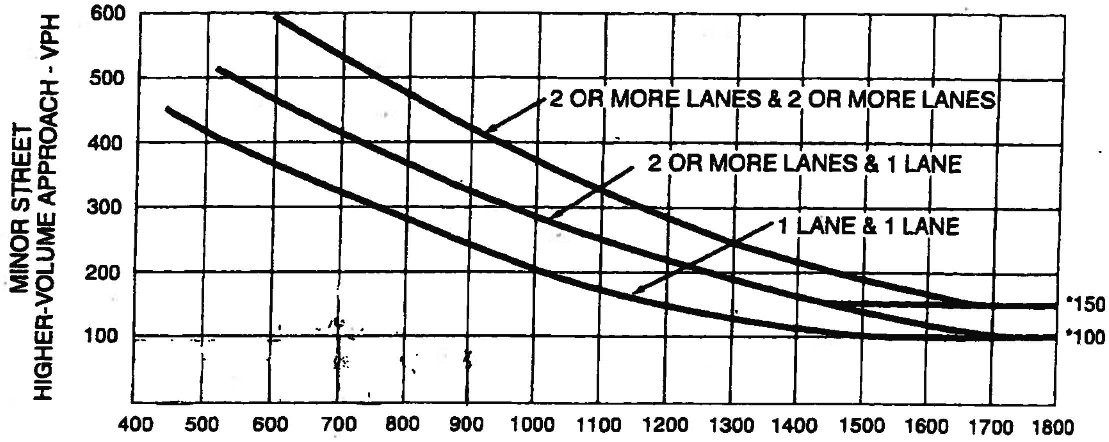
Figure 4C-3. Warrant 3, Peak Hour

Tower/Gerrard

AM

No

(not on graph-
too low)



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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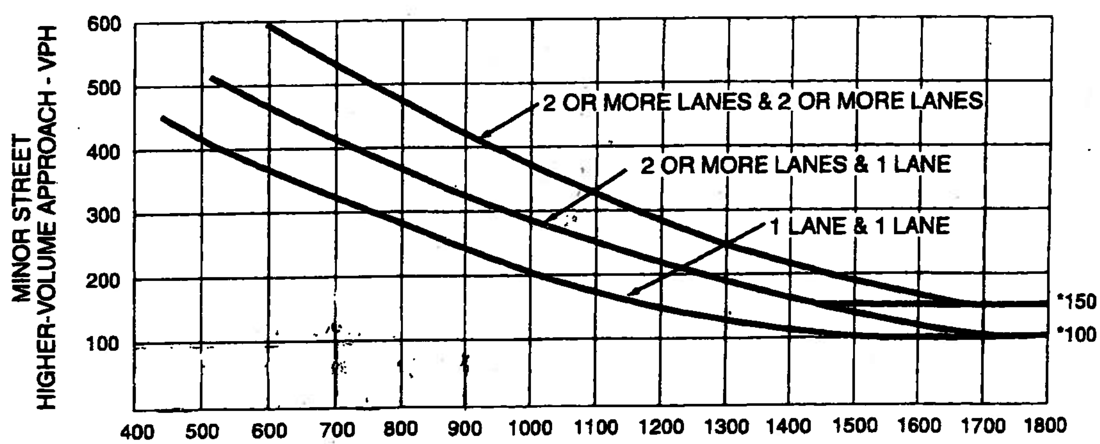
Figure 4C-3. Warrant 3, Peak Hour

PM

No

(not on graph-
too low)



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

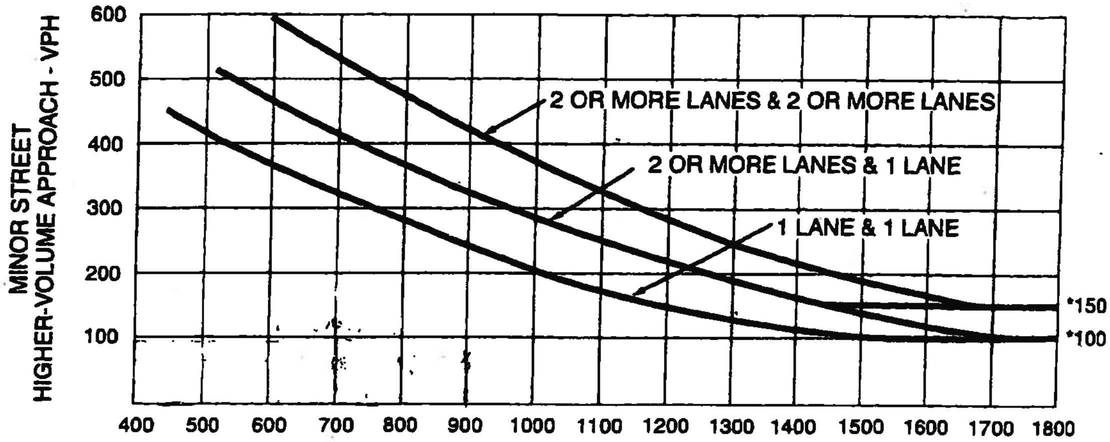
~~Gerrard/Coffee~~

Coffee/Mission

AM

No

(not on graph-
too low)



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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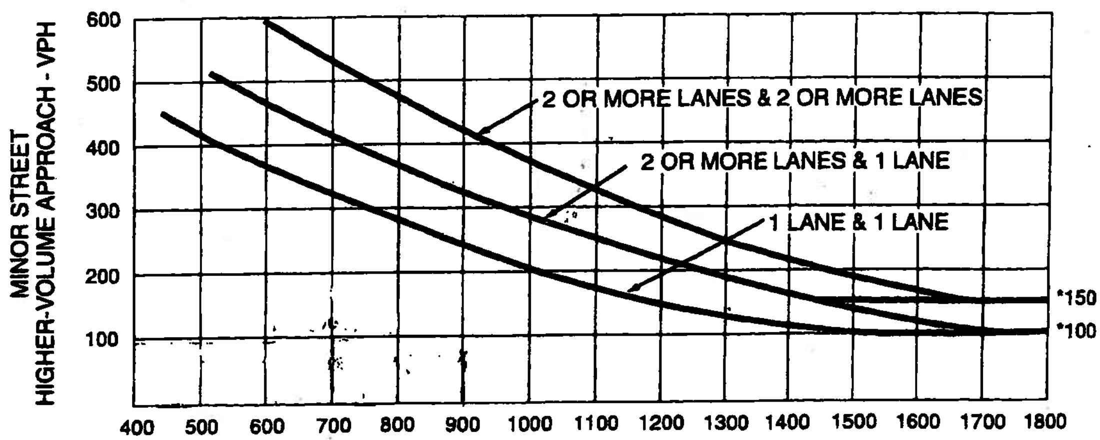
Figure 4C-3. Warrant 3, Peak Hour

PM

No

(not on graph-
too low)



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2010 Background Condition
Peak Hour Signal Warrant

MUTCD

INTERSECTION : SR 140 @ BAKER DRIVE AM
2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED YES** ☒ **NO** ☐
(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒	No ☐

PART B

SATISFIED YES ☒ **NO** ☐

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☒	No ☐
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **PM**

2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **AM**

2010 Background Condition

WARRANT 3 - Peak Hour — **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) — **SATISFIED** **YES** [ ] **NO** [x]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No	[x]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No	[ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No	[ ]

PART B

SATISFIED **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	x		
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes	[x]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMP** **PM**

2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [X] NO [ ]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **AM**

2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ] No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X] No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X] No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X] No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ] No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ BAKER DRIVE** **PM**

2010 Background Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [X] NO [ ]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[X]	No	[ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No	[ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No	[ ]

PART B

SATISFIED YES [X] NO [ ]

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

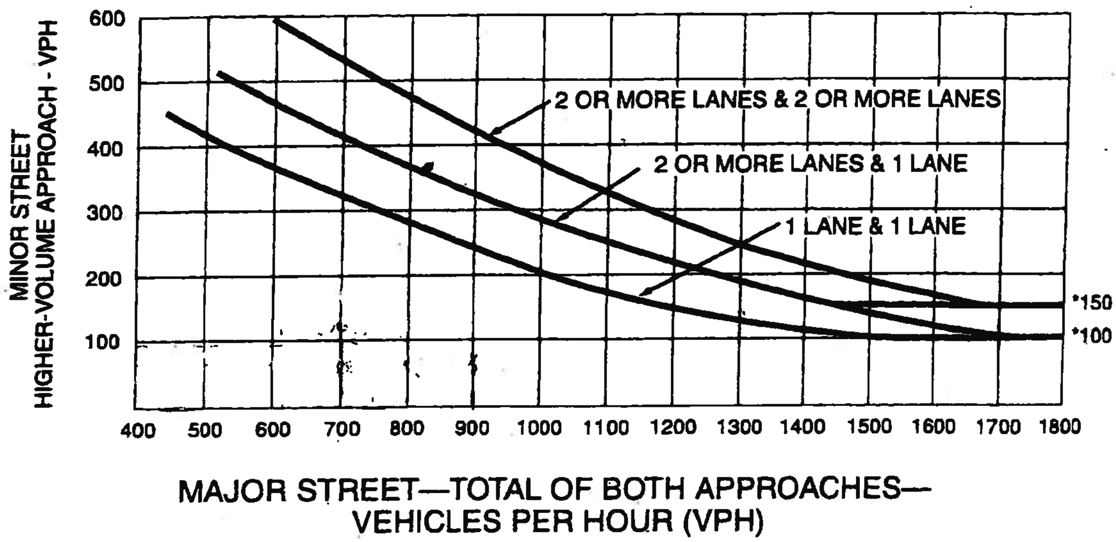
2010 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

SR140 @ Baker Drive

AM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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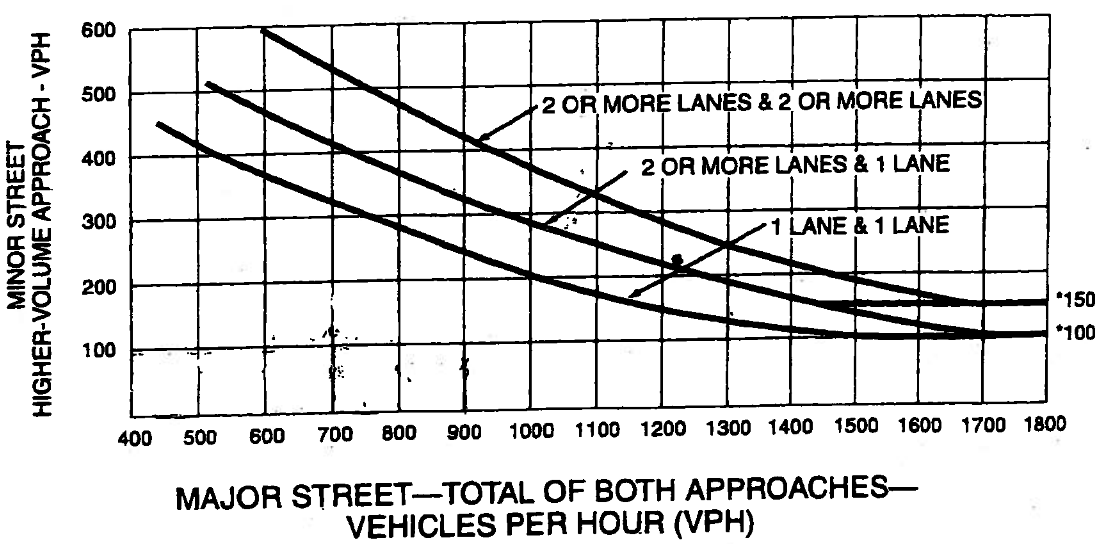
Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

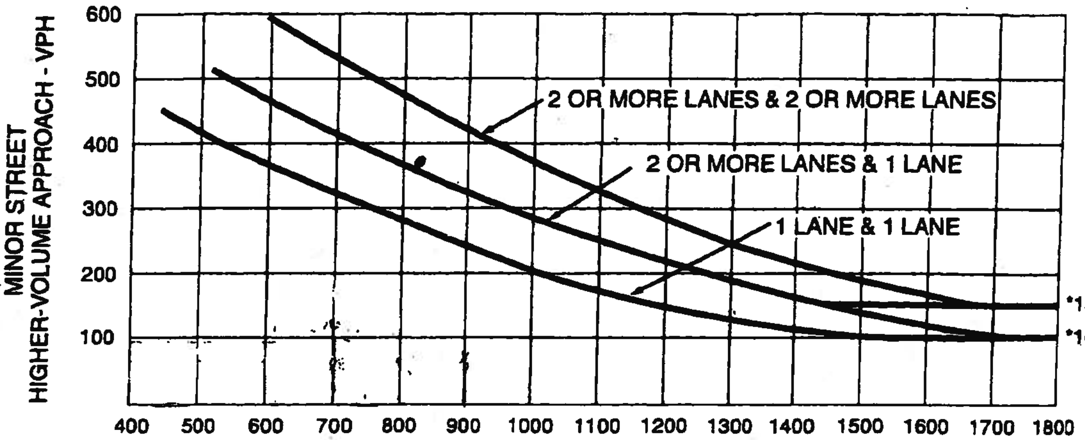
2010 W/out Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave @ SB Ramps

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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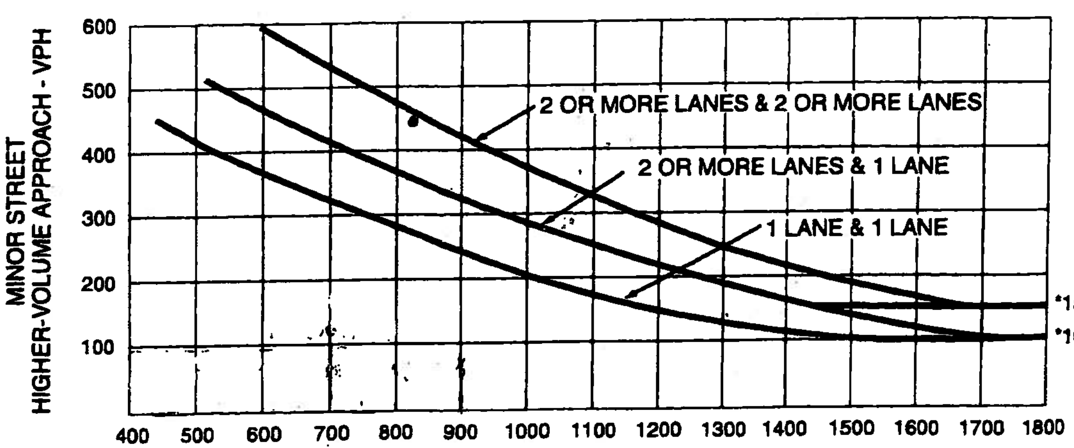
Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

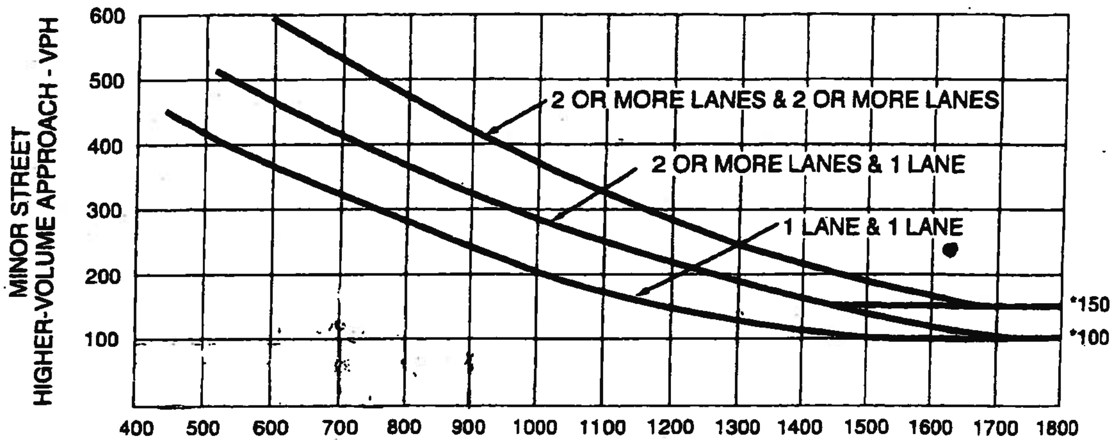
2010 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave @ NB Ramps

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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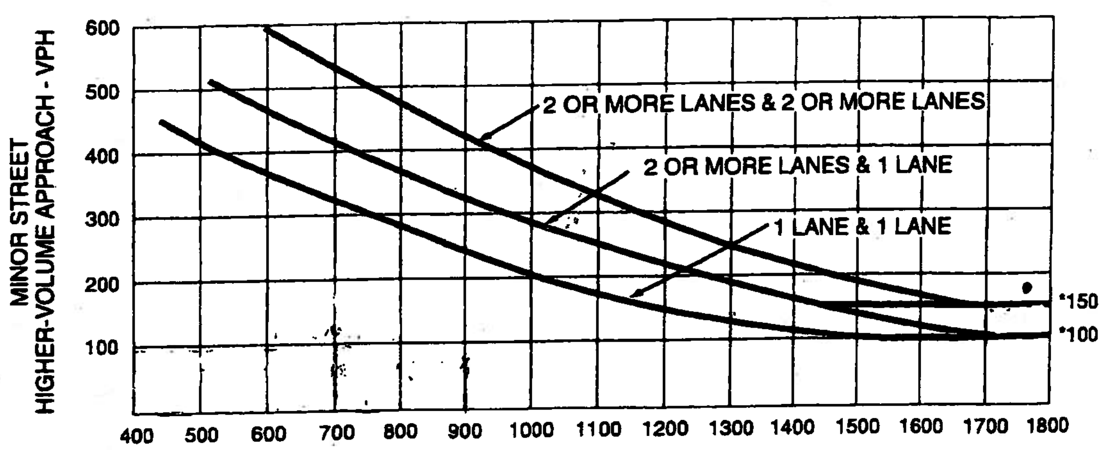
Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2010 Background with Project Condition
Peak Hour Signal Warrant

MUTCD

INTERSECTION : SR 140 @ BAKER DRIVE AM

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ] No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X] No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X] No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [X] No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ] No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : SR 140 @ BAKER DRIVE **PM**

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [X] NO [ ]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B

SATISFIED YES [X] NO [ ]

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **AM**

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2. The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B

SATISFIED **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : CHILDS AVE @ SB RAMP PM

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [X] NO [ ]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [X] No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X] No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X] No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X] No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ] No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **AM**

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ] No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X] No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X] No [ ]

PART B

SATISFIED **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street		X		
Higher Approach - Minor Street		X		

The plotted point falls above the curve in Figure 4C-3	Yes [X] No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ] No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : CHILDS AVE @ NB RAMPS **PM**

2010 Background with Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

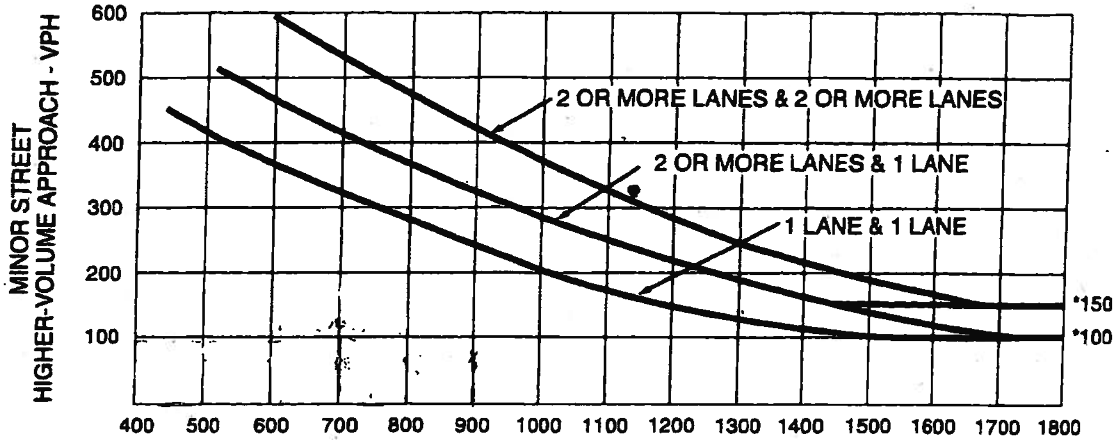
2010 w/ Project

Figure 4C-3. Warrant 3, Peak Hour

SR140 Yosemite @ Baker

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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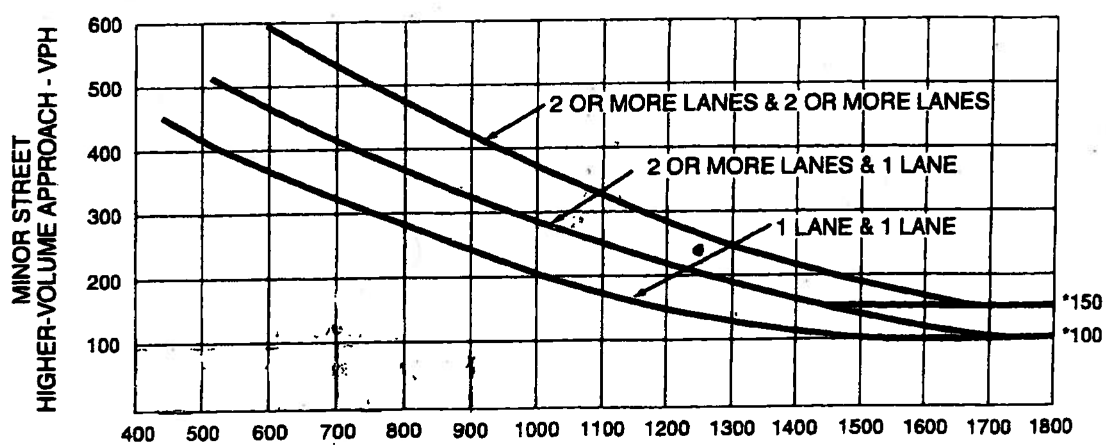
Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

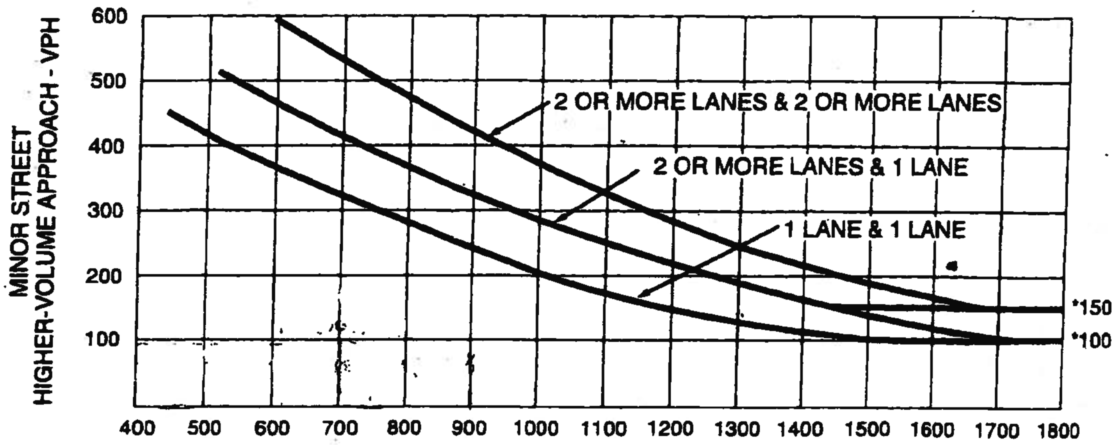
2010 W/ Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave @ NB Ramps

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2003 Edition

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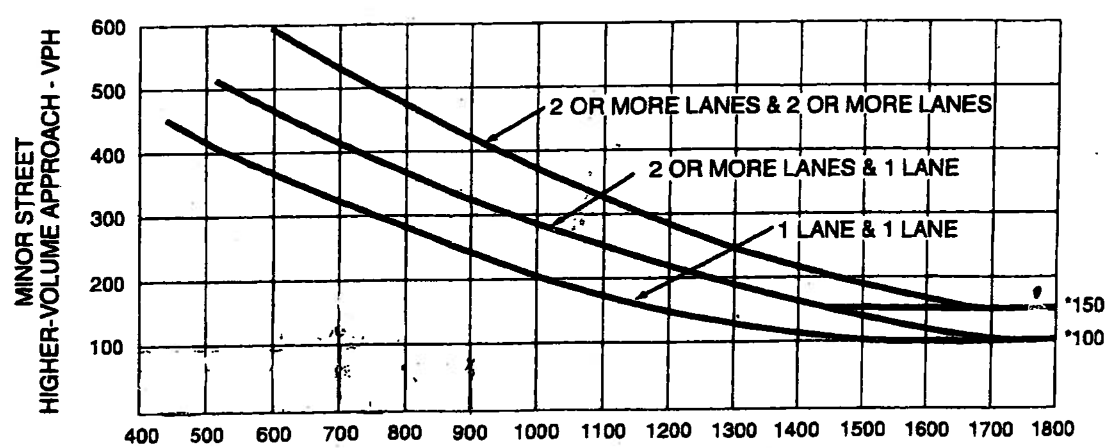
Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

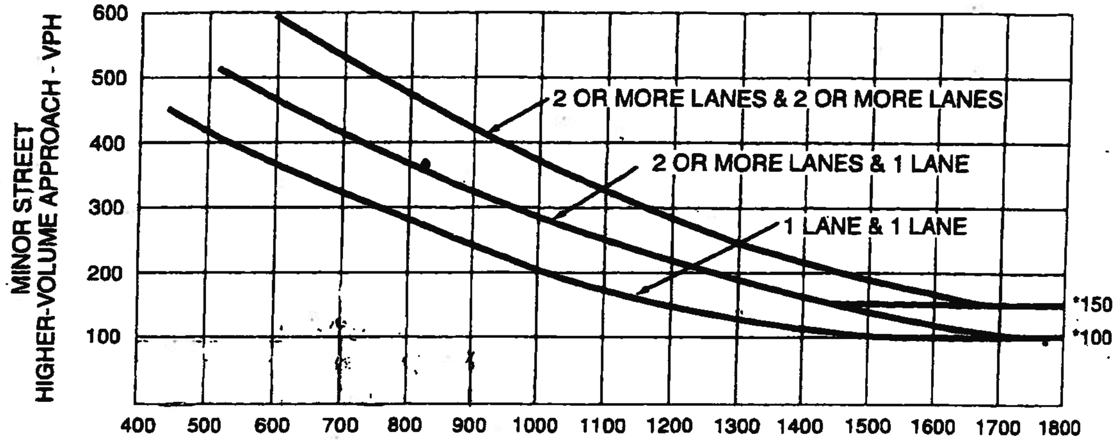
2010 W/Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave @ SB Ramps

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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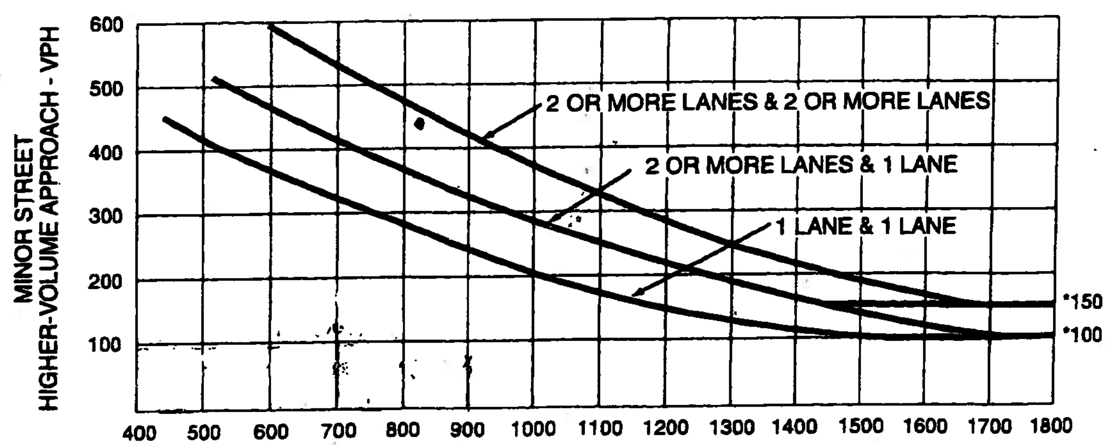
Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2030 Cumulative No Project Condition
Peak Hour Signal Warrant

MUTCD

INTERSECTION : **SR 140 @ BAKER DR** **AM**

2030 Cumulative no Project

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ] No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X] No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X] No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [X] No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ] No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ BAKER DR** **PM**

2030 Cumulative no Project

WARRANT 3 - Peak Hour **SATISFIED YES** ☒ **NO** ☐

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES** ☐ **NO** ☒

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☒	No ☐
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒	No ☐

PART B **SATISFIED YES** ☒ **NO** ☐

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☒	No ☐
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ KIBBY RD** **AM**

2030 Cumulative no Project

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [X] NO [ ]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [X] No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X] No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X] No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [X] No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ] No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : SR 140 @ KIBBY RD **PM**

2030 Cumulative no Project

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES ☐ NO ☒**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒	No ☐

PART B

SATISFIED YES ☐ NO ☒

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes ☐	No ☒
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **AM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [X] NO [ ]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **PM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [X] NO [ ]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B

SATISFIED YES [X] NO [ ]

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **AM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [ ] **NO** [X]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No	[X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No	[ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No	[ ]

PART B

SATISFIED **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **PM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B

SATISFIED YES [X] NO [ ]

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : MISSION AVE @ Coffee Street **AM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	[ ]	No	[X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	[X]	No	[ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	[X]	No	[ ]

PART B

SATISFIED YES [X] NO [ ]

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes	[X]	No	[ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes	[ ]	No	[ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **MISSION AVE @ COFFEE ST** **PM**

2030 Cumulative No Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES** ☒ **NO** ☐

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES** ☒ **NO** ☐

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	X	No	
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	X	No	
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	X	No	

PART B **SATISFIED YES** ☒ **NO** ☐

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes	X	No	
OR, The plotted point falls above the curve in Figure 4C-4	Yes		No	

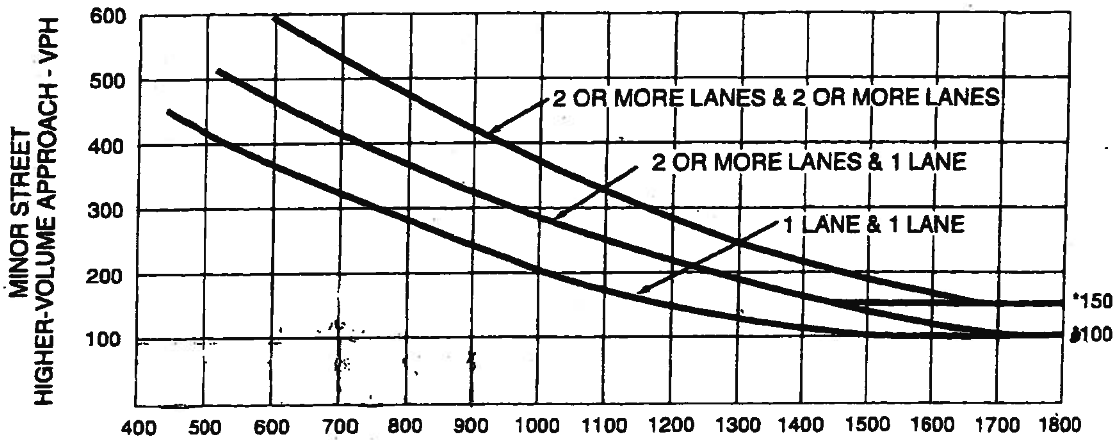
The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

Figure 4C-3. Warrant 3, Peak Hour

SR 140 @ Baker Dr.

AM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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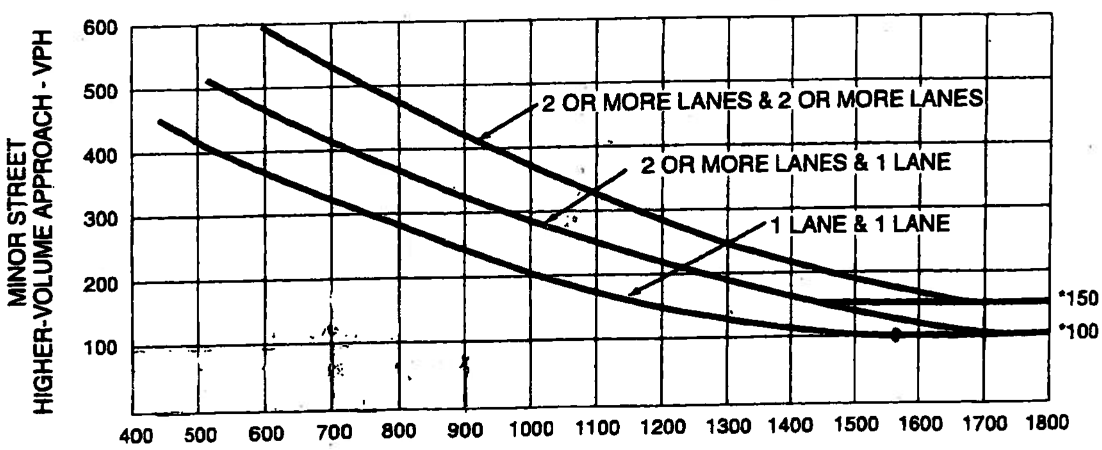
Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

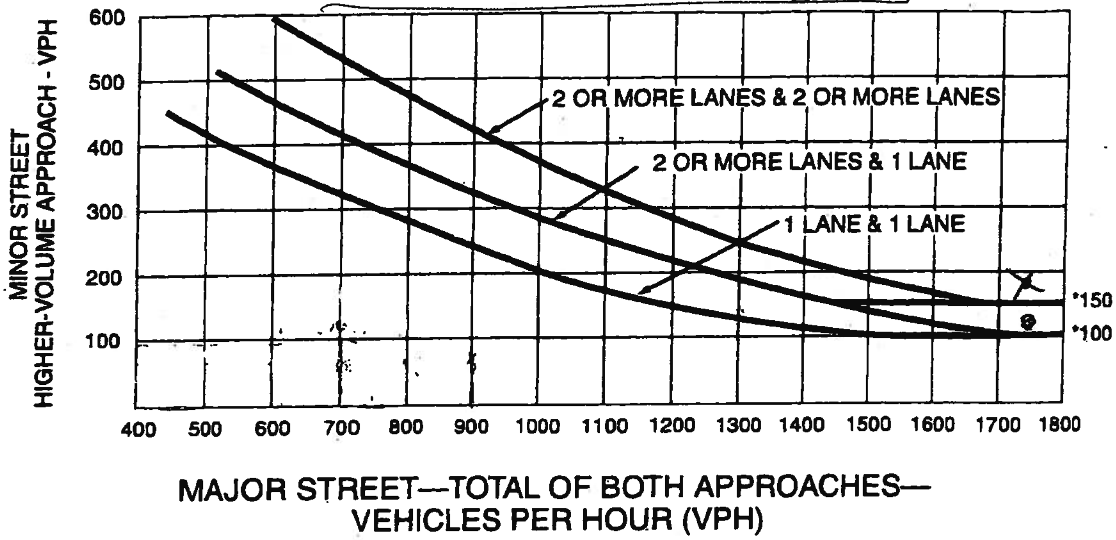
2030 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

SR-140 Yosemite @ Kibby Rd

AM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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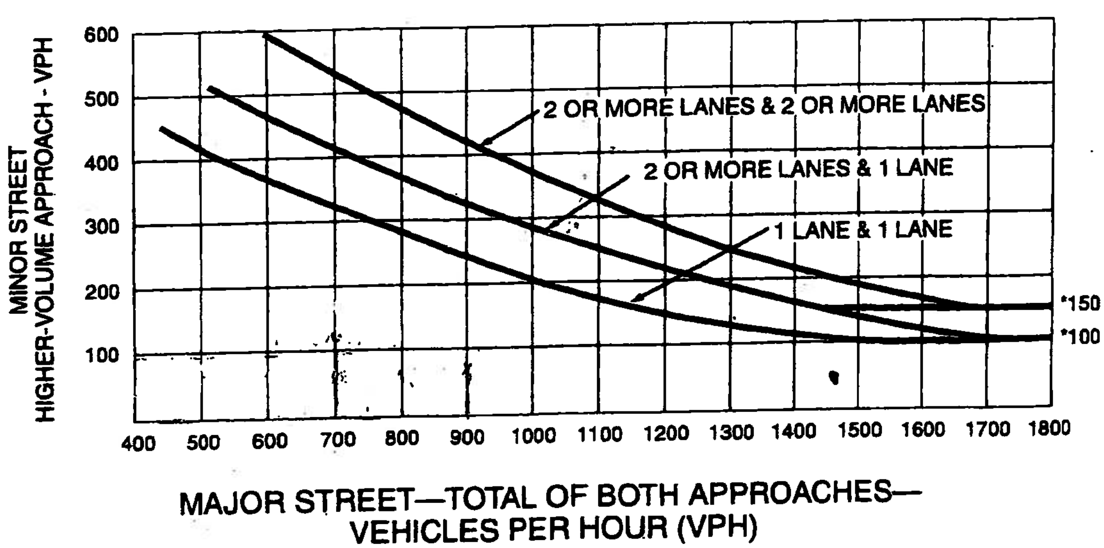
Figure 4C-3. Warrant 3, Peak Hour

PM

No



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2030 w/out Project

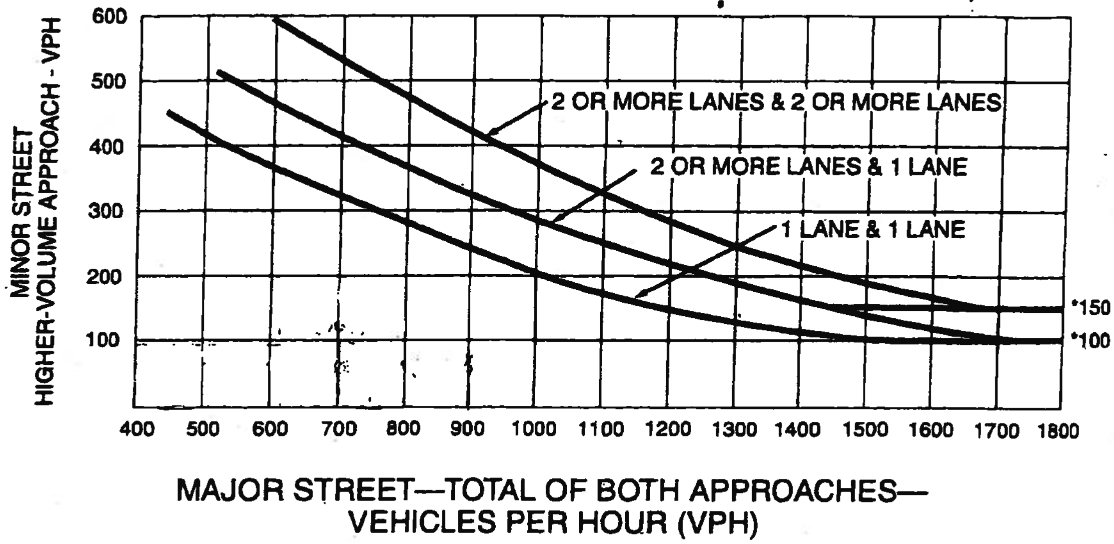
Figure 4C-3. Warrant 3, Peak Hour

Child's Ave. @ SR99 SB Ramp

AM

Yes

1285



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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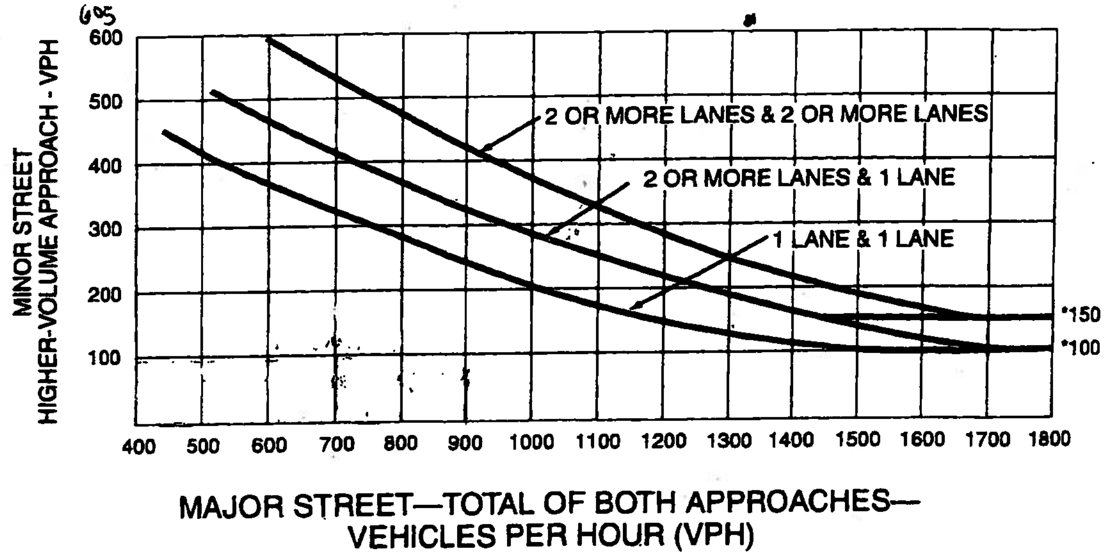
Figure 4C-3. Warrant 3, Peak Hour

PM

Yes

605

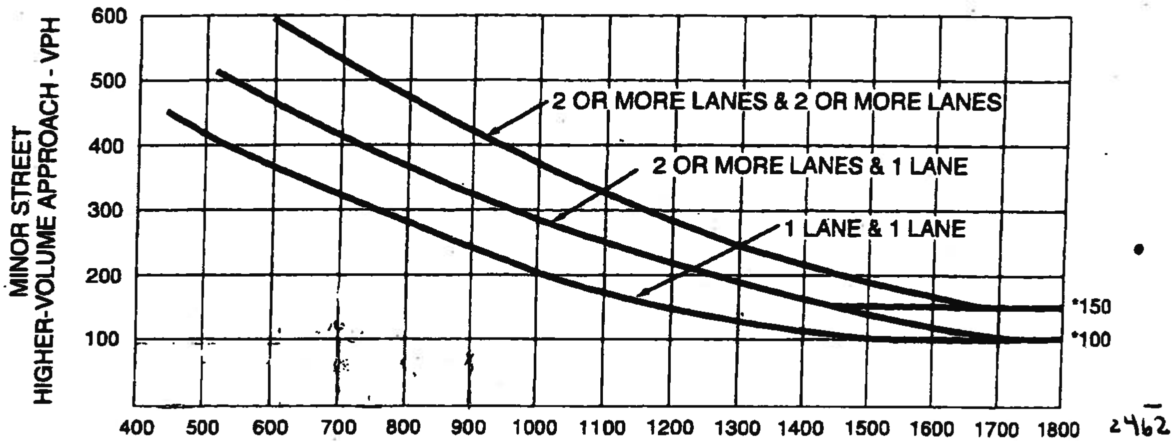


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave. @ NB Ramp

AM
Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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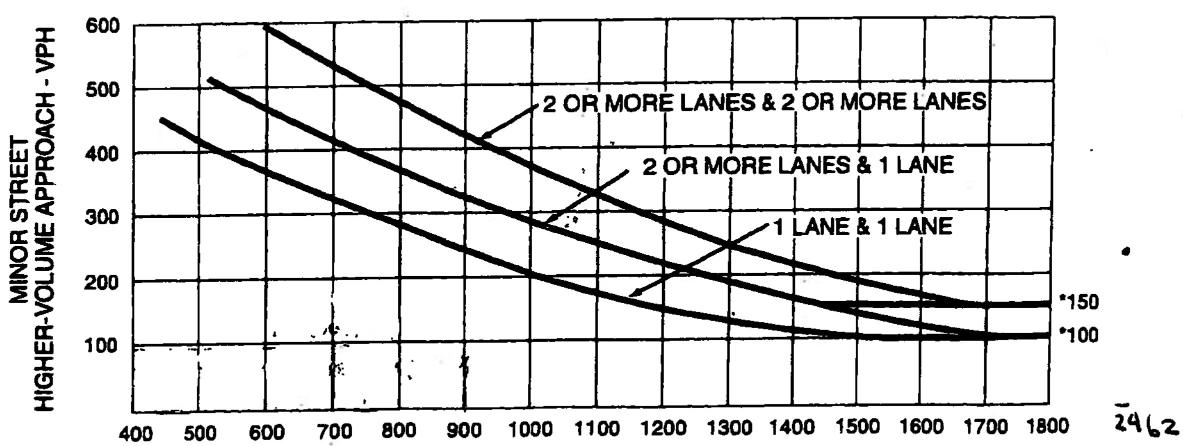
Figure 4C-3. Warrant 3, Peak Hour

PM
Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

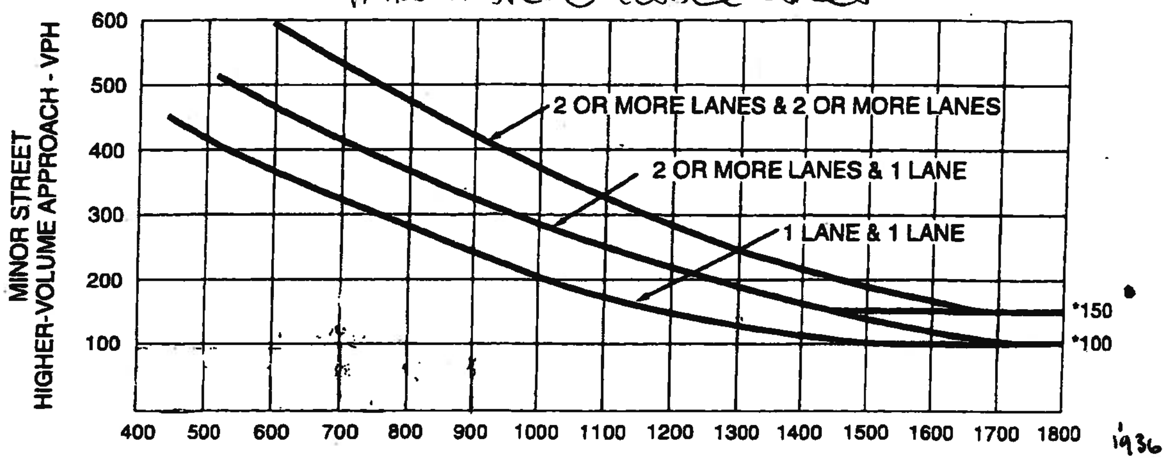
2030 w/out Project

Figure 4C-3. Warrant 3, Peak Hour

Mission Ave. @ Coffee Street

AM

yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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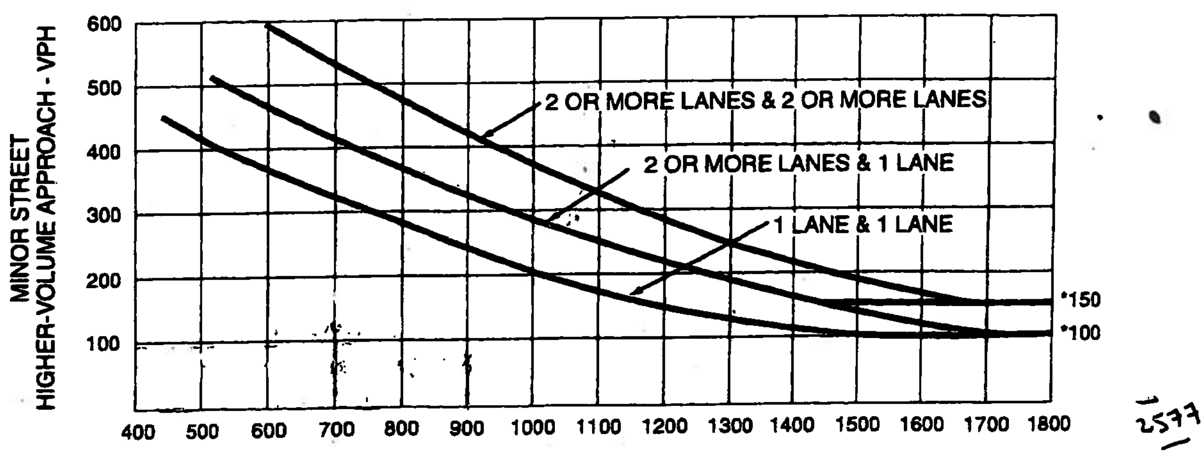
Figure 4C-3. Warrant 3, Peak Hour

PM

yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2030 Cumulative with Project Condition
Peak Hour Signal Warrant

MUTCD

INTERSECTION : SR 140 @ BAKER DR AM

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour SATISFIED YES [X] NO [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : SR 140 @ BAKER DR PM

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour SATISFIED YES [X] NO [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ] No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X] No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X] No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **SR 140 @ KIBBY RD** **AM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes	X	No	
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes	X	No	
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes	X	No	

PART B **SATISFIED** **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	
Both Approaches - Major Street		X	
Higher Approach - Minor Street	X		

/Hour

The plotted point falls above the curve in Figure 4C-3	Yes	X	No	
OR, The plotted point falls above the curve in Figure 4C-4	Yes		No	

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : SR 140 @ KIBBY RD **PM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☒**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES ☐ NO ☒**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes ☐	No ☒
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes ☒	No ☐

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes ☒	No ☐
OR, The plotted point falls above the curve in Figure 4C-4	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **<u>CHILDS AVE @ SB RAMPS</u>** **AM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

<u>PART A</u>

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [X] NO [ ]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; <u>AND</u>	Yes [X]	No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; <u>AND</u>	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

<u>PART B</u> **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
<u>OR,</u> The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ SB RAMPS** **PM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour — **SATISFIED** **YES** [X] **NO** [ ]

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) — **SATISFIED** **YES** [X] **NO** [ ]

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [X] No [ ]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X] No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X] No [ ]

PART B

SATISFIED **YES** [X] **NO** [ ]

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X] No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ] No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : CHILDS AVE @ NB RAMPS **AM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : **CHILDS AVE @ NB RAMPS** **PM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2. The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	/ Hour
Both Approaches - Major Street		X	
Higher Approach - Minor Street		X	

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : MISSION AVE @ COFFEE ST **AM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [ ] NO [X]**

1.	The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [ ]	No [X]
2.	The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3.	The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B

SATISFIED YES [X] NO [ ]

APPROACH LANES	One	2 or More	/Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

INTERSECTION : MISSION AVE @ COFFEE ST **PM**

2030 Cumulative with Project Condition

WARRANT 3 - Peak Hour **SATISFIED YES [X] NO [ ]**

(Part A or Part B must be satified)

PART A

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15 minute periods) **SATISFIED YES [X] NO [ ]**

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; AND	Yes [X]	No [ ]
2. The volume on the same minor-street approach (one direction only) equals or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; AND	Yes [X]	No [ ]
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.	Yes [X]	No [ ]

PART B **SATISFIED YES [X] NO [ ]**

APPROACH LANES	One	2 or More	Hour
Both Approaches - Major Street	X		
Higher Approach - Minor Street	X		

The plotted point falls above the curve in Figure 4C-3	Yes [X]	No [ ]
OR, The plotted point falls above the curve in Figure 4C-4	Yes [ ]	No [ ]

The satisfaction of a traffic signal warrant or warrants shall not in itself required the installation of a traffic control signal.

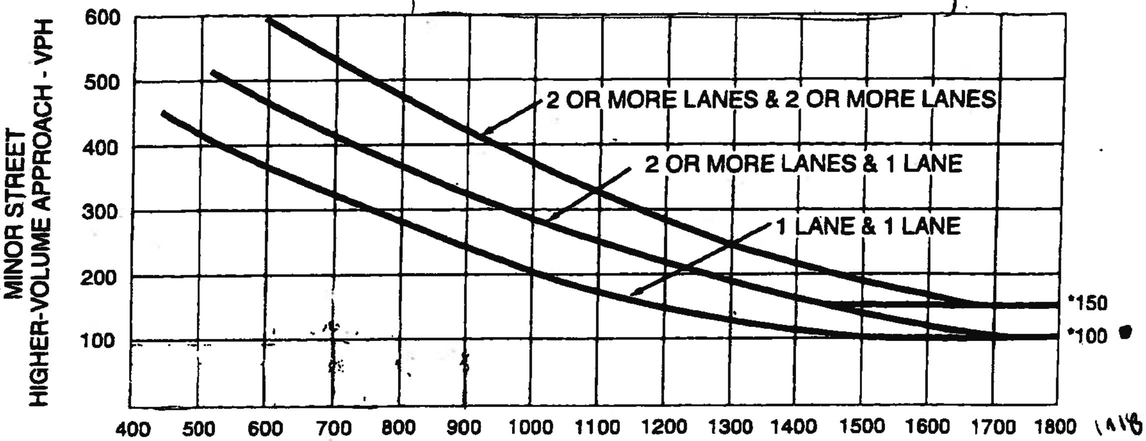
2030 w/ Project

Figure 4C-3. Warrant 3, Peak Hour

SR-140 @ Baker Ave.

AM

Yes



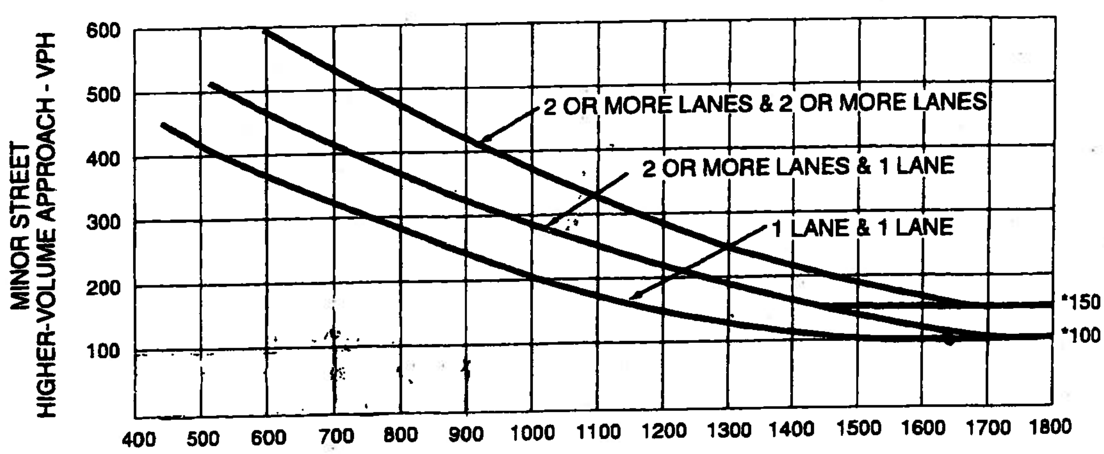
MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2030 w/ Project

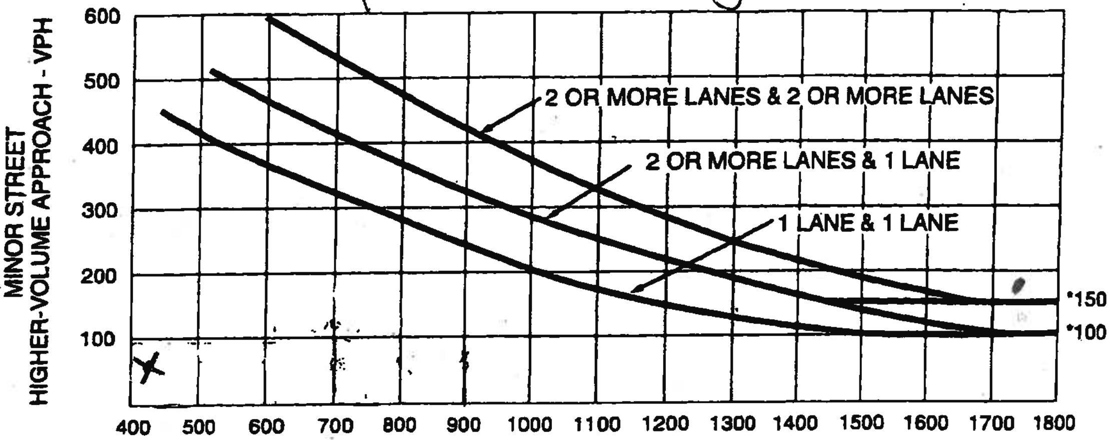
Figure 4C-3. Warrant 3, Peak Hour

[SR-140 @ Kibby]

AM

~~NO~~

Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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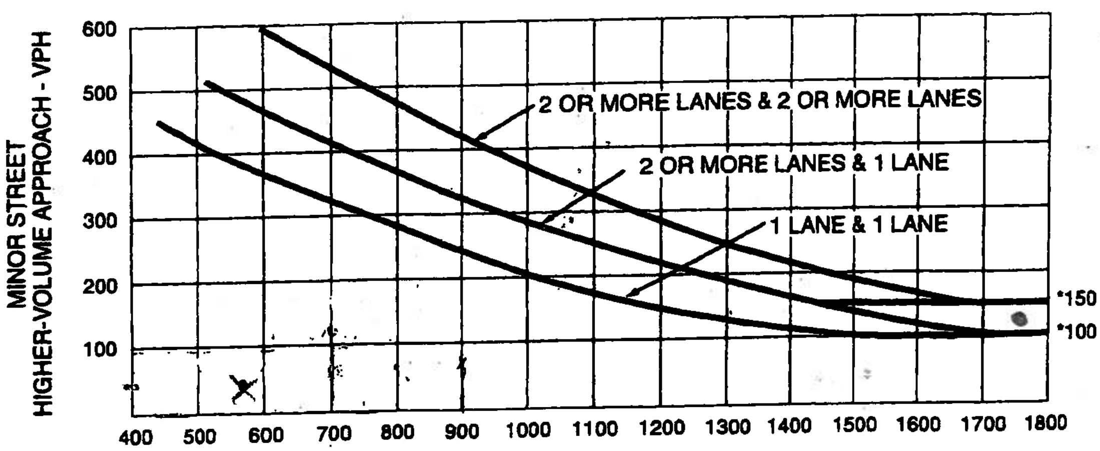
Figure 4C-3. Warrant 3, Peak Hour

PM

No



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

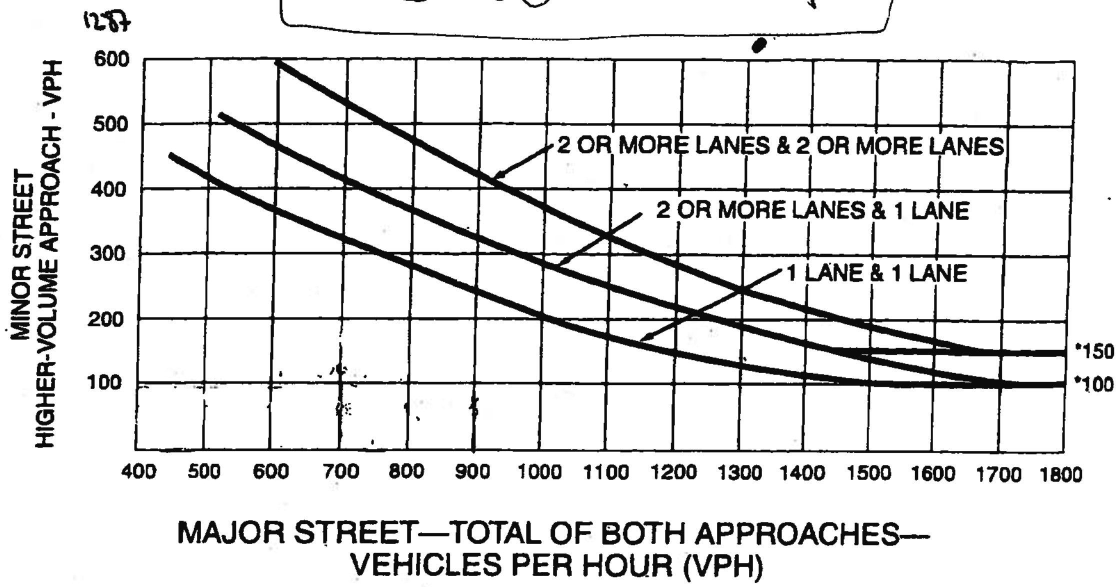
2030 w/ Project

Figure 4C-3. Warrant 3, Peak Hour

Childs Ave @ SR99 SB Ramps

AM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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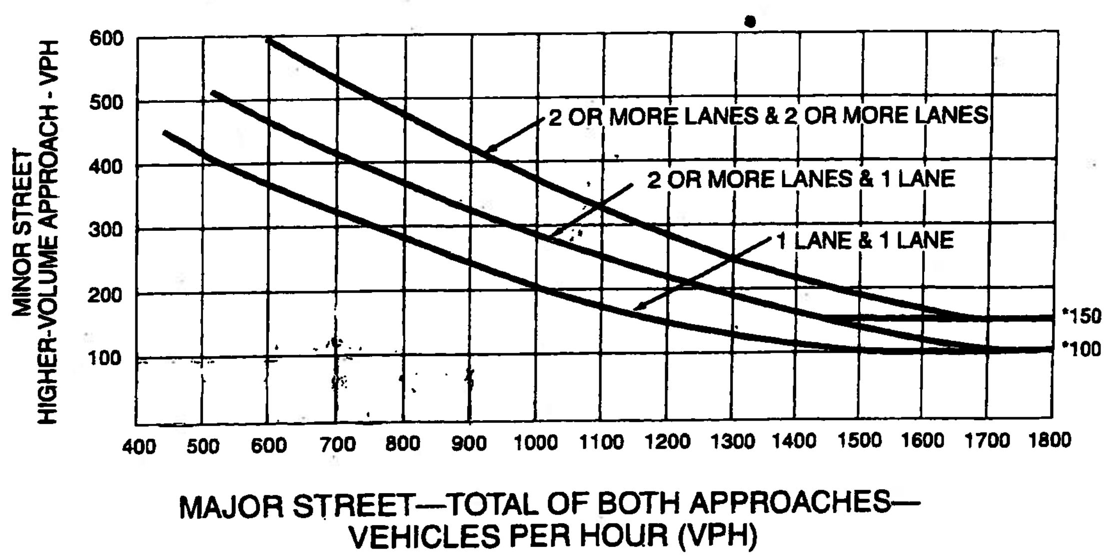
Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

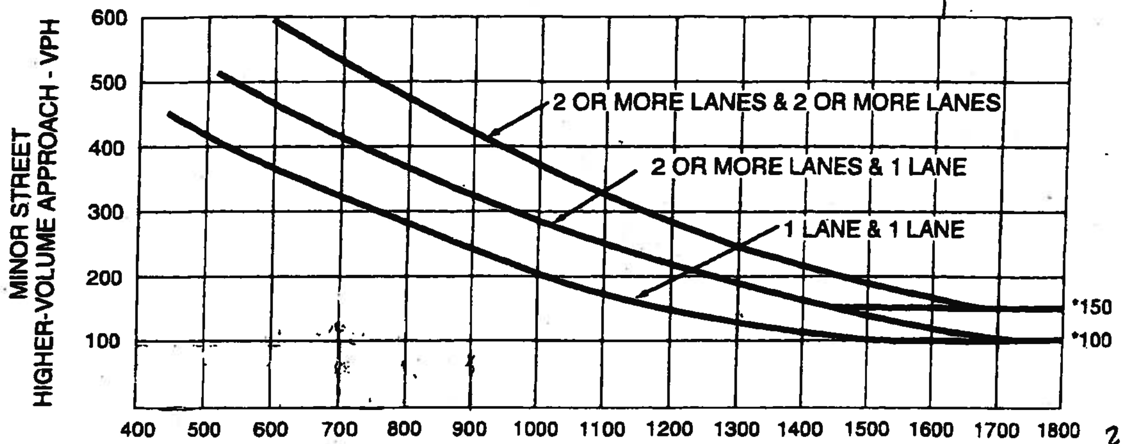
2030 w/ Project

Figure 4C-3. Warrant 3, Peak Hour

Child's Ave. @ SR-99 NB Ramp

AM

Yes



2469

MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2003 Edition

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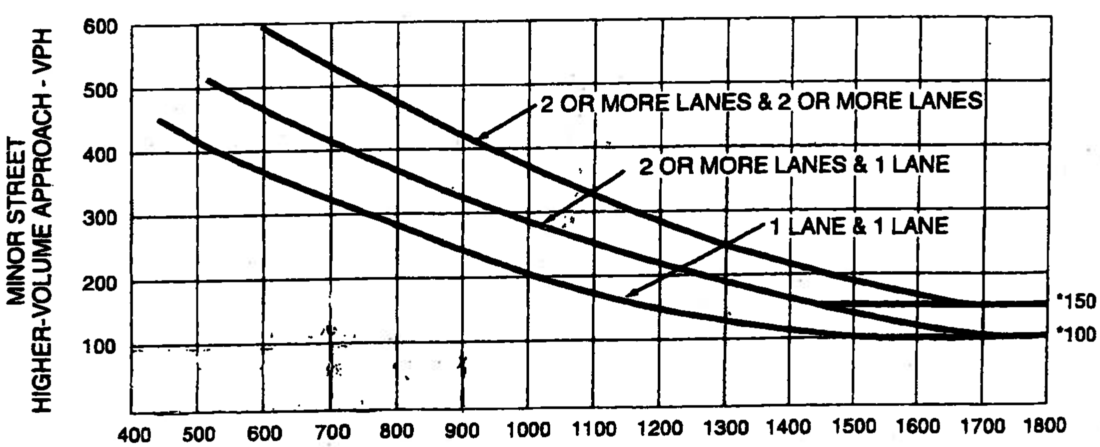
Figure 4C-3. Warrant 3, Peak Hour

PM

Yes



2349

MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

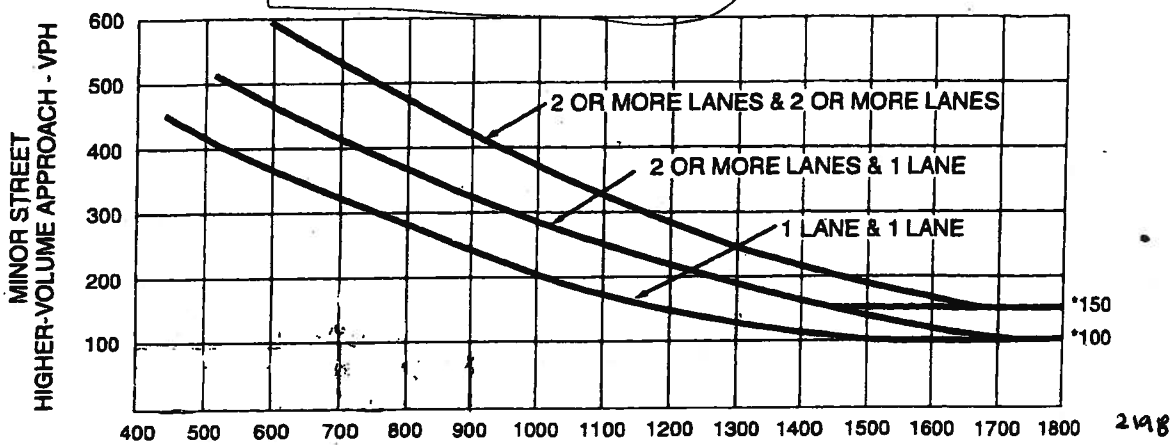
*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2030 w/ Project

Figure 4C-3. Warrant 3, Peak Hour

Mission Ave @ Coffee St.

AM
Yes



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

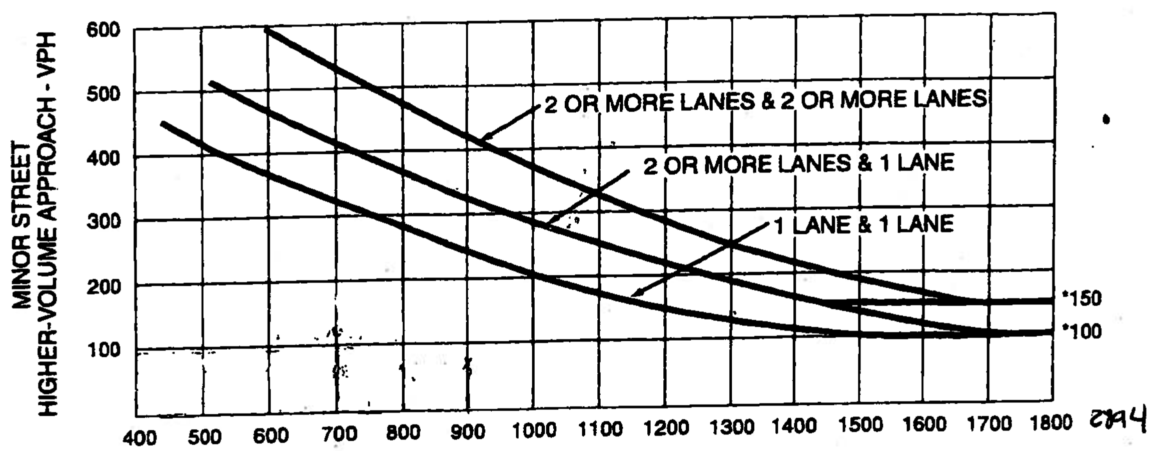
*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

2003 Edition

Page 4C-7

Figure 4C-3. Warrant 3, Peak Hour

PM
Yes

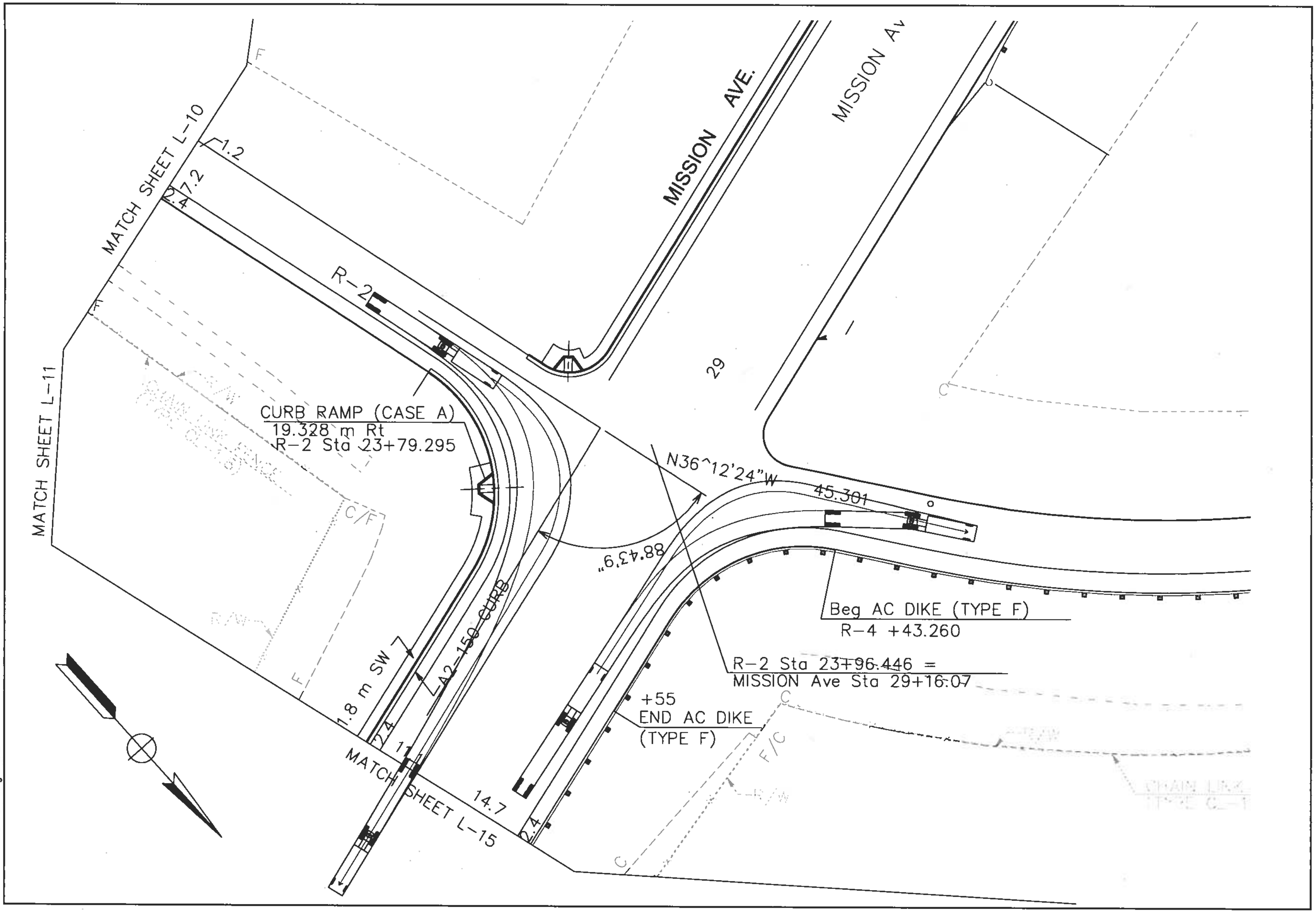


MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

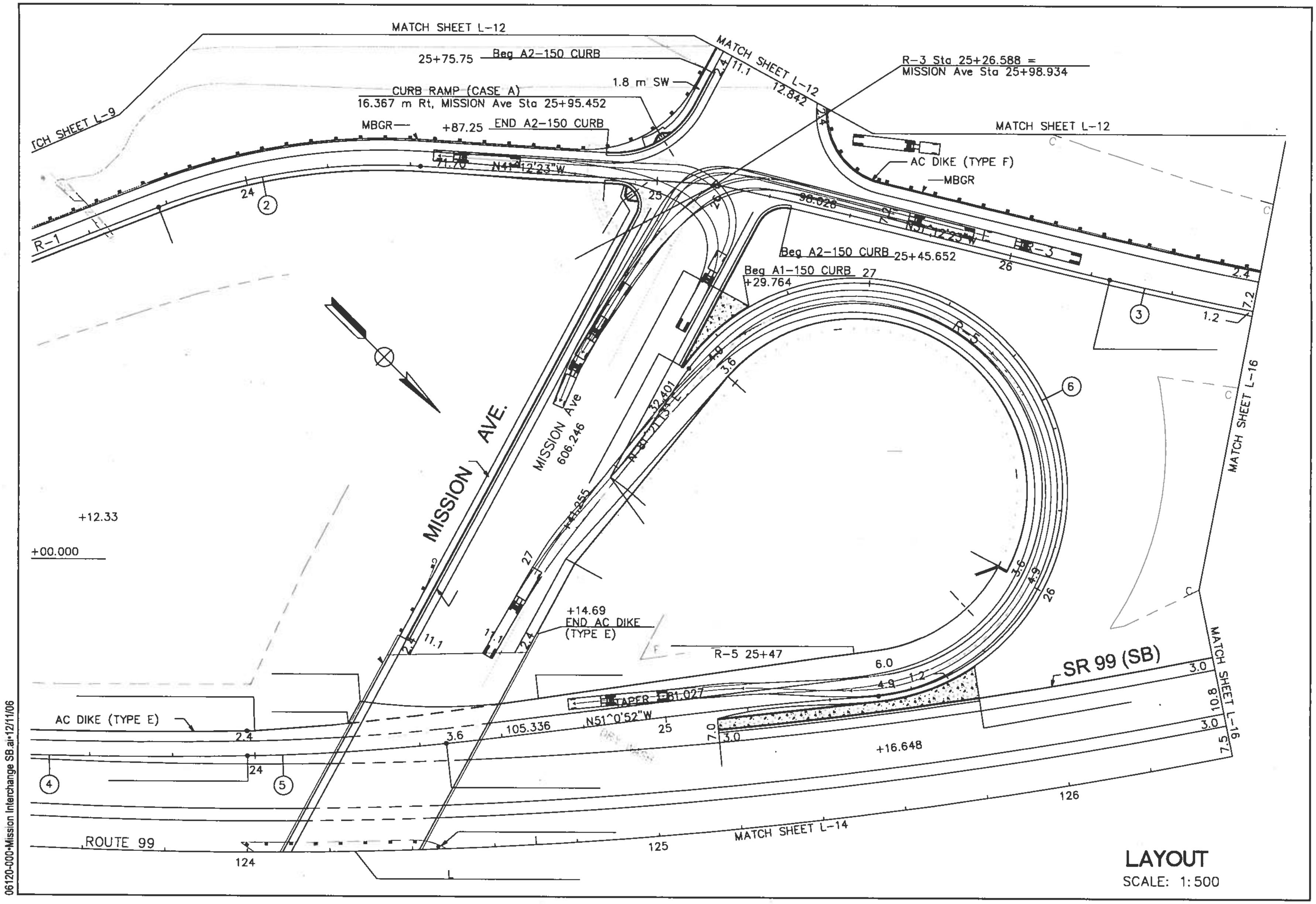
APPENDIX C

The Illustration of Truck Tunings



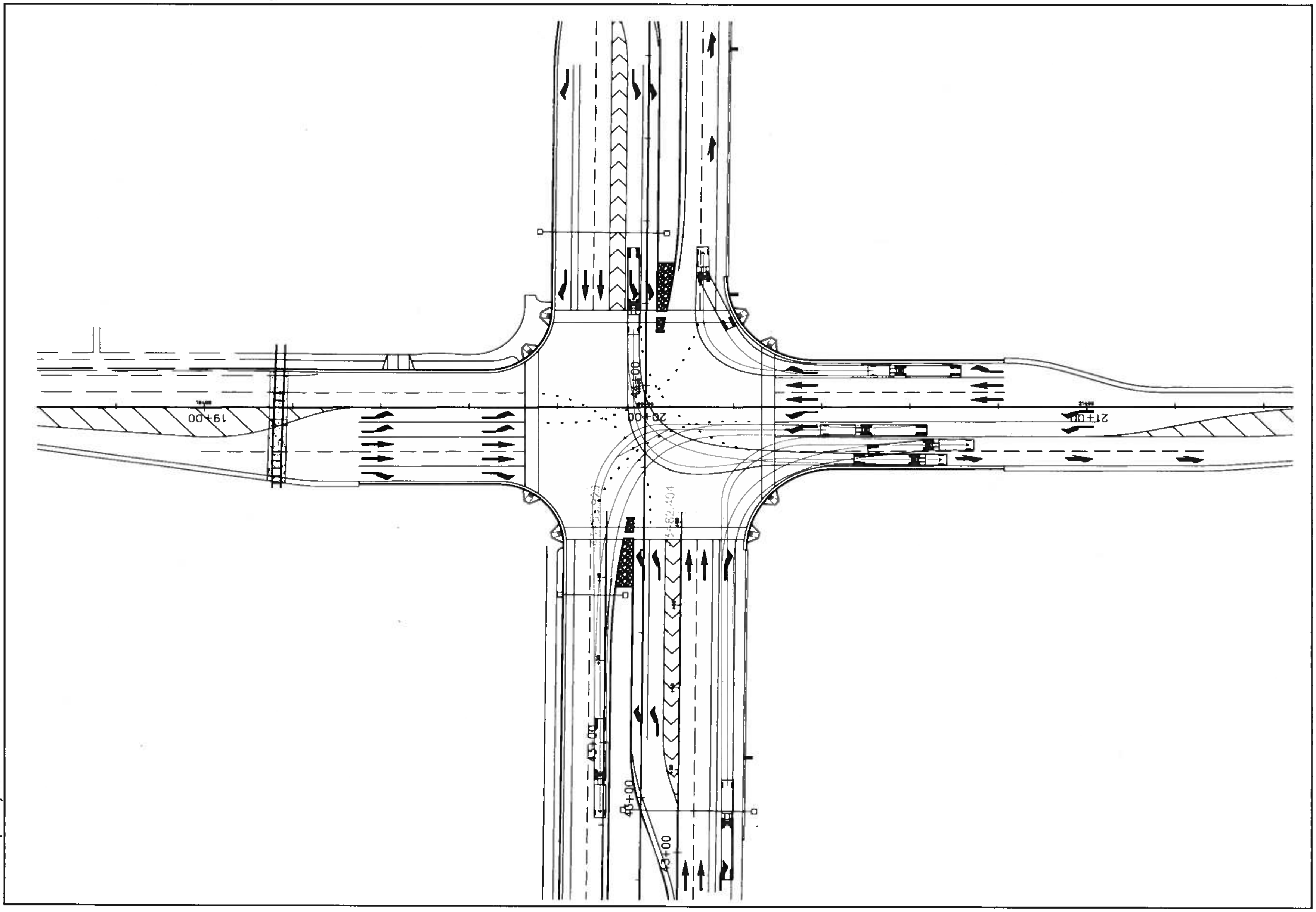
DKS *Associates*
TRANSPORTATION SOLUTIONS

Figure B-3
Mission Interchange (Northbound Ramps)
Truck Turning Path



DKS Associates
TRANSPORTATION SOLUTIONS

Figure B-2
Mission Interchange (Southbound Ramps)
Truck Turning Path



06120-000•Campus Pkwy Intersection.ai•12/11/06

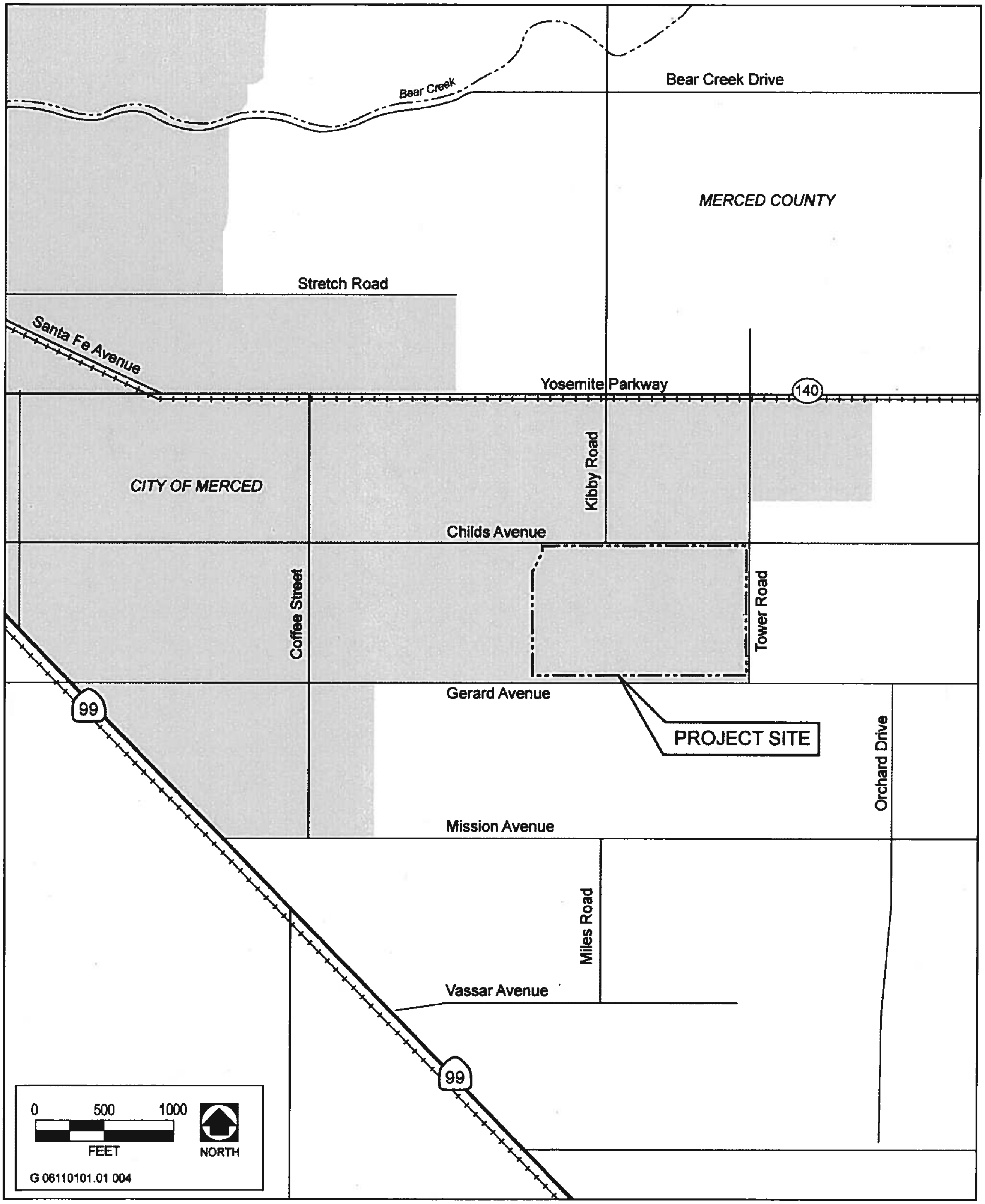
DKS Associates
TRANSPORTATION SOLUTIONS

Campus Parkway Intersection
Truck Turning Paths

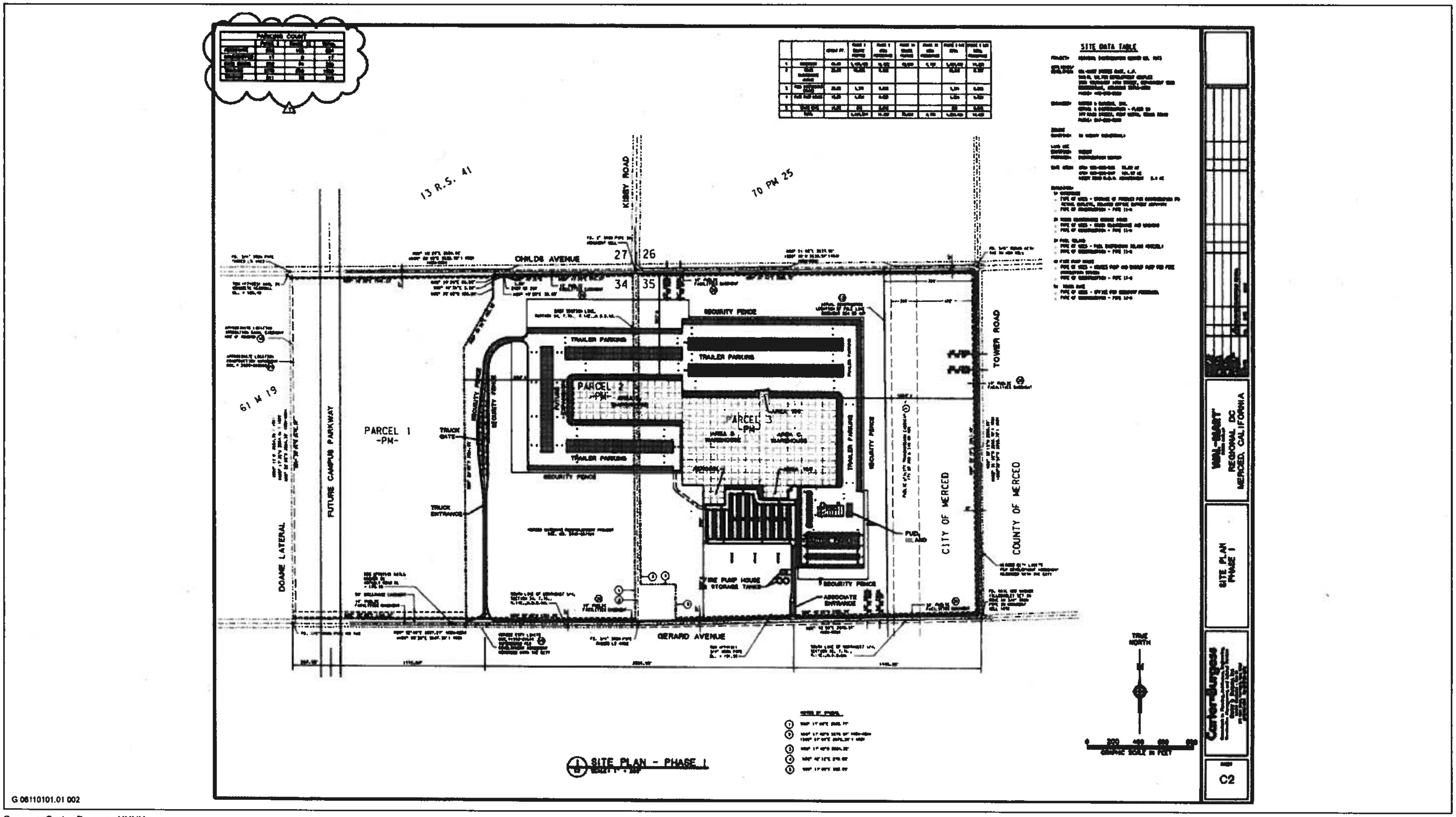
APPENDIX D

Merced Wal-Mart Distribution Center

Project Information



Local Vicinity Map **Exhibit 3-3**



G 06110101.01 002

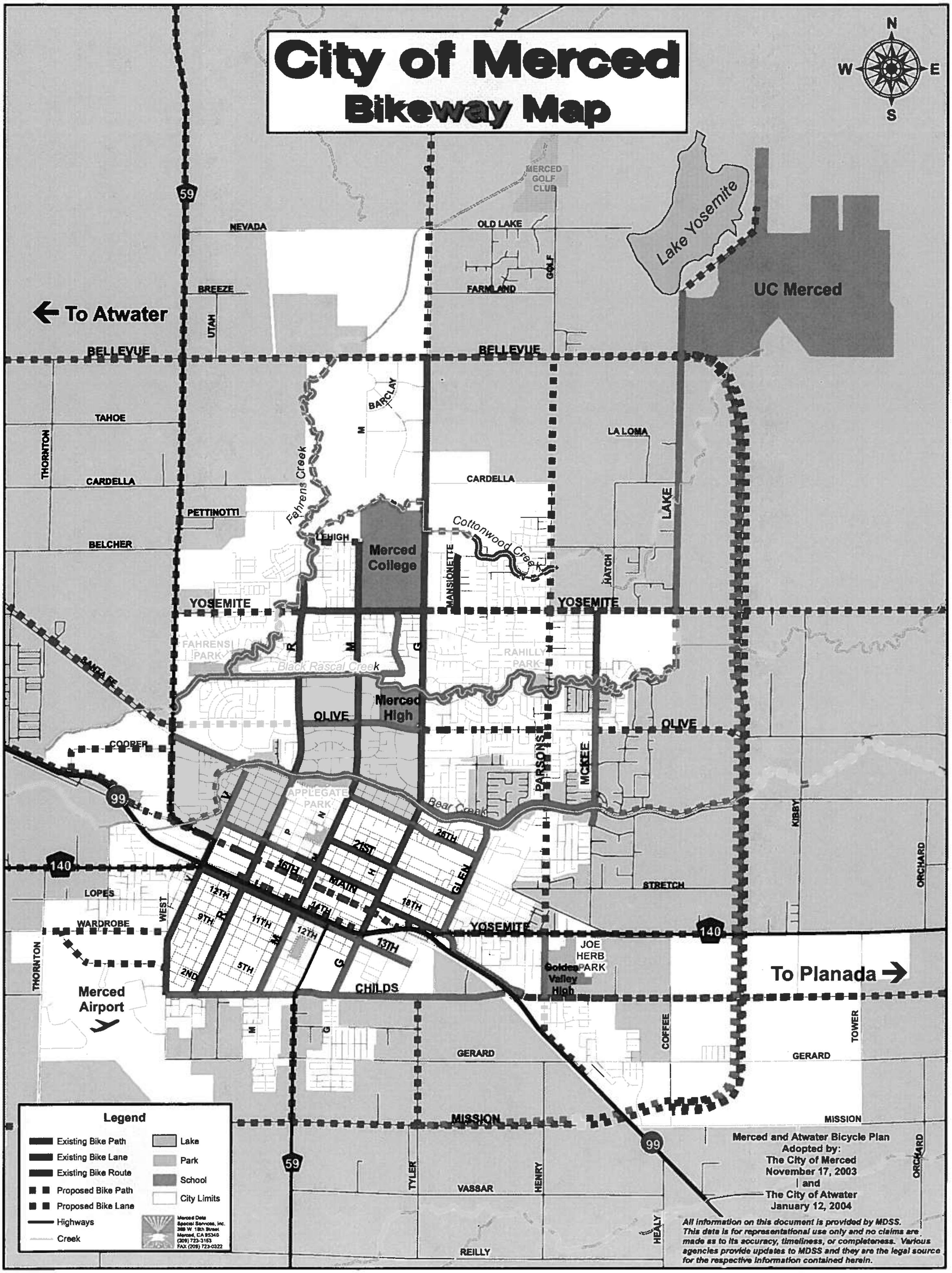
Source: Carter Burgess XXXX

Proposed Project Site Plan

Exhibit 3-1

APPENDIX E

Merced County Association of Governments
The City of Merced Bikeway Map


City of Merced
Bikeway Map
N
W
E
S
To Atwater
To Planada
MERCED GOLF CLUB
Lake Yosemite
UC Merced
NEVADA
OLD LAKE
BREEZE
FARMLAND
GOLF
UTAH
BELLEVUE
BELLEVUE
BARCLAY
TAHOE
THORNTON
CARDELLA
CARDELLA
LA LOMA
PETTINOTTI
Fahrens Creek
Cottonwood Creek
LAKE
BELCHER
LEHIGH
Merced College
MANSIONETTE
HATCH
YOSEMITE
YOSEMITE
FAHRENS PARK
RAHILLY PARK
Black Rascal Creek
SANTA FE
Merced High
OLIVE
OLIVE
COOPER
PARSONS
MCKEE
APPLEGATE PARK
Bear Creek
26TH
21ST
16TH
MAIN
GLEN
18TH
14TH
12TH
9TH
11TH
12TH
13TH
5TH
2ND
STRETCH
KIBBY
ORCHARD
LOPES
WEST
WARDROBE
YOSEMITE
JOE HERB PARK
Golden Valley High
CHILDS
Merced Airport
COFFEE
TOWER
GERARD
GERARD
MISSION
MISSION
TYLER
VASSAR
HENRY
HEALY
REILLY
ORCHARD
59
59
99
99
140
140
Legend
Existing Bike Path
Existing Bike Lane
Existing Bike Route
Proposed Bike Path
Proposed Bike Lane
Highways
Creek
Lake
Park
School
City Limits
Merced Data Special Services, Inc.
Merced and Atwater Bicycle Plan
Adopted by:
The City of Merced
November 17, 2003
and
The City of Atwater
January 12, 2004
All information on this document is provided by MDSS. This data is for representational use only and no claims are made as to its accuracy, timeliness, or completeness. Various agencies provide updates to MDSS and they are the legal source for the respective information contained herein.

Traffic Impact Analysis (kdAnderson)

TRAFFIC IMPACT ANALYSIS FOR

MERCED DISTRIBUTION CENTER
Merced, CA

Prepared For:

CARTER & BURGESS, INC.
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777 Main Street
P.O. Box 901058
Fort Worth, Texas 76101-2058

Prepared By:

kdANDERSON Transportation Engineers
3853 Taylor Road, Suite G
Loomis, CA 95650
(916) 660-1555

June 29, 2005

Job No. 1281-06

Merced Distribution May 05.rpt

TRAFFIC IMPACT ANALYSIS FOR
MERCED DISTRIBUTION CENTER
Merced, CA

TABLE OF CONTENTS

June 29, 2005

KDA

TRAFFIC IMPACT ANALYSIS FOR MERCED DISTRIBUTION CENTER
Merced, CA

This report summarizes **kdANDERSON Transportation Engineers** assessment of the traffic impacts and mitigation requirements associated with development of the **Merced Distribution Center** near Merced, California. The proposed project involves acquisition of a 222-acre site and the development of site improvements to accommodate a 1,250,000 sf regional distribution center that may handle 1,200 trucks per day and employ up to 900 persons on a 24-hour schedule.

The site is immediately east of State Route (SR) 99, an important regional facility that connects the site with the balance of northern and southern California, as shown in Figure 1. Access to the freeway occurs in the southern Merced area at two full interchanges (SR 140 and Childs Avenue) and at two at grade connections onto Northbound SR 99 (Gerard Avenue and Mission Avenue). Direct access to the project site is expected via Kibby Road, Childs Avenue and Gerard Avenue, three local Merced streets that link the site with SR 140 (Yosemite Parkway) and with SR 99. This study presents the potential impacts of the project under conditions anticipated with a new Mission Avenue interchange and Campus Parkway running parallel to the existing Coffee Street north across SR 140 into the UC campus area.

EXISTING SETTING

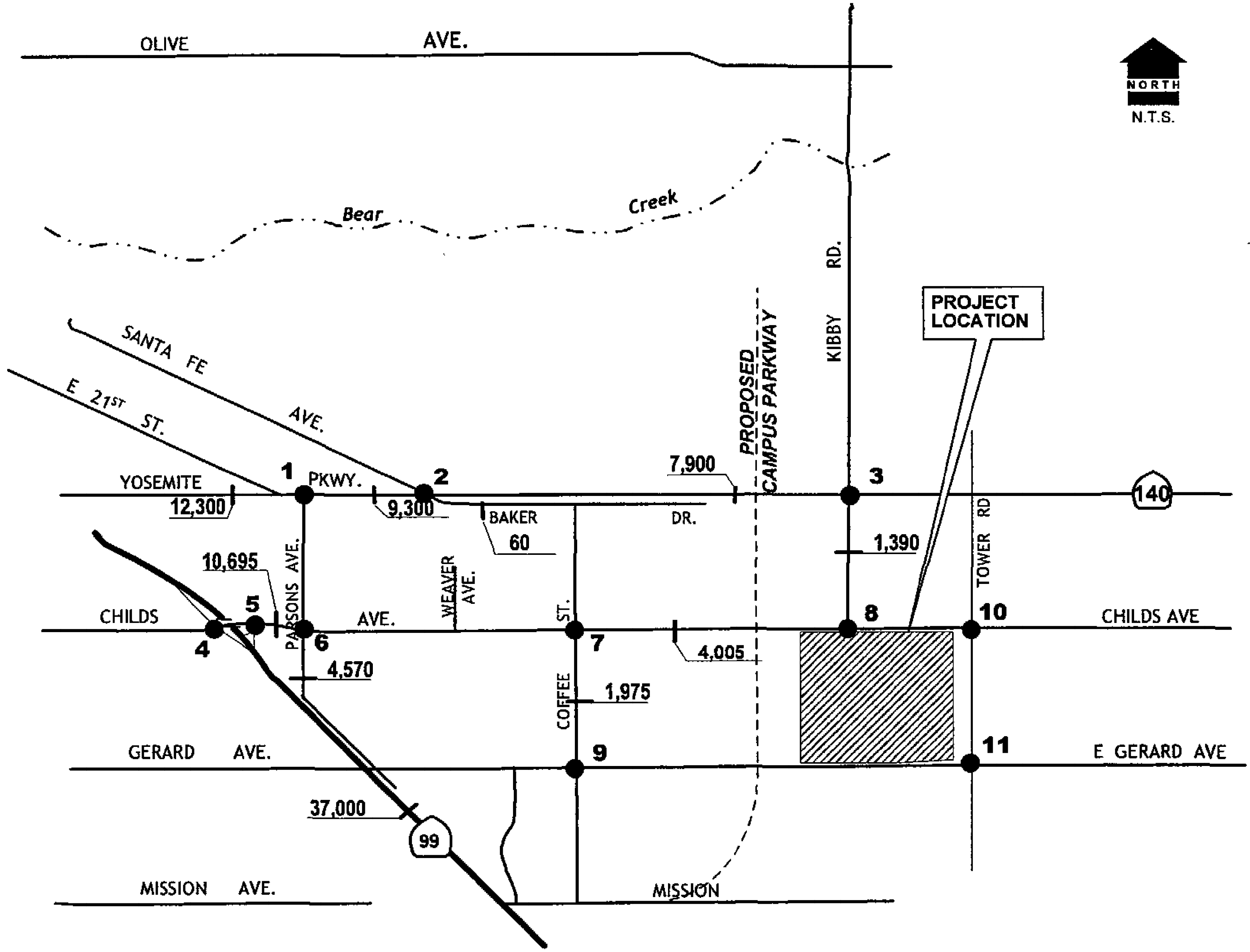
This report section describes the circulation system in the area of the project and assesses current peak hour traffic operations in this area of Merced.

Existing Street and Highway System

State Highways, City of Merced Streets and Merced County roads will be used to access the site. The project site lies immediately east of SR 99 and south of SR 140 (Yosemite Parkway) in the unincorporated area Merced County immediately east of the City of Merced. The site could be developed with local access via Kibby Road, Childs Avenue or Gerard Avenue. The site has access to SR 99 via the Childs Avenue and SR 140 interchanges which are about two miles west of the project site, as well as the proposed Mission Avenue interchange. Access to SR 140 is available via Kibby Road and Parsons Avenue, and to a limited extent via Baker Drive.

The text that follows describes these facilities.

State Route 99 is the primary north-south transportation corridor through Merced County. It is a four-lane freeway through the City of Merced but is a four lane limited access expressway in the area south of Childs Avenue. Caltrans maintains a regular traffic count program for state highways and reports both average and seasonal peak traffic volumes. The most recent information published by Caltrans reveals that the highway currently carries daily traffic volumes of 39,000 ADT north of the SR 140 interchange and 37,000 ADT in the expressway area south of Merced. Trucks comprise 25% of the traffic on SR 99.



KD Anderson
Transportation Engineers

1281-06 6/28/2005

INTERSECTION INDEX AND
EXISTING DAILY TRAFFIC VOLUMES

figure 1

KDA

The condition of SR 99 is an important consideration in the current planning for the City of Merced, as the need to close existing at-grade connections and bring the facility up to full freeway standards is understood by the City and the California Department of Transportation (Caltrans). However, while this work is included in the current Regional Transportation Plan, funding is uncertain due to the current state budget crisis.

State Route 140 (Yosemite Parkway) is a key east-west facility extending in the study area from SR 99 east to from Merced to Mariposa County and Yosemite Park. SR 140 is a two-lane roadway. Railroad tracks exist on the south side of SR 140 easterly from the Sante Fe Avenue intersection. As a result, access to the local street system from the south is limited to a signalized intersection at Parsons Avenue and to unsignalized intersections at Kibby Road and Baker Drive. The existing daily traffic volume on SR 140 in the project area is 12,300 west of Parsons Avenue and 7,900 ADT in the area of Kibby Road. Trucks comprise about 4% to 6% of the current daily traffic on SR 140.

Childs Avenue is a two-lane collector road that extends from West Avenue west of SR 99 easterly through the study area. This road provides access to SR 99 at a full access interchange west of the project site. Childs Avenue carries about 10,695 ADT just east of SR 99 and 3,690 ADT in the area of the proposed project. Classifying counts conducted for this study revealed that trucks comprise about 8% of the traffic on Childs Avenue near the project site.

Two schools are located along Childs Avenue. Golden Valley High School is located on the northeast corner of the Childs Avenue / Parsons Avenue intersection, while Weaver Elementary School is on the northeast corner of the Childs Avenue / Coffee Street intersection

Gerard Avenue is a two lane minor road that extends easterly from an at-grade connection on northbound SR 99 to the project site. Gerard Avenue carries about 3,500 ADT east of the Parsons Avenue intersection and less than 500 ADT east of Coffee Street.

Pioneer Elementary School is located on the southwest corner of the Gerard Avenue / Coffee Street intersection.

Parsons Avenue is a two lane north-south arterial street that connects SR 140 to Childs Avenue and continues southerly along the east frontage of SR 99 to its terminus south of Gerard Avenue. Signalized intersections on Parsons Avenue in the study area exist at SR 140 and Childs Avenue.

Coffee Street is a two lane rural north-south road that extends southerly from Baker Drive to Mission Avenue. The existing daily traffic volume on Coffee Street is about 1,465 ADT.

Kibby Road is a rural north-south road immediately north of the project site that extends from Childs Avenue north to Yosemite Avenue. The current daily traffic volume on Kibby Road is 1,390 ADT. Trucks comprise 8% of this total.

A truck terminal (McClane) exists on the northeast corner of the Childs Avenue / Kibby Road intersection. Truck scales for this business are located on Kibby Road midway between SR 140 and Childs Avenue.

Baker Drive is a rural east-west minor road south of and running parallel to SR 140. Baker Drive passes under the SR 140 via a narrow connection in the area of the BNSF railroad overcrossing and terminates at a tee intersection on the north side of SR 140 near Sante Fe Avenue. The current daily traffic volume is less than 1,000 ADT.

Mission Avenue is a rural east-west minor road in the southern portion of the study area. Its western terminus is at SR 99, where at grade access is available for northbound and westbound right turn movements. Existing ADT is less than 1,000.

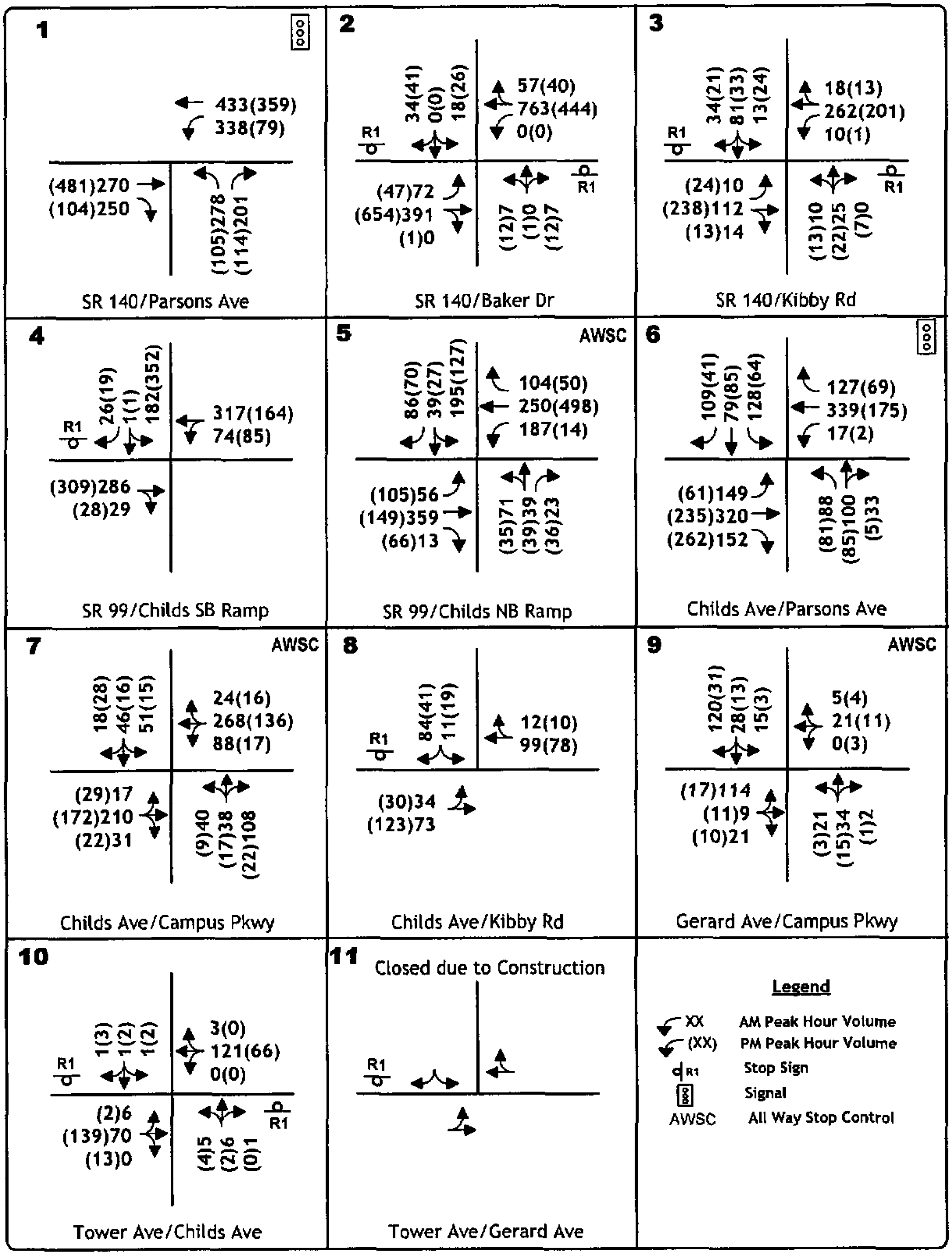
Study Intersections

Because the overall quality of traffic flow is generally governed by the operation of major intersections, the operation of fifteen (11) existing intersections were addressed, including:

1. Yosemite Parkway (SR 140) / Parsons Avenue (traffic signal)
2. Yosemite Parkway (SR 140) / Baker Drive (SB Stop)
3. Yosemite Parkway (SR 140) / Kibby Road (NB / SB Stops)
4. Childs Road / SR 99 Southbound Ramp (SB stop)
5. Childs Road / SR 99 Northbound Ramp / Motel Drive (All Way Stop)
6. Childs Avenue / Parsons Avenue (traffic signal)
7. Childs Avenue / Coffee Street (All Way Stop)
8. Childs Avenue / Kibby Road (SB stop)
9. Gerard Avenue / Coffee Street (All Way Stop)
10. Tower Avenue / Childs Avenue (NB / SB Stop)
11. Tower Avenue / Gerard Avenue (SB Stop)

Existing Traffic Volumes

To quantify existing traffic conditions, new a.m. and p.m. peak hour traffic counts were made by the consultant in March 2005 to supplement available data collected in December 2003. The peak hours were selected as being representative of "Worst Case" background traffic conditions. These new peak hour counts are presented in the Appendix and are summarized in Figure 2. This figure also presents the current geometric layout of study area intersections.



KD Anderson
Transportation Engineers

EXISTING TRAFFIC VOLUMES
AND LANE CONFIGURATIONS

1281-06 6/28/2005

figure 2

KDA

Level of Service Calculation

To quantitatively evaluate traffic conditions and to provide a basis for comparison of operating conditions with and without project generated traffic, "Levels of Service" were determined at study area intersections and on individual roadway segments.

"Level of Service" (LOS) is a quantitative measure of traffic operating conditions whereby a letter grade "A" through "F" is assigned to an intersection. LOS "A" through "F" represents progressively worsening traffic conditions. The characteristics associated with the various LOS for intersections are presented in Table 1. LOS "E" and "F" are associated with severe congestion and delay and are unacceptable to most motorists. The City of Merced designates LOS D as their minimum standard, consistent with General Plan policy.

TABLE 1
LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10.0 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 60.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.
Sources: 2000 Highway Capacity Manual, Transportation Research Board (TRB) Special Report 209.			

Methodology. To quantitatively evaluate traffic conditions and to provide a basis for comparison of operating conditions with and without project generated traffic, "Levels of Service" were determined at study area intersections. Levels of Service (LOS) were calculated for different intersection control types using the respective methods in the following sources.

- **Signalized and Unsignalized Intersections.** Highway Capacity Manual, 2000 (HCM). For this analysis the weighted average delay and Level of Service for all vehicles was the basis for Level of Service at unsignalized intersections.

- **Traffic Signal Warrants.** The need for signalization has been determine based on Warrant No. 11 (Peak Hour Traffic Volume) presented in the *Caltrans Traffic Manual* / and the *Manual of Uniform Traffic Control Devices.*

Signalized Intersections. The methodology employed for determining levels of service at signalized intersections makes use of assumptions regarding traffic volume, intersection geometry and traffic signal timing to suggest the overall average delay per vehicle passing through the intersection. This average delay is compared to the prescribed thresholds to identify the applicable Level of service.

Unsignalized Intersections. The procedure for calculating the level of service at unsignalized intersections is based on the relative availability of gaps in traffic and the delay experienced for each movement that must yield the right-of-way. The number of gaps is a function of the volume and speed of conflicting traffic, type of control (stop or yield), and qualitative intersection geometrics. While the length of average delays and level of service can be calculated for each movement, an overall "weighted" level of service is also calculated for all the traffic passing through the intersection.

Levels of service at unsignalized intersections controlled by side street stops are indicative of the magnitude of the delay incurred by motorists turning at the intersection. However, because these calculations exclude the condition of through traffic flow (which is assumed to flow freely), unsignalized poor level of service is not judged to be significant unless the volume of traffic also satisfies warrants for traffic signals.

While the unsignalized level of service may indicate very long delays for individual movements (i.e., LOS "E") traffic conditions are generally not assumed to be significant unless a significant number of motorists are delayed. For this analysis, the satisfaction of traffic signal warrants has been used to suggest the significance of unsignalized level of service. Although satisfying signal warrants signifies that an intersection has unacceptable operating conditions, it does not mean that installation of a signal is the only way to mitigate those conditions. It is often possible to improve an intersection with additional lanes or improved geometrics so that signalization is not necessary.

Roadway Segment Level of service. The roads within the study area include urban streets and rural roads. As the area develops and is annexed into the City of Merced, the two lane rural roads will be replaced by urban streets as fronting developers improve their property.

For this analysis, the existing capacity and level of service on Childs Avenue, Kibby Road, Coffee Street and Gerard Avenue have been evaluated as two lane rural roads. Traffic operations on two lane, two-way highways are unique. Lane changing, passing and left turns are possible only in the face of oncoming traffic in the opposing lane. Passing demand increases rapidly as traffic volumes increase, while passing capacity in the opposing lane declines as traffic volumes increase. Motorists are forced to adjust their individual travel speed as volume increases and the ability to pass declines.

The 1997 Highway Capacity Manual presents methodologies for calculating practical capacity and level of service on two lane rural roads. These procedures account for the effects of physical features and traffic characteristics on average travel speed and delay. The resulting capacities and levels of service are expressed in terms of allowable vehicles per hour. As will be evident from the discussions that follow, the practical capacity of two lane rural roads on level terrain can be quite high, as capacities of up to 2,000 Vehicle Per Hour (VPH) could be physically accommodated. However, traffic flow conditions at "near capacity" levels are very poor and are typically described as "stop and go" or "bumper to bumper" conditions. As shown in Table 2, the number of vehicles that can be accommodated under satisfactory levels of service is much less. For this analysis we have assumed that study area roads are classified as "level" terrain.

Alternatively, the capacity and level of service thresholds associated with multi lane urban roads are different from those associated with rural roads. The quality of traffic operations is more closely linked to such factors as the degree of access control and the spacing of signalized intersections. The Merced County Congestion Management Plan (CMP) makes use of daily traffic volume thresholds first created by the Florida Department of Transportation. These thresholds have been applied to Yosemite Parkway and to Parsons Avenue.

TABLE 2
LEVEL OF SERVICE THRESHOLDS

Terrain	Pavement Width	Shoulder Width	Level of Service Threshold				
			A	B	C	D	E
Daily Traffic Volume Thresholds for Urban Streets							
Two Lane Urban Arterial with moderate access control (0.76 to 1.5 signals per mile)			9,000	13,700	14,500	15,300	16,100
Peak Hour Thresholds for rural roads							
Rural Road - two lanes in "Level" terrain	22	0	105	285	510	920	1,965

Current Intersection Levels of Service

Peak hour levels of service were calculated at the existing study intersections (Refer to Appendix for calculation worksheets) under "Existing - No Project" conditions. The results of these calculations are presented in Table 3. As shown, all intersections currently operate at acceptable levels of service.

TABLE 3
EXISTING INTERSECTION LEVELS OF SERVICE

Location	Control	A.M. Peak Hour		P.M. Peak Hour	
		Average Delay (sec)	LOS	Average Delay (sec)	LOS
Yosemite Parkway / Parsons Ave	Signal	28.5 sec	C	15.1 sec	B
Yosemite Parkway / Baker Dr					
(overall)	SB Stop	(1.2 sec)	(A)	(1.2 sec)	(A)
NB approach		15.6 sec	C	14.8 sec	C
SB approach		15.4 sec	C	13.0 sec	C
EB left		6.1 sec	A	0.3 sec	A
WB left		N/A	N/A	N/A	N/A
Yosemite Parkway / Kibby Rd					
(overall)	NB / SB Stop	(4.1 sec)	(A)	(3.0 sec)	(A)
NB approach		13.6 sec	B	13.5 sec	B
SB approach		13.8 sec	B	13.6 sec	B
EB left		7.8 sec	A	7.7 sec	A
WB left		7.5 sec	A	7.8 sec	A
SR 99 SB Ramp / Childs Ave	SB Stop				
(overall)		(6.8) sec	A	(26.1 sec)	(C)
SB approach		26.7 sec	D	65.3 sec	F
WB left		8.1 sec	A	8.2 sec	A
SR 99 NB Ramp / Childs Ave / Motel Dr	AWSC	23.0 sec	C	31.8 sec	D
Childs Avenue / Parsons Ave	Signal	26.8 sec	C	22.5 sec	C
Childs Ave / Coffee St	AWSC	12.7 sec	B	8.6 sec	A
Childs Ave / Kibby Rd					
(overall)	SB Stop	(3.7 sec)	(A)	(2.6 sec)	(A)
SB approach		9.4 sec	A	9.5 sec	A
EB left		7.5 sec	A	7.4 sec	A
Gerard Ave / Coffee St	AWSC	8.0 sec	A	7.0 sec	A
Tower Ave / Childs Ave	NB / SB Stop				
(overall)		(0.4 sec)	(A)	(0.3 sec)	(A)
NB approach		4.3 sec	A	4.6 sec	A
SB approach		4.0 sec	A	3.8 sec	A
EB left		0.2 sec	A	2.3 sec	A
WB left		N/A	N/A	N/A	N/A
Tower Ave / Gerard Ave Note: Intersection Closed for Construction at time of counts	N/A	N/A	N/A	N/A	N/A

Traffic Signal Warrants

Unsignalized Intersections and 4-Way Stop Intersections were analyzed to determine whether or not they meet Peak Hour Signal Warrants according to the *Manual of Uniform Traffic Control Devices (MUTCD 2000, Section 4C.04 Warrant 3, Peak Hour).* This methodology states the Peak Hour Warrant is met if all three of the following conditions are determined:

The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach, and;

The volume of the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and;

The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

None of the unsignalized study intersections meet the Peak Hour Signal Warrant under existing conditions.

Roadway Segment Levels of Service

Levels of Service have been calculated based on daily and weekday peak hour traffic volumes on individual segments of urban and rural study area roads, respectively. These volumes and the applicable Level of service are presented in Table 4. As shown, all segments carry traffic volumes that are indicative of LOS D or better conditions.

TABLE 4
EXISTING ROADWAY SEGMENT LEVELS OF SERVICE

Road	Location	LOS D threshold	Volume	Level of Service*
SR 140	SR 99 to Kibby Road	15,300 ADT	12,300 ADT	B
	Parsons Avenue to Sante Fe Ave	15,300 ADT	9,300 ADT	A
	Sante Fe Ave to Kibby Rd	920 vph	510 vph	C-D
Coffee Street	Baker Dr to Childs Ave*	920 vph	57 vph	A
	Childs Ave to Gerard Ave	920 vph	41 vph	A
Parsons Avenue	Childs Ave to Gerard Ave	15,300 ADT	4,570	A
Kibby Rd	SR 140 to Childs Ave	920 vph	89 vph	A
Baker Drive	Coffee St to SR 140	15,300 ADT	1810 ADT	A
Gerard Ave	Parsons Ave to Coffee St	15,300 ADT	3,890	A
	Coffee St to project	920 vph	33 vph	A

* assumes rural "level" capacity based of peak hour volume
** assumes urban capacity based on ADT

Pavement Condition / Design Issues

While a complete evaluation of the condition of the roads in the study area is beyond the scope of this study, our field review did reveal several locations where existing pavement deficiencies could be expected to be exacerbated by truck traffic.

Pavement Conditions. The condition of pavement on **Yosemite Parkway** is good and would not be expected to represent a constraint to site access. Pavement conditions on the rural roads in the area of the project vary. **Chiles Avenue** varies in width from 24 feet to 32 feet in the area where fronting development has completed frontage improvements. The pavement is in fair condition, but no major deficiencies were observed. **Kibby Road** has a paved width of about 32 along the McLane Distribution frontage, and the pavement is in fair condition.

YEAR 2010 BACKGROUND CONDITIONS

Background

The City of Merced has been actively planning for the development of the community as a whole and the study area in particular. In the study area, the most significant issue is the development of **Campus Parkway** and the **SR 99 / Mission Avenue Interchange.** As shown in Figure 1 these facilities are immediately adjacent to the proposed project site. Campus Parkway is intended to provide important access to the new UC Merced Campus and to the developing area north of Merced. In concert with the **Castle Parkway** between Merced and Atwater, these facilities are intended to create a "ring road" that will relived internal Merced Street as well as SR 99 through the community.

For the purposes of this study, the Mission Avenue interchange and Campus Parkway are assumed under 2010 conditions. The Campus Parkway is only assumed to be construction to Childs Avenue within this time period. It should be noted that due to current statewide funding constraints for transportation improvements, these projects may not be developed by year 2010.

Methodology

To develop the Year 2010 traffic volumes, the Merced County Association of Governments (MCAG) travel demand forecast model was used along with specific projects identified by the City of Merced anticipated to develop within this time frame. The model contains land use development levels consistent with adopted General Plans for Cities in the County as well as for development in rural community plan areas. The model was modified to include several residential projects in the study area. Those projects are the Renaissance and Renaissance 2, Sandcastle, Franco (Weaver Annexation), Tuscany and Tuscany East, Hartley Crossings, and Starlight Estates projects. City staff provided unit counts for these projects, and the status of construction for each project.

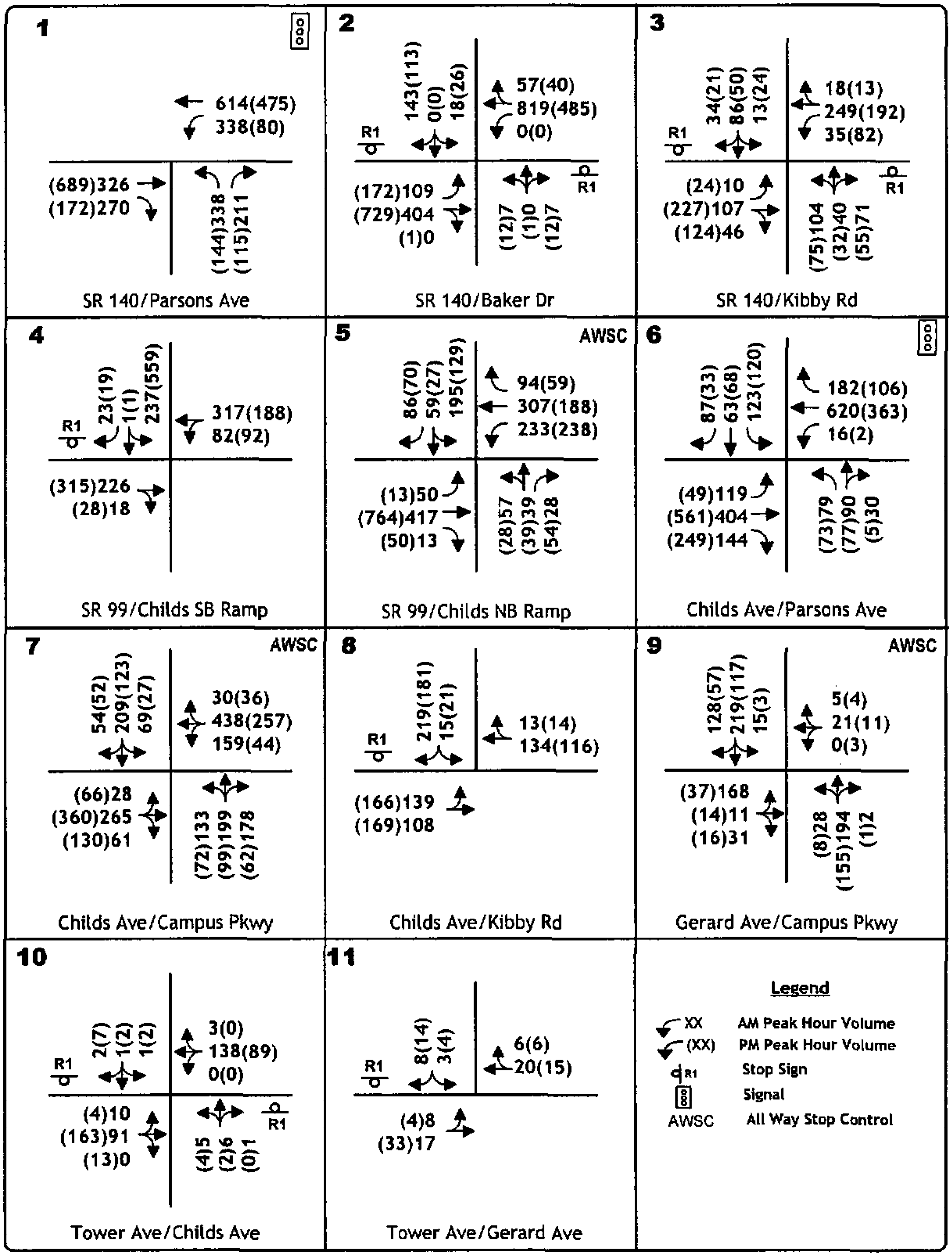
The undeveloped components of these projects were added to the MCAG transportation model and new traffic projections were developed for this study. Growth rates derived from the model runs were applied to create the 2010 background peak hour condition. Additional adjustment to the "raw" model forecast was performed to reflect the inclusion of the proposed Mission Avenue interchange and parkway. For this analysis, the majority of trips on Coffee Avenue area expected to shift to the Campus Parkway. As a base condition, the Campus Parkway was assumed initially to provide two through lanes, with traffic signals and turning lanes at intersections at Childs Avenue and Gerard Avenue.

Year 2010 Background Conditions

Background year 2010 peak hour traffic volumes are depicted in Figure 3. The resulting intersection levels of service under these conditions are identified in Table 5, while year 2010 roadway levels of service are listed in Table 6.

As shown, anticipated traffic growth will lead to poor traffic conditions at two locations, even with the construction of the Mission Avenue interchange and Campus Parkway. Both ramp intersections at SR 99 / Childs Avenue will operate at LOS F under 2010 no project conditions. Peak hour traffic signal warrants are projected to be met in at both locations in 2010 with or without the project.

The traffic volumes on most study area roads will remain below the City's LOS D threshold, but the volume on SR 140 between SR 99 and Parsons Avenue will marginally exceed the level of service standard.



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EXISTING PLUS APPROVED PROJECTS TRAFFIC VOLUMES AND LANE CONFIGURATIONS

1281-06 6/28/2005

figure 3

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TABLE 5
YEAR 2010 BASELINE INTERSECTION LEVELS OF SERVICE

Location	Control	A.M. Peak Hour Average Delay (sec)	A.M. Peak Hour LOS	P.M. Peak Hour Average Delay (sec)	P.M. Peak Hour LOS
Yosemite Parkway / Parsons Ave	Signal	30.6 sec	C	16.1 sec	B
Yosemite Parkway / Baker Dr					
(overall)	SB Stop	(2.7 sec)	(A)	(2.5 sec)	(A)
NB approach		27.7 sec	C	27.0 sec	D
SB approach		17.5 sec	C	15.8 sec	C
EB left		7.1 sec	C	1.0 sec	A
WB left		N/A	N/A		N/A
Yosemite Parkway / Kibby Rd					
(overall)	NB / SB Stop	(7.6 sec)	(A)	(7.0 sec)	(A)
NB approach		17.5 sec	C	22.1 sec	C
SB approach		15.4 sec	C	21.0 sec	C
EB left		7.8 sec	A	7.7 sec	A
WB left		7.6 sec	A	8.2 sec	A
SR 99 SB Ramp / Childs Ave	SB Stop				
(overall)		(10.2) sec	B	(>100 sec)	(F)
SB approach		32.7 sec	D	>100 sec	F
WB left		7.9 sec	A	8.1 sec	A
SR 99 NB Ramp / Childs Ave / Motel Dr	AWSC	35.3 sec	E	>100 sec	F
Childs Avenue / Parsons Ave	Signal	23.3 sec	C	18.2 sec	B
Childs Ave / Campus Parkway	Signal	29.6 sec	C	24.2 sec	C
Childs Ave / Kibby Rd					
(overall)	SB Stop	(5.8 sec)	(A)	(5.3 sec)	(A)
SB approach		10.9 sec	B	11.0 sec	B
EB left		7.8 sec	A	7.8 sec	A
Gerard Ave / Campus Parkway	Signal	21.5 sec	B	14.0 sec	B
Tower Ave / Childs Ave	NB / SB Stop				
(overall)		(0.4 sec)	(A)	(0.3 sec)	(A)
NB approach		4.6 sec	A	4.9 sec	A
SB approach		3.9 sec	A	3.7 sec	A
EB left		0.3 sec	A	2.3 sec	A
WB left		N/A	N/A	N/A	N/A
Tower Ave / Gerard Ave	SB Stop				
(overall)		0.9 sec		(0.9 sec)	A
SB approach		3.0 sec		2.9 sec	A
EB left		2.2 sec		2.2 sec	A

TABLE 6
YEAR 2010 ROADWAY SEGMENT LEVELS OF SERVICE

Road	Location	LOS D threshold	Volume	Level of Service*
SR 140	SR 99 to Kibby Road	15,300 ADT	15,480 ADT	D-E
	Parsons Avenue to Sante Fe Ave	15,300 ADT	14,890 ADT	D
	Sante Fe Ave to Kibby Rd	920 vph	510 vph	C-D
Campus Parkway	Mission Ave to Childs Ave**	15,300 ADT	9,500 ADT	B
Parsons Avenue	Childs Ave to Gerard Ave	15,300 ADT	4,220 ADT	A
Kibby Rd	SR 140 to Childs Ave	920 vph	380 vph	C
Baker Drive	Coffee St to SR 140	15,300 ADT	3,270 ADT	A
Gerard Ave	Parsons Ave to Coffee St	15,300 ADT	3,870 ADT	A
	Coffee St to project	920 vph	43 vph	A

* assumes rural "level" capacity based of peak hour volume
** assumes urban capacity based on ADT

PROJECT IMPACTS

Project Characteristics

Trip Generation. To quantify the number of vehicular trips generated by the proposed project, information was employed by the project proponent regarding the possible range of truck / employee activity to and from the site (refer to Regional Distribution Center (RDC) Traffic Data in the Appendix).

This analysis assumes that the proposed project is a Regional Distribution Center (RDC) with a Center Point. For this analysis 600 trucks were assumed to access the site each day (1,200 trips), with this traffic spread over a 24-hour day.

The site is expected to employ a maximum of 900 persons working three shifts throughout the week. About 72% of the employment would be persons working typical weekday (Tuesday through Friday) shifts. A portion of the employee count (18%) is persons that are not assigned to the 1st, 2nd or weekend shifts. For this analysis we have conservatively assumed that these employees arrive and depart during the a.m. and p.m. peak hour.

Assumptions have been made regarding automobile occupancy. Based on the data provided regarding typical traffic counts at other RDC's, each employee is assumed to generate 1.70 daily trips.

The data provided suggests that some additional traffic is generated that is not related to tractor-trailers and/or employee commute activity. These trips (180 daily trips, with 5 inbound and 5 outbound peak hour trips) were also included.

Resulting daily and peak hour trip generation projections are presented in Table 7.

TABLE 7
DISTRIBUTION CENTER TRIP GENERATION

Direction	Daily Trips			A.M. Peak Hour Trips (7:00 to 9:00 a.m.)			P.M. Peak Hour Trips (4:00 to 6:00 p.m.)		
	Trucks	Autos	Total	Trucks	Autos	Total	Trucks	Autos	Total
Expressed as Vehicles									
Inbound	600	740	1,340	29	142	171	25	180	205
Outbound	600	740	1,340	27	5	32	25	380	405
Total	1,200	1,480	2,680	56	147	203	50	560	610
Expressed as Passenger Car Equivalents (PCE's)									
Inbound	2,400	740	3,140	116	142	537	100	180	280
Outbound	2,400	740	3,140	108	5	113	100	380	480
Total	4,800	1,480	6,280	224	147	650	200	560	760

Because large trucks have acceleration and deceleration characteristics that differ from those associated with passenger cars, project truck trips have been expressed in terms of ***Passenger Car Equivalents (PCE's).*** Information contained in the Highway Capacity Manual (HCM) suggests that trucks have been determined to the equivalent of two to four automobiles. For the purpose of this Level of Service analysis, because of the rural nature of the area roads, we have conservatively assumed that each new truck trip generates 4.0 PCE's, and that each automobile trip generates 1.0 PCE.

Trip Distribution. During peak hours the distribution of trips generated by the proposed project will reflect regional truck travel as well as the commute patterns of employees.

The distribution of truck trips would reflect the site's regional positioning along SR 99. The distribution of employee traffic and "other" trips will reflect the regional distribution of residences in Merced County. As shown in Table 8, it is reasonable to expect that the majority of associates will live in the greater Merced / Atwater area to the north, with some associates living south in Chowchilla / Fresno area and to the east in rural Merced County. For the purposes of this study, 90% of the trucks were assigned through the new Mission Interchange via the Campus Parkway. While limiting employee trips to certain routes is difficult to enforce, the distribution center can control the truck routes in and out of the site.

TABLE 8
TRIP DISTRIBUTION ASSUMPTIONS

Direction	Percentage of Total Traffic	
	Automobiles	Trucks
North via State Route 99	40%	31%
East via SR 140	10%	-
West via SR 140 / SR 152	3%	37%
South Via SR 99	20%	32%
North via E 16th Street	5%	-
North on Santa Fe / E 21st	5%	-
North on Kibby Road	10%	-
East on Chiles Avenue	2%	-
West on Chiles Avenue	5%	-
Total	100%	100%

2010 Plus Project Traffic Conditions

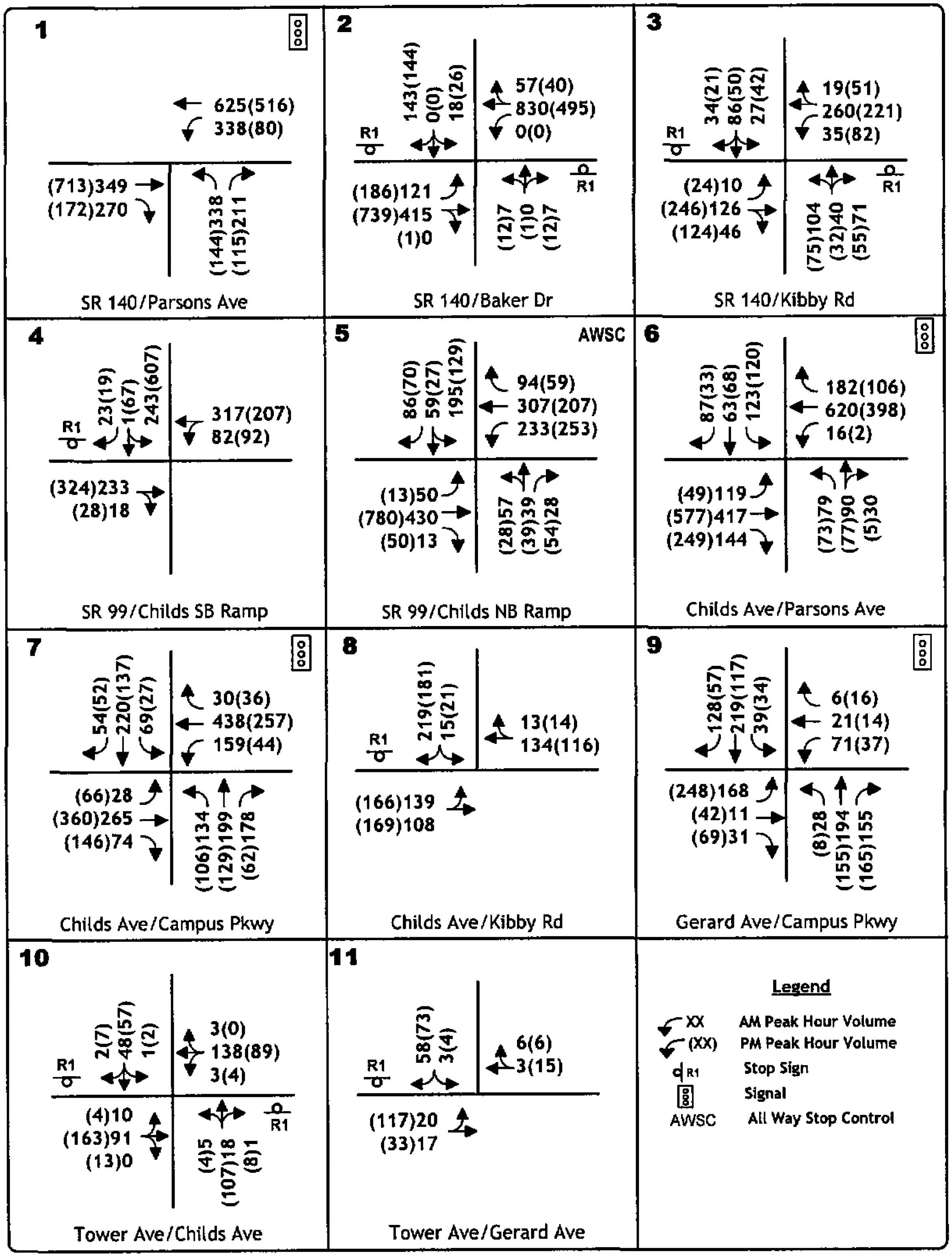
Using the trip generation and distribution described above, project generated trips (PCE's) were assigned to the area street system. The resulting "existing plus project" traffic volumes are presented in Figure 4.

Resulting Levels of Service were calculated for intersections as shown in Table 9. As noted, the operating conditions at two deficient intersections would be exacerbated by development of the project. The Childs ramp intersections with SR 99 would operate at LOS F in at least one of the a.m. or p.m. peak hours. Traffic related impacts from the project at these locations would be limited to visitor or employee traffic only. All trucks would be routed either on the Mission Ave Interchange / Campus Parkway or SR 140.

The extent of improvements needed to deliver LOS D or better conditions is discussed later under "Mitigation".

Table 10 summarizes "existing plus project" traffic volumes on study area roadways. As shown, the addition of project traffic in combination with background traffic would theoretically result in LOS F on Yosemite Parkway east of SR 99 to Parsons Avenue. However, as much of the incremental volume increase is based on truck PCE's, it is possible that the effect of project traffic in this area may be overstated with regard to the City's LOS D threshold.

All of the intersection and roadway impacts are consistent with the 2010 No Project condition. No additional impacts occur as a result of project generated traffic.



EXISTING PLUS APPROVED PROJECTS
PLUS PROJECT TRAFFIC
VOLUMES AND LANE CONFIGURATIONS

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figure 4

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TABLE 9
2010 PLUS PROJECT PEAK HOUR INTERSECTION LEVELS OF SERVICE

Location	Control	A.M. Peak Hour Average Delay (sec)	A.M. Peak Hour LOS	P.M. Peak Hour Average Delay (sec)	P.M. Peak Hour LOS
Yosemite Parkway / Parsons Ave	Signal	31.2 sec	C	16.0 sec	B
Yosemite Parkway / Baker Dr					
(overall)	SB Stop	(2.9 sec)	(A)	(2.9 sec)	(A)
NB approach		30.0 sec	D	31.6 sec	E
SB approach		18.6 sec	C	16.7 sec	C
EB left		7.4 sec	C	1.1 sec	A
WB left		N/A	N/A	N/A	N/A
Yosemite Parkway / Kibby Rd					
(overall)	NB / SB Stop	(8.0 sec)	(A)	(8.0 sec)	(A)
NB approach		18.6 sec	C	26.0 sec	D
SB approach		17.0 sec	C	27.4 sec	D
EB left		7.8 sec	A	7.9 sec	A
WB left		7.6 sec	A	8.3 sec	A
SR 99 SB Ramp / Childs Ave	SB Stop				
(overall)		(29.9) sec	C	(>100 sec)	(F)
SB approach		83.0 sec	F	>100 sec	F
WB left		7.9 sec	A	8.1 sec	A
SR 99 NB Ramp / Childs Ave / Motel Dr	AWSC	38.0 sec	E	>100 sec	F
Childs Avenue / Parsons Ave	Signal	23.2 sec	C	18.0 sec	B
Childs Ave / Campus Parkway	Signal	29.7 sec	C	25.5 sec	C
Childs Ave / Kibby Rd					
(overall)	SB Stop	(5.8 sec)	(A)	(5.3 sec)	(A)
SB approach		10.9 sec	B	11.0 sec	B
EB left		7.8 sec	A	7.8 sec	A
Gerard Ave / Campus Parkway	Signal	23.6 sec	C	24.5 sec	C
Tower Ave / Childs Ave	NB / SB Stop				
(overall)		(1.3 sec)	(A)	(2.3 sec)	(A)
NB approach		4.8 sec	A	5.5 sec	A
SB approach		4.8 sec	A	5.0 sec	A
EB left		0.3 sec	A	2.3 sec	A
WB left		2.3 sec	A	0.1 sec	A
Tower Ave / Gerard Ave	SB Stop				
(overall)		(1.8 sec)	(A)	(2.0 sec)	A
SB approach		2.9 sec	A	2.9 sec	A
EB left		2.2 sec	A	2.4 sec	A

TABLE 10
2010 PLUS PROJECT ROADWAY SEGMENT LEVELS OF SERVICE

Road	Location	LOS D threshold	Volume	Level of Service*
SR 140	SR 99 to Kibby Road	15,300 ADT	18,820 ADT	F
	Parsons Avenue to Sante Fe Ave	15,300 ADT	15,230 ADT	D
	Sante Fe Ave to Kibby Rd	920 vph	540 vph	D
Campus Parkway	Mission Ave to Childs Ave**	15,300 ADT	13500 ADT	D
Parsons Avenue	Childs Ave to Gerard Ave	15,300 ADT	4,220 ADT	A
Kibby Rd	SR 140 to Childs Ave	920 vph	380 vph	C
Baker Drive	Coffee St to SR 140	15,300 ADT	3,390 ADT	A
Gerard Ave	Parsons Ave to Coffee St	15,300 ADT	4,200 ADT	A
	Coffee St to project	920 vph	300 vph	C

* assumes rural "level" capacity based of peak hour volume
** assumes urban capacity based on ADT

YEAR 2030 BACKGROUND CONDITIONS

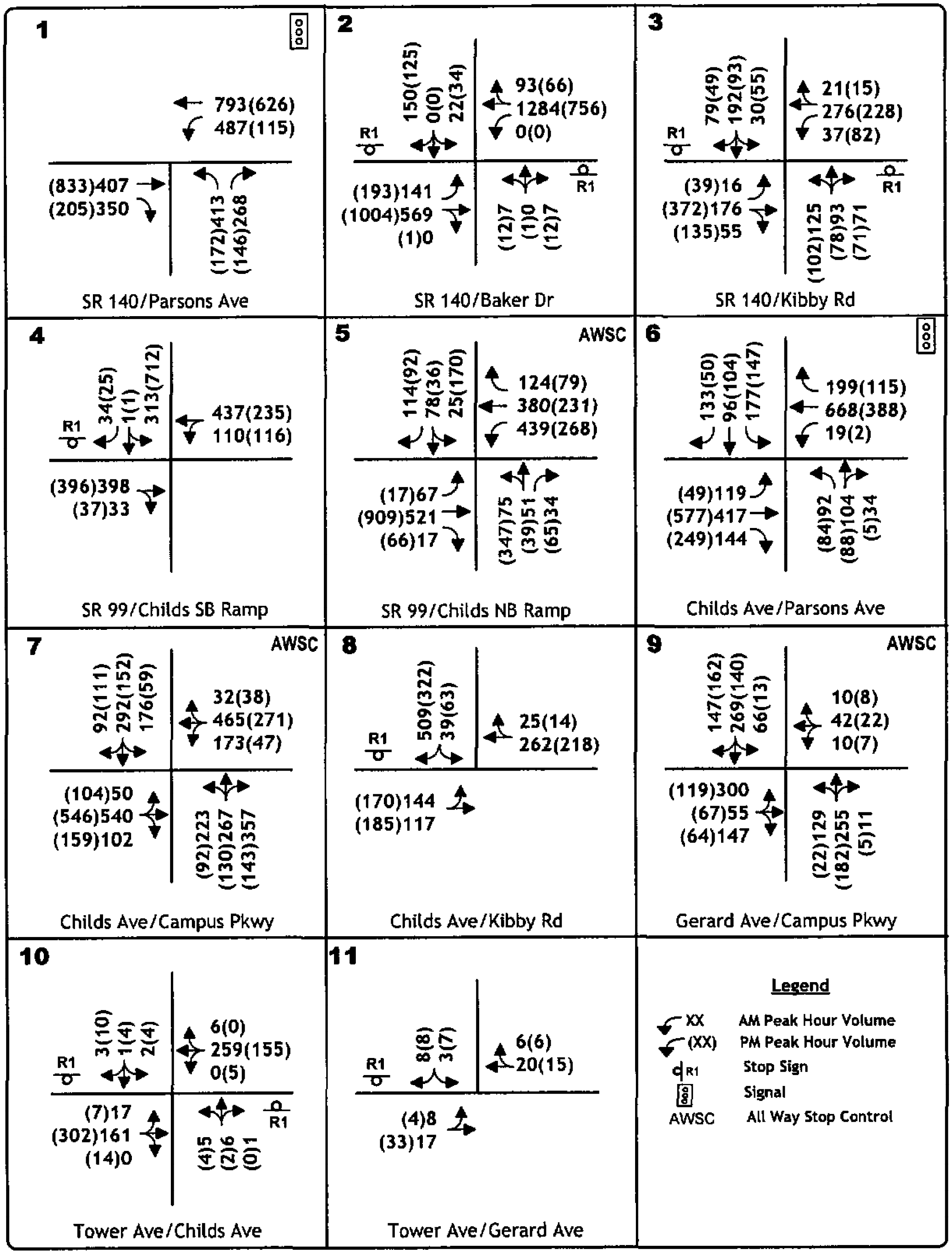
2030 No Project Conditions

The MCAG Year 2030 transportation model was used as the basis for identifying 2030 traffic volumes in the study area. Adjustments to the model were performed similar to the year 2010 process to ensure specific projects in the study area were accounted for, or in some cases, not "double counted." Growth rates from these forecasts were then applied to developed peak hour turning movements at individual intersections.

Under 2030 baseline conditions, the Campus Parkway is assumed fully extended as a four-lane facility north of SR 140 with a grade separation. No other improvements to local roads or intersections are assumed.

Background year 2030 peak hour traffic volumes are depicted in Figure 5. The resulting intersection levels of service under these conditions are identified in Table 11, while year 2030 roadway levels of service are listed in Table 12.

Under 2030 No Project conditions five intersections would exceed the LOS standard. They include: SR 140 / Parsons Avenue; SR 140 / Baker Drive; SR 140 / Kibby Road; and the SR 99 Ramp intersections with Childs Avenue. Additionally, the roadway segment of SR 140 from SR 99 to Santa Fe Avenue would operate at LOS E or F.



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CUMULATIVE NO PROJECT TRAFFIC VOLUMES
AND EXISTING LANE CONFIGURATIONS

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figure 5

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TABLE 11
2030 BASELINE PEAK HOUR INTERSECTION LEVELS OF SERVICE

Location	Control	A.M. Peak Hour Average Delay (sec)	A.M. Peak Hour LOS	P.M. Peak Hour Average Delay (sec)	P.M. Peak Hour LOS
Yosemite Parkway / Parsons Ave	Signal	63.2 sec	E	22.5 sec	C
Yosemite Parkway / Baker Dr					
(overall)	SB Stop	(42.2 sec)	(E)	(22.2 sec)	(C)
NB approach		>100 sec	F	>100 sec	F
SB approach		>100 sec	F	>100 sec	F
EB left		17.9 sec	C	1.4 sec	A
WB left		N/A	N/A	N/A	N/A
Yosemite Parkway / Kibby Rd					
(overall)	NB / SB Stop	(41.3 sec)	(E)	(52.2 sec)	(E)
NB approach		>100 sec	F	>100 sec	F
SB approach		43.3 sec	C	>100 sec	F
EB left		8.0 sec	A	7.8 sec	A
WB left		7.8 sec	A	8.8 sec	A
SR 99 SB Ramp / Childs Ave	SB Stop				
(overall)		(78.6) sec	F	(>100 sec)	(F)
SB approach		>100 sec	F	>100 sec	F
WB left		8.6 sec	A	8.6 sec	A
SR 99 NB Ramp / Childs Ave / Motel Dr	AWSC	>100 sec	F	>100 sec	F
Childs Avenue / Parsons Ave	Signal	27.5 sec	C	20.0 sec	C
Childs Ave / Campus Parkway	Signal	33.0 sec	C	22.7 sec	C
Childs Ave / Kibby Rd					
(overall)	SB Stop	(15.9 sec)	(B)	(9.1 sec)	(A)
SB approach		29.6 sec	D	19.5 sec	C
EB left		8.2 sec	A	8.1 sec	A
Gerard Ave / Campus Parkway	Signal	14.1 sec	B	19.6 sec	B
Tower Ave / Childs Ave	NB / SB Stop				
(overall)		(0.4 sec)	(A)	(0.3 sec)	(A)
NB approach		6.0 sec	A	6.6 sec	A
SB approach		4.9 sec	A	4.7 sec	A
EB left		0.3 sec	A	0.1 sec	A
WB left		N/A	N/A	N/A	N/A
Tower Ave / Gerard Ave	SB Stop				
(overall)		0.9 sec	(A)	(0.8 sec)	A
SB approach		3.0 sec	A	3.2 sec	A
EB left		0.8 sec	A	2.2 sec	A

TABLE 12
2030 BASELINE ROADWAY SEGMENT LEVELS OF SERVICE

Road	Location	LOS D threshold	Volume	Level of Service*
SR 140	SR 99 to Kibby Road	15,300 ADT	19,660 ADT	F
	Parsons Avenue to Sante Fe Ave	15,300 ADT	15,510 ADT	E
	Sante Fe Ave to Kibby Rd	920 vph	750 vph	D
Campus Parkway	Mission Ave to Childs Ave**	32,000 ADT	17,000 ADT	C
Parsons Avenue	Childs Ave to Gerard Ave	15,300 ADT	5,350 ADT	A
Kibby Rd	SR 140 to Childs Ave	920 vph	570 vph	D
Baker Drive	Coffee St to SR 140	15,300 ADT	4,060 ADT	A
Gerard Ave	Parsons Ave to Coffee St	15,300 ADT	6,280 ADT	A
	Coffee St to project	920 vph	390 vph	

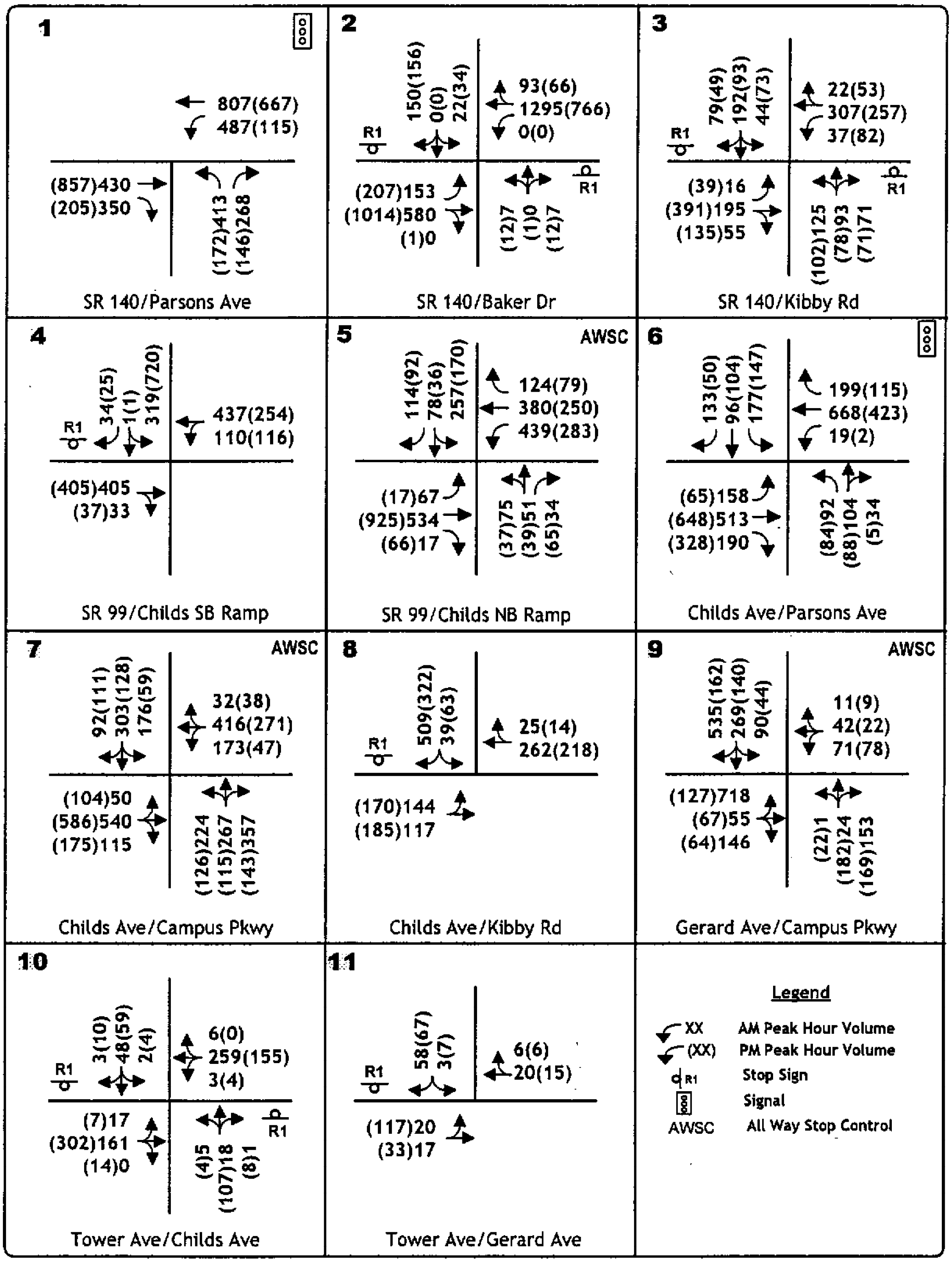
* assumes rural "level" capacity based of peak hour volume
** assumes urban capacity based on ADT

2030 Plus Project Conditions

The assessment of project impacts under year 2030 conditions was based on the same trip generation, distribution and assignment characteristics employed for "existing plus project" conditions. Resulting traffic volumes are presented in Figure 6.

Peak hour levels of service have been calculated assuming no improvements to the study area street system, with the exception of the Mission Avenue Interchange and Campus Parkway projects and consistent with the 2030 No Project scenario. Resulting intersection conditions are presented in Table 13. Traffic volume forecasts on study streets are shown in Table 14.

As shown, the addition of project traffic will exacerbate conditions at five intersections and at two roadway segments that will already exceed City standards in 2030. At several other area locations, LOS will deteriorate, but remain within accepted standards



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CUMULATIVE PLUS PROJECT
AND EXISTING LANE CONFIGURATIONS

1281-06 7/15/2005

figure 6

TABLE 13
2030 PLUS PROJECT PEAK HOUR INTERSECTION LEVELS OF SERVICE

Location	Control	A.M. Peak Hour Average Delay (sec)	A.M. Peak Hour LOS	P.M. Peak Hour Average Delay (sec)	P.M. Peak Hour LOS
Yosemite Parkway / Parsons Ave	Signal	66.0 sec	F	23.0 sec	C
Yosemite Parkway / Baker Dr					
(overall)	SB Stop	(52.8 sec)	(F)	(41.3 sec)	(E)
NB approach		>100 sec	F	>100 sec	F
SB approach		>100 sec	F	>100 sec	F
EB left		4.4 sec	A	1.5 sec	A
WB left		N/A	A	N/A	N/A
Yosemite Parkway / Kibby Rd					
(overall)	NB / SB Stop	(51.9 sec)	(F)	(>100 sec)	(F)
NB approach		>100 sec	F	>100 sec	F
SB approach		61.6 sec	F	>100 sec	F
EB left		8.0 sec	A	8.0 sec	A
WB left		7.8 sec	A	8.8 sec	A
SR 99 SB Ramp / Childs Ave	SB Stop				
(overall)		(>100) sec	(F)	(>100 sec)	(F)
SB approach		>100 sec	F	>100 sec	F
WB left		8.6 sec	A	8.6 sec	A
SR 99 NB Ramp / Childs Ave / Motel Dr	AWSC	>100 sec	F	>100 sec	F
Childs Avenue / Parsons Ave	Signal	27.4 sec	C	19.9 sec	B
Childs Ave / Campus Parkway	Signal	33.0 sec	C	23.7 sec	C
Childs Ave / Kibby Rd					
(overall)	SB Stop	(15.9 sec)	(C)	(9.1 sec)	(A)
SB approach		29.6 sec	D	19.5 sec	C
EB left		8.2 sec	A	8.1 sec	A
Gerard Ave / Campus Parkway	Signal	17.6 sec	B	22.6 sec	C
Tower Ave / Childs Ave	NB / SB				
(overall)	Stop	(1.1 sec)	(A)	(2.2 sec)	(A)
NB approach		6.4 sec	A	7.6 sec	A
SB approach		6.4 sec	A	0.1 sec	A
EB left		0.3 sec	A	0.1 sec	A
WB left		2.5 sec	A	0.1 sec	A
Tower Ave / Gerard Ave	SB Stop				
(overall)		(1.8 sec)	(A)	(2.1 sec)	(A)
SB approach		2.9 sec	A	3.0 sec	A
EB left		2.2 sec	A	2.4 sec	A

TABLE 14
2030 PLUS PROJECT ROADWAY SEGMENT LEVELS OF SERVICE

Road	Location	LOS D threshold	Volume	Level of Service*
SR 140	SR 99 to Kibby Road	15,300 ADT	20,000 ADT	F
	Parsons Avenue to Sante Fe Ave	15,300 ADT	17,500 ADT	F
	Sante Fe Ave to Kibby Rd	920 vph	780 vph	D
Campus Parkway	Mission Ave to Childs Ave**	32,000 ADT	21,000 ADT	C
Parsons Avenue	Childs Ave to Gerard Ave	15,300 ADT	5,360	A
Kibby Rd	SR 140 to Childs Ave	920 vph	580 vph	D
Baker Drive	Coffee St to SR 140	15,300 ADT	4,200 ADT	A
Gerard Ave	Parsons Ave to Coffee St	15,300 ADT	6,600	F
	Coffee St to project	920 vph	460 v	C

* assumes rural "level" capacity based of peak hour volume
** assumes urban capacity based on ADT

MITIGATION REQUIREMENTS

The project will be required to make all necessary frontage improvements and design driveways to meet existing standards.

Mitigation Alternatives

The addition of the Mission Avenue interchange and Campus Parkway does divert traffic from existing interchanges and roadways, but not to a level that would completely result in acceptable LOS under 2010 and 2030 conditions, with or with the proposed project.

To achieve the LOS D standard on the area street system, the following improvements would be needed. These improvements will be required to serve traffic levels without the proposed Distribution Center.

Year 2010 Conditions. LOS D or better conditions can be delivered if the following improvements are made:

> **Childs Avenue / SB SR 99 Ramps:** Install traffic signal and widen Childs Avenue to provide a westbound left turn lane.
>
> **Childs Avenue / NB SR 99 Ramps / Motel Drive:** Install traffic signal and add a southbound left turn lane.

2030 Conditions. These improvements will be required to serve traffic levels without the proposed Distribution Center in year 2030. The improvements noted above will remain necessary, and the following additional mitigations will be needed:

Yosemite Blvd / Parson Avenue: Install additional westbound left turn lane and one additional through lane in each direction. The through lanes would need to extend at least 500 feet through the intersection.

Yosemite Blvd / Baker Drive: This location would meet signal warrants in the peak hours. While a signal should be considered at this location, intersection spacing and the proposed new connection from the Douglas overcrossing should be evaluated before a final decision is made.

Childs Avenue / NB SR 99 Ramps / Motel Drive: Install traffic signal and add/convert the northbound and southbound approaches to include separate left, through, and right turn lanes. This may be problematic due to existing right of way and engineering constraints. These improvements may also not be necessary depending on the extent of traffic diversion resulting from the construction of the Mission Avenue interchange.

Yosemite Blvd / Kibby Road: Install traffic signal and provide turning lanes.

These improvements will cumulatively allow for acceptable traffic operating conditions with the proposed project.