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MEMORANDUM

TO: Judi Birkitt — Loudoun County OTS
Shaheer Assad — Loudoun County OTS

FROM: Christopher Tacinelli
Tushar Awar
Anushree Goradia

DATE: June 10, 2009

SUBJECT: Response to Comments for ZMAP 2008-0021, Kincora Village Center First Referral

This document addresses the comments received for ZMAP 2008-0021, Kincora Village Center First Referral, in Loudoun County, Virginia. Each comment is presented in *italics* with the response in **bold** immediately following.

COMMENTS:

1) *The applicant has provided a traffic study in support of the rezoning application that seems to combine trip generation resulting from both the rezoning land uses as well as the special exception uses. OTS notes that approval of the special exception, a separate application is not guaranteed and therefore the trip generation presented thus represents a worst-case scenario. Has OTS interpreted this assumption correctly? Also, there appears to be a discrepancy between this study and the special exception only traffic study with respect to the magnitude of proposed uses (office park) for the special exception. Please clarify.*

The trip generation presented in the report does present a worst-case scenario. A meeting was held with Loudoun County and VDOT staff on April 9, 2009 to address the comments and questions raised by OTS staff regarding the special exception application. The revised impact study dated April 27, 2009 shows separate analysis for the Rezoning application and for Special Exception application. Although the proposed Rezoning application incorporates the Special Exception uses, in order to differentiate between the two applications, the analysis for the two applications has been conducted separately.

2) *The applicant has made numerous assumptions regarding recommended/anticipated improvements to be in place in the various phases of the project. OTS believes that many of these assumptions are unrealistic given OTS' understanding of funding levels and proffered/planned improvements. OTS requests a meeting with the*

applicant's traffic consultant to discuss the matter before providing further comment on the analysis results.

A meeting was held on May 27, 2009 with the OTS staff to discuss the comments received on the rezoning application. Based on the discussion held at the meeting, there was some confusion regarding the planned roadway/transportation improvements stated in the report, which were based on the Countywide Transportation Plan. However, the analysis presented in the report did not take into account all of the planned improvements. The improvements necessary to improve or achieve the acceptable levels of service were the only ones included in the analysis.

However, per County staff's request, a supplemental analysis was requested without assuming planned roadway improvements as shown on the CTP for Route 28, Route 7 and Waxpool Road. Hence, intersections along Route 28, Route 7 and Waxpool Road were reanalyzed without assuming the planned improvements in place for the existing conditions. For the future conditions analysis however, the planned interchanges along Route 7 and Route 28 were assumed to be in place, which was agreed upon at the meeting. The supplemental analysis presented along with this memo shows the details of the capacity analysis results.

3) *The applicant has provided trip generation figures for each phase of the project as part of the traffic study. In each case, the study indicates that the figures represent new trips generated by the proposed development program for that point in time. OTS believes that the trip generation shown for each phase is actually cumulative (i.e. phase II = phase I + phase II). Is this correct? Please clarify.*

That is correct. The trip generation for Phase II is cumulative of Phase I and II and the trip generation for Phase III is cumulative of Phase I, II and III.

4) *The interchange of Route 28/Nokes Boulevard is under construction to be a full cloverleaf interchange. The interchange of Route 28/Nokes Blvd will open in phases beginning May 2009 with full operation expected in September 2009. If not provided through the applicant's special exception application, the applicant should dedicate adequate right-of-way at no cost for the purpose of construction of the interchange and a section of Gloucester Parkway that is also being constructed from Route 28 to Pacific Boulevard as a part of the Route 28/Nokes Boulevard interchange project.*

The right of way for the interchange has already been acquired by VDOT. The applicant no longer owns the area for this right-of-way, and that area is not included in the SPEX application area.

5) *The traffic study assumes a 10% reduction for transit service. The applicant will be responsible for providing transit facilities equal to the 10% anticipated traffic reduction; in other words, the applicant should show how the traffic impact would be reduced on the adjacent roads. In terms of transit, what mitigation measures will this applicant provide to ensure the 10% reduction in trips in the vicinity of the site? Please describe.*

An interim travel demand management (TDM) program will be implemented to limit the number of vehicle trips through the use of mass transit, ride-sharing and/or other strategies. A 10% TDM reduction on proposed office, hotel and residential trips was considered for phase I. Of note, no TDM reduction was applied to the retail trips and baseball stadium. The TDM reduction was also applied to the net trips (excluding internal trips). The US census data for the Broad Run District was utilized to compile the percentage breakdown. The census data for adjacent districts was also collected for review. The details of the Census data are presented in the Appendix section. The components of the TDM program are outlined below:

Table A: TDM Reduction Breakdown (Phase I – 2011)

TDM Reduction Breakdown		AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Carpool/VanPool/Ride Sharing	*6%*	*-50*	*-19*	*-70*	*-22*	*-45*	*-67*	*-15*	*-10*	*-25*
Telework	*1%*	*-8*	*-3*	*-12*	*-4*	*-8*	*-11*	*-3*	*-2*	*-4*
Shuttle Bus Connections	*2%*	*-17*	*-6*	*-23*	*-7*	*-15*	*-22*	*-5*	*-3*	*-8*
Flex Work Schedule	*1%*	*-8*	*-3*	*-12*	*-4*	*-8*	*-11*	*-3*	*-2*	*-4*
Total TDM Reduction	***10%***	***-84***	***-32***	***-116***	***-36***	***-75***	***-111***	***-25***	***-16***	***-41***

Table B: TDM Reduction Breakdown (Phase II – 2015)

TDM Reduction Breakdown		AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Carpool/VanPool/Ride Sharing	*6%*	*-97*	*-30*	*-127*	*-34*	*-88*	*-122*	*-23*	*-16*	*-39*
Telework	*1%*	*-16*	*-5*	*-21*	*-6*	*-15*	*-21*	*-4*	*-3*	*-7*
Shuttle Bus Connections	*1%*	*-16*	*-5*	*-21*	*-6*	*-15*	*-21*	*-4*	*-3*	*-7*
Public Transportation	*1%*	*-16*	*-5*	*-21*	*-6*	*-15*	*-21*	*-4*	*-3*	*-7*
Flex Work Schedule	*1%*	*-16*	*-5*	*-21*	*-6*	*-15*	*-21*	*-4*	*-3*	*-7*
Total TDM Reduction	***10%***	***-161***	***-50***	***-211***	***-56***	***-147***	***-203***	***-39***	***-26***	***-65***

Table C: TDM Reduction Breakdown (Phase III – Full Build Out - 2025)

TDM Reduction Breakdown		AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Carpool/VanPool/Ride Sharing	*6%*	*-279*	*-64*	*-343*	*-77*	*-278*	*-355*	*-57*	*-34*	*-91*
Telework	*1%*	*-47*	*-11*	*-58*	*-13*	*-46*	*-59*	*-10*	*-6*	*-16*
Shuttle Bus Connections	*1%*	*-47*	*-11*	*-58*	*-13*	*-46*	*-59*	*-10*	*-6*	*-16*
Public Transportation	*1%*	*-47*	*-11*	*-58*	*-13*	*-46*	*-59*	*-10*	*-6*	*-16*
Flex Work Schedule	*1%*	*-47*	*-11*	*-58*	*-13*	*-46*	*-59*	*-10*	*-6*	*-16*
Total TDM Reduction	***10%***	***-465***	***-106***	***-571***	***-128***	***-463***	***-591***	***-95***	***-57***	***-152***

6) *The applicant has included trip reductions for internal capture. Please provide appropriate justification/documentation for these reductions. The internal capture reductions should be confirmed with VDOT.*

The 15% internal capture reduction was agreed and accepted by VDOT and County staff at the scoping meeting. The Chapter 527 guidelines also stipulate a 15% internal capture reduction for residential with a mix of non-residential components.

7) *The traffic impact study assumes 25% - 40% as pass-by trip reductions for the proposed development in 2015. No pass-by trip reduction should be proposed for trips on Pacific Boulevard as long as Pacific Boulevard is not connected to Russell Branch. Even if a trip reduction were allowed on Pacific Boulevard, it would not apply to ingress or egress volumes at the site entrances. The assumption of pass-by reduction should be confirmed with VDOT. In a meeting with the applicant dated April 4, 2009, the applicant indicated that the 25% pass-by trip reduction was eliminated during the Phase 1 for the SPEX. The applicant may need to clarify that in the addendum taking in consideration that 25% pass-by reduction is a high reduction number even after the connection of Pacific Boulevard.*

The 25% pass by reduction was agreed and accepted by VDOT and County staff at the scoping meeting. The Chapter 527 guidelines also stipulate a 25% pass by reduction for retail uses. Although without the Pacific Boulevard connection to Russel Branch Parkway there will be no regional or existing traffic along the proposed section of Pacific Boulevard, the pass-by trips will be more of 'diverted trips' from Route 28. Hence, as discussed at the meeting held on April 9, 2009, no trip reduction was applied to ingress or egress volumes at the site entrances. The total site traffic entering and exiting the entrances includes the pass-by trips.

8) *Given the size of the proposed development, a significant contribution towards regional transit facilities is anticipated. Further discussion with the applicant with respect to the nature of the contribution is necessary.*

Comment acknowledged. A meeting with County transit staff has been scheduled.

9) *The Loudoun County Bicycle and Pedestrian Mobility Master Plan adopted October 20, 2003 and the CTP adopted on July 23, 2001 include policies for Pedestrian and Bicycle Facilities. The Loudoun County Bike and Pedestrian Mobility Master Plan calls for the construction of a multi-purpose trail along Pacific Blvd and Gloucester Parkway. The applicant should construct these trails and may be required to dedicate additional ROW in order to do so. In order for VDOT to maintain a trail, the trail must be built within the public right-of-way; otherwise, it is the responsibility of the applicant to maintain the trail. To ensure the safety of bicyclists and motorists all bicycle facilities must be designed according to AASHTO standards. These standards are documented in A Guide for the Development of Bicycle Facilities, AASHTO, 1999, and may be obtained through AASHTO's website www.aashto.org. Per these standards, multi-use trails should be constructed with a 10-foot paved travel-way with 2-foot graded shoulders on both sides of the trail.*

Comment acknowledged.

10) *The applicant should provide a link level of service and queuing analysis for the proposed typical sections along the frontage of Pacific Boulevard.*

Comment acknowledged. The results of the queuing analysis for the proposed typical sections along the frontage of Pacific Boulevard for the years 2011, 2015 and 2025 are presented on the next page. The results are expressed in terms of 50th percentile and 95th percentile queue length (feet).

Table 1: Total Future (2011) Queuing Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2011) with Development Queuing Results					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		50th	95th	50th	95th	50th	95th
1	Site Driveway #1 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Right	N/A	26	N/A	319	N/A	107
	Northbound Left	N/A	80	N/A	34	N/A	172
2	Site Driveway #2 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	N/A	20	N/A	1120	N/A	29
	Northbound Left	N/A	57	N/A	55	N/A	17
	Overall Mitigation – Add Signal	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	0	0	327	#557	0	0
	Northbound Left	0	0	145	#307	0	0
	Northbound Through	0	0	110	160	0	0
	Southbound Through	39	79	573	#868	64	105

Note: N/A means not applicable.

Table 2: Total Future (2015) Queuing Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) with Development Queuing Results					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		50th	95th	50th	95th	50th	95th
1	Site Driveway #1 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	N/A	Err	N/A	Err	N/A	Err
	Northbound Through	N/A	93	N/A	78	N/A	307
	Southbound Through	N/A	0	N/A	0	N/A	0
	Overall Mitigation – Install signal	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	30	101	379	550	100	#257
	Northbound Left	54	#206	~271	#465	~314	#574
	Northbound Through– Add 2nd through lane.	64	136	235	290	85	111
	Southbound Through– Add 2nd through lane.	125	214	448	542	215	282
2	Site Driveway #2 and Pacific Boulevard						
	Overall (Signalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	20	50	84	145	31	68
	Eastbound Right	12	47	187	290	44	110
	Northbound Left	~214	#412	103	#219	~182	#360
	Northbound Through	410	#1020	397	605	557	#1170
	Southbound Through	503	#860	~1318	#1582	397	#805
	Overall Mitigation –Add 2nd Northbound and Southbound Through lanes.	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	8	42	84	145	19	56
	Eastbound Right	5	37	187	290	29	88
	Northbound Left	19	#239	103	#219	29	111
	Northbound Through	0	145	126	160	102	173
	Southbound Through	92	235	379	474	160	238

Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) with Development Queuing Results					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		50th	95th	50th	95th	50th	95th
3	Site Driveway #3 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	N/A	355	N/A	1159	N/A	144
	Northbound Through	N/A	71	N/A	30	N/A	24
	Southbound Through	N/A	0	N/A	0	N/A	0
	Overall Mitigation – Install signal	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	19	77	152	#357	20	77
	Northbound Left	51	#151	68	117	26	74
	Northbound – Add 2nd through lane and left turn lane.	8	23	58	85	13	36
	Southbound – Add 2nd through lane.	84	151	60	96	57	111
4	Site Driveway #4 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound	N/A	537	N/A	Err	N/A	689
	Northbound Through	N/A	71	N/A	46	N/A	51
	Southbound Through	N/A	0	N/A	0	N/A	0
	Overall Mitigation – Install signal	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	20	80	205	#456	37	122
	Northbound Left	49	#181	80	127	44	133
	Northbound – Add 2nd through lane and left turn lane.	31	71	95	128	35	85
	Southbound – Add 2nd through lane.	98	172	160	216	113	202
5	Site Driveway #5 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Right	N/A	75	N/A	Err	N/A	282
	Northbound Through	N/A	0	N/A	0	N/A	0
	Southbound Right	N/A	0	N/A	0	N/A	0
	Overall Mitigation –Add 2nd Northbound and Southbound Through lanes.	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Right	N/A	10	N/A	97	N/A	20
	Northbound Through	N/A	0	N/A	0	N/A	0
	Southbound Right	N/A	0	N/A	0	N/A	0
6	Site Driveway #6 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Right	N/A	18	N/A	Err	N/A	60
	Westbound Right	N/A	3	N/A	3	N/A	8
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Right	N/A	0	N/A	0	N/A	0
	Overall Mitigation –Add 2nd Northbound and Southbound Through lanes.	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Right	N/A	12	N/A	283	N/A	25
	Westbound Right	N/A	1	N/A	2	N/A	3
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Right	N/A	0	N/A	0	N/A	0
7	Site Driveway #7 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Right	N/A	3	N/A	4	N/A	8
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Through	N/A	0	N/A	0	N/A	0

Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) with Development Queuing Results					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		50th	95th	50th	95th	50th	95th
	Overall Mitigation –Add 2nd Northbound and Southbound Through lanes.	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Right	N/A	1	N/A	2	N/A	3
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Through	N/A	0	N/A	0	N/A	0
8	Site Driveway #8 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Right	N/A	23	N/A	15	N/A	Err
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Through	N/A	0	N/A	0	N/A	0
	Overall Mitigation –Add 2nd Northbound and Southbound Through lanes.	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Right	N/A	1	N/A	1	N/A	2
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Through	N/A	0	N/A	0	N/A	0
9	Site Driveway #9 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Right	N/A	21	N/A	119	N/A	45
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Through	N/A	0	N/A	0	N/A	0
	Overall Mitigation –Add 2nd Northbound and Southbound Through lanes.	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Right	N/A	10	N/A	45	N/A	13
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Through	N/A	0	N/A	0	N/A	0
10	Site Driveway #10 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound	N/A	58	N/A	333	N/A	410
	Northbound Through	N/A	0	N/A	0	N/A	0
	Southbound Through	N/A	4	N/A	6	N/A	14
	Overall Mitigation – Install signal	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Left	13	34	27	87	30	89
	Northbound Through– Add 2nd through lane.	72	125	69	114	106	208
	Southbound Through– Add 2nd through lane.	26	50	142	238	136	455

Note: N/A means not applicable.

Table 3: Total Future (2025) Queuing Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) with Development Queuing Results					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		50th	95th	50th	95th	50th	95th
1	Site Driveway #1 and Pacific Boulevard						
	Overall (Signalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	65	174	1096	1357	158	#378
	Northbound Left	~488	#880	~411	#619	~433	#713
	Northbound Through	184	299	358	431	108	138
	Southbound Through	251	366	~990	#1131	283	361
	Overall Mitigation –Change signal timing and cycle length	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	380	82	190	#355	137	#340
	Northbound Left	~513	#799	184	#376	~317	#574
	Northbound Through	162	232	131	168	108	140
	Southbound Through	310	411	461	#638	215	280
	Southbound Right– Add right turn lane	0	8	0	10	28	54
2	Site Driveway #2 and Pacific Boulevard						
	Overall (Signalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	28	63	171	#293	27	71
	Eastbound Right	46	91	~490	#714	61	154
	Northbound Left	~605	#833	164	#346	90	#286
	Northbound Through	361	482	174	218	131	223
	Southbound Through	321	410	~986	#1126	211	309
	Overall Mitigation –Change signal timing and cycle length	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	26	69	142	226	22	62
	Eastbound Right– Add right turn lane	33	86	365	#607	46	124
	Northbound Left– And left turn lane.	~431	#763	141	#317	70	#260
	Northbound Through	361	466	193	248	160	325
	Southbound Through– Add 3rd through lane.	247	295	457	#596	136	214
3	Site Driveway #3 and Pacific Boulevard						
	Overall (Signalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	48	143	~508	#784	60	163
	Northbound Left	~438	#873	55	94	48	96
	Northbound Through	13	32	144	197	34	61
	Southbound Through	197	323	84	127	107	168
	Overall Mitigation – Install signal	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	40	81	84	166	20	56
	Eastbound Right– Add right turn lane	55	93	42	141	5	43
	Northbound Left– Add left turn lane	422	#728	43	94	30	68
	Northbound Through	11	22	115	197	22	43
	Southbound Through	365	#535	74	127	86	142
4	Site Driveway #4 and Pacific Boulevard						
	Overall (Signalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Left	47	141	~766	1141	66	186
	Northbound Left	~394	#809	166	#390	88	#332
	Northbound Through	71	145	166	211	55	123
	Southbound Through	199	323	274	348	161	279
	Overall Mitigation –Change signal timing and cycle length	N/A	N/A	N/A	N/A	N/A	N/A

Int. No.	Intersection (Approach/Movement)	Future Conditions (2025) with Development Queuing Results					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		50th	95th	50th	95th	50th	95th
	Eastbound Left	40	82	129	250	25	65
	Eastbound Right– Add right turn lane	64	108	259	#600	46	121
	Northbound Left– And left turn lane	~482	#734	140	#390	76	#224
	Northbound Through	70	100	132	211	46	67
	Southbound Through	349	450	241	348	148	207
5	Site Driveway #5 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Right	N/A	12	N/A	Err	N/A	24
	Northbound Through	N/A	0	N/A	0	N/A	0
	Southbound Right	N/A	0	N/A	0	N/A	0
6	Site Driveway #6 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Eastbound Right	N/A	22	N/A	Err	N/A	41
	Westbound Right	N/A	1	N/A	2	N/A	4
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Right	N/A	0	N/A	0	N/A	0
7	Site Driveway #7 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Right	N/A	1	N/A	2	N/A	4
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Through	N/A	0	N/A	0	N/A	0
8	Site Driveway #8 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Right	N/A	2	N/A	2	N/A	4
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Through	N/A	0	N/A	0	N/A	0
9	Site Driveway #9 and Pacific Boulevard						
	Overall (Unsignalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Right	N/A	20	N/A	188	N/A	16
	Northbound Right	N/A	0	N/A	0	N/A	0
	Southbound Through	N/A	0	N/A	0	N/A	0
10	Site Driveway #10 and Pacific Boulevard						
	Overall (Signalized)	N/A	N/A	N/A	N/A	N/A	N/A
	Westbound Left	16	47	55	126	26	86
	Northbound Through	198	264	50	97	59	125
	Southbound Through	36	53	258	499	50	113

Note: N/A means not applicable.

The link analysis for a two-lane (2011) and four-lane (2015 and 2025) section of Pacific Boulevard with the projected traffic volumes was performed using *Highway Capacity Software (HCS) Two-Lane Version 5.21* based on the latest Highway Capacity Manual (HCM 2000) data and methodology. The results of the roadway capacity analyses under the future conditions with development (2011, 2015 and 2025) are presented in the supplemental analysis memorandum and expressed in terms of level of service (LOS) and v/c ratio (volume to capacity ratio).

Table 4: Future with Development (2011) Roadway Capacity Analysis

		AM Peak Hour		PM Peak Hour		Sat Peak Hour	
Roadway Segment	**# of Lanes**	**LOS**	**v/c**	**LOS**	**v/c**	**LOS**	**v/c**
Pacific Boulevard (South of Site Drive #1)	2	C	0.36	D	0.46	D	0.57
Pacific Boulevard (South of Site Drive #2)	2	DA	0.58	E	0.75	D	0.67

Table 5: Future with Development (2015) Roadway Capacity Analysis

		AM Peak Hour		PM Peak Hour		Sat Peak Hour	
Roadway Segment	**# of Lanes**	**LOS**	**v/c**	**LOS**	**v/c**	**LOS**	**v/c**
Pacific Boulevard (South of Site Drive #1)							
Northbound	2	B	14.6	B	12.7	B	15.6
Southbound	2	A	10.8	B	15.2	A	11.0-
Pacific Boulevard (South of Site Drive #2)							
Northbound	2	C	18.6	B	13.8	C	18.1
Southbound	2	B	11.8	C	19.0	B	12.7
Pacific Boulevard (North of Site Drive #3)							
Northbound	2	A	2.4	A	5.5	A	4.5
Southbound	2	A	7.0	A	4.1	A	5.9
Pacific Boulevard (South of Site Drive #3)							
Northbound	2	A	6.6	A	9.3	A	6.6
Southbound	2	A	7.5	A	7.6	A	7.7
Pacific Boulevard (South of Site Drive #4)							
Northbound	2	A	10.7	B	11.1	A	9.6
Southbound	2	A	9.2	B	11.5	A	9.9
Pacific Boulevard (South of Site Drive #5)							
Northbound	2	C	18.6	B	13.8	C	18.1
Southbound	2	A	10.0	C	20.8	B	12.8
Pacific Boulevard (South of Site Drive #6)							
Northbound	2	C	18.7	B	13.9	C	18.3
Southbound	2	A	8.3	C	22.7	B	13.0
Pacific Boulevard (South of Site Drive #7)							
Northbound	2	C	18.9	B	14.3	C	18.9
Southbound	2	A	8.3	C	22.7	B	13.0
Pacific Boulevard (South of Site Drive #8)							
Northbound	2	C	19.1	B	14.7	C	19.5
Southbound	2	A	8.3	C	22.7	B	13.0

		AM Peak Hour		PM Peak Hour		Sat Peak Hour	
Roadway Segment	**# of Lanes**	**LOS**	**v/c**	**LOS**	**v/c**	**LOS**	**v/c**
Pacific Boulevard (South of Site Drive #9)							
Northbound	2	B	12.6	A	9.9	B	14.4
Southbound	2	A	5.7	B	14.5	A	8.9
Pacific Boulevard (South of Site Drive #10)							
Northbound	2	B	12.6	A	9.8	B	14.3
Southbound	2	A	5.8	B	14.7	A	9.1

Table 6: Future with Development (2025) Roadway Capacity Analysis

		AM Peak Hour		PM Peak Hour		Sat Peak Hour	
Roadway Segment	**# of Lanes**	**LOS**	**v/c**	**LOS**	**v/c**	**LOS**	**v/c**
Pacific Boulevard (South of Site Drive #1)							
Northbound	2	C	24.5	B	16.7	B	17.5
Southbound	2	B	15.5	C	24.2	B	13.0
Pacific Boulevard (South of Site Drive #2)							
Northbound	2	D	31.8	B	15.9	B	17.5
Southbound	3	B	11.2	C	20.5	A	10.1
Pacific Boulevard (North of Site Drive #3)							
Northbound	2	A	3.0	B	14.7	A	5.5
Southbound	2	B	11.9	A	5.3	A	7.3
Pacific Boulevard (South of Site Drive #3)							
Northbound	2	A	10.4	B	14.6	A	7.9
Southbound	2	B	11.7	B	11.3	A	9.4
Pacific Boulevard (South of Site Drive #4)							
Northbound	2	B	17.5	B	15.9	B	11.5
Southbound	2	B	13.6	B	17.8	B	11.9
Pacific Boulevard (South of Site Drive #5)							
Northbound	2	D	31.8	B	17.3	C	20.6
Southbound	2	B	13.3	E	35.4	B	15.2
Pacific Boulevard (South of Site Drive #6)							
Northbound	2	D	31.9	B	17.4	C	20.6
Southbound	2	A	9.9	E	40.4	B	15.5
Pacific Boulevard (South of Site Drive #7)							
Northbound	2	D	32.1	B	17.9	C	21.5
Southbound	2	A	9.9	E	40.4	B	15.5
Pacific Boulevard (South of Site Drive #8)							
Northbound	2	D	32.4	C	18.3	C	22.2

Roadway Segment	# of Lanes	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
		LOS	v/c	LOS	v/c	LOS	v/c
Southbound	2	A	9.9	E	40.4	B	15.5
Pacific Boulevard (South of Site Drive #9)							
Northbound	2	C	18.6	A	9.8	B	11.6
Southbound	2	A	5.6	C	21.5	A	7.8
Pacific Boulevard (South of Site Drive #10)							
Northbound	2	C	18.6	A	7.7	A	9.8
Southbound	2	A	5.7	C	19.7	A	7.4

11) *The site plan shows that most of the internal roads are private roads; therefore, they should comply with the Loudoun County Facility Manual. The public roads should be compatible with VDOT standards.*

Comment acknowledged.

12) *The applicant should construct sidewalks on both sides of the internal roads. The Owner's Association (OA) will maintain all sidewalks and trails, other than those located on public ROW.*

Comment acknowledged. Please refer to the revised SPEX plat.

13) *OTS will provide a review of the draft proffers once we have had a chance to evaluate the revised traffic analysis.*

Comment acknowledged.

SUPPLEMENTAL ANALYSIS

Table 1: Existing (2008) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Existing Conditions (2008)					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		LOS	Delay	LOS	Delay	LOS	Delay
1	Route 7 and Ashburn Village Blvd./Janelia Farm Blvd.						
	Overall (Signalized)	**F**	**156.3**	**E**	**66.4**	--	--
	Eastbound	C	27.8	D	40.9	--	--
	Westbound	C	29.8	E	62.2	--	--
	Northbound	F	86.6	F	109.7	--	--
	Southbound	F	817.2	F	167.6	--	--
2	Route 7 and Lexington Drive/Smith Circle						
	Overall (Signalized)	**E**	**64.1**	**F**	**119.0**	--	--
	Eastbound	D	52.0	F	99.7	--	--
	Westbound	C	22.2	F	140.3	--	--
	Northbound	F	149.0	B	14.3	--	--
	Southbound	F	93.3	F	84.8	--	--
3	Route 7 and Loudoun County Parkway/Presidential Dr.						
	Overall (Signalized)	**F**	**91.0**	**F**	**144.4**	**D**	**36.0**
	Eastbound	F	124.4	D	39.4	C	26.8
	Westbound	C	21.6	F	111.1	D	38.9
	Northbound	D	43.2	F	722.0	F	80.3
	Southbound	F	86.9	F	183.1	F	85.2
4	Route 7 and Richfield Way/George Washington Blvd.						
	Overall (Signalized)	**F**	**120.3**	**F**	**237.6**	--	--
	Eastbound	F	175.3	F	340.0	--	--
	Westbound	C	24.5	F	176.2	--	--
	Northbound	F	90.9	F	84.0	--	--
	Southbound	F	102.0	F	107.2	--	--
5	Route 7 and City Center Blvd./Countryside Blvd.						
	Overall (Signalized)	**D**	**39.6**	**E**	**65.8**	--	--
	Eastbound	D	42.7	D	43.9	--	--
	Westbound	C	22.6	F	90.5	--	--
	Northbound	D	42.4	D	40.2	--	--
	Southbound	E	63.7	E	62.3	--	--
6	Route 7 and Loudoun Tech Drive/Palisade Parkway						
	Overall (Signalized)	**C**	**25.1**	**D**	**51.6**	--	--
	Eastbound	B	15.6	C	34.8	--	--
	Westbound	C	22.6	D	50.1	--	--
	Northbound	E	78.1	F	83.8	--	--
	Southbound	E	74.5	E	79.1	--	--
9	Route 28 and Dulles Center Boulevard						
	Overall (All Free-Flow Movements)	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
12	Route 28 and Nokes Boulevard						
	Overall (Signalized)	**B**	**10.8**	**F**	**88.0**	**B**	**17.7**
	Westbound	B	17.5	D	38.0	D	44.1
	Northbound	A	5.5	F	109.4	A	8.3
	Southbound	B	12.9	E	67.7	B	11.6
15	Route 28 and Severn Way						
	Overall (Signalized)	**E**	**61.7**	**F**	**128.3**	--	--
	Eastbound	D	38.8	D	49.7	--	--
	Westbound	D	36.3	E	66.2	--	--

Int. No.	Intersection (Approach/Movement)	Existing Conditions (2008)					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		LOS	Delay	LOS	Delay	LOS	Delay
	Northbound	D	53.1	F	197.7	--	--
	Southbound	E	72.1	B	12.5	--	--
17	Route 28 and Steeplechase Drive						
	Overall (Signalized)	**D**	**41.1**	**E**	**61.0**	--	--
	Eastbound	D	45.6	D	54.3	--	--
	Westbound	D	44.8	F	204.0	--	--
	Northbound	C	20.8	F	83.7	--	--
	Southbound	E	56.4	A	8.0	--	--
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	**E**	**61.7**	**E**	**56.5**	--	--
	Eastbound	C	26.6	B	16.6	--	--
	Westbound	E	62.5	C	31.1	--	--
	Northbound	F	183.7	F	218.4	--	--
	Southbound	F	91.7	F	113.8	--	--
20	Waxpool Road and Loudoun County Parkway						
	Overall (Signalized)	**F**	**339.8**	**F**	**178.6**	**D**	**40.0**
	Eastbound	D	41.3	C	31.4	D	41.1
	Westbound	E	76.9	F	192.0	C	30.5
	Northbound	F	927.8	F	338.5	E	58.0
	Southbound	F	433.7	F	179.7	D	53.6
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	**F**	**85.3**	**E**	**78.1**	**D**	**42.8**
	Eastbound	F	138.7	C	31.8	E	69.2
	Westbound	C	28.6	D	44.6	B	17.7
	Northbound	E	61.2	F	284.8	E	72.0
	Southbound	E	62.9	E	79.6	D	37.7

Note: N/A means not applicable.

Table 2: Future Conditions without Development (2011) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2011) without Development					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		LOS	Delay	LOS	Delay	LOS	Delay
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	**E**	**55.4**	**E**	**59.0**	**--**	**--**
	Eastbound	E	76.1	D	53.5	--	--
	Westbound	C	20.1	E	65.4	--	--
	Northbound	D	44.6	D	45.2	--	--
	Southbound	D	43.1	D	50.7	--	--
20	Waxpool Road and Loudoun County Parkway						
	Overall (Signalized)	**F**	**362.4**	**F**	**277.5**	**D**	**49.9**
	Eastbound	E	58.1	C	31.9	E	62.5
	Westbound	E	55.8	F	183.6	C	34.3
	Northbound	F	806.4	F	364.8	E	71.3
	Southbound	F	815.6	F	796.6	D	50.7
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	**D**	**41.5**	**E**	**67.2**	**C**	**30.8**
	Eastbound	E	56.6	C	20.6	D	40.6
	Westbound	B	19.8	C	30.2	B	17.4
	Northbound	E	58.2	F	334.7	E	63.0
	Southbound	E	57.8	E	56.4	C	33.8

Table 3: Future Conditions with Development (2011) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2011) with Development					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		LOS	Delay	LOS	Delay	LOS	Delay
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	**F**	**99.9**	**F**	**107.7**	**--**	**--**
	Eastbound	F	148.5	F	113.1	--	--
	Westbound	C	20.4	F	122.5	--	--
	Northbound	D	43.2	D	44.0	--	--
	Southbound	D	43.1	D	50.7	--	--
20	Waxpool Road and Loudoun County Parkway						
	Overall (Signalized)	**F**	**405.0**	**F**	**293.6**	**D**	**52.0**
	Eastbound	F	108.7	C	34.8	D	46.9
	Westbound	E	67.4	F	218.2	D	35.4
	Northbound	F	928.5	F	414.5	F	91.5
	Southbound	F	815.6	F	796.6	E	70.4
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	**E**	**57.5**	**F**	**84.9**	**F**	**149.7**
	Eastbound	F	81.1	C	30.8	F	318.6
	Westbound	C	26.6	D	48.9	B	14.9
	Northbound	E	59.5	F	396.5	E	73.6
	Southbound	D	40.6	E	56.5	E	57.4

Table 4: Future Conditions without Development (2015) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) without Development					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		LOS	Delay	LOS	Delay	LOS	Delay
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	**D**	**54.2**	**F**	**105.0**	**--**	**--**
	Eastbound	E	73.8	F	113.2	--	--
	Westbound	C	21.2	F	121.1	--	--
	Northbound	D	51.3	D	46.2	--	--
	Southbound	D	51.7	D	51.3	--	--
20	Waxpool Road and Loudoun County Parkway						
	Overall (Signalized)	**F**	**416.8**	**F**	**594.6**	**E**	**60.0**
	Eastbound	E	69.7	C	35.0	E	69.9
	Westbound	D	49.5	F	186.8	D	52.5
	Northbound	F	847.4	F	476.9	F	81.4
	Southbound	F	1026.2	F	1886.5	D	45.9
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	**E**	**79.9**	**F**	**94.3**	**D**	**35.5**
	Eastbound	F	130.0	B	18.0	C	29.1
	Westbound	C	21.0	D	52.5	B	19.6
	Northbound	E	70.1	F	473.5	E	59.0
	Southbound	D	51.5	E	74.1	E	71.0

Table 5: Future Conditions with Development (2015) Intersection Capacity Analysis

Int. No.	Intersection (Approach/Movement)	Future Conditions (2015) with Development					
		AM Peak Hour		*PM Peak Hour*		*Saturday Peak Hour*	
		LOS	Delay	LOS	Delay	LOS	Delay
19	Farmwell Road and Waxpool Road/Smith Switch Road						
	Overall (Signalized)	**F**	**137.1**	**F**	**203.2**	**--**	**--**
	Eastbound	F	217.0	F	191.1	--	--
	Westbound	C	20.2	F	246.6	--	--
	Northbound	D	45.2	F	94.0	--	--
	Southbound	D	49.1	D	54.9	--	--
20	Waxpool Road and Loudoun County Parkway						
	Overall (Signalized)	**F**	**491.3**	**F**	**569.5**	**F**	**177.8**
	Eastbound	F	200.3	E	64.8	D	39.5
	Westbound	E	74.4	F	281.1	E	59.0
	Northbound	F	1046.5	F	570.4	F	144.7
	Southbound	F	1029.8	F	1528.5	F	792.3
21	Waxpool Road and Pacific Boulevard						
	Overall (Signalized)	**F**	**102.3**	**F**	**134.8**	**F**	**87.1**
	Eastbound	F	157.1	F	108.5	F	134.9
	Westbound	D	37.1	F	110.3	C	33.6
	Northbound	F	89.7	F	385..1	E	56.6
	Southbound	C	29.6	E	87.5	E	69.8

APPENDIX

BACKUP INFORMATION FOR TDM

QT-P23. **Journey to Work: 2000**
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data
Geographic Area: **Dulles district, Loudoun County, Virginia**

NOTE: Data based on a sample except in P3, P4, H3, and H4. For information on confidentiality protection, sampling error, nonsampling error, definitions, and count corrections see http://factfinder.census.gov/home/en/datanotes/expsf3.htm.

Subject	Number	Percent
MEANS OF TRANSPORTATION AND CARPOOLING		
Workers 16 and over	**16,195**	**100.0**
Car, truck, or van	14,893	92.0
Drove alone	13,345	82.4
Carpooled	1,548	9.6
In 2-person carpool	1,303	8.0
In 3-person carpool	211	1.3
In 4-person carpool	22	0.1
In 5- or 6-person carpool	5	0.0
In 7-or-more-person carpool	7	0.0
Workers per car, truck, or van	1.06	(X)
Public transportation	240	1.5
Bus or trolley bus	141	0.9
Streetcar or trolley car (público in Puerto Rico)	0	0.0
Subway or elevated	57	0.4
Railroad	6	0.0
Ferryboat	0	0.0
Taxicab	36	0.2
Motorcycle	20	0.1
Bicycle	24	0.1
Walked	98	0.6
Other means	97	0.6
Worked at home	823	5.1
TRAVEL TIME TO WORK		
Workers who did not work at home	**15,372**	**100.0**
Less than 10 minutes	1,333	8.7
10 to 14 minutes	1,789	11.6
15 to 19 minutes	2,424	15.8
20 to 24 minutes	2,489	16.2
25 to 29 minutes	816	5.3
30 to 34 minutes	1,992	13.0
35 to 44 minutes	1,259	8.2
45 to 59 minutes	1,849	12.0
60 to 89 minutes	1,176	7.7
90 or more minutes	245	1.6
Mean travel time to work (minutes)	28.0	(X)
TIME LEAVING HOME TO GO TO WORK		
Workers who did not work at home	**15,372**	**100.0**
5:00 to 5:59 a.m.	895	5.8
6:00 to 6:29 a.m.	1,269	8.3
6:30 to 6:59 a.m.	1,815	11.8
7:00 to 7:29 a.m.	1,979	12.9
7:30 to 7:59 a.m.	2,554	16.6
8:00 to 8:29 a.m.	2,431	15.8
8:30 to 8:59 a.m.	1,081	7.0
9:00 to 11:59 a.m.	1,583	10.3
12:00 to 3:59 p.m.	607	3.9

Subject	Number	Percent
All other times	1,158	7.5

(X) Not applicable.
Source: U.S. Census Bureau, Census 2000 Summary File 3, Matrices P30, P31, P33, P34, and P35.

QT-P23. **Journey to Work: 2000**
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data
Geographic Area: **Catoctin district, Loudoun County, Virginia**

NOTE: Data based on a sample except in P3, P4, H3, and H4. For information on confidentiality protection, sampling error, nonsampling error, definitions, and count corrections see http://factfinder.census.gov/home/en/datanotes/expsf3.htm.

Subject	Number	Percent
MEANS OF TRANSPORTATION AND CARPOOLING		
Workers 16 and over	**9,659**	**100.0**
Car, truck, or van	8,532	88.3
Drove alone	7,617	78.9
Carpooled	915	9.5
In 2-person carpool	736	7.6
In 3-person carpool	122	1.3
In 4-person carpool	44	0.5
In 5- or 6-person carpool	5	0.1
In 7-or-more-person carpool	8	0.1
Workers per car, truck, or van	1.06	(X)
Public transportation	278	2.9
Bus or trolley bus	117	1.2
Streetcar or trolley car (público in Puerto Rico)	0	0.0
Subway or elevated	0	0.0
Railroad	142	1.5
Ferryboat	0	0.0
Taxicab	19	0.2
Motorcycle	0	0.0
Bicycle	3	0.0
Walked	120	1.2
Other means	62	0.6
Worked at home	664	6.9
TRAVEL TIME TO WORK		
Workers who did not work at home	**8,995**	**100.0**
Less than 10 minutes	835	9.3
10 to 14 minutes	674	7.5
15 to 19 minutes	728	8.1
20 to 24 minutes	1,044	11.6
25 to 29 minutes	690	7.7
30 to 34 minutes	1,141	12.7
35 to 44 minutes	907	10.1
45 to 59 minutes	1,379	15.3
60 to 89 minutes	1,177	13.1
90 or more minutes	420	4.7
Mean travel time to work (minutes)	35.3	(X)
TIME LEAVING HOME TO GO TO WORK		
Workers who did not work at home	**8,995**	**100.0**
5:00 to 5:59 a.m.	704	7.8
6:00 to 6:29 a.m.	940	10.5
6:30 to 6:59 a.m.	951	10.6
7:00 to 7:29 a.m.	1,311	14.6
7:30 to 7:59 a.m.	1,381	15.4
8:00 to 8:29 a.m.	1,207	13.4
8:30 to 8:59 a.m.	689	7.7
9:00 to 11:59 a.m.	809	9.0
12:00 to 3:59 p.m.	375	4.2

Subject	Number	Percent
All other times	628	7.0

(X) Not applicable.
Source: U.S. Census Bureau, Census 2000 Summary File 3, Matrices P30, P31, P33, P34, and P35.

QT-P23. **Journey to Work: 2000**
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data
Geographic Area: **Broad Run district, Loudoun County, Virginia**

NOTE: Data based on a sample except in P3, P4, H3, and H4. For information on confidentiality protection, sampling error, nonsampling error, definitions, and count corrections see http://factfinder.census.gov/home/en/datanotes/expsf3.htm.

Subject	Number	Percent
MEANS OF TRANSPORTATION AND CARPOOLING		
Workers 16 and over	**18,641**	**100.0**
Car, truck, or van	17,331	93.0
Drove alone	15,578	83.6
Carpooled	1,753	9.4
In 2-person carpool	1,435	7.7
In 3-person carpool	200	1.1
In 4-person carpool	62	0.3
In 5- or 6-person carpool	15	0.1
In 7-or-more-person carpool	41	0.2
Workers per car, truck, or van	1.06	(X)
Public transportation	287	1.5
Bus or trolley bus	153	0.8
Streetcar or trolley car (público in Puerto Rico)	0	0.0
Subway or elevated	115	0.6
Railroad	0	0.0
Ferryboat	0	0.0
Taxicab	19	0.1
Motorcycle	17	0.1
Bicycle	36	0.2
Walked	185	1.0
Other means	67	0.4
Worked at home	718	3.9
TRAVEL TIME TO WORK		
Workers who did not work at home	**17,923**	**100.0**
Less than 10 minutes	1,353	7.5
10 to 14 minutes	1,643	9.2
15 to 19 minutes	2,342	13.1
20 to 24 minutes	2,424	13.5
25 to 29 minutes	1,216	6.8
30 to 34 minutes	2,548	14.2
35 to 44 minutes	1,565	8.7
45 to 59 minutes	2,608	14.6
60 to 89 minutes	1,800	10.0
90 or more minutes	424	2.4
Mean travel time to work (minutes)	31.4	(X)
TIME LEAVING HOME TO GO TO WORK		
Workers who did not work at home	**17,923**	**100.0**
5:00 to 5:59 a.m.	1,042	5.8
6:00 to 6:29 a.m.	1,849	10.3
6:30 to 6:59 a.m.	1,929	10.8
7:00 to 7:29 a.m.	2,835	15.8
7:30 to 7:59 a.m.	2,960	16.5
8:00 to 8:29 a.m.	2,699	15.1
8:30 to 8:59 a.m.	1,243	6.9
9:00 to 11:59 a.m.	1,616	9.0
12:00 to 3:59 p.m.	692	3.9

Subject	Number	Percent
All other times	1,058	5.9

(X) Not applicable.
Source: U.S. Census Bureau, Census 2000 Summary File 3, Matrices P30, P31, P33, P34, and P35.

QUEUING ANALYSIS

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	147	517	783	260	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	160	562	851	283	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2258	283	283			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2258	283	283			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	79	56			
cM capacity (veh/h)	25	756	1280			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	160	1413	283
Volume Left	0	562	0
Volume Right	160	0	0
cSH	756	1280	1700
Volume to Capacity	0.21	0.44	0.17
Queue Length 95th (ft)	20	57	0
Control Delay (s)	11.0	9.3	0.0
Lane LOS	B	A	
Approach Delay (s)	11.0	9.3	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	260	783	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	283	851	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1702	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1702	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	74	48			
cM capacity (veh/h)	48	1085	1623			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	283	851	0
Volume Left	0	851	0
Volume Right	283	0	0
cSH	1085	1623	1700
Volume to Capacity	0.26	0.52	0.00
Queue Length 95th (ft)	26	80	0
Control Delay (s)	9.5	9.6	0.0
Lane LOS	A	A	
Approach Delay (s)	9.5	9.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	9.6		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	577	287	468	884	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	627	312	509	961	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2093	961	961			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2093	961	961			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	0	56			
cM capacity (veh/h)	32	311	716			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	627	821	961
Volume Left	0	312	0
Volume Right	627	0	0
cSH	311	716	1700
Volume to Capacity	2.02	0.44	0.57
Queue Length 95th (ft)	1120	55	0
Control Delay (s)	496.3	10.6	0.0
Lane LOS	F	B	
Approach Delay (s)	496.3	10.6	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	132.8		
Intersection Capacity Utilization	132.8%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	884	468	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	961	509	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1017	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1017	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	11	69			
cM capacity (veh/h)	181	1085	1623			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	961	509	0
Volume Left	0	509	0
Volume Right	961	0	0
cSH	1085	1623	1700
Volume to Capacity	0.89	0.31	0.00
Queue Length 95th (ft)	319	34	0
Control Delay (s)	27.1	8.2	0.0
Lane LOS	D	A	
Approach Delay (s)	27.1	8.2	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	20.6		
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	120	159	1076	605	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	130	173	1170	658	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2173	658	658			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2173	658	658			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	72	81			
cM capacity (veh/h)	42	464	930			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	130	1342	658
Volume Left	0	173	0
Volume Right	130	0	0
cSH	464	930	1700
Volume to Capacity	0.28	0.19	0.39
Queue Length 95th (ft)	29	17	0
Control Delay (s)	15.7	6.3	0.0
Lane LOS	C	A	
Approach Delay (s)	15.7	6.3	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	114.7%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	605	1076	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	658	1170	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2339	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2339	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	39	28			
cM capacity (veh/h)	11	1085	1623			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	658	1170	0
Volume Left	0	1170	0
Volume Right	658	0	0
cSH	1085	1623	1700
Volume to Capacity	0.61	0.72	0.00
Queue Length 95th (ft)	107	172	0
Control Delay (s)	13.3	12.7	0.0
Lane LOS	B	B	
Approach Delay (s)	13.3	12.7	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	12.9		
Intersection Capacity Utilization	103.7%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	160	562	851	283
v/c Ratio	0.17	0.49	0.46	0.42
Control Delay	0.4	1.8	0.8	10.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.4	1.8	0.8	10.5
Queue Length 50th (ft)	0	0	0	39
Queue Length 95th (ft)	0	0	0	79
Internal Link Dist (ft)			856	374
Turn Bay Length (ft)				
Base Capacity (vph)	977	1140	1863	1304
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.49	0.46	0.22

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	260	783	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	283	851	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				454		
pX, platoon unblocked						
vC, conflicting volume	1702	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1702	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	74	48			
cM capacity (veh/h)	48	1085	1623			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	283	851	0
Volume Left	0	851	0
Volume Right	283	0	0
cSH	1085	1623	1700
Volume to Capacity	0.26	0.52	0.00
Queue Length 95th (ft)	26	80	0
Control Delay (s)	9.5	9.6	0.0
Lane LOS	A	A	
Approach Delay (s)	9.5	9.6	0.0
Approach LOS	A		

Intersection Summary

Average Delay	9.6		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	627	312	509	961
v/c Ratio	0.92	0.92	0.38	0.98
Control Delay	44.9	59.8	6.6	49.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	44.9	59.8	6.6	49.5
Queue Length 50th (ft)	327	145	110	573
Queue Length 95th (ft)	#557	#307	160	#868
Internal Link Dist (ft)			856	374
Turn Bay Length (ft)				
Base Capacity (vph)	683	340	1332	978
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.92	0.92	0.38	0.98

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	884	468	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	961	509	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				454		
pX, platoon unblocked	0.89					
vC, conflicting volume	1017	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1020	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	11	69			
cM capacity (veh/h)	160	1085	1623			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	961	509	0
Volume Left	0	509	0
Volume Right	961	0	0
cSH	1085	1623	1700
Volume to Capacity	0.89	0.31	0.00
Queue Length 95th (ft)	319	34	0
Control Delay (s)	27.1	8.2	0.0
Lane LOS	D	A	
Approach Delay (s)	27.1	8.2	0.0
Approach LOS	D		

Intersection Summary

Average Delay	20.6		
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	130	173	1170	658
v/c Ratio	0.27	0.26	0.63	0.54
Control Delay	1.4	1.1	1.6	5.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	1.4	1.1	1.6	5.8
Queue Length 50th (ft)	0	0	0	64
Queue Length 95th (ft)	0	0	0	105
Internal Link Dist (ft)			856	374
Turn Bay Length (ft)				
Base Capacity (vph)	483	669	1863	1500
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.26	0.63	0.44

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	605	1076	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	658	1170	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				454		
pX, platoon unblocked	0.10					
vC, conflicting volume	2339	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	14213	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	39	28			
cM capacity (veh/h)	0	1085	1623			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	658	1170	0
Volume Left	0	1170	0
Volume Right	658	0	0
cSH	1085	1623	1700
Volume to Capacity	0.61	0.72	0.00
Queue Length 95th (ft)	107	172	0
Control Delay (s)	13.3	12.7	0.0
Lane LOS	B	B	
Approach Delay (s)	13.3	12.7	0.0
Approach LOS	B		

Intersection Summary

Average Delay	12.9		
Intersection Capacity Utilization	103.7%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	57	904	252	0	521
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	60	952	265	0	548
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						850
pX, platoon unblocked	0.97					
vC, conflicting volume	1633	1084			1217	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1649	1084			1217	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	77			100	
cM capacity (veh/h)	106	264			573	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	60	1217	548
Volume Left	0	0	0
Volume Right	60	265	0
cSH	264	1700	1700
Volume to Capacity	0.23	0.72	0.32
Queue Length 95th (ft)	21	0	0
Control Delay (s)	22.6	0.0	0.0
Lane LOS	C		
Approach Delay (s)	22.6	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	33	22	1134	17	25	496
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	35	23	1194	18	26	522
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1777	1203			1212	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1777	1203			1212	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	60	90			95	
cM capacity (veh/h)	86	225			576	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	58	1212	548
Volume Left	35	0	26
Volume Right	23	18	0
cSH	115	1700	576
Volume to Capacity	0.50	0.71	0.05
Queue Length 95th (ft)	58	0	4
Control Delay (s)	64.7	0.0	1.3
Lane LOS	F		A
Approach Delay (s)	64.7	0.0	1.3
Approach LOS	F		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	4	1721	21	0	764
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	4	1812	22	0	804
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.45	0.45			0.45	
vC, conflicting volume	2627	1823			1834	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4630	2835			2860	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	59			100	
cM capacity (veh/h)	1	10			59	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	4	1834	804
Volume Left	0	0	0
Volume Right	4	22	0
cSH	10	1700	1700
Volume to Capacity	0.41	1.08	0.47
Queue Length 95th (ft)	23	0	0
Control Delay (s)	512.5	0.0	0.0
Lane LOS	F		
Approach Delay (s)	512.5	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	4	1704	21	0	764
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	4	1794	22	0	804
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2609	1805			1816	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2609	1805			1816	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	27	99			338	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	4	1816	804
Volume Left	0	0	0
Volume Right	4	22	0
cSH	99	1700	1700
Volume to Capacity	0.04	1.07	0.47
Queue Length 95th (ft)	3	0	0
Control Delay (s)	43.2	0.0	0.0
Lane LOS	E		
Approach Delay (s)	43.2	0.0	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	68	0	0	4	0	1699	8	0	695	222
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	72	0	0	4	0	1788	8	0	732	234
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2645	2645	848	2713	2758	1793	965			1797		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2645	2645	848	2713	2758	1793	965			1797		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	80	100	100	96	100			100		
cM capacity (veh/h)	15	23	361	11	20	100	713			343		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	72	4	1797	965
Volume Left	0	0	0	0
Volume Right	72	4	8	234
cSH	361	100	1700	1700
Volume to Capacity	0.20	0.04	1.06	0.57
Queue Length 95th (ft)	18	3	0	0
Control Delay (s)	17.4	42.5	0.0	0.0
Lane LOS	C	E		
Approach Delay (s)	17.4	42.5	0.0	0.0
Approach LOS	C	E		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	72	0	1702	846	231
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	76	0	1792	891	243
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.45	0.45	0.45			
vC, conflicting volume	2804	1012	1134			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5031	1027	1299			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	40	100			
cM capacity (veh/h)	0	127	239			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	76	1792	1134
Volume Left	0	0	0
Volume Right	76	0	243
cSH	127	1700	1700
Volume to Capacity	0.60	1.05	0.67
Queue Length 95th (ft)	75	0	0
Control Delay (s)	68.1	0.0	0.0
Lane LOS	F		
Approach Delay (s)	68.1	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	40	106	423	1368	1044
v/c Ratio	0.21	0.21	1.02	0.84	0.90
Control Delay	38.1	9.4	76.9	12.9	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	9.4	76.9	12.9	28.8
Queue Length 50th (ft)	20	12	~214	410	503
Queue Length 95th (ft)	50	47	#412	#1020	#860
Internal Link Dist (ft)	662			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	389	500	414	1628	1155
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.21	1.02	0.84	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	56	174	418	920	817	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	59	183	440	968	860	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				454		
pX, platoon unblocked	0.20					
vC, conflicting volume	2721	872	884			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	9590	872	884			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	48	43			
cM capacity (veh/h)	0	350	765			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	242	1408	884
Volume Left	59	440	0
Volume Right	183	0	24
cSH	0	765	1700
Volume to Capacity	Err	0.57	0.52
Queue Length 95th (ft)	Err	93	0
Control Delay (s)	Err	19.5	0.0
Lane LOS	F	C	
Approach Delay (s)	Err	19.5	0.0
Approach LOS	F		

Intersection Summary

Average Delay	965.9		
Intersection Capacity Utilization	139.8%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	49	174	418	558	666	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	52	183	440	587	701	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2178	711	721			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2178	711	721			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	58	50			
cM capacity (veh/h)	25	433	881			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	235	1027	721
Volume Left	52	440	0
Volume Right	183	0	20
cSH	96	881	1700
Volume to Capacity	2.45	0.50	0.42
Queue Length 95th (ft)	537	71	0
Control Delay (s)	754.0	11.3	0.0
Lane LOS	F	B	
Approach Delay (s)	754.0	11.3	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	95.1		
Intersection Capacity Utilization	112.1%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	49	173	435	172	512	124
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	52	182	458	181	539	131
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1701	604	669			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1701	604	669			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	63	50			
cM capacity (veh/h)	51	498	921			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	234	639	669
Volume Left	52	458	0
Volume Right	182	0	131
cSH	169	921	1700
Volume to Capacity	1.38	0.50	0.39
Queue Length 95th (ft)	355	71	0
Control Delay (s)	255.4	11.1	0.0
Lane LOS	F	B	
Approach Delay (s)	255.4	11.1	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	43.3		
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	224	767	138	0	1328
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	236	807	145	0	1398
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						850
pX, platoon unblocked	0.17					
vC, conflicting volume	2278	880			953	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8574	880			953	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	32			100	
cM capacity (veh/h)	0	346			721	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	236	953	1398
Volume Left	0	0	0
Volume Right	236	145	0
cSH	346	1700	1700
Volume to Capacity	0.68	0.56	0.82
Queue Length 95th (ft)	119	0	0
Control Delay (s)	34.9	0.0	0.0
Lane LOS	D		
Approach Delay (s)	34.9	0.0	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	75	50	855	37	55	1273
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	79	53	900	39	58	1340
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2375	919			939	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2375	919			939	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	84			92	
cM capacity (veh/h)	35	329			730	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	132	939	1398
Volume Left	79	0	58
Volume Right	53	39	0
cSH	55	1700	730
Volume to Capacity	2.41	0.55	0.08
Queue Length 95th (ft)	333	0	6
Control Delay (s)	803.4	0.0	4.1
Lane LOS	F		A
Approach Delay (s)	803.4	0.0	4.1
Approach LOS	F		

Intersection Summary			
Average Delay	45.2		
Intersection Capacity Utilization	125.5%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	8	1301	46	0	2077
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	8	1369	48	0	2186
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.47	0.47			0.47	
vC, conflicting volume	3580	1394			1418	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	6474	1835			1887	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	81			100	
cM capacity (veh/h)	0	44			149	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	1418	2186
Volume Left	0	0	0
Volume Right	8	48	0
cSH	44	1700	1700
Volume to Capacity	0.19	0.83	1.29
Queue Length 95th (ft)	15	0	0
Control Delay (s)	103.9	0.0	0.0
Lane LOS	F		
Approach Delay (s)	103.9	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	8	1263	46	0	2077
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	8	1329	48	0	2186
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3540	1354			1378	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3540	1354			1378	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			100	
cM capacity (veh/h)	7	183			498	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	1378	2186
Volume Left	0	0	0
Volume Right	8	48	0
cSH	183	1700	1700
Volume to Capacity	0.05	0.81	1.29
Queue Length 95th (ft)	4	0	0
Control Delay (s)	25.6	0.0	0.0
Lane LOS	D		
Approach Delay (s)	25.6	0.0	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	249	0	0	8	0	1253	18	0	1828	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	262	0	0	8	0	1319	19	0	1924	78
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	3300	3301	1963	3554	3331	1328	2002			1338		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3300	3301	1963	3554	3331	1328	2002			1338		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	0	0	100	96	100			100		
cM capacity (veh/h)	5	9	79	0	8	190	286			515		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	262	8	1338	2002
Volume Left	0	0	0	0
Volume Right	262	8	19	78
cSH	79	190	1700	1700
Volume to Capacity	3.32	0.04	0.79	1.18
Queue Length 95th (ft)	Err	3	0	0
Control Delay (s)	Err	24.9	0.0	0.0
Lane LOS	F	C		
Approach Delay (s)	Err	24.9	0.0	0.0
Approach LOS	F	C		

Intersection Summary			
Average Delay	725.9		
Intersection Capacity Utilization	122.8%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	257	0	1262	1645	92
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	271	0	1328	1732	97
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.49	0.49	0.49			
vC, conflicting volume	3108	1780	1828			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5341	2606	2706			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	0	100			
cM capacity (veh/h)	0	15	73			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	271	1328	1828
Volume Left	0	0	0
Volume Right	271	0	97
cSH	15	1700	1700
Volume to Capacity	17.54	0.78	1.08
Queue Length 95th (ft)	Err	0	0
Control Delay (s)	Err	0.0	0.0
Lane LOS	F		
Approach Delay (s)	Err	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	789.2		
Intersection Capacity Utilization	114.7%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	151	400	255	1074	1466
v/c Ratio	0.41	0.63	0.76	0.81	1.50
Control Delay	38.6	27.8	38.4	15.8	253.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	27.8	38.4	15.8	253.2
Queue Length 50th (ft)	84	187	103	397	~1318
Queue Length 95th (ft)	145	290	#219	605	#1582
Internal Link Dist (ft)	849			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	364	629	340	1332	979
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.64	0.75	0.81	1.50

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	174	399	318	843	993	56
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	183	420	335	887	1045	59
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				454		
pX, platoon unblocked	0.32					
vC, conflicting volume	2632	1075	1104			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	6174	1075	1104			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	0	47			
cM capacity (veh/h)	0	267	632			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	603	1222	1104
Volume Left	183	335	0
Volume Right	420	0	59
cSH	0	632	1700
Volume to Capacity	Err	0.53	0.65
Queue Length 95th (ft)	Err	78	0
Control Delay (s)	Err	18.2	0.0
Lane LOS	F	C	
Approach Delay (s)	Err	18.2	0.0
Approach LOS	F		

Intersection Summary

Average Delay	2066.3		
Intersection Capacity Utilization	161.8%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	148	399	318	700	650	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	156	420	335	737	684	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2115	709	734			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2115	709	734			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	3	62			
cM capacity (veh/h)	34	434	871			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	576	1072	734
Volume Left	156	335	0
Volume Right	420	0	49
cSH	105	871	1700
Volume to Capacity	5.51	0.38	0.43
Queue Length 95th (ft)	Err	46	0
Control Delay (s)	Err	9.1	0.0
Lane LOS	F	A	
Approach Delay (s)	Err	9.1	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	2422.1		
Intersection Capacity Utilization	134.3%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	148	392	316	532	305	70
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	156	413	333	560	321	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1583	358	395			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1583	358	395			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	40	71			
cM capacity (veh/h)	85	686	1164			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	568	893	395
Volume Left	156	333	0
Volume Right	413	0	74
cSH	234	1164	1700
Volume to Capacity	2.43	0.29	0.23
Queue Length 95th (ft)	1159	30	0
Control Delay (s)	687.6	6.0	0.0
Lane LOS	F	A	
Approach Delay (s)	687.6	6.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	213.5		
Intersection Capacity Utilization	108.1%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	75	1151	170	0	816
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	79	1212	179	0	859
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						850
pX, platoon unblocked	0.76					
vC, conflicting volume	2160	1301			1391	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2522	1301			1391	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	60			100	
cM capacity (veh/h)	23	197			492	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	79	1391	859
Volume Left	0	0	0
Volume Right	79	179	0
cSH	197	1700	1700
Volume to Capacity	0.40	0.82	0.51
Queue Length 95th (ft)	45	0	0
Control Delay (s)	35.1	0.0	0.0
Lane LOS	E		
Approach Delay (s)	35.1	0.0	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	89	59	1261	50	75	741
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	94	62	1327	53	79	780
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2292	1354			1380	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2292	1354			1380	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	66			84	
cM capacity (veh/h)	36	183			497	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	156	1380	859
Volume Left	94	0	79
Volume Right	62	53	0
cSH	53	1700	497
Volume to Capacity	2.92	0.81	0.16
Queue Length 95th (ft)	410	0	14
Control Delay (s)	1031.6	0.0	4.9
Lane LOS	F		A
Approach Delay (s)	1031.6	0.0	4.9
Approach LOS	F		

Intersection Summary			
Average Delay	68.9		
Intersection Capacity Utilization	116.6%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	10	1717	63	0	1193
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	11	1807	66	0	1256
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.31	0.31			0.31	
vC, conflicting volume	3096	1841			1874	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	7792	3723			3831	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	0			100	
cM capacity (veh/h)	0	2			16	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	11	1874	1256
Volume Left	0	0	0
Volume Right	11	66	0
cSH	2	1700	1700
Volume to Capacity	5.51	1.10	0.74
Queue Length 95th (ft)	Err	0	0
Control Delay (s)	Err	0.0	0.0
Lane LOS	F		
Approach Delay (s)	Err	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	33.5		
Intersection Capacity Utilization	104.2%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	10	1663	63	0	1193
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	11	1751	66	0	1256
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3039	1784			1817	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3039	1784			1817	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	90			100	
cM capacity (veh/h)	14	101			337	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	11	1817	1256
Volume Left	0	0	0
Volume Right	11	66	0
cSH	101	1700	1700
Volume to Capacity	0.10	1.07	0.74
Queue Length 95th (ft)	8	0	0
Control Delay (s)	44.6	0.0	0.0
Lane LOS	E		
Approach Delay (s)	44.6	0.0	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	105	0	0	10	0	1648	25	0	1088	82
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	111	0	0	11	0	1735	26	0	1145	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2947	2949	1188	3047	2979	1748	1232			1761		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2947	2949	1188	3047	2979	1748	1232			1761		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	52	100	100	90	100			100		
cM capacity (veh/h)	8	15	229	4	14	107	566			354		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	111	11	1761	1232
Volume Left	0	0	0	0
Volume Right	111	11	26	86
cSH	229	107	1700	1700
Volume to Capacity	0.48	0.10	1.04	0.72
Queue Length 95th (ft)	60	8	0	0
Control Delay (s)	34.5	42.4	0.0	0.0
Lane LOS	D	E		
Approach Delay (s)	34.5	42.4	0.0	0.0
Approach LOS	D	E		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	115	0	1658	1055	107
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	121	0	1745	1111	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.38	0.38	0.38			
vC, conflicting volume	2912	1167	1223			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5984	1435	1582			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	0	100			
cM capacity (veh/h)	0	63	159			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	121	1745	1223
Volume Left	0	0	0
Volume Right	121	0	113
cSH	63	1700	1700
Volume to Capacity	1.92	1.03	0.72
Queue Length 95th (ft)	282	0	0
Control Delay (s)	575.1	0.0	0.0
Lane LOS	F		
Approach Delay (s)	575.1	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	22.5		
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	58	222	300	1445	1055
v/c Ratio	0.29	0.51	1.33	0.93	0.81
Control Delay	40.7	17.4	201.9	21.6	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.7	17.4	201.9	21.6	17.8
Queue Length 50th (ft)	31	44	~182	557	397
Queue Length 95th (ft)	68	110	#360	#1170	#805
Internal Link Dist (ft)	849			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	336	435	225	1553	1295
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.51	1.33	0.93	0.81

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	78	264	627	802	737	166
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	82	278	660	844	776	175
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				454		
pX, platoon unblocked	0.21					
vC, conflicting volume	3027	863	951			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	10721	863	951			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	22	9			
cM capacity (veh/h)	0	354	723			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	360	1504	951
Volume Left	82	660	0
Volume Right	278	0	175
cSH	0	723	1700
Volume to Capacity	Err	0.91	0.56
Queue Length 95th (ft)	Err	307	0
Control Delay (s)	Err	57.9	0.0
Lane LOS	F	F	
Approach Delay (s)	Err	57.9	0.0
Approach LOS	F		

Intersection Summary

Average Delay	1309.8		
Intersection Capacity Utilization	156.4%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	61	253	337	543	650	57
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	64	266	355	572	684	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1995	714	744			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1995	714	744			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	38	59			
cM capacity (veh/h)	39	431	863			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	331	926	744
Volume Left	64	355	0
Volume Right	266	0	60
cSH	146	863	1700
Volume to Capacity	2.26	0.41	0.44
Queue Length 95th (ft)	689	51	0
Control Delay (s)	638.8	9.2	0.0
Lane LOS	F	A	
Approach Delay (s)	638.8	9.2	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	109.8		
Intersection Capacity Utilization	113.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	49	216	245	265	405	64
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	52	227	258	279	426	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1255	460	494			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1255	460	494			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	64	62	76			
cM capacity (veh/h)	144	601	1070			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	279	537	494
Volume Left	52	258	0
Volume Right	227	0	67
cSH	379	1070	1700
Volume to Capacity	0.74	0.24	0.29
Queue Length 95th (ft)	144	24	0
Control Delay (s)	36.9	5.9	0.0
Lane LOS	E	A	
Approach Delay (s)	36.9	5.9	0.0
Approach LOS	E		

Intersection Summary			
Average Delay	10.3		
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	57	904	252	0	521
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	60	952	265	0	548
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			535			850
pX, platoon unblocked	0.89	0.89			0.89	
vC, conflicting volume	1358	608			1217	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1278	435			1119	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	88			100	
cM capacity (veh/h)	140	506			551	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	60	634	582	274	274
Volume Left	0	0	0	0	0
Volume Right	60	0	265	0	0
cSH	506	1700	1700	1700	1700
Volume to Capacity	0.12	0.37	0.34	0.16	0.16
Queue Length 95th (ft)	10	0	0	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.1	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	58	1212	548
v/c Ratio	0.25	0.43	0.23
Control Delay	12.3	3.9	3.0
Queue Delay	0.0	0.0	0.0
Total Delay	12.3	3.9	3.0
Queue Length 50th (ft)	13	72	26
Queue Length 95th (ft)	34	125	50
Internal Link Dist (ft)	678	965	455
Turn Bay Length (ft)			
Base Capacity (vph)	461	2987	2573
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.13	0.41	0.21

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	4	1721	21	0	764
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	4	1812	22	0	804
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.78	0.78			0.78	
vC, conflicting volume	2225	917			1834	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2289	605			1786	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	26	342			266	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	1208	626	402	402
Volume Left	0	0	0	0	0
Volume Right	4	0	22	0	0
cSH	342	1700	1700	1700	1700
Volume to Capacity	0.01	0.71	0.37	0.24	0.24
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	15.7	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	15.7	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.0		
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	4	1704	21	0	764
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	4	1794	22	0	804
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2207	908			1816	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2207	908			1816	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	38	278			334	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	1196	620	402	402
Volume Left	0	0	0	0	0
Volume Right	4	0	22	0	0
cSH	278	1700	1700	1700	1700
Volume to Capacity	0.02	0.70	0.36	0.24	0.24
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	18.1	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	18.1	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.0		
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	68	0	0	4	0	1699	8	0	695	222
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	72	0	0	4	0	1788	8	0	732	234
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1747	2645	483	2230	2758	898	965			1797		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1747	2645	483	2230	2758	898	965			1797		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	86	100	100	99	100			100		
cM capacity (veh/h)	54	23	530	20	19	282	709			340		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	72	4	1192	605	488	478
Volume Left	0	0	0	0	0	0
Volume Right	72	4	0	8	0	234
cSH	530	282	1700	1700	1700	1700
Volume to Capacity	0.14	0.01	0.70	0.36	0.29	0.28
Queue Length 95th (ft)	12	1	0	0	0	0
Control Delay (s)	12.9	18.0	0.0	0.0	0.0	0.0
Lane LOS	B	C				
Approach Delay (s)	12.9	18.0	0.0		0.0	
Approach LOS	B	C				

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	57.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	72	0	1702	846	231
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	76	0	1792	891	243
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.78	0.78	0.78			
vC, conflicting volume	1908	567	1134			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1882	170	894			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	89	100			
cM capacity (veh/h)	49	661	591			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	76	896	896	594	540
Volume Left	0	0	0	0	0
Volume Right	76	0	0	0	243
cSH	661	1700	1700	1700	1700
Volume to Capacity	0.11	0.53	0.53	0.35	0.32
Queue Length 95th (ft)	10	0	0	0	0
Control Delay (s)	11.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.1	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	50.4%	ICU Level of Service	A	
Analysis Period (min)	15			

33: Site Drive #2 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	40	106	423	1368	1044
v/c Ratio	0.15	0.16	0.60	0.43	0.65
Control Delay	26.6	6.2	13.7	2.6	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	6.2	13.7	2.6	14.1
Queue Length 50th (ft)	8	5	19	0	92
Queue Length 95th (ft)	42	37	#239	145	235
Internal Link Dist (ft)	662			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	538	658	704	3242	2273
Starvation Cap Reductn	0	0	0	0	73
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.16	0.60	0.42	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

34: Site Drive #1 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	242	440	968	884
v/c Ratio	0.55	0.77	0.41	0.66
Control Delay	15.4	19.2	5.7	17.8
Queue Delay	0.0	0.0	0.1	0.0
Total Delay	15.4	19.2	5.7	17.8
Queue Length 50th (ft)	30	54	64	125
Queue Length 95th (ft)	101	#206	136	214
Internal Link Dist (ft)	671		374	1144
Turn Bay Length (ft)				
Base Capacity (vph)	599	573	2773	2150
Starvation Cap Reductn	0	0	496	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.77	0.43	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

35: Site Drive #4 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	235	440	587	721
v/c Ratio	0.52	0.66	0.25	0.61
Control Delay	12.4	11.5	4.5	18.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.4	11.5	4.5	18.1
Queue Length 50th (ft)	20	49	31	98
Queue Length 95th (ft)	80	#181	71	172
Internal Link Dist (ft)	662		1144	426
Turn Bay Length (ft)				
Base Capacity (vph)	655	670	2786	2069
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.36	0.66	0.21	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

37: Site Drive #3 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	234	458	181	670
v/c Ratio	0.51	0.62	0.07	0.57
Control Delay	11.9	10.1	4.0	16.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.9	10.1	4.0	16.2
Queue Length 50th (ft)	19	51	8	84
Queue Length 95th (ft)	77	#151	23	151
Internal Link Dist (ft)	671		426	315
Turn Bay Length (ft)				
Base Capacity (vph)	673	739	2919	2116
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.35	0.62	0.06	0.32

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	224	767	138	0	1328
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	236	807	145	0	1398
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			535			850
pX, platoon unblocked	0.93	0.91			0.91	
vC, conflicting volume	1579	476			953	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1246	319			844	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	62			100	
cM capacity (veh/h)	154	613			714	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	236	538	414	699	699
Volume Left	0	0	0	0	0
Volume Right	236	0	145	0	0
cSH	613	1700	1700	1700	1700
Volume to Capacity	0.38	0.32	0.24	0.41	0.41
Queue Length 95th (ft)	45	0	0	0	0
Control Delay (s)	14.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.5	0.0		0.0	
Approach LOS	B				

Intersection Summary

Average Delay	1.3		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	132	939	1398
v/c Ratio	0.35	0.40	0.69
Control Delay	18.6	5.5	9.0
Queue Delay	0.0	0.0	0.0
Total Delay	18.6	5.5	9.0
Queue Length 50th (ft)	27	69	142
Queue Length 95th (ft)	87	114	238
Internal Link Dist (ft)	678	971	455
Turn Bay Length (ft)			
Base Capacity (vph)	573	2665	2293
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.23	0.35	0.61

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	8	1301	46	0	2077
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	8	1369	48	0	2186
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.79	0.79			0.79	
vC, conflicting volume	2487	709			1418	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2613	375			1267	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	16	495			432	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	913	505	1093	1093
Volume Left	0	0	0	0	0
Volume Right	8	0	48	0	0
cSH	495	1700	1700	1700	1700
Volume to Capacity	0.02	0.54	0.30	0.64	0.64
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	12.4	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.4	0.0		0.0	
Approach LOS	B				

Intersection Summary

Average Delay	0.0		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	8	1263	46	0	2077
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	8	1329	48	0	2186
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2447	689			1378	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2447	689			1378	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	26	388			494	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	886	492	1093	1093
Volume Left	0	0	0	0	0
Volume Right	8	0	48	0	0
cSH	388	1700	1700	1700	1700
Volume to Capacity	0.02	0.52	0.29	0.64	0.64
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	14.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.5	0.0		0.0	
Approach LOS	B				

Intersection Summary

Average Delay	0.0		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	249	0	0	8	0	1253	18	0	1828	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	262	0	0	8	0	1319	19	0	1924	78
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2631	3301	1001	2291	3331	669	2002			1338		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2631	3301	1001	2291	3331	669	2002			1338		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	0	0	100	98	100			100		
cM capacity (veh/h)	11	8	241	0	8	400	282			511		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	262	8	879	459	1283	719
Volume Left	0	0	0	0	0	0
Volume Right	262	8	0	19	0	78
cSH	241	400	1700	1700	1700	1700
Volume to Capacity	1.09	0.02	0.52	0.27	0.75	0.42
Queue Length 95th (ft)	283	2	0	0	0	0
Control Delay (s)	127.2	14.2	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	127.2	14.2	0.0		0.0	
Approach LOS	F	B				

Intersection Summary				
Average Delay		9.3		
Intersection Capacity Utilization		75.0%	ICU Level of Service	D
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	257	0	1262	1645	92
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	271	0	1328	1732	97
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.64	0.64	0.64			
vC, conflicting volume	2444	914	1828			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2700	290	1730			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	40	100			
cM capacity (veh/h)	11	449	229			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	271	664	664	1154	674
Volume Left	0	0	0	0	0
Volume Right	271	0	0	0	97
cSH	449	1700	1700	1700	1700
Volume to Capacity	0.60	0.39	0.39	0.68	0.40
Queue Length 95th (ft)	97	0	0	0	0
Control Delay (s)	24.5	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	24.5	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay		1.9		
Intersection Capacity Utilization		71.0%	ICU Level of Service	C
Analysis Period (min)		15		

33: Site Drive #2 & Pacific Blvd

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	151	400	255	1074	1466
v/c Ratio	0.42	0.62	0.75	0.42	0.79
Control Delay	38.6	27.7	37.6	6.4	23.2
Queue Delay	0.0	0.0	0.0	0.0	30.4
Total Delay	38.7	27.7	37.6	6.4	53.6
Queue Length 50th (ft)	84	187	103	126	379
Queue Length 95th (ft)	145	290	#219	160	474
Internal Link Dist (ft)	849			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	363	629	340	2530	1855
Starvation Cap Reductn	0	0	0	0	468
Spillback Cap Reductn	2	0	0	2	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.42	0.64	0.75	0.42	1.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

34: Site Drive #1 & Pacific Blvd

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	603	335	887	1104
v/c Ratio	0.81	1.09	0.48	0.89
Control Delay	37.1	115.5	20.2	48.8
Queue Delay	16.8	0.0	2.0	30.8
Total Delay	53.8	115.5	22.2	79.6
Queue Length 50th (ft)	379	~271	235	448
Queue Length 95th (ft)	550	#465	290	542
Internal Link Dist (ft)	890		374	1144
Turn Bay Length (ft)				
Base Capacity (vph)	748	306	1892	1286
Starvation Cap Reductn	0	0	815	0
Spillback Cap Reductn	144	0	0	242
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.00	1.09	0.82	1.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

35: Site Drive #4 & Pacific Blvd

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	576	335	737	733
v/c Ratio	0.88	0.63	0.38	0.69
Control Delay	37.5	15.0	10.0	26.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.5	15.0	10.0	26.9
Queue Length 50th (ft)	205	80	95	160
Queue Length 95th (ft)	#456	127	128	216
Internal Link Dist (ft)	978		1144	426
Turn Bay Length (ft)				
Base Capacity (vph)	652	535	2336	1627
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.88	0.63	0.32	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

37: Site Drive #3 & Pacific Blvd

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	569	333	560	395
v/c Ratio	0.84	0.52	0.31	0.50
Control Delay	29.2	12.2	9.2	20.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	29.2	12.2	9.2	20.8
Queue Length 50th (ft)	152	68	58	60
Queue Length 95th (ft)	#357	117	85	96
Internal Link Dist (ft)	1082		426	315
Turn Bay Length (ft)				
Base Capacity (vph)	676	640	2477	1817
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.84	0.52	0.23	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	75	1151	170	0	816
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	79	1212	179	0	859
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			535			850
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	1731	695			1391	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1652	316			1214	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	85			100	
cM capacity (veh/h)	69	526			442	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	79	808	583	429	429
Volume Left	0	0	0	0	0
Volume Right	79	0	179	0	0
cSH	526	1700	1700	1700	1700
Volume to Capacity	0.15	0.48	0.34	0.25	0.25
Queue Length 95th (ft)	13	0	0	0	0
Control Delay (s)	13.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.0	0.0		0.0	
Approach LOS	B				

Intersection Summary

Average Delay	0.4		
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	156	1380	859
v/c Ratio	0.43	0.59	0.54
Control Delay	17.7	7.3	7.3
Queue Delay	0.0	0.0	0.0
Total Delay	17.7	7.3	7.3
Queue Length 50th (ft)	30	106	63
Queue Length 95th (ft)	89	208	136
Internal Link Dist (ft)	678	971	455
Turn Bay Length (ft)			
Base Capacity (vph)	518	2780	1897
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.30	0.50	0.45

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	10	1717	63	0	1193
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	11	1807	66	0	1256
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.70	0.70			0.70	
vC, conflicting volume	2468	937			1874	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2674	470			1818	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	12	375			232	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	11	1205	669	628	628
Volume Left	0	0	0	0	0
Volume Right	11	0	66	0	0
cSH	375	1700	1700	1700	1700
Volume to Capacity	0.03	0.71	0.39	0.37	0.37
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	14.9	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.9	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	10	1663	63	0	1193
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	11	1751	66	0	1256
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2412	908			1817	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2412	908			1817	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	27	278			334	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	11	1167	650	628	628
Volume Left	0	0	0	0	0
Volume Right	11	0	66	0	0
cSH	278	1700	1700	1700	1700
Volume to Capacity	0.04	0.69	0.38	0.37	0.37
Queue Length 95th (ft)	3	0	0	0	0
Control Delay (s)	18.5	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	18.5	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	105	0	0	10	0	1648	25	0	1088	82
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	111	0	0	11	0	1735	26	0	1145	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2066	2949	616	2431	2979	881	1232			1761		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2066	2949	616	2431	2979	881	1232			1761		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	75	100	100	96	100			100		
cM capacity (veh/h)	30	14	434	12	14	290	562			351		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	111	11	1156	605	764	468
Volume Left	0	0	0	0	0	0
Volume Right	111	11	0	26	0	86
cSH	434	290	1700	1700	1700	1700
Volume to Capacity	0.25	0.04	0.68	0.36	0.45	0.28
Queue Length 95th (ft)	25	3	0	0	0	0
Control Delay (s)	16.1	17.9	0.0	0.0	0.0	0.0
Lane LOS	C	C				
Approach Delay (s)	16.1	17.9	0.0		0.0	
Approach LOS	C	C				

Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization	56.4%		ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	115	0	1658	1055	107
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	121	0	1745	1111	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.81	0.81	0.81			
vC, conflicting volume	2039	612	1223			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2049	293	1045			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	79	100			
cM capacity (veh/h)	39	572	538			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	121	873	873	740	483
Volume Left	0	0	0	0	0
Volume Right	121	0	0	0	113
cSH	572	1700	1700	1700	1700
Volume to Capacity	0.21	0.51	0.51	0.44	0.28
Queue Length 95th (ft)	20	0	0	0	0
Control Delay (s)	13.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.0	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization	49.2%		ICU Level of Service	A
Analysis Period (min)		15		

33: Site Drive #2 & Pacific Blvd

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	58	222	300	1445	1055
v/c Ratio	0.20	0.35	0.51	0.49	0.63
Control Delay	26.9	10.1	9.4	3.9	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	10.1	9.4	3.9	14.1
Queue Length 50th (ft)	19	29	29	102	160
Queue Length 95th (ft)	56	88	111	173	238
Internal Link Dist (ft)	849			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	548	676	619	3088	2285
Starvation Cap Reductn	0	0	0	0	77
Spillback Cap Reductn	0	0	0	18	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.33	0.48	0.47	0.48

Intersection Summary

34: Site Drive #1 & Pacific Blvd

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	360	660	844	951
v/c Ratio	0.79	1.04	0.34	0.75
Control Delay	32.1	67.4	5.5	25.4
Queue Delay	0.4	0.0	0.2	0.0
Total Delay	32.5	67.4	5.7	25.4
Queue Length 50th (ft)	100	~314	85	215
Queue Length 95th (ft)	#257	#574	111	282
Internal Link Dist (ft)	890		374	1144
Turn Bay Length (ft)				
Base Capacity (vph)	499	636	2655	1680
Starvation Cap Reductn	0	0	925	0
Spillback Cap Reductn	16	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.75	1.04	0.49	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

35: Site Drive #4 & Pacific Blvd

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	330	355	572	744
v/c Ratio	0.64	0.58	0.25	0.63
Control Delay	15.0	10.2	5.4	19.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.0	10.2	5.4	19.8
Queue Length 50th (ft)	37	44	35	113
Queue Length 95th (ft)	122	133	85	202
Internal Link Dist (ft)	978		1144	426
Turn Bay Length (ft)				
Base Capacity (vph)	754	629	2659	1879
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.56	0.22	0.40

Intersection Summary

37: Site Drive #3 & Pacific Blvd

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	279	258	279	493
v/c Ratio	0.54	0.37	0.11	0.33
Control Delay	10.4	6.6	4.5	14.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.4	6.6	4.5	14.2
Queue Length 50th (ft)	20	26	13	57
Queue Length 95th (ft)	77	74	36	111
Internal Link Dist (ft)	1082		426	315
Turn Bay Length (ft)				
Base Capacity (vph)	703	714	2924	2370
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.36	0.10	0.21

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	83	1339	455	0	540
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	83	1339	455	0	540
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			535			850
pX, platoon unblocked	0.77	0.73			0.73	
vC, conflicting volume	1836	897			1794	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1487	492			1718	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	78			100	
cM capacity (veh/h)	89	382			267	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	83	893	901	270	270
Volume Left	0	0	0	0	0
Volume Right	83	0	455	0	0
cSH	382	1700	1700	1700	1700
Volume to Capacity	0.22	0.53	0.53	0.16	0.16
Queue Length 95th (ft)	20	0	0	0	0
Control Delay (s)	17.0	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	17.0	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.6		
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	60	1789	540
v/c Ratio	0.23	0.63	0.24
Control Delay	18.4	5.9	3.2
Queue Delay	0.0	0.0	0.0
Total Delay	18.4	5.9	3.2
Queue Length 50th (ft)	16	198	36
Queue Length 95th (ft)	47	264	53
Internal Link Dist (ft)	678	965	455
Turn Bay Length (ft)			
Base Capacity (vph)	400	2909	2271
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.15	0.61	0.24

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	4	3051	24	0	956
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	4	3051	24	0	956
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.80	0.80			0.80	
vC, conflicting volume	3541	1538			3075	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3923	1423			3341	
tC, single (s)	6.8	*5.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	2	200			66	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	2034	1041	478	478
Volume Left	0	0	0	0	0
Volume Right	4	0	24	0	0
cSH	200	1700	1700	1700	1700
Volume to Capacity	0.02	1.20	0.61	0.28	0.28
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	23.4	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	23.4	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	4	3031	24	0	956
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	4	3031	24	0	956
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3521	1528			3055	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3521	1528			3055	
tC, single (s)	6.8	*5.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	5	223			107	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	2021	1034	478	478
Volume Left	0	0	0	0	0
Volume Right	4	0	24	0	0
cSH	223	1700	1700	1700	1700
Volume to Capacity	0.02	1.19	0.61	0.28	0.28
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	21.5	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	21.5	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	95	0	0	4	0	3025	10	0	860	421
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	95	0	0	4	0	3025	10	0	860	421
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2587	4106	640	3555	4311	1518	1281			3035		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2587	4106	640	3555	4311	1518	1281			3035		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	*5.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	77	100	100	98	100			100		
cM capacity (veh/h)	12	2	418	2	2	225	538			109		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	95	4	2017	1018	573	708
Volume Left	0	0	0	0	0	0
Volume Right	95	4	0	10	0	421
cSH	418	225	1700	1700	1700	1700
Volume to Capacity	0.23	0.02	1.19	0.60	0.34	0.42
Queue Length 95th (ft)	22	1	0	0	0	0
Control Delay (s)	16.1	21.3	0.0	0.0	0.0	0.0
Lane LOS	C	C				
Approach Delay (s)	16.1	21.3	0.0		0.0	
Approach LOS	C	C				

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		93.9%	ICU Level of Service	F
Analysis Period (min)		15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	99	0	3029	1182	430
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	99	0	3029	1182	430
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.61	0.61	0.61			
vC, conflicting volume	2912	806	1612			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3502	32	1360			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	84	100			
cM capacity (veh/h)	3	628	304			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	99	1514	1514	788	824
Volume Left	0	0	0	0	0
Volume Right	99	0	0	0	430
cSH	628	1700	1700	1700	1700
Volume to Capacity	0.16	0.89	0.89	0.46	0.48
Queue Length 95th (ft)	14	0	0	0	0
Control Delay (s)	11.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.8	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		87.1%	ICU Level of Service	E
Analysis Period (min)		15		

33: Site Drive #2 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	54	138	728	2301	1493
v/c Ratio	0.18	0.25	1.50	0.76	0.79
Control Delay	35.1	18.7	257.4	7.4	17.4
Queue Delay	0.0	0.0	0.0	0.1	1.7
Total Delay	35.1	18.7	257.4	7.4	19.1
Queue Length 50th (ft)	28	46	~605	361	321
Queue Length 95th (ft)	63	91	#833	482	410
Internal Link Dist (ft)	662			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	450	554	486	3048	2162
Starvation Cap Reductn	0	0	0	0	469
Spillback Cap Reductn	3	0	0	65	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.25	1.50	0.77	0.88

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

34: Site Drive #1 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	283	744	1611	1312
v/c Ratio	0.64	1.89	0.66	0.78
Control Delay	24.2	428.9	8.6	20.6
Queue Delay	1.7	0.0	0.7	0.5
Total Delay	25.9	428.9	9.3	21.0
Queue Length 50th (ft)	65	~488	184	251
Queue Length 95th (ft)	174	#880	299	366
Internal Link Dist (ft)	671		374	1144
Turn Bay Length (ft)				
Base Capacity (vph)	508	394	2655	2060
Starvation Cap Reductn	0	0	618	0
Spillback Cap Reductn	103	0	0	307
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.70	1.89	0.79	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

35: Site Drive #4 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	273	744	941	1125
v/c Ratio	0.58	1.55	0.39	0.75
Control Delay	18.8	279.6	5.9	21.2
Queue Delay	0.0	0.0	0.0	0.1
Total Delay	18.8	279.6	5.9	21.3
Queue Length 50th (ft)	47	~394	71	199
Queue Length 95th (ft)	141	#809	145	323
Internal Link Dist (ft)	662		1144	426
Turn Bay Length (ft)				
Base Capacity (vph)	569	479	2650	1965
Starvation Cap Reductn	0	0	0	80
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.48	1.55	0.36	0.60

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

37: Site Drive #3 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	272	780	225	1143
v/c Ratio	0.63	1.58	0.09	0.76
Control Delay	20.8	292.4	4.1	20.0
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	20.9	292.4	4.1	20.0
Queue Length 50th (ft)	48	~438	13	197
Queue Length 95th (ft)	143	#873	32	323
Internal Link Dist (ft)	671		426	315
Turn Bay Length (ft)				
Base Capacity (vph)	570	493	2705	1969
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	13	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	1.58	0.08	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	450	734	193	0	1938
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	450	734	193	0	1938
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			535			850
pX, platoon unblocked	0.65	0.95			0.95	
vC, conflicting volume	1800	464			927	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1463	384			872	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	23			100	
cM capacity (veh/h)	77	584			732	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	450	489	438	969	969
Volume Left	0	0	0	0	0
Volume Right	450	0	193	0	0
cSH	584	1700	1700	1700	1700
Volume to Capacity	0.77	0.29	0.26	0.57	0.57
Queue Length 95th (ft)	177	0	0	0	0
Control Delay (s)	28.8	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s)	28.8	0.0		0.0	
Approach LOS	D				

Intersection Summary

Average Delay	3.9		
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	159	796	1938
v/c Ratio	0.49	0.31	0.85
Control Delay	30.9	4.5	13.5
Queue Delay	0.0	0.0	0.0
Total Delay	30.9	4.5	13.5
Queue Length 50th (ft)	62	57	295
Queue Length 95th (ft)	126	106	557
Internal Link Dist (ft)	678	965	455
Turn Bay Length (ft)			
Base Capacity (vph)	464	2617	2316
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.34	0.30	0.84

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	11	1709	56	0	3683
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	11	1709	56	0	3683
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.83	0.83			0.83	
vC, conflicting volume	3578	882			1765	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3903	653			1717	
tC, single (s)	6.8	*5.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	2	466			303	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	11	1139	626	1842	1842
Volume Left	0	0	0	0	0
Volume Right	11	0	56	0	0
cSH	466	1700	1700	1700	1700
Volume to Capacity	0.02	0.67	0.37	1.08	1.08
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	12.9	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.9	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	11	1664	56	0	3683
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	11	1664	56	0	3683
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3534	860			1720	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3534	860			1720	
tC, single (s)	6.8	*5.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	4	453			364	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	11	1109	611	1842	1842
Volume Left	0	0	0	0	0
Volume Right	11	0	56	0	0
cSH	453	1700	1700	1700	1700
Volume to Capacity	0.02	0.65	0.36	1.08	1.08
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.1	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	482	0	0	11	0	1652	22	0	3201	115
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	482	0	0	11	0	1652	22	0	3201	115
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	4096	4932	1658	3746	4979	837	3316			1674		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	4096	4932	1658	3746	4979	837	3316			1674		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	*5.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	0	0	100	98	100			100		
cM capacity (veh/h)	1	1	87	0	1	465	84			379		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	482	11	1101	573	2134	1182
Volume Left	0	0	0	0	0	0
Volume Right	482	11	0	22	0	115
cSH	87	465	1700	1700	1700	1700
Volume to Capacity	5.57	0.02	0.65	0.34	1.26	0.70
Queue Length 95th (ft)	Err	2	0	0	0	0
Control Delay (s)	Err	12.9	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	Err	12.9	0.0		0.0	
Approach LOS	F	B				

Intersection Summary				
Average Delay	879.0			
Intersection Capacity Utilization	128.7%	ICU Level of Service	H	
Analysis Period (min)	15			

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	493	0	1663	2824	137
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	493	0	1663	2824	137
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.49	0.49	0.49			
vC, conflicting volume	3724	1480	2961			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5512	942	3958			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	0	100			
cM capacity (veh/h)	0	130	22			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	493	832	832	1883	1078
Volume Left	0	0	0	0	0
Volume Right	493	0	0	0	137
cSH	130	1700	1700	1700	1700
Volume to Capacity	3.80	0.49	0.49	1.11	0.63
Queue Length 95th (ft)	Err	0	0	0	0
Control Delay (s)	Err	0.0	0.0	0.0	0.0
Lane LOS	F				
Approach Delay (s)	Err	0.0		0.0	
Approach LOS	F				

Intersection Summary				
Average Delay	963.4			
Intersection Capacity Utilization	119.6%	ICU Level of Service	H	
Analysis Period (min)	15			

33: Site Drive #2 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	281	681	337	1326	2324
v/c Ratio	0.80	1.10	0.98	0.52	1.24
Control Delay	56.4	97.7	73.8	7.1	138.0
Queue Delay	1.3	0.0	0.0	0.1	89.0
Total Delay	57.7	97.7	73.8	7.2	227.0
Queue Length 50th (ft)	171	~490	164	174	~986
Queue Length 95th (ft)	#293	#714	#346	218	#1127
Internal Link Dist (ft)	662			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	363	618	343	2554	1871
Starvation Cap Reductn	0	0	0	0	258
Spillback Cap Reductn	16	0	0	159	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	1.10	0.98	0.55	1.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

34: Site Drive #1 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	1015	414	1192	1713
v/c Ratio	1.39	1.37	0.63	1.33
Control Delay	213.7	216.7	23.1	188.4
Queue Delay	388.9	0.0	17.1	289.2
Total Delay	602.5	216.7	40.2	477.5
Queue Length 50th (ft)	~1096	~411	358	~990
Queue Length 95th (ft)	#1357	#619	431	#1131
Internal Link Dist (ft)	671		374	1144
Turn Bay Length (ft)				
Base Capacity (vph)	730	303	1892	1288
Starvation Cap Reductn	0	0	715	0
Spillback Cap Reductn	280	0	0	420
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	2.26	1.37	1.01	1.97

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	965	414	1115	1088
v/c Ratio	1.70	0.98	0.51	0.78
Control Delay	348.4	61.5	10.3	27.9
Queue Delay	0.0	0.0	0.0	0.2
Total Delay	348.4	61.5	10.3	28.1
Queue Length 50th (ft)	~766	166	166	274
Queue Length 95th (ft)	#1141	#390	211	348
Internal Link Dist (ft)	662		1144	426
Turn Bay Length (ft)				
Base Capacity (vph)	566	424	2336	1619
Starvation Cap Reductn	0	0	0	82
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.70	0.98	0.48	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	956	276	1126	514
v/c Ratio	1.46	0.47	0.61	0.57
Control Delay	237.6	11.1	12.1	21.5
Queue Delay	9.1	0.0	0.0	0.0
Total Delay	246.7	11.1	12.1	21.5
Queue Length 50th (ft)	~508	55	144	84
Queue Length 95th (ft)	#784	94	197	127
Internal Link Dist (ft)	671		426	315
Turn Bay Length (ft)				
Base Capacity (vph)	654	601	2477	1828
Starvation Cap Reductn	0	0	43	0
Spillback Cap Reductn	9	0	0	39
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.48	0.46	0.46	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	95	902	217	0	751
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	95	902	217	0	751
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			535			850
pX, platoon unblocked	0.92	0.90			0.90	
vC, conflicting volume	1386	560			1119	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1010	402			1023	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	82			100	
cM capacity (veh/h)	217	539			608	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	95	601	518	376	376
Volume Left	0	0	0	0	0
Volume Right	95	0	217	0	0
cSH	539	1700	1700	1700	1700
Volume to Capacity	0.18	0.35	0.30	0.22	0.22
Queue Length 95th (ft)	16	0	0	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.1	0.0		0.0	
Approach LOS	B				

Intersection Summary

Average Delay	0.6		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	192	948	751
v/c Ratio	0.43	0.43	0.47
Control Delay	14.0	6.6	7.5
Queue Delay	0.0	0.0	0.0
Total Delay	14.0	6.6	7.5
Queue Length 50th (ft)	26	59	50
Queue Length 95th (ft)	86	125	113
Internal Link Dist (ft)	678	965	455
Turn Bay Length (ft)			
Base Capacity (vph)	607	2892	2086
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.33	0.36

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	13	2055	78	0	1489
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	13	2055	78	0	1489
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.79	0.79			0.79	
vC, conflicting volume	2838	1066			2133	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3057	823			2168	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			100	
cM capacity (veh/h)	8	251			193	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	13	1370	763	744	744
Volume Left	0	0	0	0	0
Volume Right	13	0	78	0	0
cSH	251	1700	1700	1700	1700
Volume to Capacity	0.05	0.81	0.45	0.44	0.44
Queue Length 95th (ft)	4	0	0	0	0
Control Delay (s)	20.1	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	20.1	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	13	1991	78	0	1489
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	13	1991	78	0	1489
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2774	1034			2069	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2774	1034			2069	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			100	
cM capacity (veh/h)	15	229			266	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	13	1327	742	744	744
Volume Left	0	0	0	0	0
Volume Right	13	0	78	0	0
cSH	229	1700	1700	1700	1700
Volume to Capacity	0.06	0.78	0.44	0.44	0.44
Queue Length 95th (ft)	4	0	0	0	0
Control Delay (s)	21.7	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	21.7	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	133	0	0	13	0	1971	31	0	1356	108
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	133	0	0	13	0	1971	31	0	1356	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2408	3412	732	2798	3450	1001	1464			2002		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2408	3412	732	2798	3450	1001	1464			2002		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	63	100	100	95	100			100		
cM capacity (veh/h)	16	7	364	5	7	241	457			282		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	133	13	1314	688	904	560
Volume Left	0	0	0	0	0	0
Volume Right	133	13	0	31	0	108
cSH	364	241	1700	1700	1700	1700
Volume to Capacity	0.37	0.05	0.77	0.40	0.53	0.33
Queue Length 95th (ft)	41	4	0	0	0	0
Control Delay (s)	20.5	20.8	0.0	0.0	0.0	0.0
Lane LOS	C	C				
Approach Delay (s)	20.5	20.8	0.0		0.0	
Approach LOS	C	C				

Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		65.5%	ICU Level of Service	C
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	146	0	1984	1318	139
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	146	0	1984	1318	139
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.72	0.72	0.72			
vC, conflicting volume	2380	728	1457			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2530	225	1242			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	74	100			
cM capacity (veh/h)	16	557	399			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	146	992	992	879	578
Volume Left	0	0	0	0	0
Volume Right	146	0	0	0	139
cSH	557	1700	1700	1700	1700
Volume to Capacity	0.26	0.58	0.58	0.52	0.34
Queue Length 95th (ft)	26	0	0	0	0
Control Delay (s)	13.7	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.7	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization		58.2%	ICU Level of Service	B
Analysis Period (min)		15		

33: Site Drive #2 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	70	272	370	1614	1248
v/c Ratio	0.26	0.44	0.66	0.54	0.73
Control Delay	31.1	15.8	22.3	4.3	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.1
Total Delay	31.1	15.8	22.3	4.3	16.2
Queue Length 50th (ft)	27	61	90	131	211
Queue Length 95th (ft)	71	154	#286	223	309
Internal Link Dist (ft)	662			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	505	624	559	3070	2211
Starvation Cap Reductn	0	0	0	0	212
Spillback Cap Reductn	1	0	0	25	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.44	0.66	0.53	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

34: Site Drive #1 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	420	674	1010	1145
v/c Ratio	0.90	1.26	0.41	0.80
Control Delay	47.9	157.4	6.2	27.2
Queue Delay	13.1	0.0	0.5	0.1
Total Delay	61.0	157.4	6.6	27.3
Queue Length 50th (ft)	158	~433	108	283
Queue Length 95th (ft)	#378	#713	138	361
Internal Link Dist (ft)	671		374	1144
Turn Bay Length (ft)				
Base Capacity (vph)	467	534	2583	1636
Starvation Cap Reductn	0	0	993	0
Spillback Cap Reductn	43	0	0	56
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.99	1.26	0.64	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

35: Site Drive #4 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	389	423	684	902
v/c Ratio	0.69	0.80	0.30	0.71
Control Delay	18.8	26.0	6.8	23.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.8	26.0	6.8	23.1
Queue Length 50th (ft)	66	88	55	161
Queue Length 95th (ft)	186	#332	123	279
Internal Link Dist (ft)	662		1144	426
Turn Bay Length (ft)				
Base Capacity (vph)	706	532	2521	1758
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.80	0.27	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

37: Site Drive #3 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	378	311	449	699
v/c Ratio	0.68	0.52	0.21	0.62
Control Delay	17.9	9.6	6.1	19.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.9	9.6	6.1	19.4
Queue Length 50th (ft)	60	48	34	107
Queue Length 95th (ft)	163	96	61	168
Internal Link Dist (ft)	671		426	315
Turn Bay Length (ft)				
Base Capacity (vph)	647	610	2676	2032
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.58	0.51	0.17	0.34

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	83	1339	455	0	540
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	83	1339	455	0	540
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			535			850
pX, platoon unblocked	0.76	0.73			0.73	
vC, conflicting volume	1836	897			1794	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1570	492			1718	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	78			100	
cM capacity (veh/h)	77	382			267	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	83	893	901	270	270
Volume Left	0	0	0	0	0
Volume Right	83	0	455	0	0
cSH	382	1700	1700	1700	1700
Volume to Capacity	0.22	0.53	0.53	0.16	0.16
Queue Length 95th (ft)	20	0	0	0	0
Control Delay (s)	17.0	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	17.0	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.6		
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	60	1789	540
v/c Ratio	0.23	0.63	0.24
Control Delay	18.4	5.9	3.2
Queue Delay	0.0	0.0	0.0
Total Delay	18.4	5.9	3.2
Queue Length 50th (ft)	16	198	36
Queue Length 95th (ft)	47	264	53
Internal Link Dist (ft)	678	965	455
Turn Bay Length (ft)			
Base Capacity (vph)	400	2909	2271
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.15	0.61	0.24

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	4	3051	24	0	956
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	4	3051	24	0	956
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.68	0.68			0.68	
vC, conflicting volume	3541	1538			3075	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4270	1319			3584	
tC, single (s)	6.8	*5.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	1	189			44	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	2034	1041	478	478
Volume Left	0	0	0	0	0
Volume Right	4	0	24	0	0
cSH	189	1700	1700	1700	1700
Volume to Capacity	0.02	1.20	0.61	0.28	0.28
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	24.4	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	24.4	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.0		
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	4	3031	24	0	956
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	4	3031	24	0	956
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3521	1528			3055	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3521	1528			3055	
tC, single (s)	6.8	*5.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	5	223			107	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	2021	1034	478	478
Volume Left	0	0	0	0	0
Volume Right	4	0	24	0	0
cSH	223	1700	1700	1700	1700
Volume to Capacity	0.02	1.19	0.61	0.28	0.28
Queue Length 95th (ft)	1	0	0	0	0
Control Delay (s)	21.5	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	21.5	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.0		
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	95	0	0	4	0	3025	10	0	860	421
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	95	0	0	4	0	3025	10	0	860	421
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2587	4106	640	3555	4311	1518	1281			3035		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2587	4106	640	3555	4311	1518	1281			3035		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	*5.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	77	100	100	98	100			100		
cM capacity (veh/h)	12	2	418	2	2	225	538			109		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	95	4	2017	1018	573	708
Volume Left	0	0	0	0	0	0
Volume Right	95	4	0	10	0	421
cSH	418	225	1700	1700	1700	1700
Volume to Capacity	0.23	0.02	1.19	0.60	0.34	0.42
Queue Length 95th (ft)	22	1	0	0	0	0
Control Delay (s)	16.1	21.3	0.0	0.0	0.0	0.0
Lane LOS	C	C				
Approach Delay (s)	16.1	21.3	0.0		0.0	
Approach LOS	C	C				

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		93.9%	ICU Level of Service	F
Analysis Period (min)		15		

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	99	0	3029	1182	430
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	99	0	3029	1182	430
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.74	0.74	0.74			
vC, conflicting volume	2696	591	1612			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2941	96	1476			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	86	100			
cM capacity (veh/h)	9	697	335			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	99	1514	1514	591	591	430
Volume Left	0	0	0	0	0	0
Volume Right	99	0	0	0	0	430
cSH	697	1700	1700	1700	1700	1700
Volume to Capacity	0.14	0.89	0.89	0.35	0.35	0.25
Queue Length 95th (ft)	12	0	0	0	0	0
Control Delay (s)	11.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	11.0	0.0		0.0		
Approach LOS	B					

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		87.1%	ICU Level of Service	E
Analysis Period (min)		15		

33: Site Drive #2 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	54	138	728	2301	1493
v/c Ratio	0.21	0.17	1.17	0.85	0.72
Control Delay	38.8	13.4	120.3	11.1	23.6
Queue Delay	0.0	0.0	0.0	0.1	0.3
Total Delay	38.8	13.4	120.3	11.2	23.9
Queue Length 50th (ft)	26	33	~431	361	247
Queue Length 95th (ft)	69	86	#763	466	295
Internal Link Dist (ft)	662			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	261	798	620	2796	2437
Starvation Cap Reductn	0	0	0	0	326
Spillback Cap Reductn	0	0	0	44	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.17	1.17	0.84	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

34: Site Drive #1 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	75	208	744	1611	1286	26
v/c Ratio	0.27	0.13	1.25	0.56	0.81	0.03
Control Delay	37.5	0.2	152.0	5.1	24.7	2.1
Queue Delay	0.0	0.0	0.0	0.6	0.1	0.0
Total Delay	37.5	0.2	152.0	5.7	24.8	2.1
Queue Length 50th (ft)	38	0	~513	162	310	0
Queue Length 95th (ft)	82	0	#799	232	411	8
Internal Link Dist (ft)	671			374	1144	
Turn Bay Length (ft)						
Base Capacity (vph)	388	1583	596	2888	1781	1038
Starvation Cap Reductn	0	0	0	807	0	0
Spillback Cap Reductn	0	56	0	0	30	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.14	1.25	0.77	0.73	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	65	208	744	941	1125
v/c Ratio	0.28	0.24	0.94	0.32	0.85
Control Delay	44.9	12.2	47.2	3.0	35.6
Queue Delay	0.0	0.0	0.0	0.0	1.4
Total Delay	44.9	12.2	47.2	3.0	36.9
Queue Length 50th (ft)	40	64	~482	70	349
Queue Length 95th (ft)	82	108	#734	100	450
Internal Link Dist (ft)	662			1144	426
Turn Bay Length (ft)					
Base Capacity (vph)	302	865	790	2963	1427
Starvation Cap Reductn	0	0	0	0	138
Spillback Cap Reductn	7	0	0	63	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.24	0.94	0.32	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	65	207	780	225	1143
v/c Ratio	0.34	0.23	0.93	0.08	0.91
Control Delay	46.8	10.3	41.6	2.1	41.9
Queue Delay	0.0	0.1	15.4	0.0	0.7
Total Delay	46.8	10.3	57.0	2.1	42.6
Queue Length 50th (ft)	40	55	422	11	365
Queue Length 95th (ft)	81	93	#728	22	#535
Internal Link Dist (ft)	671			426	315
Turn Bay Length (ft)					
Base Capacity (vph)	306	893	841	2989	1262
Starvation Cap Reductn	0	0	74	0	0
Spillback Cap Reductn	0	96	0	0	19
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.26	1.02	0.08	0.92

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	450	747	193	0	2069
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	450	747	193	0	2069
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			535			850
pX, platoon unblocked	0.51	0.96			0.96	
vC, conflicting volume	1878	470			940	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1531	409			898	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	21			100	
cM capacity (veh/h)	54	569			723	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	450	498	442	1034	1034
Volume Left	0	0	0	0	0
Volume Right	450	0	193	0	0
cSH	569	1700	1700	1700	1700
Volume to Capacity	0.79	0.29	0.26	0.61	0.61
Queue Length 95th (ft)	188	0	0	0	0
Control Delay (s)	31.1	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s)	31.1	0.0		0.0	
Approach LOS	D				

Intersection Summary

Average Delay	4.0		
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	159	740	1871
v/c Ratio	0.48	0.29	0.83
Control Delay	29.5	4.5	12.5
Queue Delay	0.0	0.0	0.0
Total Delay	29.5	4.5	12.5
Queue Length 50th (ft)	55	50	258
Queue Length 95th (ft)	126	97	499
Internal Link Dist (ft)	678	965	455
Turn Bay Length (ft)			
Base Capacity (vph)	482	2613	2325
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.33	0.28	0.80

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	11	1709	56	0	3683
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	11	1709	56	0	3683
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.83	0.83			0.83	
vC, conflicting volume	3578	882			1765	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3900	655			1717	
tC, single (s)	6.8	*5.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	2	466			303	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	11	1139	626	1842	1842
Volume Left	0	0	0	0	0
Volume Right	11	0	56	0	0
cSH	466	1700	1700	1700	1700
Volume to Capacity	0.02	0.67	0.37	1.08	1.08
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	12.9	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.9	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	11	1664	56	0	3683
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	11	1664	56	0	3683
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3534	860			1720	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3534	860			1720	
tC, single (s)	6.8	*5.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	4	453			364	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	11	1109	611	1842	1842
Volume Left	0	0	0	0	0
Volume Right	11	0	56	0	0
cSH	453	1700	1700	1700	1700
Volume to Capacity	0.02	0.65	0.36	1.08	1.08
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.1	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	482	0	0	11	0	1652	22	0	3201	115
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	482	0	0	11	0	1652	22	0	3201	115
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	4096	4932	1658	3746	4979	837	3316			1674		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	4096	4932	1658	3746	4979	837	3316			1674		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	*5.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	0	0	100	98	100			100		
cM capacity (veh/h)	1	1	87	0	1	465	84			379		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	482	11	1101	573	2134	1182
Volume Left	0	0	0	0	0	0
Volume Right	482	11	0	22	0	115
cSH	87	465	1700	1700	1700	1700
Volume to Capacity	5.57	0.02	0.65	0.34	1.26	0.70
Queue Length 95th (ft)	Err	2	0	0	0	0
Control Delay (s)	Err	12.9	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	Err	12.9	0.0		0.0	
Approach LOS	F	B				

Intersection Summary				
Average Delay	879.0			
Intersection Capacity Utilization	128.7%	ICU Level of Service	H	
Analysis Period (min)	15			

* User Entered Value

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	493	0	1663	2824	137
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	493	0	1663	2824	137
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.52	0.52	0.52			
vC, conflicting volume	3656	1412	2961			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	5214	858	3866			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	0	100			
cM capacity (veh/h)	0	155	26			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	493	832	832	1412	1412	137
Volume Left	0	0	0	0	0	0
Volume Right	493	0	0	0	0	137
cSH	155	1700	1700	1700	1700	1700
Volume to Capacity	3.19	0.49	0.49	0.83	0.83	0.08
Queue Length 95th (ft)	Err	0	0	0	0	0
Control Delay (s)	Err	0.0	0.0	0.0	0.0	0.0
Lane LOS	F					
Approach Delay (s)	Err	0.0		0.0		
Approach LOS	F					

Intersection Summary				
Average Delay	963.4			
Intersection Capacity Utilization	115.3%	ICU Level of Service	H	
Analysis Period (min)	15			

33: Site Drive #2 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	281	681	337	1326	2324
v/c Ratio	0.62	0.97	1.00	0.57	0.98
Control Delay	36.7	53.0	74.1	9.7	39.0
Queue Delay	0.0	0.0	0.0	0.0	64.5
Total Delay	36.7	53.0	74.1	9.7	103.6
Queue Length 50th (ft)	142	365	141	193	457
Queue Length 95th (ft)	226	#607	#317	248	#596
Internal Link Dist (ft)	662			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	452	704	338	2320	2368
Starvation Cap Reductn	0	0	0	0	354
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.97	1.00	0.57	1.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

34: Site Drive #1 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	336	679	414	1192	1646	67
v/c Ratio	0.95	0.43	0.99	0.47	0.97	0.06
Control Delay	74.2	0.9	69.3	6.4	40.4	1.1
Queue Delay	0.0	0.3	0.0	0.7	69.5	0.0
Total Delay	74.2	1.1	69.3	7.1	110.0	1.1
Queue Length 50th (ft)	190	0	184	131	461	0
Queue Length 95th (ft)	#355	0	#376	168	#638	10
Internal Link Dist (ft)	671			374	1144	
Turn Bay Length (ft)						
Base Capacity (vph)	354	1583	417	2517	1691	1162
Starvation Cap Reductn	0	0	0	889	0	0
Spillback Cap Reductn	0	339	0	0	278	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.55	0.99	0.73	1.16	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

35: Site Drive #4 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	286	679	414	1115	1088
v/c Ratio	0.66	0.83	0.88	0.48	0.77
Control Delay	37.4	28.9	42.2	8.2	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.1
Total Delay	37.4	28.9	42.2	8.2	25.2
Queue Length 50th (ft)	129	259	140	132	241
Queue Length 95th (ft)	250	#600	#390	211	348
Internal Link Dist (ft)	662			1144	426
Turn Bay Length (ft)					
Base Capacity (vph)	534	815	469	2490	1725
Starvation Cap Reductn	0	0	0	0	80
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.83	0.88	0.45	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

37: Site Drive #3 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	286	670	276	1126	514
v/c Ratio	0.56	0.62	0.43	0.56	0.54
Control Delay	22.7	6.1	9.2	9.6	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	6.1	9.2	9.6	19.2
Queue Length 50th (ft)	84	42	43	115	74
Queue Length 95th (ft)	166	141	94	197	127
Internal Link Dist (ft)	671			426	315
Turn Bay Length (ft)					
Base Capacity (vph)	637	1063	656	2627	1952
Starvation Cap Reductn	0	0	0	43	0
Spillback Cap Reductn	0	3	0	0	24
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.63	0.42	0.44	0.27

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	95	902	217	0	751
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	95	902	217	0	751
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			535			850
pX, platoon unblocked	0.95	0.90			0.90	
vC, conflicting volume	1386	560			1119	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1052	402			1023	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	82			100	
cM capacity (veh/h)	210	539			608	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	95	601	518	376	376
Volume Left	0	0	0	0	0
Volume Right	95	0	217	0	0
cSH	539	1700	1700	1700	1700
Volume to Capacity	0.18	0.35	0.30	0.22	0.22
Queue Length 95th (ft)	16	0	0	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.1	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	192	948	751
v/c Ratio	0.43	0.43	0.47
Control Delay	14.0	6.6	7.5
Queue Delay	0.0	0.0	0.0
Total Delay	14.0	6.6	7.5
Queue Length 50th (ft)	26	59	50
Queue Length 95th (ft)	86	125	113
Internal Link Dist (ft)	678	965	455
Turn Bay Length (ft)			
Base Capacity (vph)	607	2892	2086
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.33	0.36

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	13	2055	78	0	1489
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	13	2055	78	0	1489
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			844			
pX, platoon unblocked	0.79	0.79			0.79	
vC, conflicting volume	2838	1066			2133	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3056	824			2168	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			100	
cM capacity (veh/h)	8	251			193	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	13	1370	763	744	744
Volume Left	0	0	0	0	0
Volume Right	13	0	78	0	0
cSH	251	1700	1700	1700	1700
Volume to Capacity	0.05	0.81	0.45	0.44	0.44
Queue Length 95th (ft)	4	0	0	0	0
Control Delay (s)	20.1	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	20.1	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.1		
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	13	1991	78	0	1489
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	13	1991	78	0	1489
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2774	1034			2069	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2774	1034			2069	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			100	
cM capacity (veh/h)	15	229			266	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	13	1327	742	744	744
Volume Left	0	0	0	0	0
Volume Right	13	0	78	0	0
cSH	229	1700	1700	1700	1700
Volume to Capacity	0.06	0.78	0.44	0.44	0.44
Queue Length 95th (ft)	4	0	0	0	0
Control Delay (s)	21.7	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	21.7	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.1		
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	133	0	0	13	0	1971	31	0	1356	108
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	133	0	0	13	0	1971	31	0	1356	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2408	3412	732	2798	3450	1001	1464			2002		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2408	3412	732	2798	3450	1001	1464			2002		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	63	100	100	95	100			100		
cM capacity (veh/h)	16	7	364	5	7	241	457			282		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	133	13	1314	688	904	560
Volume Left	0	0	0	0	0	0
Volume Right	133	13	0	31	0	108
cSH	364	241	1700	1700	1700	1700
Volume to Capacity	0.37	0.05	0.77	0.40	0.53	0.33
Queue Length 95th (ft)	41	4	0	0	0	0
Control Delay (s)	20.5	20.8	0.0	0.0	0.0	0.0
Lane LOS	C	C				
Approach Delay (s)	20.5	20.8	0.0		0.0	
Approach LOS	C	C				

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	65.5%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	146	0	1984	1318	139
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	146	0	1984	1318	139
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					936	
pX, platoon unblocked	0.75	0.75	0.75			
vC, conflicting volume	2310	659	1457			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2411	222	1280			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	75	100			
cM capacity (veh/h)	21	590	406			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	146	992	992	659	659	139
Volume Left	0	0	0	0	0	0
Volume Right	146	0	0	0	0	139
cSH	590	1700	1700	1700	1700	1700
Volume to Capacity	0.25	0.58	0.58	0.39	0.39	0.08
Queue Length 95th (ft)	24	0	0	0	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	13.1	0.0		0.0		
Approach LOS	B					

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	58.2%	ICU Level of Service	B	
Analysis Period (min)	15			

33: Site Drive #2 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	70	272	370	1614	1248
v/c Ratio	0.19	0.34	0.71	0.68	0.65
Control Delay	23.9	10.4	21.6	9.0	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	10.4	21.6	9.0	18.1
Queue Length 50th (ft)	22	46	70	160	136
Queue Length 95th (ft)	62	124	#260	325	214
Internal Link Dist (ft)	662			856	374
Turn Bay Length (ft)					
Base Capacity (vph)	540	900	519	2711	2879
Starvation Cap Reductn	0	0	0	0	91
Spillback Cap Reductn	0	0	0	33	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.30	0.71	0.60	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

34: Site Drive #1 & Pacific Boulevard

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	420	674	1010	925	220
v/c Ratio	0.85	1.09	0.43	0.74	0.21
Control Delay	38.3	83.5	6.7	27.1	4.7
Queue Delay	0.0	0.0	0.3	0.0	0.0
Total Delay	38.3	83.5	7.0	27.1	4.7
Queue Length 50th (ft)	137	~317	108	215	28
Queue Length 95th (ft)	#340	#574	140	280	54
Internal Link Dist (ft)	671		374	1144	
Turn Bay Length (ft)					
Base Capacity (vph)	497	619	2586	1665	1027
Starvation Cap Reductn	0	0	845	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.85	1.09	0.58	0.56	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

35: Site Drive #4 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	76	313	423	684	902
v/c Ratio	0.20	0.41	0.61	0.24	0.65
Control Delay	24.7	9.7	14.1	3.3	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	9.7	14.1	3.3	16.6
Queue Length 50th (ft)	25	46	76	46	148
Queue Length 95th (ft)	65	121	#224	67	207
Internal Link Dist (ft)	662			1144	426
Turn Bay Length (ft)					
Base Capacity (vph)	647	759	689	3011	2039
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.41	0.61	0.23	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

37: Site Drive #3 & Pacific Boulevard

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	76	302	311	449	699
v/c Ratio	0.22	0.36	0.41	0.16	0.53
Control Delay	21.1	3.4	5.1	3.0	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	3.4	5.1	3.0	13.6
Queue Length 50th (ft)	20	5	30	22	86
Queue Length 95th (ft)	56	43	68	43	142
Internal Link Dist (ft)	671			426	315
Turn Bay Length (ft)					
Base Capacity (vph)	590	867	763	3093	2313
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.35	0.41	0.15	0.30

Intersection Summary

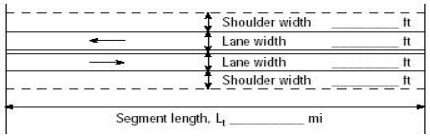
ROADWAY CAPACITY ANALYSIS

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*AG*	Highway	*Pacific Boulevard*
Agency or Company	*Gorove Slade*	From/To	*South of Drive #1*
Date Performed	*4/8/2009*	Jurisdiction	*Loudoun County*
Analysis Time Period	*2011 AM*	Analysis Year	*2011 AM*

Project Description: *2041-002 Kincora Development*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1043* veh/h
Directional split	*75 / 25*
Peak-hour factor, PHF	*0.92*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*3*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1138*
v_p * highest directional split proportion[2] (pc/h)	*854*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*45.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.8 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*44.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*35.4*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1136*
v_p * highest directional split proportion[2] (pc/h)	*852*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*63.2*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*63.2*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.36*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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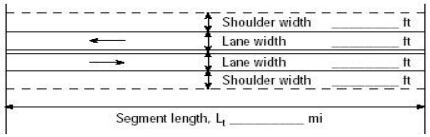
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*AG*	Highway	*Pacific Boulevard*
Agency or Company	*Gorove Slade*	From/To	*South of Drive #1*
Date Performed	*4/8/2009*	Jurisdiction	*Loudoun County*
Analysis Time Period	*2011 PM*	Analysis Year	*2011 PM*

Project Description: *2041-002 Kincora Development*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1352* veh/h
Directional split	*65 / 35*
Peak-hour factor, PHF	*0.92*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*3*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1473*
v_p * highest directional split proportion[2] (pc/h)	*957*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*45.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.8 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*44.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*32.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1470*
v_p * highest directional split proportion[2] (pc/h)	*956*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*72.5*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*72.5*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.46*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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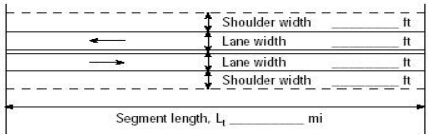
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*AG*	Highway	*Pacific Boulevard*
Agency or Company	*Gorove Slade*	From/To	*South of Drive #1*
Date Performed	*4/8/2009*	Jurisdiction	*Loudoun County*
Analysis Time Period	*2011 Sat*	Analysis Year	*2011 Sat*

Project Description: *2041-002 Kincora Development*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1681* veh/h
Directional split	*64 / 36*
Peak-hour factor, PHF	*0.92*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*3*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1831*
v_p * highest directional split proportion[2] (pc/h)	*1172*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*45.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.8 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*30.0*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1827*
v_p * highest directional split proportion[2] (pc/h)	*1169*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*79.9*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*79.9*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.57*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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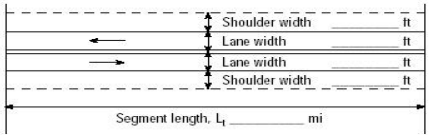
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*AG*	Highway	*Pacific Boulevard*
Agency or Company	*Gorove Slade*	From/To	*South of Drive #2*
Date Performed	*4/8/2009*	Jurisdiction	*Loudoun County*
Analysis Time Period	*2011 AM*	Analysis Year	*2011 AM*

Project Description: *2041-002 Kincora Development*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1707* veh/h
Directional split	*76 / 24*
Peak-hour factor, PHF	*0.92*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*3*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1859*
v_p * highest directional split proportion[2] (pc/h)	*1413*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*45.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.8 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*29.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1855*
v_p * highest directional split proportion[2] (pc/h)	*1410*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*80.4*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*80.4*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.58*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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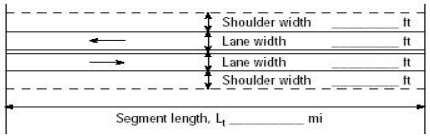
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*AG*	Highway	*Pacific Boulevard*
Agency or Company	*Gorove Slade*	From/To	*South of Drive #2*
Date Performed	*4/8/2009*	Jurisdiction	*Loudoun County*
Analysis Time Period	*2011 PM*	Analysis Year	*2011 PM*

Project Description: *2041-002 Kincora Development*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*2216* veh/h
Directional split	*66 / 34*
Peak-hour factor, PHF	*0.92*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*3*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*2414*
v_p * highest directional split proportion[2] (pc/h)	*1593*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*45.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.8 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*44.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*25.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*2409*
v_p * highest directional split proportion[2] (pc/h)	*1590*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*88.0*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*88.0*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.75*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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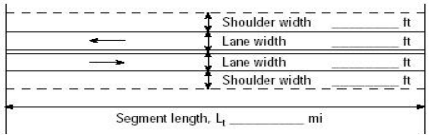
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*AG*	Highway	*Pacific Boulevard*
Agency or Company	*Gorove Slade*	From/To	*South of Drive #2*
Date Performed	*4/8/2009*	Jurisdiction	*Loudoun County*
Analysis Time Period	*2011 Sat*	Analysis Year	*2011 Sat*

Project Description: *2041-002 Kincora Development*

Input Data



☐ Class I highway ☑ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1960* veh/h
Directional split	*63 / 37*
Peak-hour factor, PHF	*0.92*
No-passing zone	*0*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*3*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*2135*
v_p * highest directional split proportion[2] (pc/h)	*1345*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*45.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.8 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*44.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.0*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*27.7*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*2130*
v_p * highest directional split proportion[2] (pc/h)	*1342*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*84.6*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*0.0*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*84.6*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.67*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*0*

Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*0*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*0.0*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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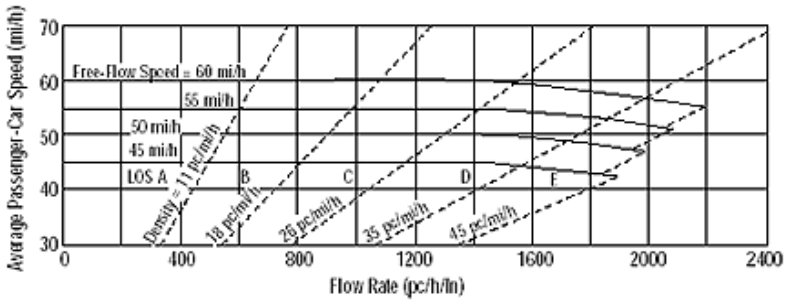
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	991	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	528
Speed, S (mi/h)	48.8
D (pc/mi/ln)	10.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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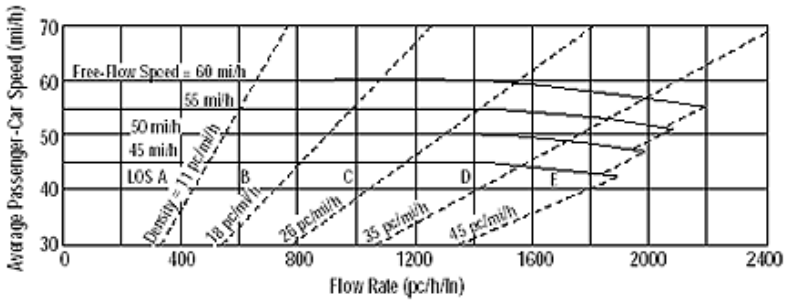
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1338	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	714
Speed, S (mi/h)	48.8
D (pc/mi/ln)	14.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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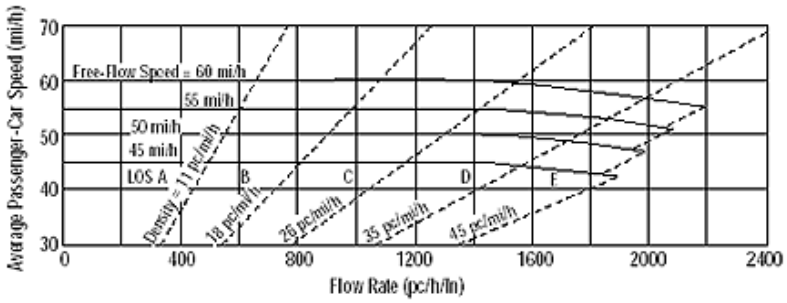
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1392	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	742
Speed, S (mi/h)	48.8
D (pc/mi/ln)	15.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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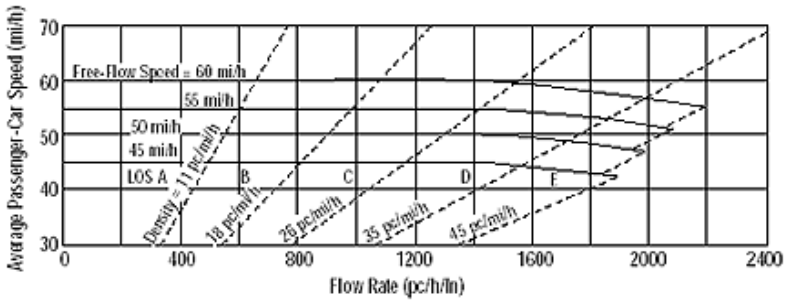
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1161	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	619
Speed, S (mi/h)	48.8
D (pc/mi/ln)	12.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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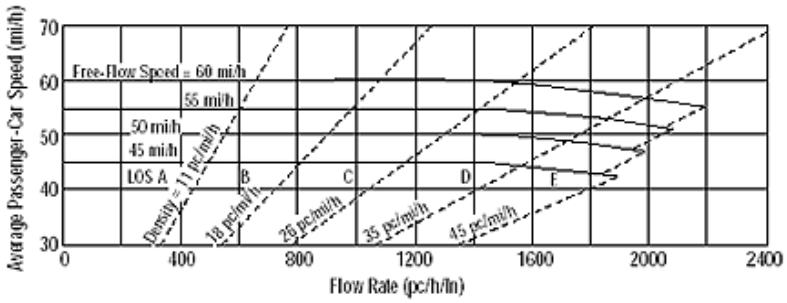
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1001	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	534
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.0-
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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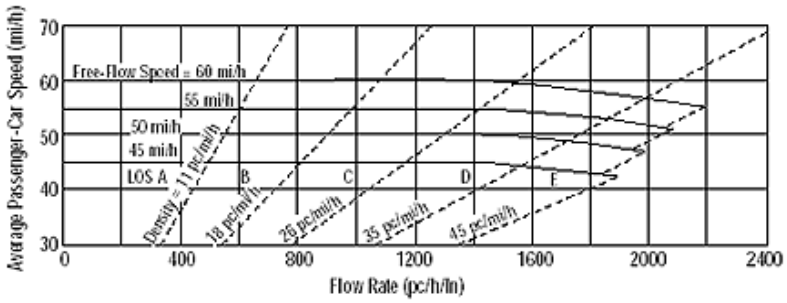
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1429	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	762
Speed, S (mi/h)	48.8
D (pc/mi/ln)	15.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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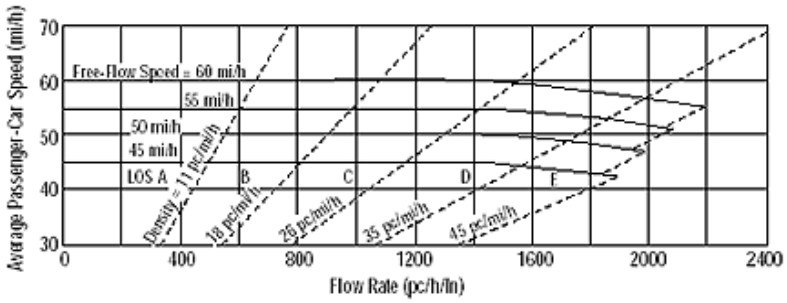
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1076	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	574
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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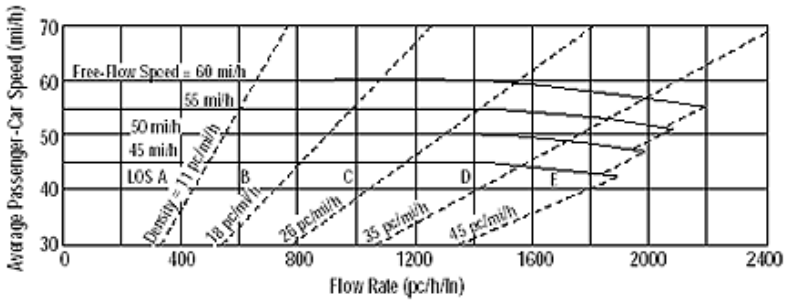
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1702	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	908
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.6
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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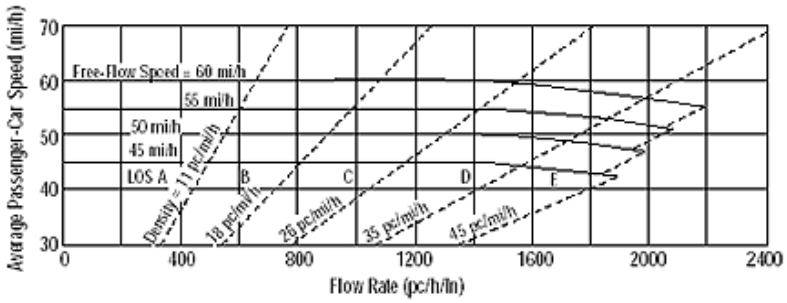
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1736	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	926
Speed, S (mi/h)	48.8
D (pc/mi/ln)	19.0
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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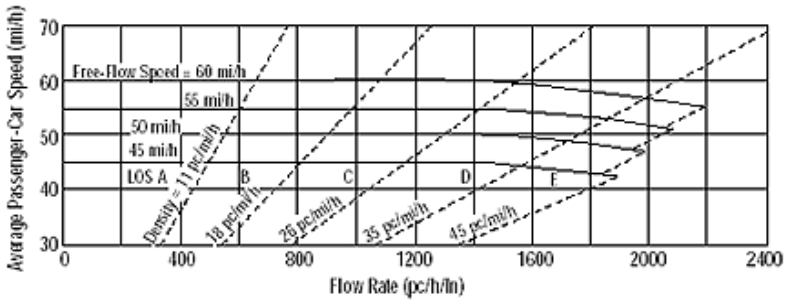
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1262	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	673
Speed, S (mi/h)	48.8
D (pc/mi/ln)	13.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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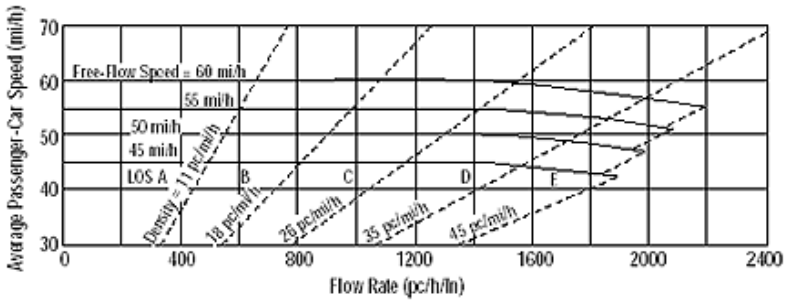
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1163	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	620
Speed, S (mi/h)	48.8
D (pc/mi/ln)	12.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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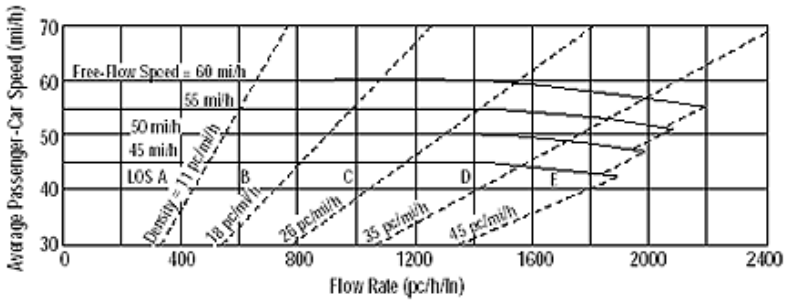
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1658	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	884
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.1
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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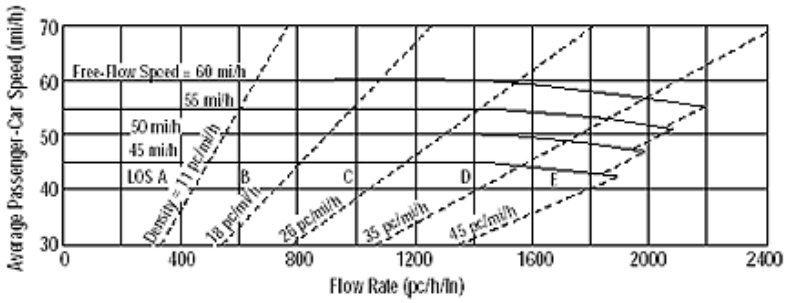
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	636	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	339
Speed, S (mi/h)	48.8
D (pc/mi/ln)	7.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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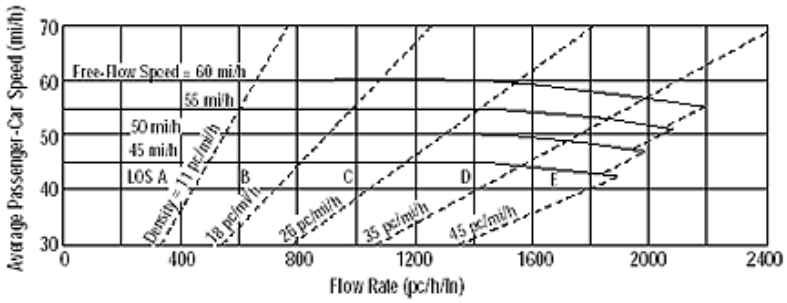
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	221	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	117
Speed, S (mi/h)	48.8
D (pc/mi/ln)	2.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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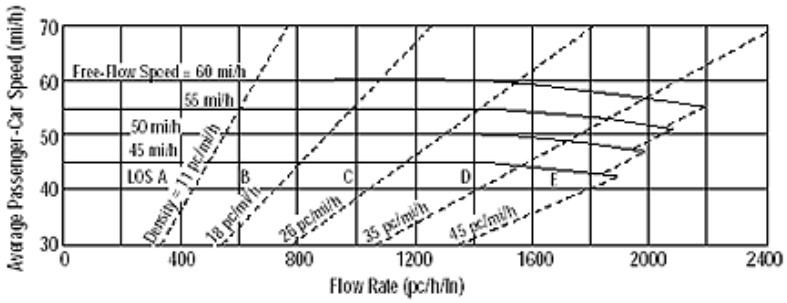
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	375	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	200
Speed, S (mi/h)	48.8
D (pc/mi/ln)	4.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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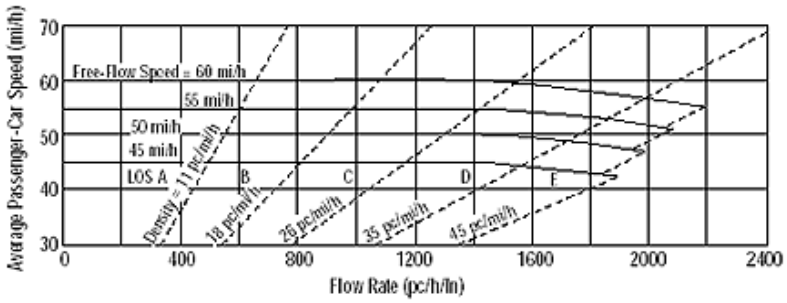
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	500	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	266
Speed, S (mi/h)	48.8
D (pc/mi/ln)	5.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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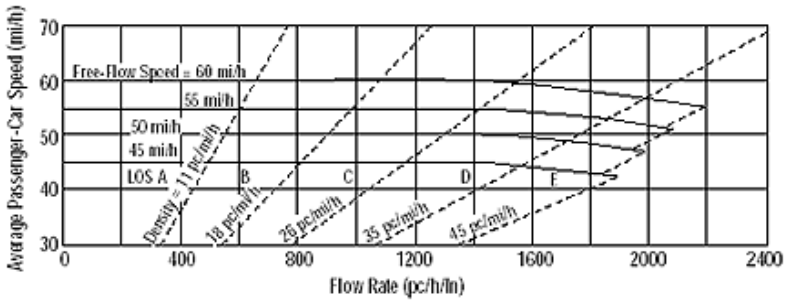
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	542	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	289
Speed, S (mi/h)	48.8
D (pc/mi/ln)	5.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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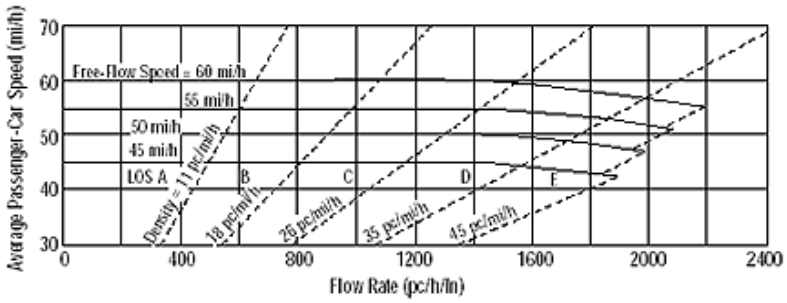
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	409	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	218
Speed, S (mi/h)	48.8
D (pc/mi/ln)	4.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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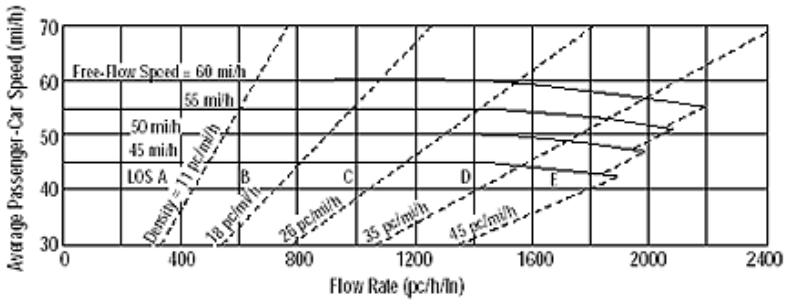
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	685	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	365
Speed, S (mi/h)	48.8
D (pc/mi/ln)	7.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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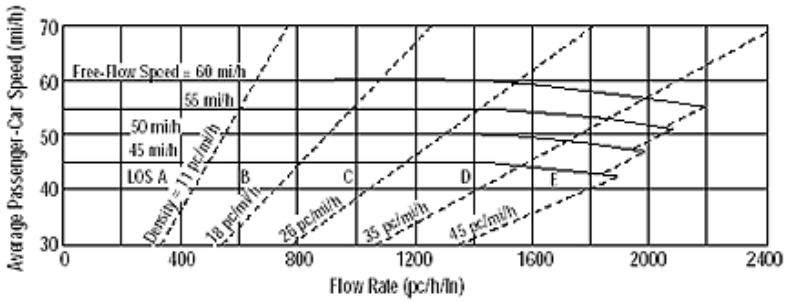
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	607	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	323
Speed, S (mi/h)	48.8
D (pc/mi/ln)	6.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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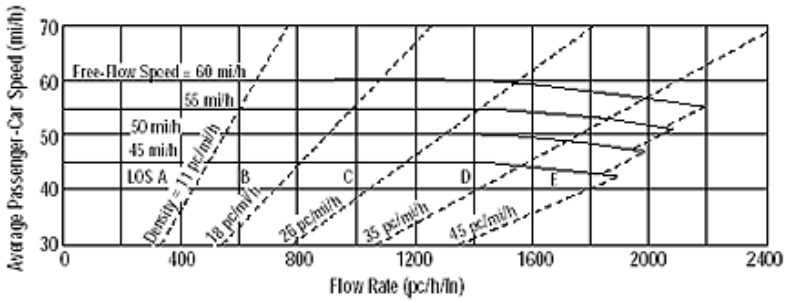
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	697	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	371
Speed, S (mi/h)	48.8
D (pc/mi/ln)	7.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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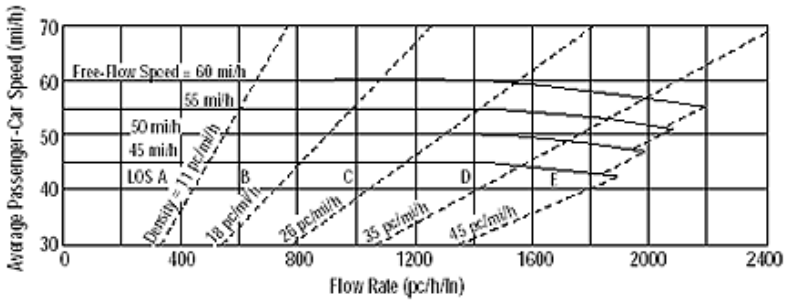
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	848	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	452
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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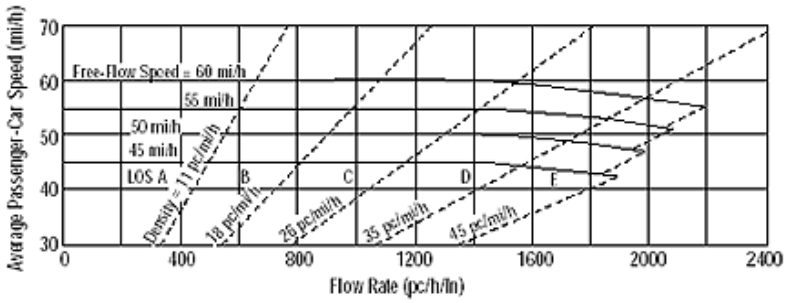
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	708	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	377
Speed, S (mi/h)	48.8
D (pc/mi/ln)	7.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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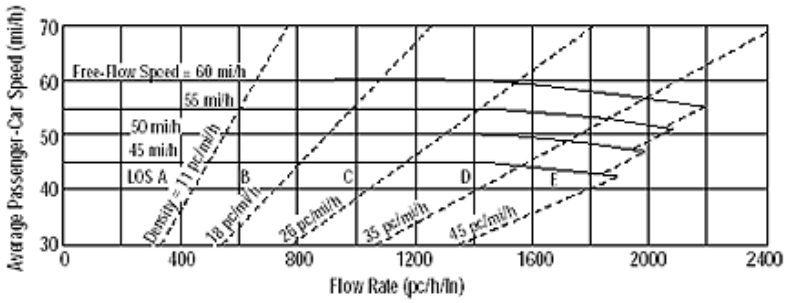
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	604	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	322
Speed, S (mi/h)	48.8
D (pc/mi/ln)	6.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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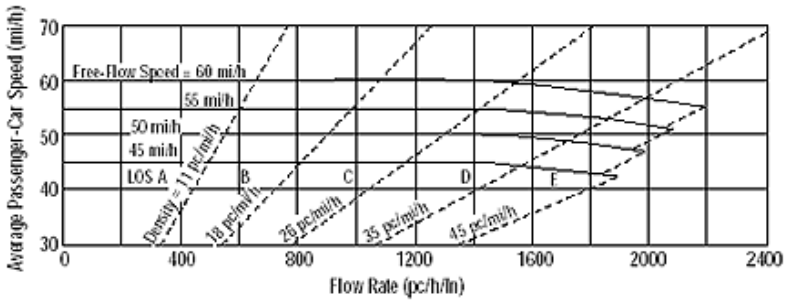
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	840	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	448
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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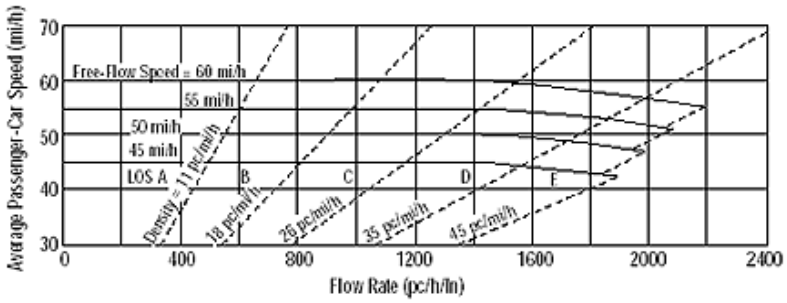
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	976	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	520
Speed, S (mi/h)	48.8
D (pc/mi/ln)	10.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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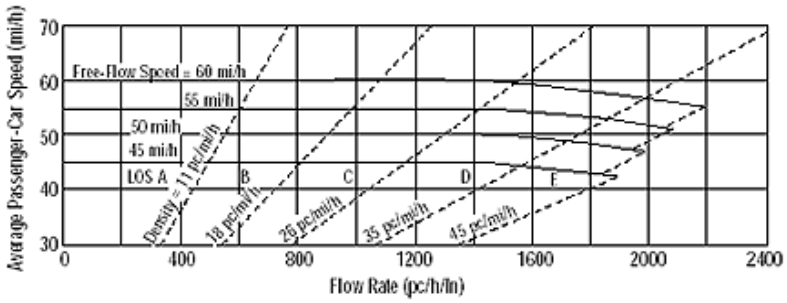
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1049	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	559
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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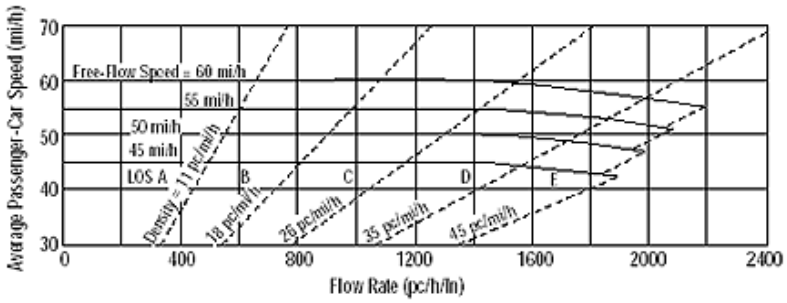
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1018	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	543
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.1
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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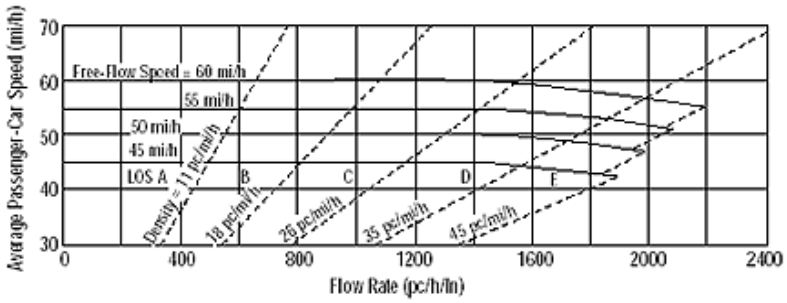
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	903	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	481
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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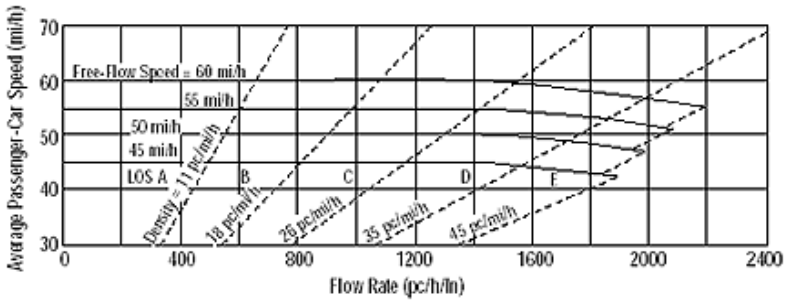
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	880	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	469
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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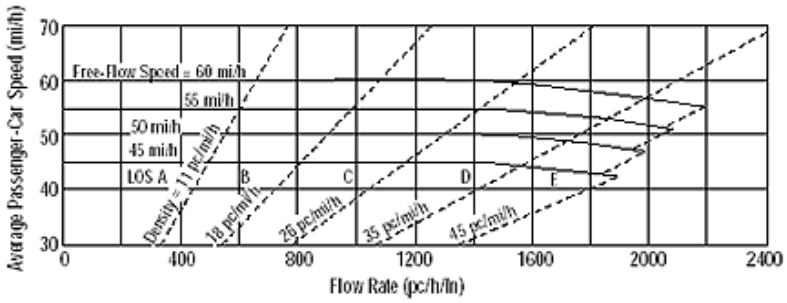
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	918	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	489
Speed, S (mi/h)	48.8
D (pc/mi/ln)	10.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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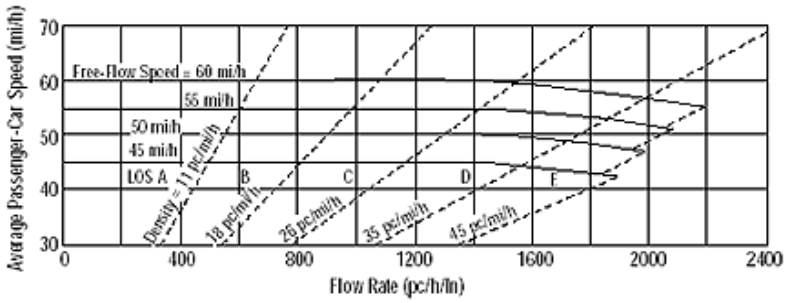
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1702	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	908
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.6
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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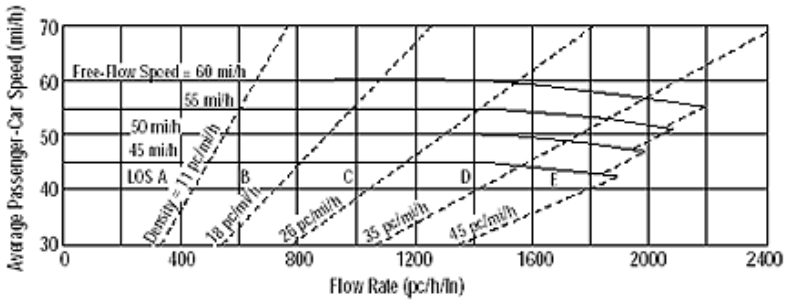
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1902	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1015
Speed, S (mi/h)	48.8
D (pc/mi/ln)	20.8
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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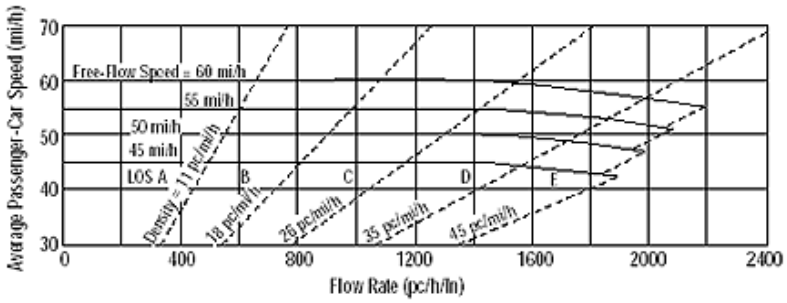
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1262	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	673
Speed, S (mi/h)	48.8
D (pc/mi/ln)	13.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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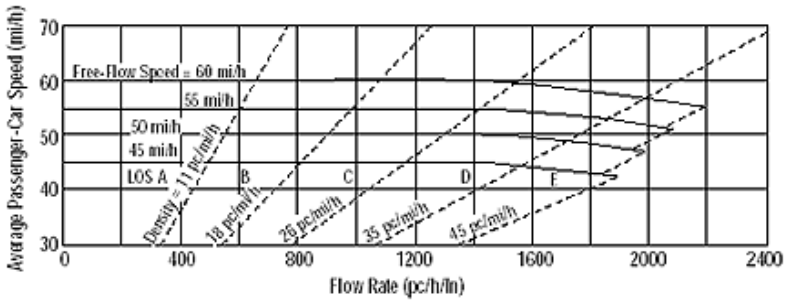
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1170	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	624
Speed, S (mi/h)	48.8
D (pc/mi/ln)	12.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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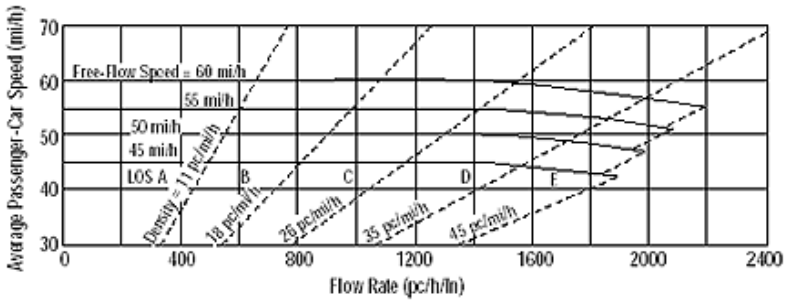
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1658	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	884
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.1
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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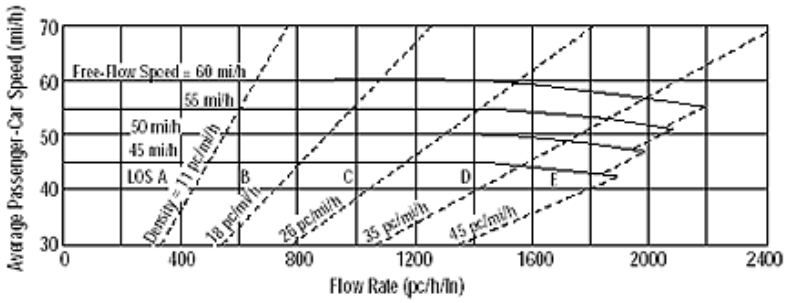
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	763	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	407
Speed, S (mi/h)	48.8
D (pc/mi/ln)	8.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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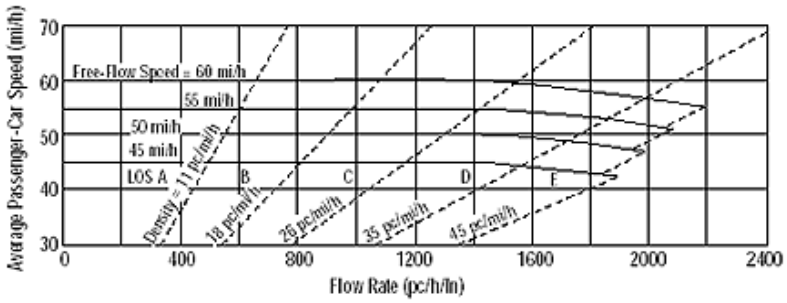
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1707	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	910
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.7
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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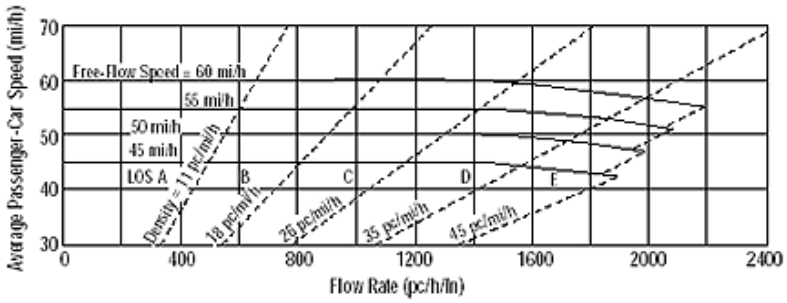
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	2077	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1108
Speed, S (mi/h)	48.8
D (pc/mi/ln)	22.7
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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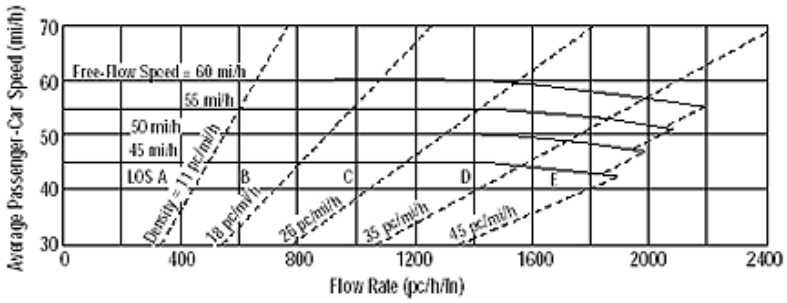
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1271	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	678
Speed, S (mi/h)	48.8
D (pc/mi/ln)	13.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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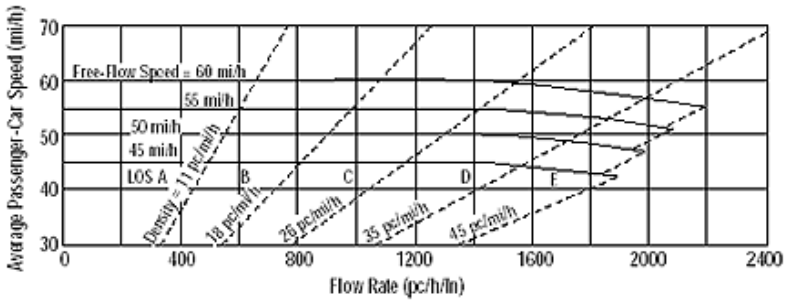
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1193	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	636
Speed, S (mi/h)	48.8
D (pc/mi/ln)	13.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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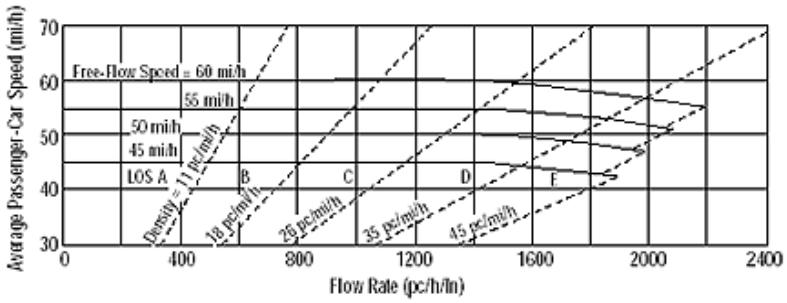
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1673	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	892
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.3
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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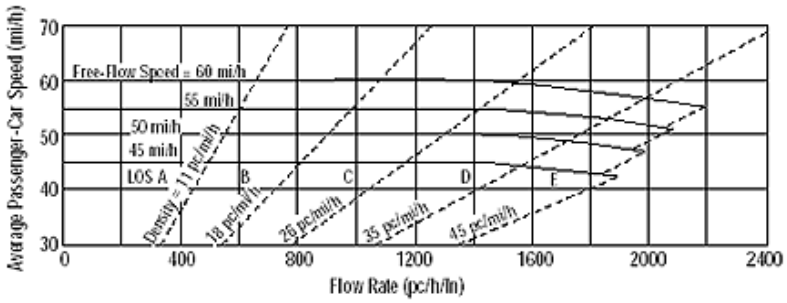
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	764	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	407
Speed, S (mi/h)	48.8
D (pc/mi/ln)	8.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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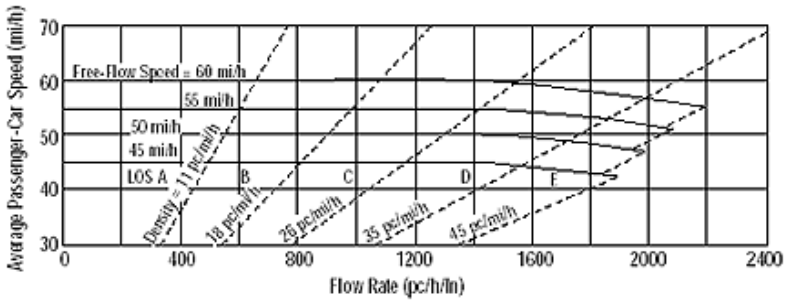
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1725	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	920
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.9
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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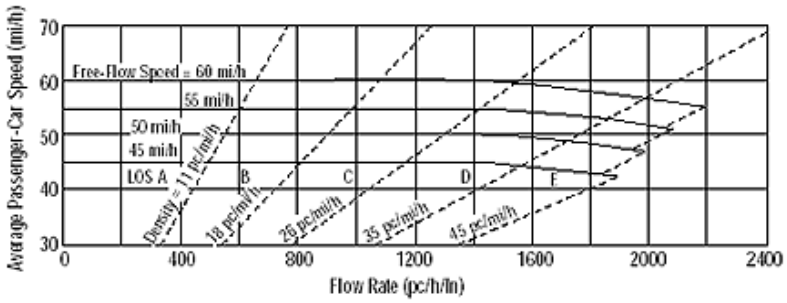
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	2077	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1108
Speed, S (mi/h)	48.8
D (pc/mi/ln)	22.7
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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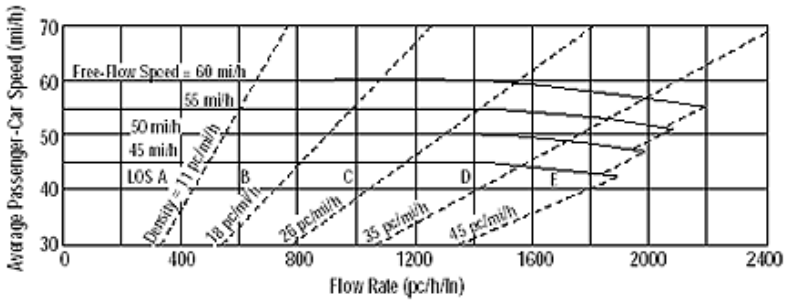
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1309	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	698
Speed, S (mi/h)	48.8
D (pc/mi/ln)	14.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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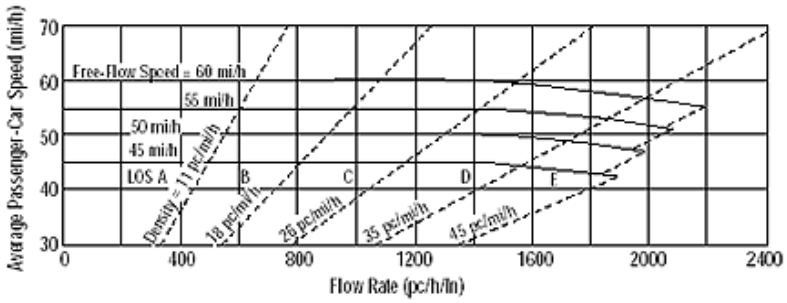
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1193	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	636
Speed, S (mi/h)	48.8
D (pc/mi/ln)	13.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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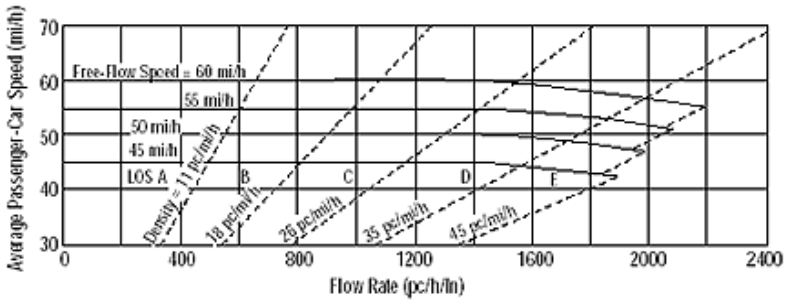
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1726	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	921
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.9
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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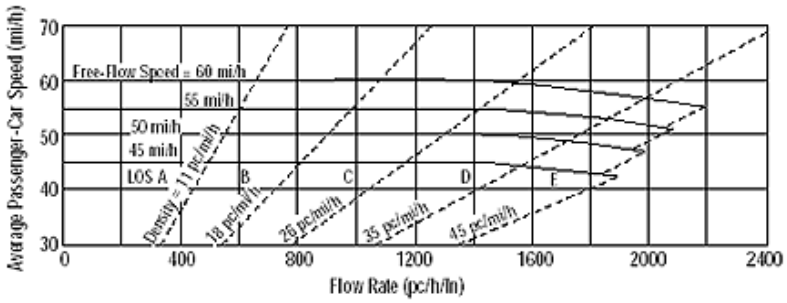
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	764	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	407
Speed, S (mi/h)	48.8
D (pc/mi/ln)	8.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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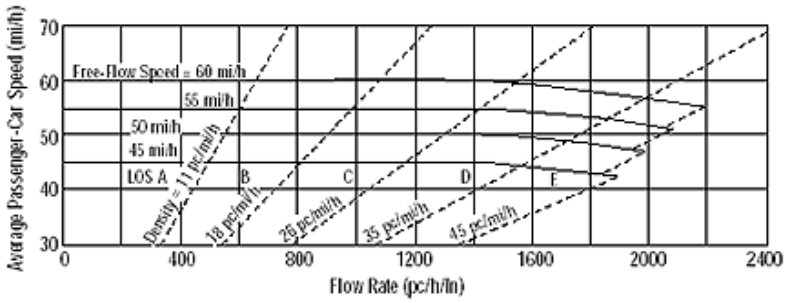
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1742	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	929
Speed, S (mi/h)	48.8
D (pc/mi/ln)	19.1
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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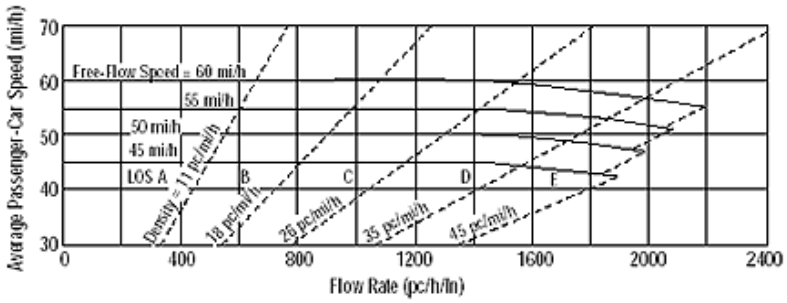
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	2077	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1108
Speed, S (mi/h)	48.8
D (pc/mi/ln)	22.7
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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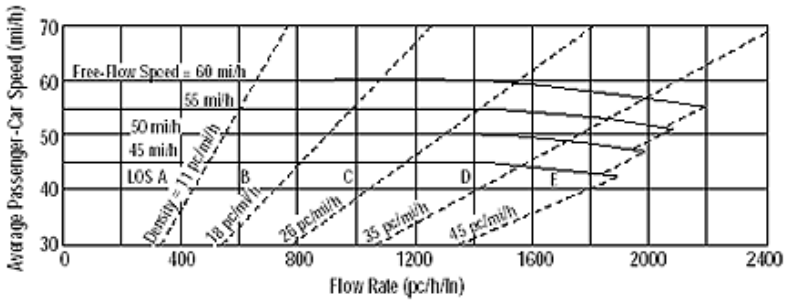
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1347	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	718
Speed, S (mi/h)	48.8
D (pc/mi/ln)	14.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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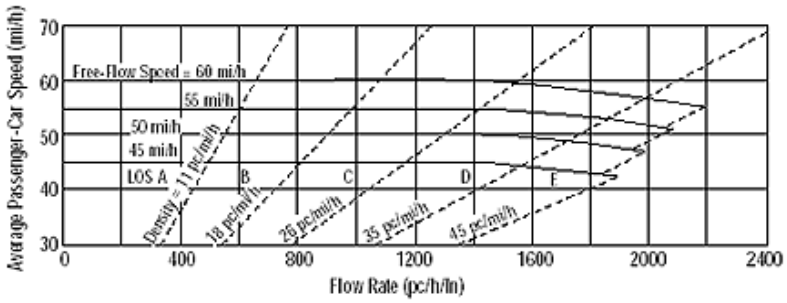
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1193	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	636
Speed, S (mi/h)	48.8
D (pc/mi/ln)	13.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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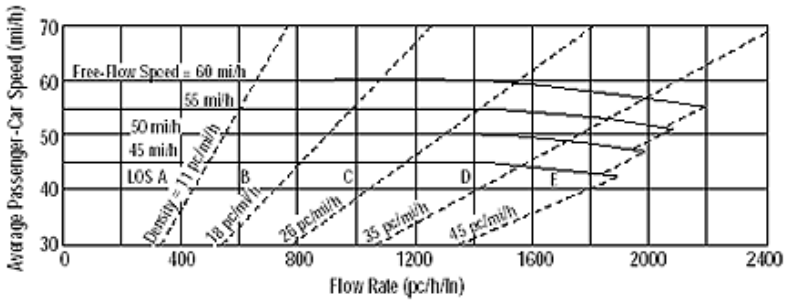
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1780	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	949
Speed, S (mi/h)	48.8
D (pc/mi/ln)	19.5
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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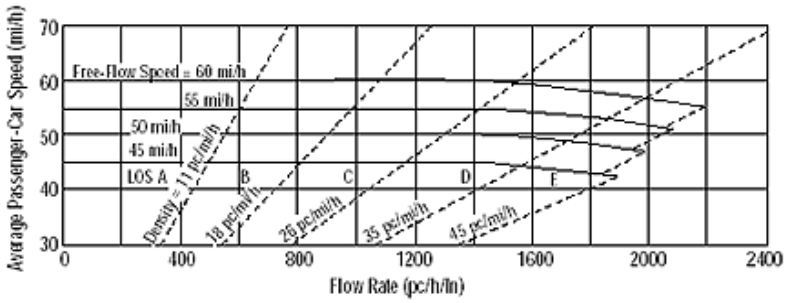
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	521	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	278
Speed, S (mi/h)	48.8
D (pc/mi/ln)	5.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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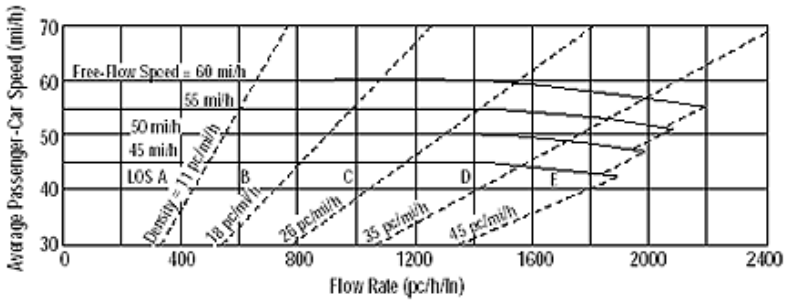
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1156	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	616
Speed, S (mi/h)	48.8
D (pc/mi/ln)	12.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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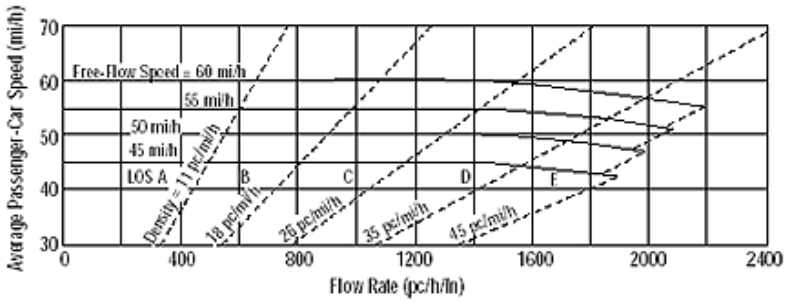
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1328	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	708
Speed, S (mi/h)	48.8
D (pc/mi/ln)	14.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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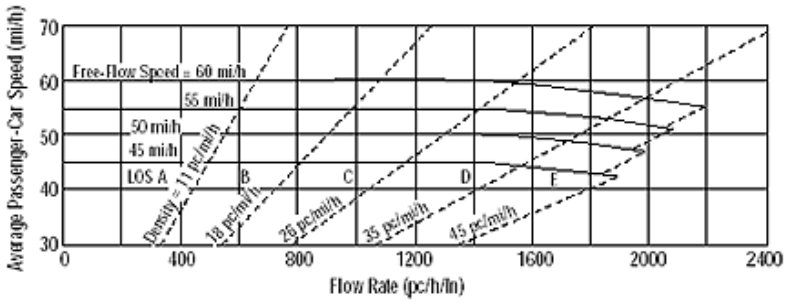
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	905	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	482
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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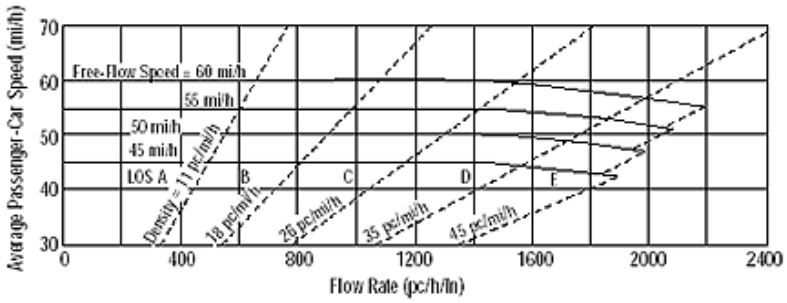
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	816	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	435
Speed, S (mi/h)	48.8
D (pc/mi/ln)	8.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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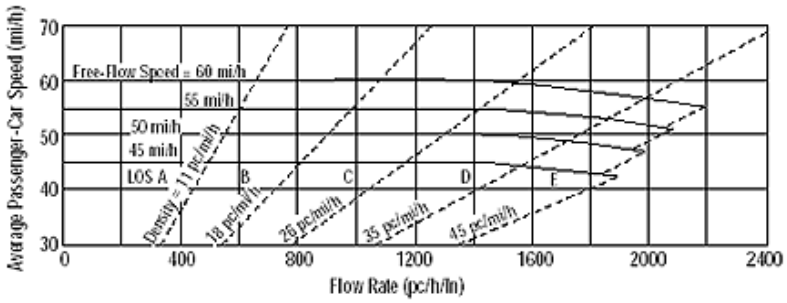
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1321	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	704
Speed, S (mi/h)	48.8
D (pc/mi/ln)	14.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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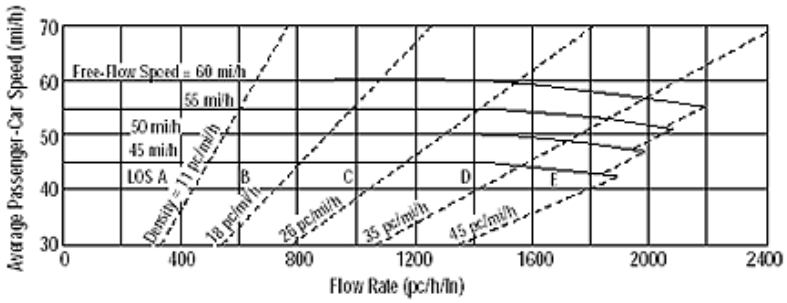
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	529	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	282
Speed, S (mi/h)	48.8
D (pc/mi/ln)	5.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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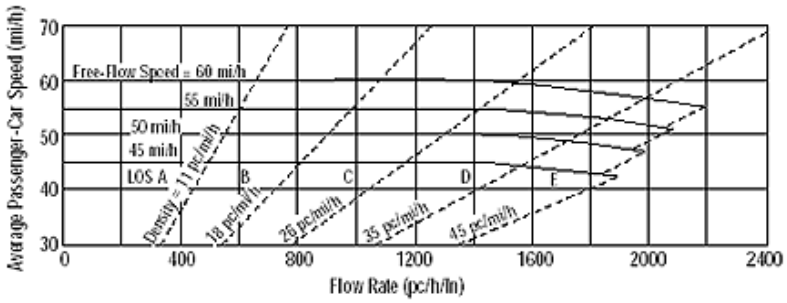
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2015 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1151	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	614
Speed, S (mi/h)	48.8
D (pc/mi/ln)	12.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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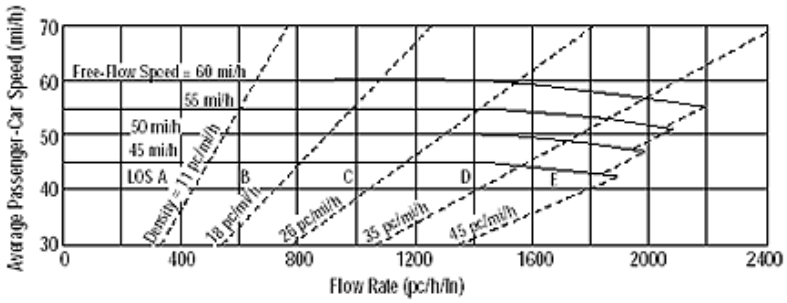
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1348	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	719
Speed, S (mi/h)	48.8
D (pc/mi/ln)	14.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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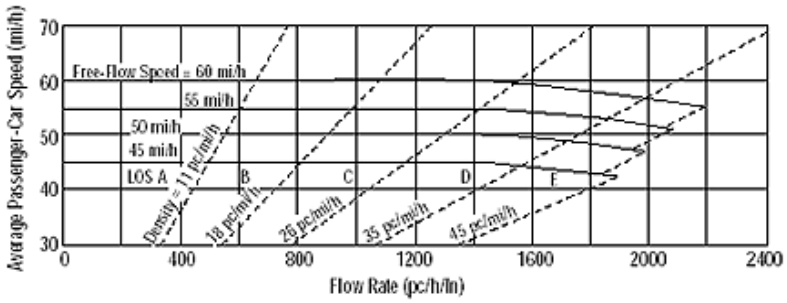
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2015 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	892	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	476
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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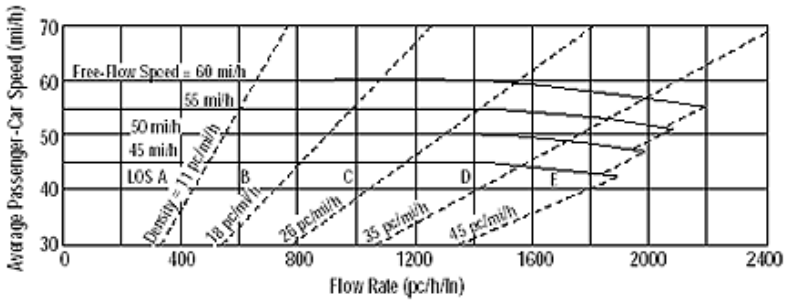
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	830	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	442
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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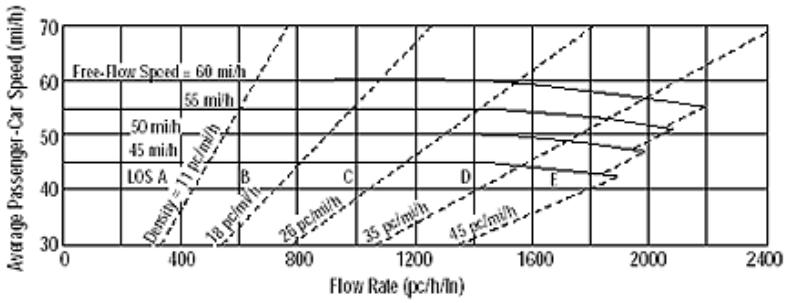
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2015 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2015 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1311	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	699
Speed, S (mi/h)	48.8
D (pc/mi/ln)	14.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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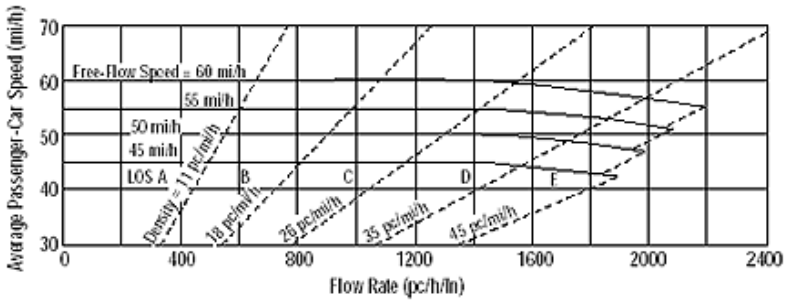
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1494	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	757
Speed, S (mi/h)	48.8
D (pc/mi/ln)	15.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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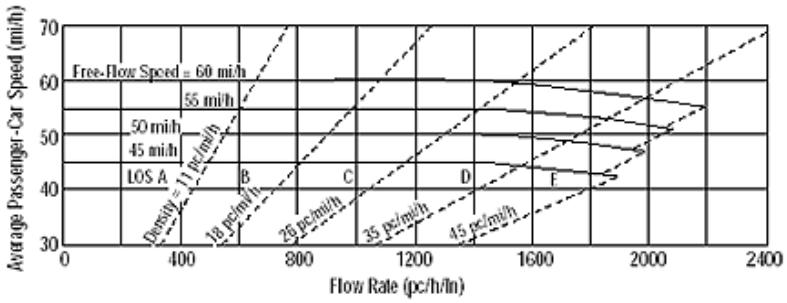
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	2355	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1193
Speed, S (mi/h)	48.8
D (pc/mi/ln)	24.5
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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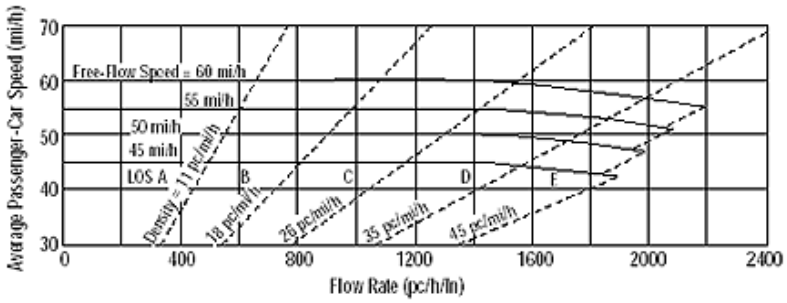
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	2325	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1178
Speed, S (mi/h)	48.8
D (pc/mi/ln)	24.2
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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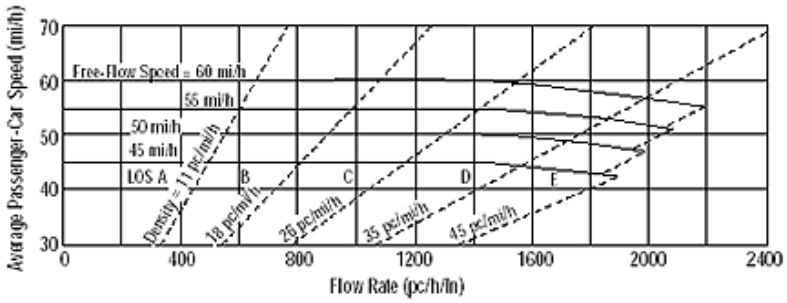
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1606	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	814
Speed, S (mi/h)	48.8
D (pc/mi/ln)	16.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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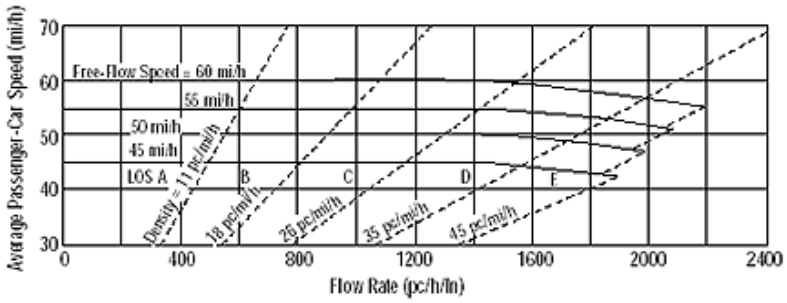
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1248	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	632
Speed, S (mi/h)	48.8
D (pc/mi/ln)	13.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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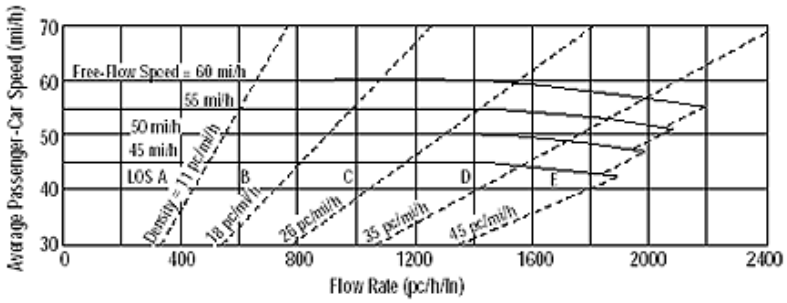
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #1
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1684	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	853
Speed, S (mi/h)	48.8
D (pc/mi/ln)	17.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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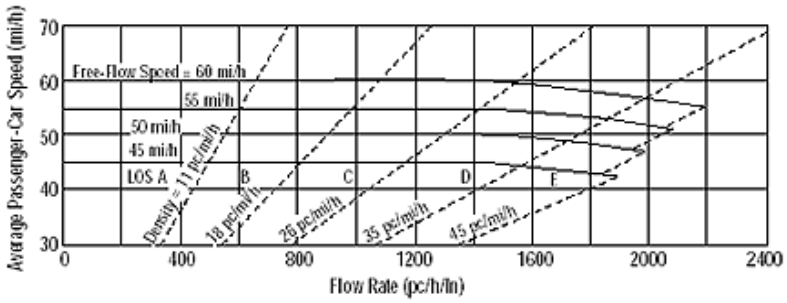
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1612	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	3

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	544
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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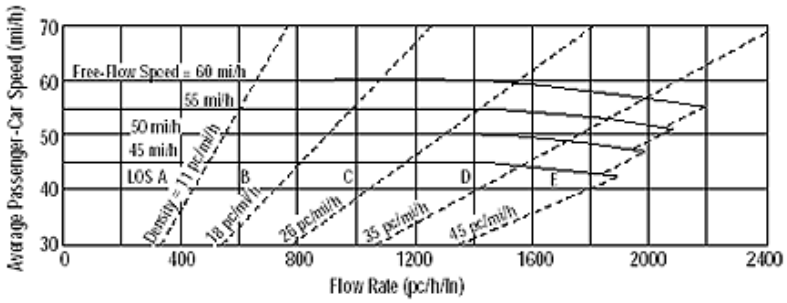
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	3029	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1535
Speed, S (mi/h)	48.3
D (pc/mi/ln)	31.8
LOS	D

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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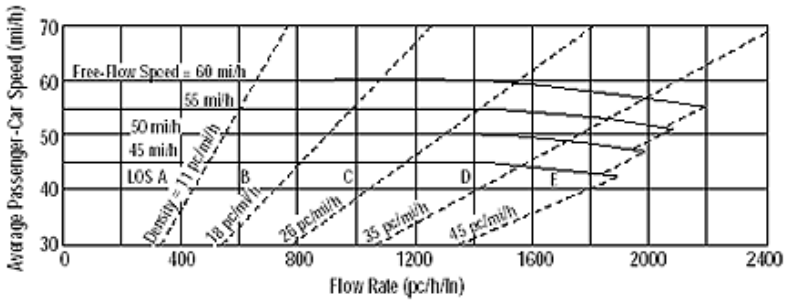
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	2960	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	3

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1000
Speed, S (mi/h)	48.8
D (pc/mi/ln)	20.5
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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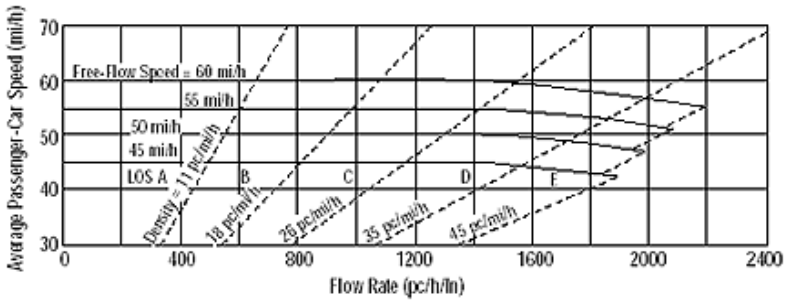
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1529	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	775
Speed, S (mi/h)	48.8
D (pc/mi/ln)	15.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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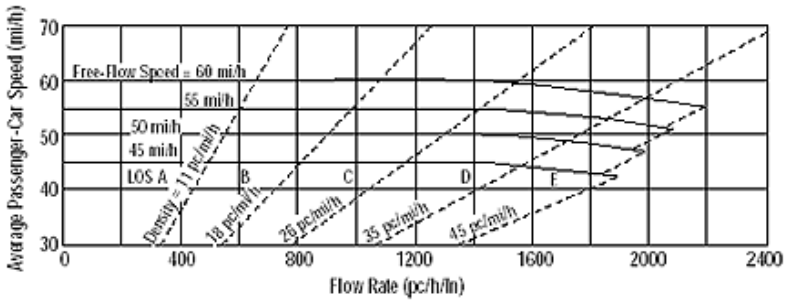
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1458	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	3

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	492
Speed, S (mi/h)	48.8
D (pc/mi/ln)	10.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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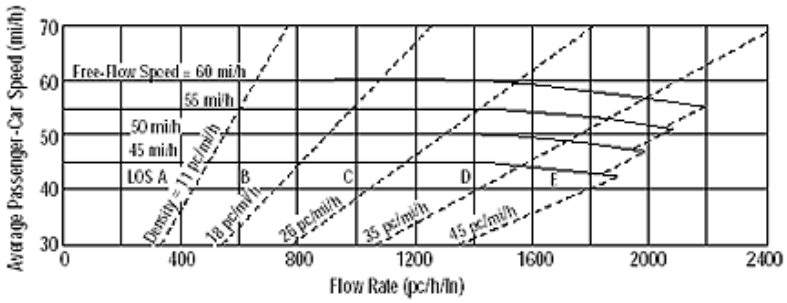
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #2
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1684	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	853
Speed, S (mi/h)	48.8
D (pc/mi/ln)	17.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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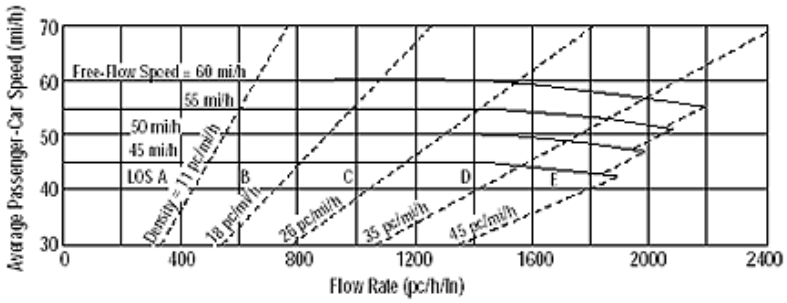
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1143	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	579
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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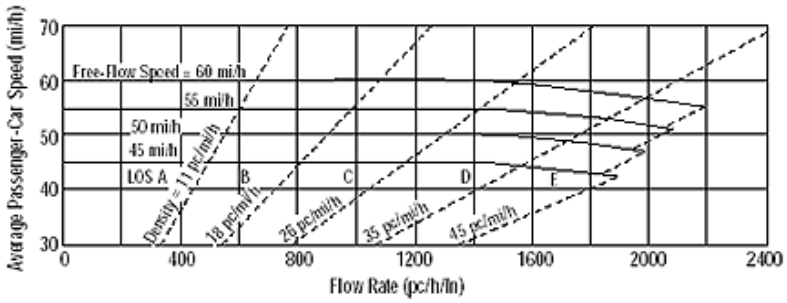
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	290	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	147
Speed, S (mi/h)	48.8
D (pc/mi/ln)	3.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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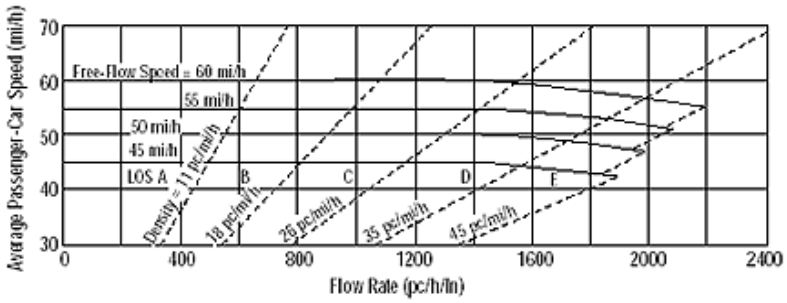
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	514	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	260
Speed, S (mi/h)	48.8
D (pc/mi/ln)	5.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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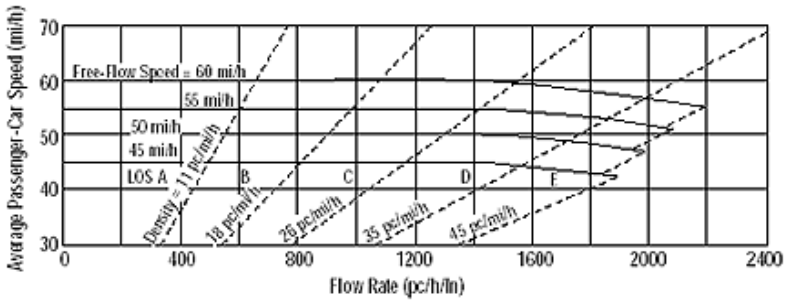
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1412	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	715
Speed, S (mi/h)	48.8
D (pc/mi/ln)	14.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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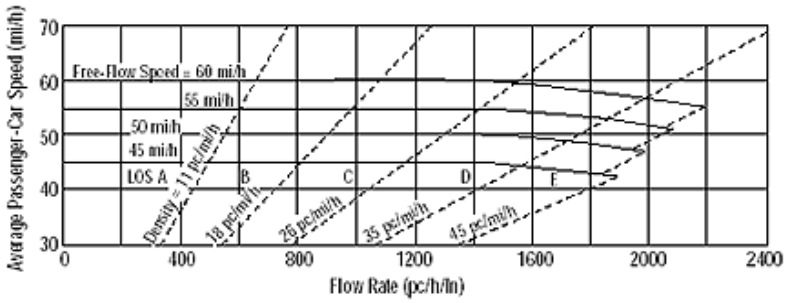
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	699	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	354
Speed, S (mi/h)	48.8
D (pc/mi/ln)	7.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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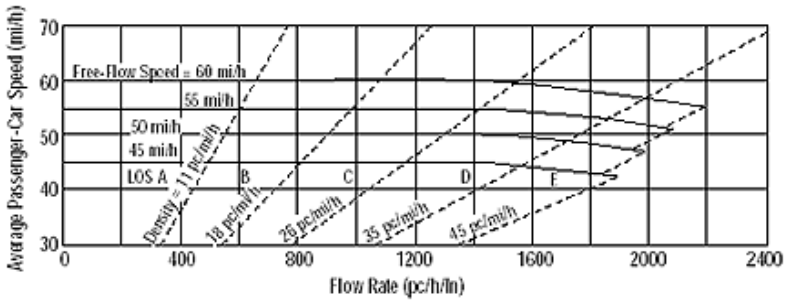
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	North of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	525	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	266
Speed, S (mi/h)	48.8
D (pc/mi/ln)	5.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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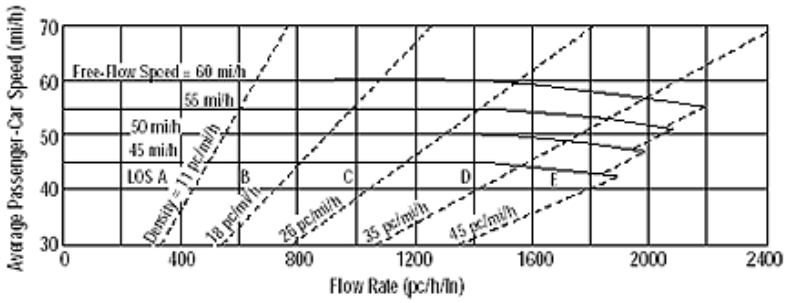
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1125	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	570
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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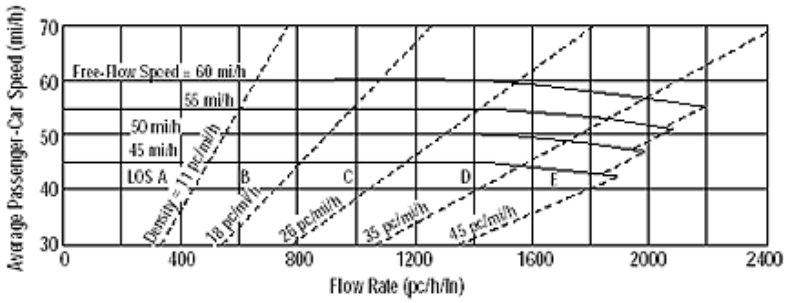
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1005	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	509
Speed, S (mi/h)	48.8
D (pc/mi/ln)	10.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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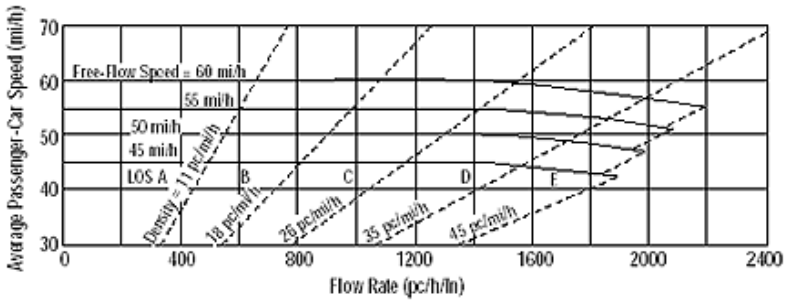
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1088	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	551
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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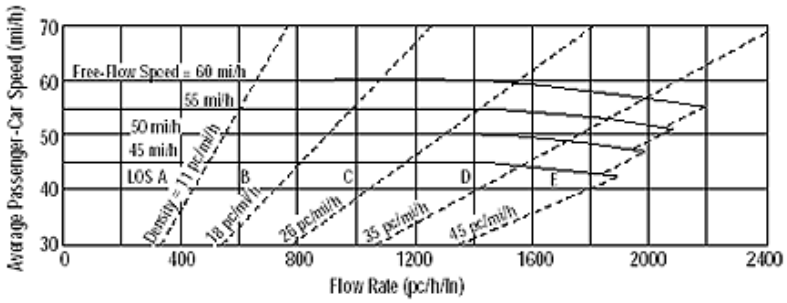
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1402	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	710
Speed, S (mi/h)	48.8
D (pc/mi/ln)	14.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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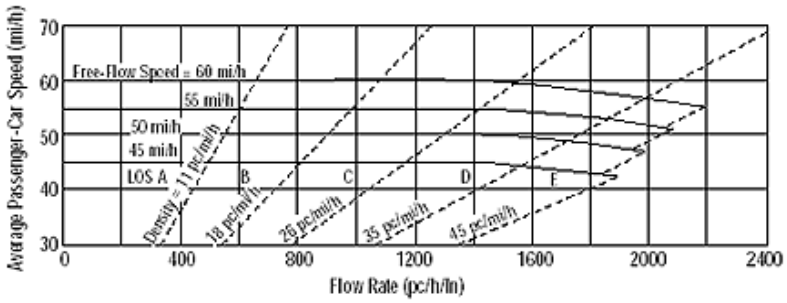
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	901	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	456
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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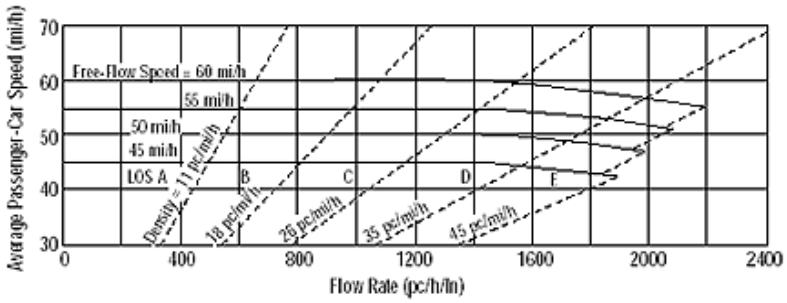
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #3
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	760	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	385
Speed, S (mi/h)	48.8
D (pc/mi/ln)	7.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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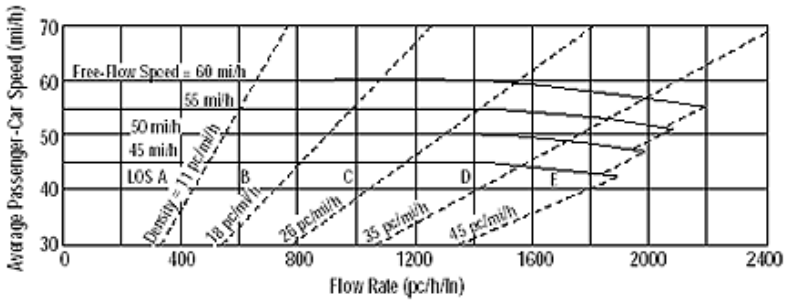
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1312	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	665
Speed, S (mi/h)	48.8
D (pc/mi/ln)	13.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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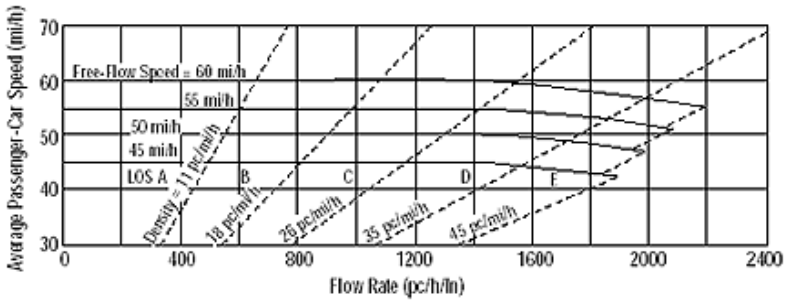
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1685	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	854
Speed, S (mi/h)	48.8
D (pc/mi/ln)	17.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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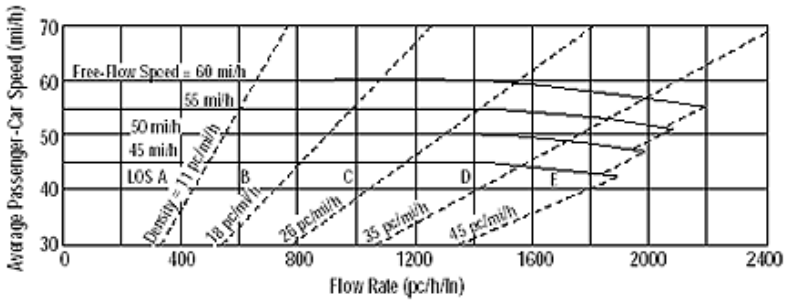
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1712	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	867
Speed, S (mi/h)	48.8
D (pc/mi/ln)	17.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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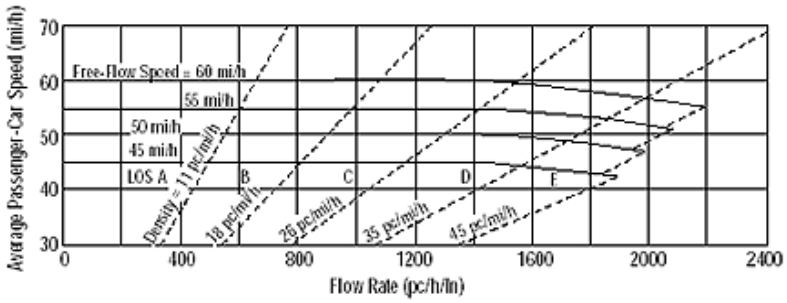
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1529	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	775
Speed, S (mi/h)	48.8
D (pc/mi/ln)	15.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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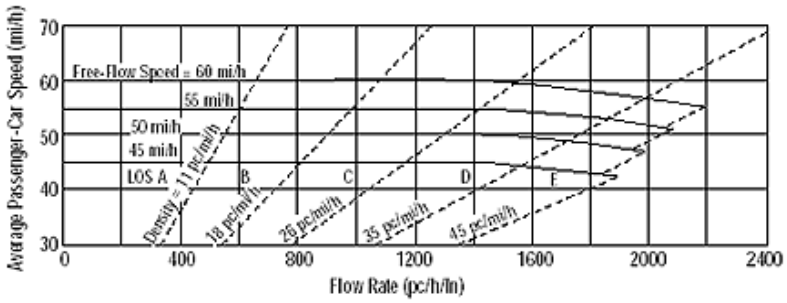
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1145	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	580
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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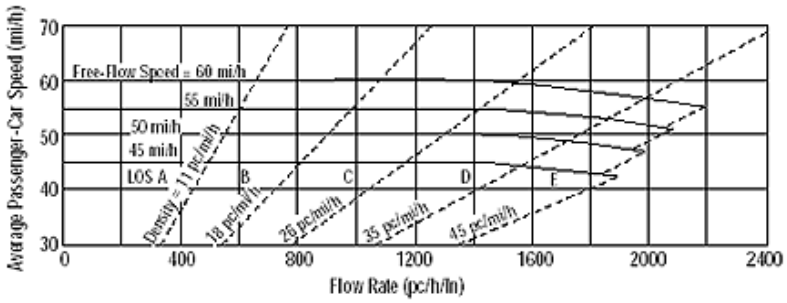
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #4
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1107	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	561
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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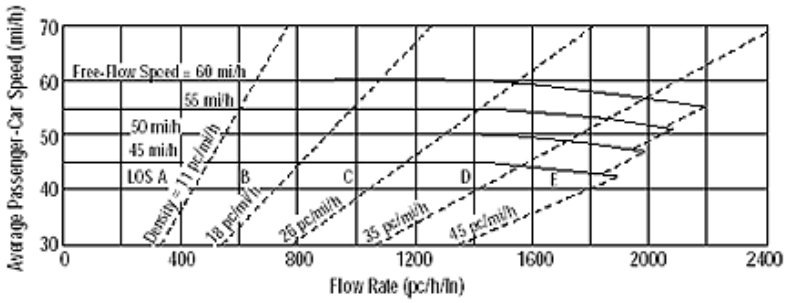
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1281	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	649
Speed, S (mi/h)	48.8
D (pc/mi/ln)	13.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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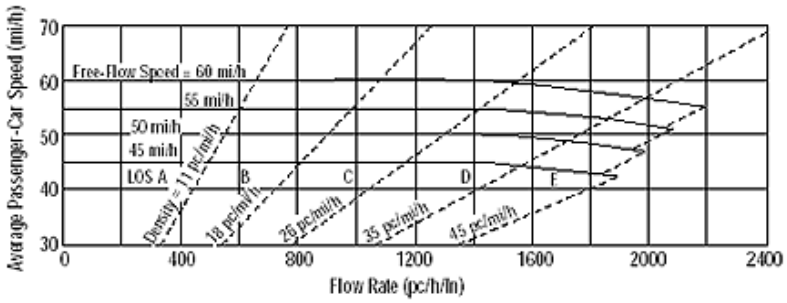
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	3029	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1535
Speed, S (mi/h)	48.3
D (pc/mi/ln)	31.8
LOS	D

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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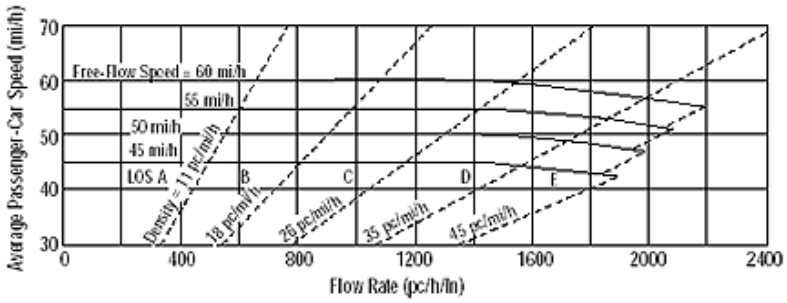
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	3317	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1681
Speed, S (mi/h)	47.5
D (pc/mi/ln)	35.4
LOS	E

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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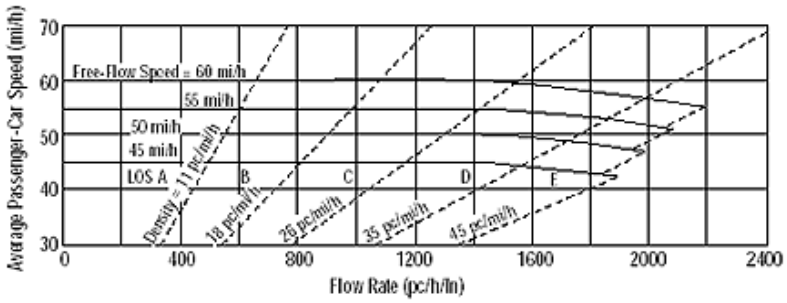
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1663	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	843
Speed, S (mi/h)	48.8
D (pc/mi/ln)	17.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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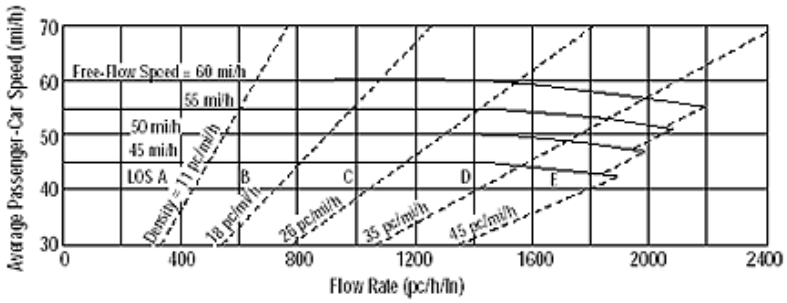
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1464	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	742
Speed, S (mi/h)	48.8
D (pc/mi/ln)	15.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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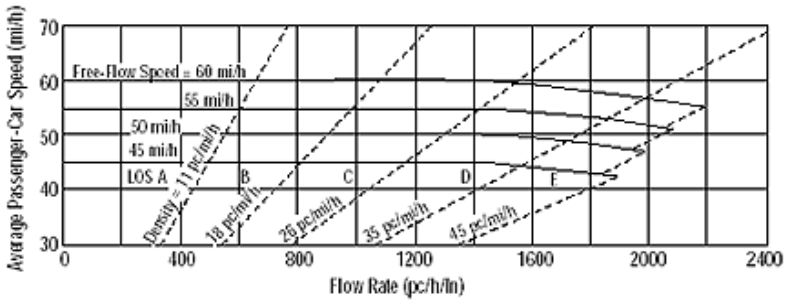
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #5
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1984	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1005
Speed, S (mi/h)	48.8
D (pc/mi/ln)	20.6
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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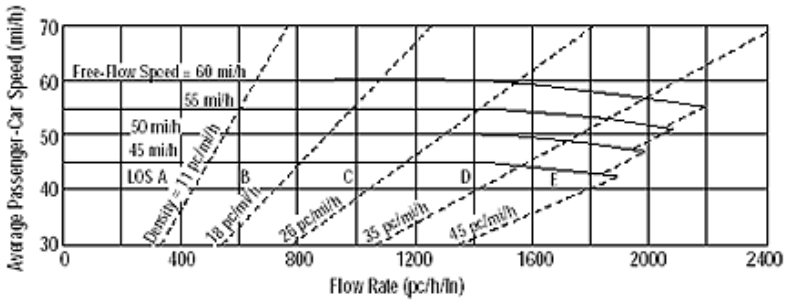
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	955	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	484
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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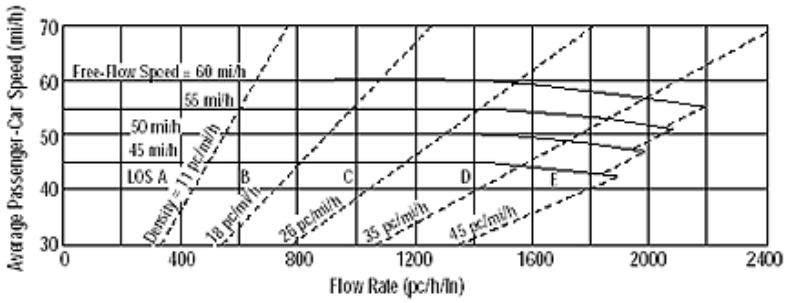
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	3035	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1538
Speed, S (mi/h)	48.2
D (pc/mi/ln)	31.9
LOS	D

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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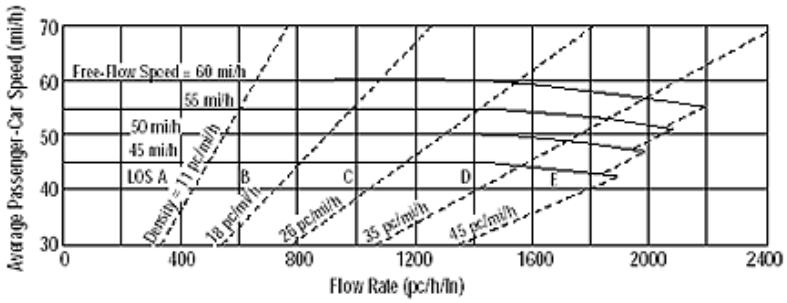
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	3683	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1867
Speed, S (mi/h)	46.2
D (pc/mi/ln)	40.4
LOS	E

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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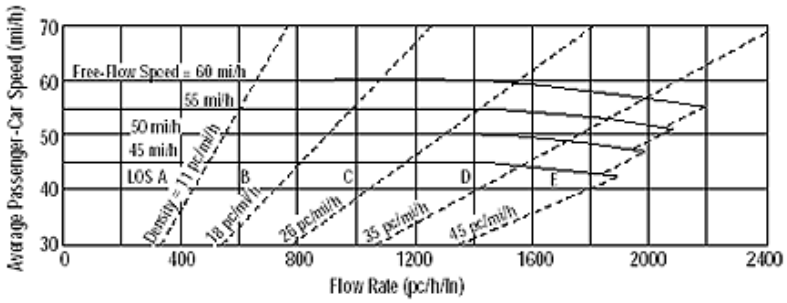
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1674	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	848
Speed, S (mi/h)	48.8
D (pc/mi/ln)	17.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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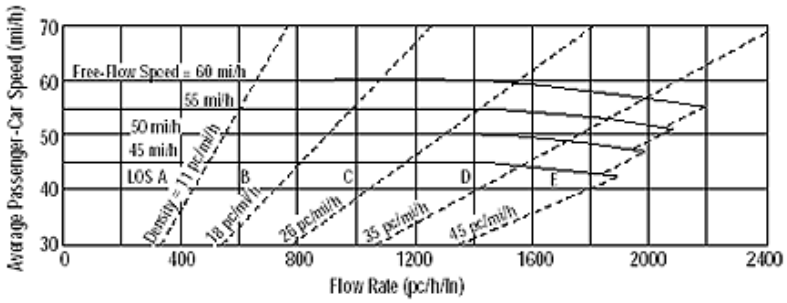
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1489	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	754
Speed, S (mi/h)	48.8
D (pc/mi/ln)	15.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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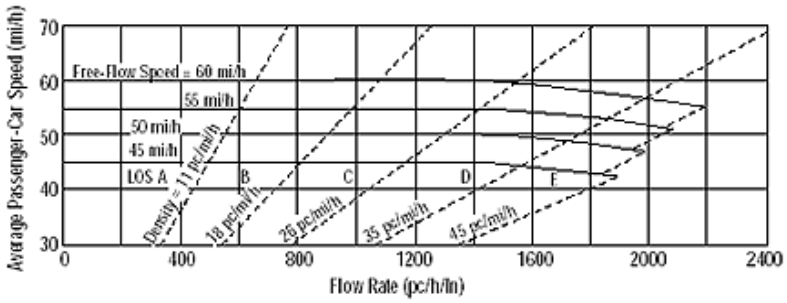
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #6
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1984	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1005
Speed, S (mi/h)	48.8
D (pc/mi/ln)	20.6
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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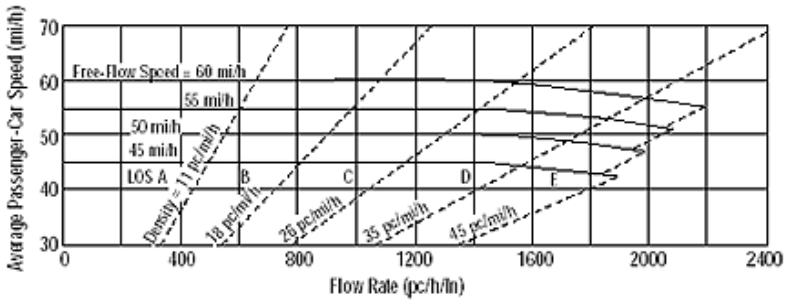
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	956	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	484
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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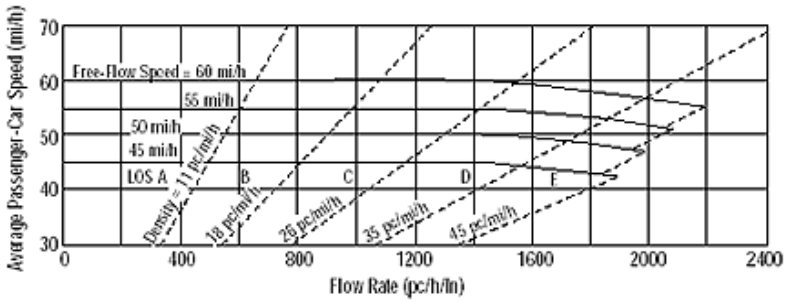
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	3056	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1549
Speed, S (mi/h)	48.2
D (pc/mi/ln)	32.1
LOS	D

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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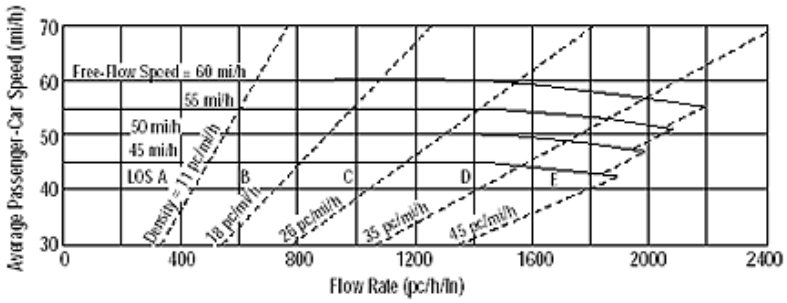
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	3683	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1867
Speed, S (mi/h)	46.2
D (pc/mi/ln)	40.4
LOS	E

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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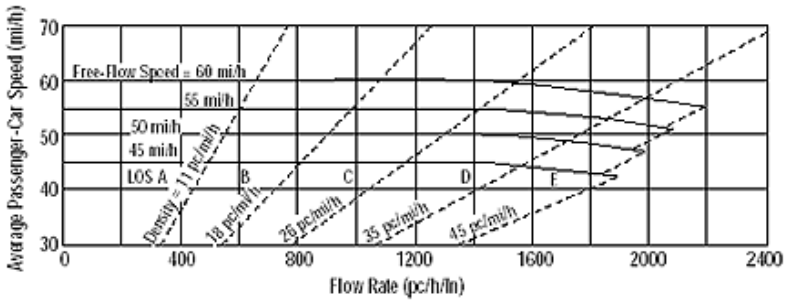
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1720	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	872
Speed, S (mi/h)	48.8
D (pc/mi/ln)	17.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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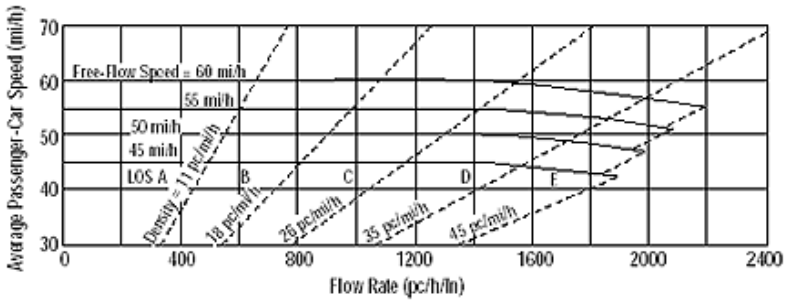
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1489	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	754
Speed, S (mi/h)	48.8
D (pc/mi/ln)	15.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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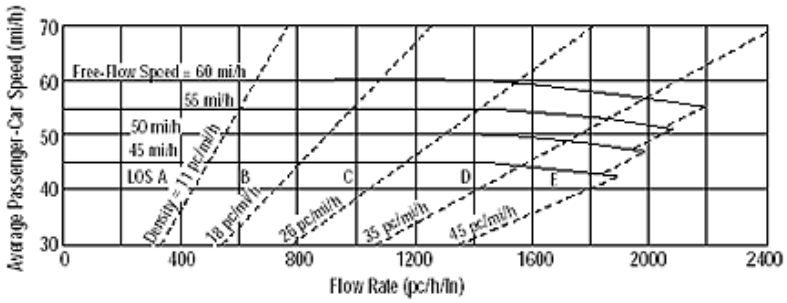
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #7
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	2069	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1048
Speed, S (mi/h)	48.8
D (pc/mi/ln)	21.5
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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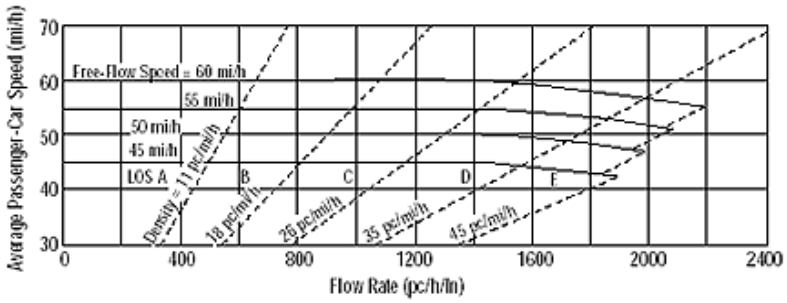
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	956	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	484
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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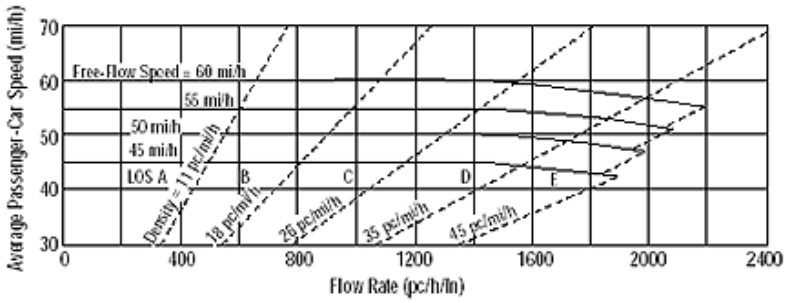
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	3075	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1559
Speed, S (mi/h)	48.1
D (pc/mi/ln)	32.4
LOS	D

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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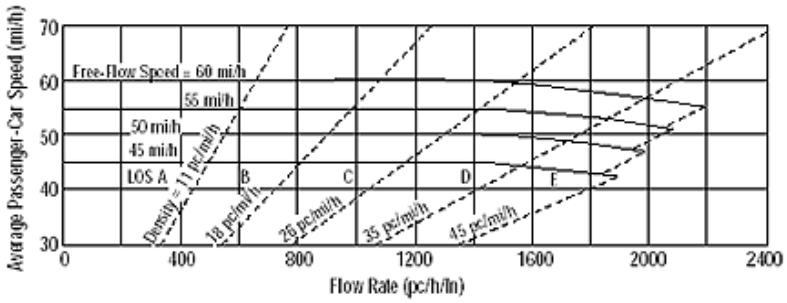
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	3683	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1867
Speed, S (mi/h)	46.2
D (pc/mi/ln)	40.4
LOS	E

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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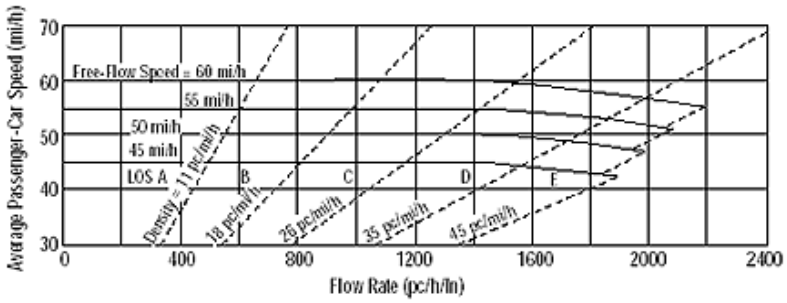
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1765	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	894
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.3
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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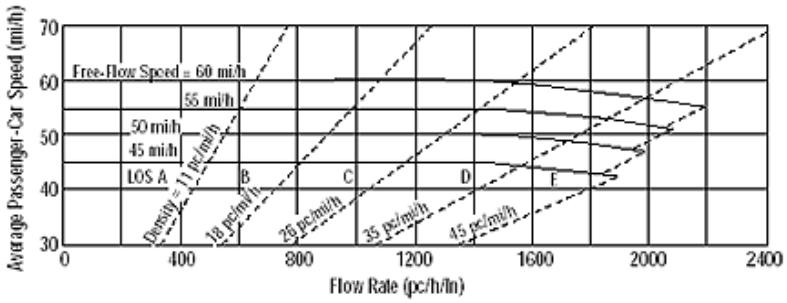
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1489	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	754
Speed, S (mi/h)	48.8
D (pc/mi/ln)	15.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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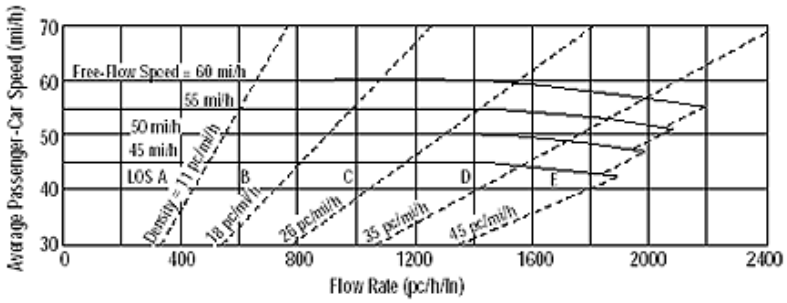
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #8
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	2133	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1081
Speed, S (mi/h)	48.8
D (pc/mi/ln)	22.2
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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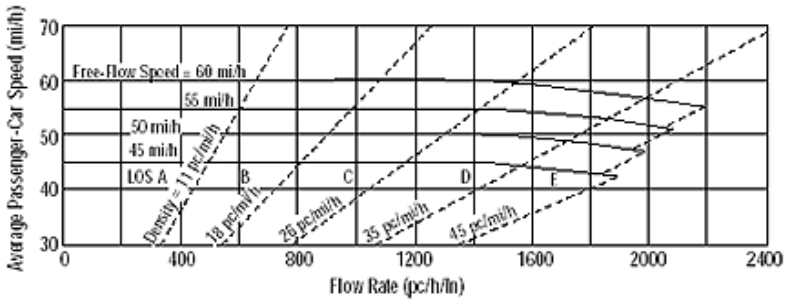
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	540	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	273
Speed, S (mi/h)	48.8
D (pc/mi/ln)	5.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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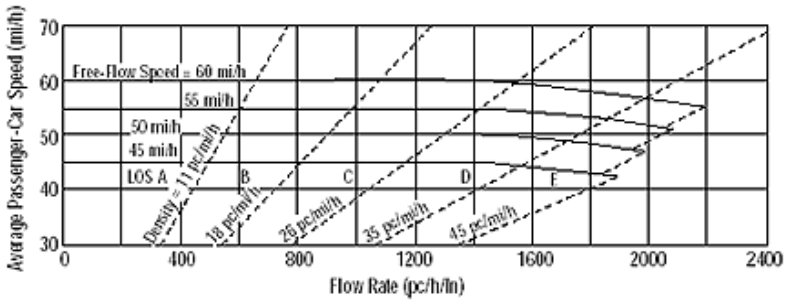
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1794	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	909
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.6
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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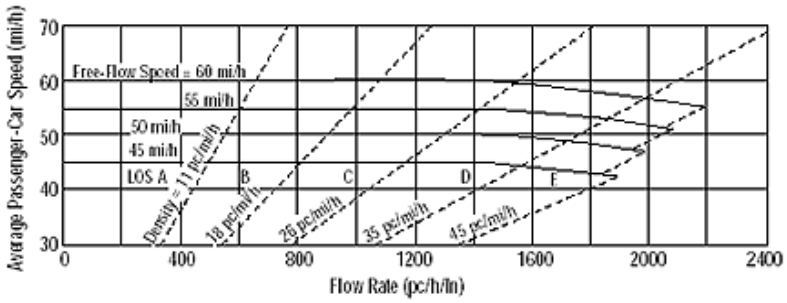
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	2069	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1048
Speed, S (mi/h)	48.8
D (pc/mi/ln)	21.5
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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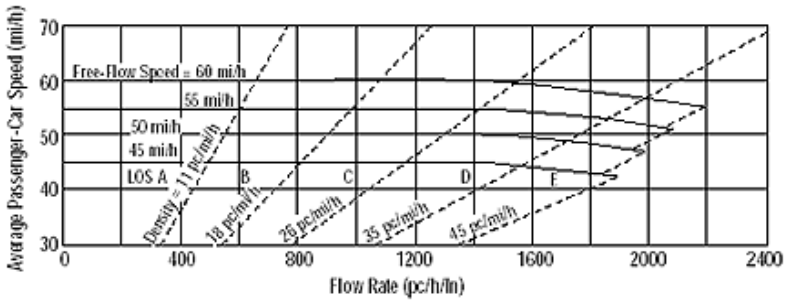
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	940	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	476
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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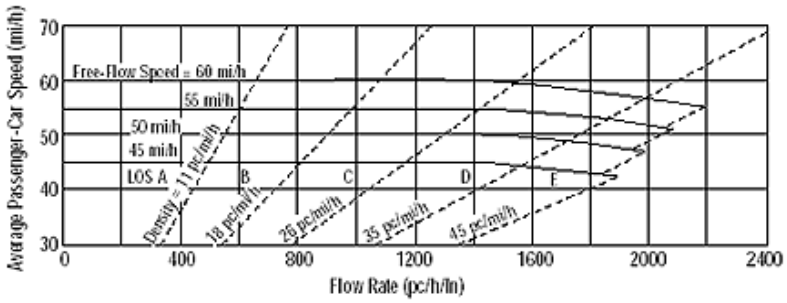
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	751	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	380
Speed, S (mi/h)	48.8
D (pc/mi/ln)	7.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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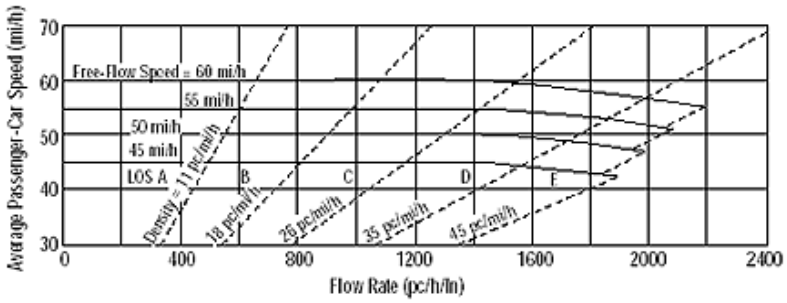
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #9
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1119	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	567
Speed, S (mi/h)	48.8
D (pc/mi/ln)	11.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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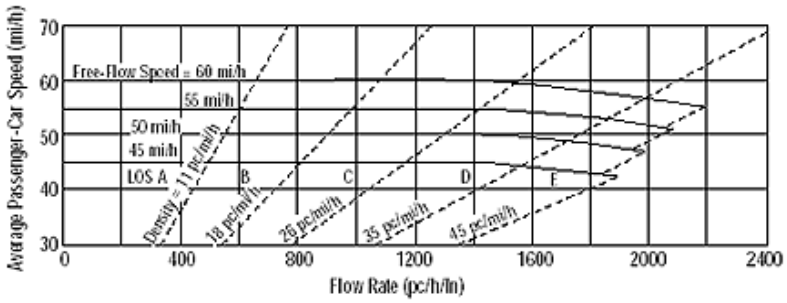
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	547	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	277
Speed, S (mi/h)	48.8
D (pc/mi/ln)	5.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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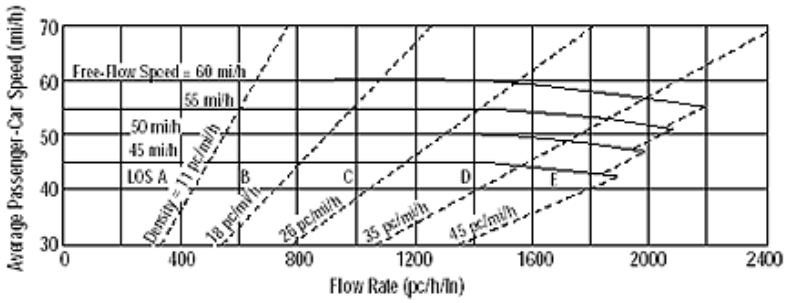
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 AM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2025 AM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1789	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	907
Speed, S (mi/h)	48.8
D (pc/mi/ln)	18.6
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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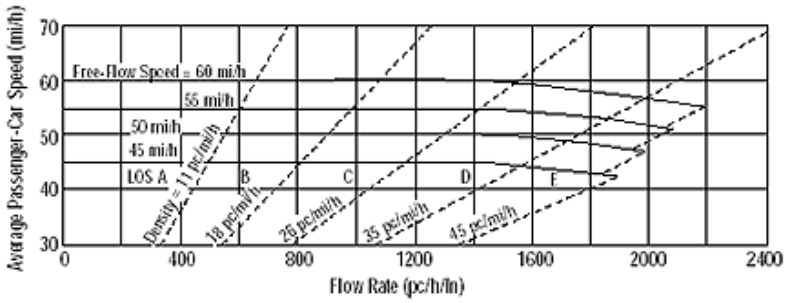
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1899	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	962
Speed, S (mi/h)	48.8
D (pc/mi/ln)	19.7
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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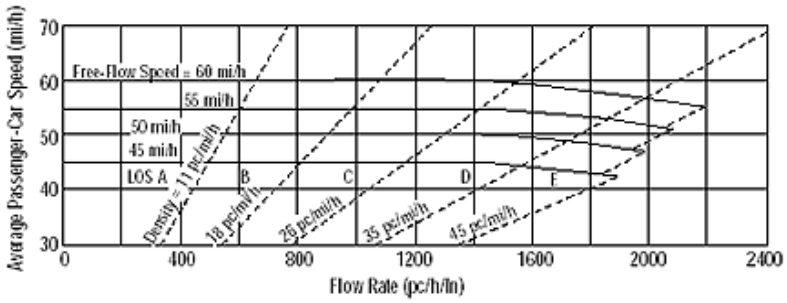
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 PM

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2025 PM

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	740	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	375
Speed, S (mi/h)	48.8
D (pc/mi/ln)	7.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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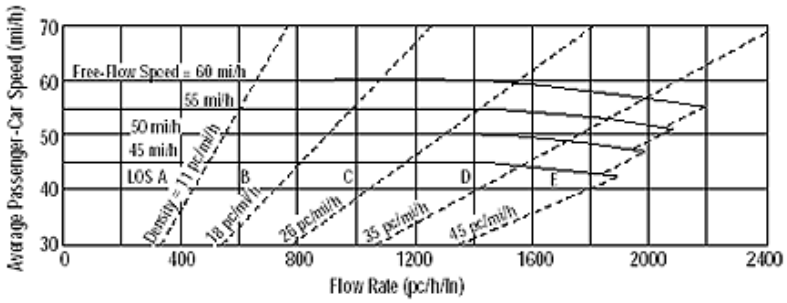
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	709	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	359
Speed, S (mi/h)	48.8
D (pc/mi/ln)	7.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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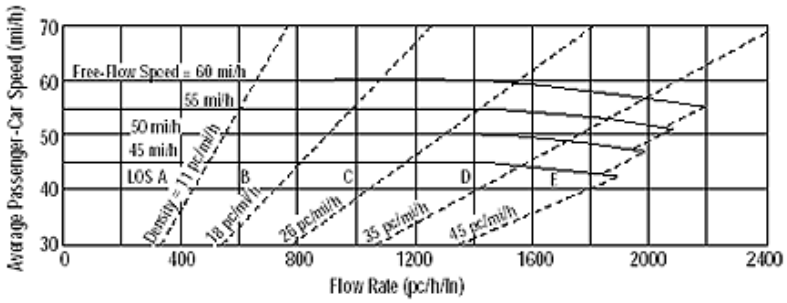
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



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

General Information

Analyst	AG
Agency or Company	Gorove Slade
Date Performed	4/13/2009
Analysis Time Period	2025 Sat

Site Information

Highway/Direction to Travel	Pacific Boulevard
From/To	South of Drive #10
Jurisdiction	Loudoun County
Analysis Year	2025 Sat

Project Description 2041-002 Kincora Development

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	948	Peak-Hour Factor, PHF	1.00
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.986

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	5
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.3
f_M (mi/h)	0.0
FFS (mi/h)	48.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	480
Speed, S (mi/h)	48.8
D (pc/mi/ln)	9.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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CAPACITY ANALYSIS RESULTS FOR SUPPLEMENTAL ANALYSIS

HCM Signalized Intersection Capacity Analysis — Kincora

1: Route 7 & Janelia Farm Blvd. — Existing Conditions (2008)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4940	1583	3433	4940	1583	1681	1744	1583	3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4940	1583	3433	4940	1583	1681	1744	1583	3433	1863	1583
Volume (vph)	15	2504	116	181	1555	302	136	67	262	660	211	3
Peak-hour factor, PHF	0.75	0.95	0.81	0.79	0.93	0.81	0.81	0.70	0.86	0.83	0.89	0.38
Adj. Flow (vph)	20	2636	143	229	1672	373	168	96	305	795	237	8
RTOR Reduction (vph)	0	0	0	0	0	119	0	0	3	0	0	7
Lane Group Flow (vph)	20	2636	143	229	1672	254	129	135	302	795	237	1
Heavy Vehicles (%)	2%	5%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Free	Prot		Perm	Split		pm+ov	Split		pm+ov
Protected Phases	1	6		5	2		4	4	5	3	3	1
Permitted Phases			Free			2			4			3
Actuated Green, G (s)	3.0	126.0	200.0	9.0	132.0	132.0	25.0	25.0	34.0	12.0	12.0	15.0
Effective Green, g (s)	7.0	130.0	200.0	13.0	136.0	136.0	29.0	29.0	42.0	16.0	16.0	23.0
Actuated g/C Ratio	0.04	0.65	1.00	0.06	0.68	0.68	0.14	0.14	0.21	0.08	0.08	0.12
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	2.0	2.0	3.0	3.0	2.0
Lane Grp Cap (vph)	120	3211	1583	223	3359	1076	244	253	356	275	149	182
v/s Ratio Prot	0.01	c0.53		c0.07	0.34		0.08	0.08	c0.06	c0.23	0.13	0.00
v/s Ratio Perm			0.09			0.16			0.14			0.00
v/c Ratio	0.17	0.82	0.09	1.03	0.50	0.24	0.53	0.53	0.85	2.89	1.59	0.01
Uniform Delay, d1	93.7	26.3	0.0	93.5	15.5	12.2	79.2	79.2	75.9	92.0	92.0	78.4
Progression Factor	1.00	1.00	1.00	0.70	0.82	3.66	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	2.5	0.1	61.1	0.4	0.4	1.0	1.1	16.2	860.8	295.1	0.0
Delay (s)	93.9	28.8	0.1	126.5	13.2	45.0	80.1	80.3	92.1	952.8	387.1	78.4
Level of Service	F	C	A	F	B	D	F	F	F	F	F	E
Approach Delay (s)		27.8			29.8			86.6			817.2	
Approach LOS		C			C			F			F	

Intersection Summary

HCM Average Control Delay	156.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

2: Route 7 & Smith Circle — Existing Conditions (2008)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00		0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		0.97	
Satd. Flow (prot)	1770	4940	1583	3433	4940	1583		1770	1583		1762	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		0.97	
Satd. Flow (perm)	1770	4940	1583	3433	4940	1583		1770	1583		1762	
Volume (vph)	41	3373	12	143	2033	2	0	161	932	13	7	5
Peak-hour factor, PHF	0.31	0.92	0.75	0.95	0.92	0.50	0.25	0.44	0.70	0.41	0.88	0.63
Adj. Flow (vph)	132	3666	16	151	2210	4	0	366	1331	32	8	8
RTOR Reduction (vph)	0	0	5	0	0	1	0	0	0	0	4	0
Lane Group Flow (vph)	132	3666	11	151	2210	3	0	366	1331	0	44	0
Heavy Vehicles (%)	2%	5%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Split		Free	Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			Free			
Actuated Green, G (s)	10.0	139.1	139.1	10.0	139.1	139.1		14.4	200.0		8.0	
Effective Green, g (s)	14.0	143.6	143.6	14.0	143.6	143.6		18.4	200.0		12.0	
Actuated g/C Ratio	0.07	0.72	0.72	0.07	0.72	0.72		0.09	1.00		0.06	
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5	7.5		7.0			7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	124	3547	1137	240	3547	1137		163	1583		106	
v/s Ratio Prot	c0.07	c0.74		0.04	0.45			c0.21			0.03	
v/s Ratio Perm			0.01			0.00			c0.84			
v/c Ratio	1.06	1.03	0.01	0.63	0.62	0.00		2.25	0.84		0.42	
Uniform Delay, d1	93.0	28.2	8.0	90.5	14.4	8.0		90.8	0.0		90.6	
Progression Factor	1.12	1.15	0.68	0.99	1.16	0.73		1.00	1.00		1.00	
Incremental Delay, d2	43.4	16.4	0.0	4.1	0.7	0.0		579.7	5.6		2.6	
Delay (s)	147.4	48.7	5.4	93.6	17.3	5.8		670.5	5.6		93.3	
Level of Service	F	D	A	F	B	A		F	A		F	
Approach Delay (s)		52.0			22.2			149.0			93.3	
Approach LOS		D			C			F			F	

Intersection Summary

HCM Average Control Delay	64.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4940	1583	3433	4940	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	4940	1583	3433	4940	1583	1770	1863	1583	3433	1863	1583
Volume (vph)	163	3863	292	96	1991	11	79	83	253	19	47	108
Peak-hour factor, PHF	0.72	0.85	0.43	0.75	0.94	0.69	0.86	0.61	0.90	0.59	0.73	0.96
Adj. Flow (vph)	226	4545	679	128	2118	16	92	136	281	32	64	112
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	0	0	0	90
Lane Group Flow (vph)	226	4545	679	128	2118	11	92	136	281	32	64	22
Heavy Vehicles (%)	2%	5%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Free	Prot		Perm	Prot		Free	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			Free			2			Free			4
Actuated Green, G (s)	17.0	139.1	200.0	10.0	132.1	132.1	10.0	13.4	200.0	8.0	11.4	11.4
Effective Green, g (s)	21.0	143.6	200.0	14.0	136.6	136.6	14.0	18.4	200.0	12.0	16.4	16.4
Actuated g/C Ratio	0.10	0.72	1.00	0.07	0.68	0.68	0.07	0.09	1.00	0.06	0.08	0.08
Clearance Time (s)	7.0	7.5		7.0	7.5	7.5	7.0	8.0		7.0	8.0	8.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	186	3547	1583	240	3374	1081	124	171	1583	206	153	130
v/s Ratio Prot	c0.13	c0.92		0.04	0.43		c0.05	c0.07		0.01	0.03	
v/s Ratio Perm			c0.43			0.01			0.18			0.01
v/c Ratio	1.22	1.28	0.43	0.53	0.63	0.01	0.74	0.80	0.18	0.16	0.42	0.17
Uniform Delay, d1	89.5	28.2	0.0	89.8	17.6	10.1	91.2	89.0	0.0	89.2	87.3	85.5
Progression Factor	1.20	0.37	1.00	0.79	1.02	1.49	0.82	0.88	1.00	1.00	1.00	1.00
Incremental Delay, d2	116.0	127.6	0.4	0.9	0.7	0.0	18.1	20.0	0.2	0.1	0.7	0.2
Delay (s)	223.5	138.0	0.4	71.6	18.6	15.1	92.5	98.6	0.2	89.3	87.9	85.7
Level of Service	F	F	A	E	B	B	F	F	A	F	F	F
Approach Delay (s)		124.4			21.6			43.2			86.9	
Approach LOS		F			C			D			F	

Intersection Summary

HCM Average Control Delay	91.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.96	
Satd. Flow (prot)	1770	4940	1583	1770	4940	1583	1770	1676		1681	1677	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.96	
Satd. Flow (perm)	1770	4940	1583	1770	4940	1583	1770	1676		1681	1677	
Volume (vph)	40	4061	34	49	2085	249	4	1	4	442	3	9
Peak-hour factor, PHF	0.55	0.95	0.53	0.72	0.99	0.96	0.50	0.25	0.50	0.89	0.38	0.56
Adj. Flow (vph)	73	4275	64	68	2106	259	8	4	8	497	8	16
RTOR Reduction (vph)	0	0	15	0	0	93	0	8	0	0	1	0
Lane Group Flow (vph)	73	4275	49	68	2106	166	8	4	0	267	253	0
Heavy Vehicles (%)	2%	5%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Split			Split		
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases			6			2						
Actuated Green, G (s)	10.0	120.8	120.8	12.4	123.2	123.2	6.0	6.0		31.8	31.8	
Effective Green, g (s)	14.0	125.8	125.8	16.4	128.2	128.2	10.0	10.0		35.8	35.8	
Actuated g/C Ratio	0.07	0.63	0.63	0.08	0.64	0.64	0.05	0.05		0.18	0.18	
Clearance Time (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	124	3107	996	145	3167	1015	89	84		301	300	
v/s Ratio Prot	c0.04	c0.87		0.04	0.43		c0.00	0.00		c0.16	0.15	
v/s Ratio Perm			0.03			0.10						
v/c Ratio	0.59	1.38	0.05	0.47	0.66	0.16	0.09	0.05		0.89	0.84	
Uniform Delay, d1	90.2	37.1	14.2	87.6	22.5	14.4	90.7	90.5		80.1	79.4	
Progression Factor	1.24	0.26	0.10	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	169.4	0.0	2.4	1.1	0.3	0.4	0.3		25.3	19.0	
Delay (s)	112.5	179.0	1.4	90.0	23.6	14.7	91.1	90.7		105.5	98.4	
Level of Service	F	F	A	F	C	B	F	F		F	F	
Approach Delay (s)		175.3			24.5			90.9			102.0	
Approach LOS		F			C			F			F	

Intersection Summary

HCM Average Control Delay	120.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	104.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	287	2801	53	70	1218	100	63	70	140	165	94	240
Peak-hour factor, PHF	0.79	0.95	0.74	0.76	0.84	0.73	0.63	0.70	0.92	0.84	0.53	0.70
Adj. Flow (vph)	363	2948	72	92	1450	137	100	100	152	196	177	343
RTOR Reduction (vph)	0	0	0	0	0	48	0	0	0	0	0	22
Lane Group Flow (vph)	363	2948	72	92	1450	89	100	100	152	196	177	321
Turn Type	Prot		Free	Prot		pm+ov	Prot		Free	Prot		pm+ov
Protected Phases	1	6		5	2	3	7	4		3	8	1
Permitted Phases			Free			2			Free			8
Actuated Green, G (s)	21.7	106.6	180.0	10.2	95.1	109.5	9.0	20.8	180.0	14.4	26.2	47.9
Effective Green, g (s)	25.7	110.6	180.0	14.2	99.1	117.5	13.0	24.8	180.0	18.4	30.2	55.9
Actuated g/C Ratio	0.14	0.61	1.00	0.08	0.55	0.65	0.07	0.14	1.00	0.10	0.17	0.31
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Vehicle Extension (s)	2.0	2.0		3.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	490	3124	1583	271	2800	1060	248	488	1583	351	594	518
v/s Ratio Prot	c0.11	c0.58		0.03	0.29	0.01	0.03	0.03		c0.06	0.05	c0.09
v/s Ratio Perm			0.05			0.05			0.10			0.11
v/c Ratio	0.74	0.94	0.05	0.34	0.52	0.08	0.40	0.20	0.10	0.56	0.30	0.62
Uniform Delay, d1	74.0	31.8	0.0	78.5	25.4	11.5	79.8	68.9	0.0	76.9	65.6	53.0
Progression Factor	1.00	1.00	1.00	0.93	0.80	0.46	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.2	7.5	0.1	0.7	0.7	0.0	0.4	0.1	0.1	1.1	0.1	1.6
Delay (s)	79.2	39.3	0.1	73.4	21.0	5.3	80.2	68.9	0.1	78.0	65.7	54.5
Level of Service	E	D	A	E	C	A	F	E	A	E	E	D
Approach Delay (s)		42.7			22.6			42.4			63.7	
Approach LOS		D			C			D			E	

Intersection Summary

HCM Average Control Delay	39.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	1770	5085	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	1770	5085	1583	3433	1863	1583	3433	1863	1583
Volume (vph)	174	2523	409	123	1122	73	58	34	42	131	82	208
Peak-hour factor, PHF	0.84	0.95	0.92	0.72	0.94	0.79	0.73	0.65	0.70	0.84	0.71	0.88
Adj. Flow (vph)	207	2656	445	171	1194	92	79	52	60	156	115	236
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	55	0	0	209
Lane Group Flow (vph)	207	2656	445	171	1194	92	79	52	5	156	115	27
Turn Type	Prot		Free	Prot		Free	Split		Perm	Split		Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			Free			Free			4			3
Actuated Green, G (s)	15.4	103.5	180.0	21.6	109.7	180.0	10.5	10.5	10.5	16.4	16.4	16.4
Effective Green, g (s)	19.4	107.5	180.0	25.6	113.7	180.0	14.5	14.5	14.5	20.4	20.4	20.4
Actuated g/C Ratio	0.11	0.60	1.00	0.14	0.63	1.00	0.08	0.08	0.08	0.11	0.11	0.11
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	370	3037	1583	252	3212	1583	277	150	128	389	211	179
v/s Ratio Prot	0.06	c0.52		c0.10	0.23		0.02	c0.03		0.05	c0.06	
v/s Ratio Perm			0.28			0.06			0.00			0.02
v/c Ratio	0.56	0.87	0.28	0.68	0.37	0.06	0.29	0.35	0.04	0.40	0.55	0.15
Uniform Delay, d1	76.2	30.6	0.0	73.3	16.0	0.0	77.9	78.3	76.3	74.1	75.4	72.0
Progression Factor	1.31	0.32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	1.8	0.2	5.6	0.3	0.1	0.6	1.4	0.1	0.7	2.9	0.4
Delay (s)	100.5	11.6	0.2	78.9	16.3	0.1	78.4	79.7	76.4	74.8	78.3	72.4
Level of Service	F	B	A	E	B	A	E	E	E	E	E	E
Approach Delay (s)		15.6			22.6			78.1			74.5	
Approach LOS		B			C			E			E	

Intersection Summary

HCM Average Control Delay	25.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection Sign configuration not allowed in HCM analysis.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	5085	1583	1770	5085
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	5085	1583	1770	5085
Volume (vph)	157	157	1647	170	171	3345
Peak-hour factor, PHF	0.87	0.94	0.96	0.83	0.84	0.93
Adj. Flow (vph)	180	167	1716	205	204	3597
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	180	167	1716	205	204	3597
Turn Type		Free		Free	Prot	
Protected Phases	4		2		1	6
Permitted Phases		Free		Free		
Actuated Green, G (s)	10.7	100.0	52.9	100.0	14.4	74.3
Effective Green, g (s)	15.2	100.0	57.4	100.0	18.4	78.8
Actuated g/C Ratio	0.15	1.00	0.57	1.00	0.18	0.79
Clearance Time (s)	7.5		7.5		7.0	7.5
Vehicle Extension (s)	3.0		6.0		3.0	6.0
Lane Grp Cap (vph)	522	1583	2919	1583	326	4007
v/s Ratio Prot	c0.05		0.34		0.12	c0.71
v/s Ratio Perm		0.11		0.13		
v/c Ratio	0.34	0.11	0.59	0.13	0.63	0.90
Uniform Delay, d1	37.9	0.0	13.7	0.0	37.6	7.7
Progression Factor	0.88	1.00	0.37	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.3	0.1	3.7	3.7
Delay (s)	33.7	0.1	5.3	0.1	41.3	11.3
Level of Service	C	A	A	A	D	B
Approach Delay (s)	17.5		4.8			12.9
Approach LOS	B		A			B

Intersection Summary

HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3183	1539		1770	5085	1583	1770	5085	1583
Flt Permitted	0.78	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1461	1863	1583	3183	1539		1770	5085	1583	1770	5085	1583
Volume (vph)	8	2	8	156	14	31	24	2141	220	81	2741	28
Peak-hour factor, PHF	0.50	0.44	0.91	0.53	0.91	0.78	0.73	0.82	0.76	0.55	0.88	0.58
Adj. Flow (vph)	16	5	9	294	15	40	33	2611	289	147	3115	48
RTOR Reduction (vph)	0	0	8	0	34	0	0	0	0	0	0	16
Lane Group Flow (vph)	16	5	1	294	21	0	33	2611	289	147	3115	32
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt		pm+ov	Prot			Prot		Free	Prot		pt+ov
Protected Phases	3	8	1	7	4		1	6		5	2	2 3
Permitted Phases	8		8						Free			
Actuated Green, G (s)	5.7	1.1	5.5	15.0	11.5		4.4	43.3	100.0	12.1	51.0	63.1
Effective Green, g (s)	13.7	5.1	13.5	19.0	15.5		8.4	47.8	100.0	16.1	55.5	67.1
Actuated g/C Ratio	0.14	0.05	0.14	0.19	0.16		0.08	0.48	1.00	0.16	0.56	0.67
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.5		7.0	7.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	227	95	261	605	239		149	2431	1583	285	2822	1062
v/s Ratio Prot	0.01	0.00	0.00	c0.09	0.01		0.02	0.51		c0.08	c0.61	0.02
v/s Ratio Perm	0.00		0.00						c0.18			
v/c Ratio	0.07	0.05	0.00	0.49	0.09		0.22	1.07	0.18	0.52	1.10	0.03
Uniform Delay, d1	37.6	45.2	37.4	36.1	36.2		42.7	26.1	0.0	38.4	22.2	5.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.33	0.74	1.00	0.82	1.14	1.72
Incremental Delay, d2	0.0	0.1	0.0	0.2	0.1		0.2	39.7	0.2	0.3	49.7	0.0
Delay (s)	37.6	45.2	37.4	36.4	36.3		57.0	58.9	0.2	31.7	75.0	9.5
Level of Service	D	D	D	D	D		E	E	A	C	E	A
Approach Delay (s)		38.8			36.3			53.1			72.1	
Approach LOS		D			D			D			E	

Intersection Summary

HCM Average Control Delay	61.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1667		1681	1681	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1667		1681	1681	1583	1770	5085	1583	1770	5085	1583
Volume (vph)	1	0	2	88	0	28	3	2293	314	135	3267	3
Peak-hour factor, PHF	0.25	0.25	0.25	0.85	0.25	0.75	0.38	0.89	0.80	0.85	0.88	0.38
Adj. Flow (vph)	4	0	8	104	0	37	8	2576	392	159	3712	8
RTOR Reduction (vph)	0	8	0	0	0	34	0	0	166	0	0	2
Lane Group Flow (vph)	0	4	0	52	52	3	8	2576	226	159	3712	6
Turn Type	Split			Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3			6			2
Actuated Green, G (s)		1.2		4.8	4.8	4.8	1.0	53.2	53.2	12.3	64.5	64.5
Effective Green, g (s)		5.2		8.8	8.8	8.8	5.0	57.7	57.7	16.3	69.0	69.0
Actuated g/C Ratio		0.05		0.09	0.09	0.09	0.05	0.58	0.58	0.16	0.69	0.69
Clearance Time (s)		7.0		7.0	7.0	7.0	7.0	7.5	7.5	7.0	7.5	7.5
Vehicle Extension (s)		5.0		5.0	5.0	5.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		87		148	148	139	89	2934	913	289	3509	1092
v/s Ratio Prot		c0.00		c0.03	0.03		0.00	0.51		c0.09	c0.73	
v/s Ratio Perm						0.00			0.14			0.00
v/c Ratio		0.05		0.35	0.35	0.02	0.09	0.88	0.25	0.55	1.06	0.01
Uniform Delay, d1		45.1		42.9	42.9	41.7	45.3	18.1	10.4	38.5	15.5	4.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.63	0.67
Incremental Delay, d2		0.5		3.0	3.0	0.1	0.2	4.1	0.6	0.7	30.5	0.0
Delay (s)		45.6		45.9	45.9	41.8	45.5	22.2	11.1	39.9	55.8	3.2
Level of Service		D		D	D	D	D	C	B	D	E	A
Approach Delay (s)		45.6			44.8			20.8			55.1	
Approach LOS		D			D			C			E	

Intersection Summary

HCM Average Control Delay	40.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3294	
Flt Permitted	0.39	1.00	1.00	0.04	1.00	1.00	0.72	1.00	1.00	0.55	1.00	
Satd. Flow (perm)	730	3539	1583	82	3539	1583	1344	3539	1583	1016	3294	
Volume (vph)	34	1790	29	224	587	82	15	53	352	88	13	16
Peak-hour factor, PHF	0.57	0.92	0.52	0.75	0.86	0.68	0.42	0.70	0.84	0.50	0.46	0.67
Adj. Flow (vph)	60	1946	56	299	683	121	36	76	419	176	28	24
RTOR Reduction (vph)	0	0	17	0	0	64	0	0	29	0	21	0
Lane Group Flow (vph)	60	1946	39	299	683	57	36	76	390	176	31	0
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		pm+ov	pm+pt		
Protected Phases	1	6		5	2		3	8	5	7	4	
Permitted Phases	6		8	2		4	8		8	4		
Actuated Green, G (s)	140.0	133.0	12.0	157.5	143.5	17.4	19.1	12.0	30.0	29.5	17.4	
Effective Green, g (s)	147.5	136.5	15.5	161.0	147.0	20.9	24.6	15.5	37.0	33.0	20.9	
Actuated g/C Ratio	0.74	0.68	0.08	0.80	0.74	0.10	0.12	0.08	0.18	0.16	0.10	
Clearance Time (s)	7.0	6.5	6.5	6.5	6.5	6.5	5.0	6.5	6.5	5.0	6.5	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	596	2415	123	247	2601	165	185	274	317	222	344	
v/s Ratio Prot	0.01	0.55		0.13	0.19		0.01	0.02	c0.13	c0.06	0.01	
v/s Ratio Perm	0.07		0.02	c0.85		0.04	0.02		0.11	0.07		
v/c Ratio	0.10	0.81	0.32	1.21	0.26	0.34	0.19	0.28	1.23	0.79	0.09	
Uniform Delay, d1	7.1	22.4	87.3	71.4	8.7	83.2	78.5	87.0	81.5	78.5	80.9	
Progression Factor	1.00	1.00	1.00	0.84	0.92	0.77	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	3.0	0.6	125.7	0.2	0.4	0.2	0.2	128.7	16.4	0.0	
Delay (s)	7.2	25.4	87.8	185.5	8.3	64.7	78.7	87.2	210.2	94.8	81.0	
Level of Service	A	C	F	F	A	E	E	F	F	F	F	
Approach Delay (s)		26.6			62.5			183.7			91.7	
Approach LOS		C			E			F			F	

Intersection Summary

HCM Average Control Delay	61.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3281	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3281	1583
Volume (vph)	59	2001	9	402	852	394	70	331	1253	474	91	62
Peak-hour factor, PHF	0.67	0.91	0.32	0.88	0.96	0.88	0.76	0.94	0.89	0.90	0.69	0.50
Adj. Flow (vph)	88	2199	28	457	888	448	92	352	1408	527	132	124
RTOR Reduction (vph)	0	0	8	0	0	0	0	0	6	0	0	0
Lane Group Flow (vph)	88	2199	20	457	888	448	92	352	1402	264	395	124
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	10.6	121.0	121.0	15.5	125.9	200.0	24.0	24.0	39.5	10.5	10.5	200.0
Effective Green, g (s)	14.6	125.5	125.5	19.5	130.4	200.0	28.5	28.5	48.0	14.5	14.5	200.0
Actuated g/C Ratio	0.07	0.63	0.63	0.10	0.65	1.00	0.14	0.14	0.24	0.07	0.07	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	251	2221	993	335	3315	1583	252	504	404	117	238	1583
v/s Ratio Prot	0.03	c0.62		0.13	0.17		0.05	0.10	c0.34	c0.16	0.12	
v/s Ratio Perm			0.01			0.28			0.55			0.08
v/c Ratio	0.35	0.99	0.02	1.36	0.27	0.28	0.37	0.70	3.47	2.26	2.16dl	0.08
Uniform Delay, d1	88.2	36.6	14.1	90.2	14.7	0.0	77.6	81.7	76.0	92.8	92.8	0.0
Progression Factor	1.09	0.78	0.48	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	1.00
Incremental Delay, d2	0.4	10.9	0.0	182.0	0.2	0.4	0.9	4.2	1117.8	590.3	313.8	0.1
Delay (s)	96.9	39.5	6.7	272.3	14.9	0.4	78.5	85.9	1193.8	680.9	404.7	0.1
Level of Service	F	D	A	F	B	A	E	F	F	F	F	A
Approach Delay (s)		41.3			76.9			927.8			433.7	
Approach LOS		D			E			F			F	

Intersection Summary

HCM Average Control Delay	339.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.75		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	156.0%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	2951	1441	1610	3274	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	2951	1441	1610	3274	1583
Volume (vph)	120	3056	10	427	1999	198	7	5	53	149	53	62
Peak-hour factor, PHF	0.55	0.88	0.58	0.73	0.82	0.76	0.50	0.44	0.91	0.53	0.91	0.78
Adj. Flow (vph)	218	3473	17	585	2438	261	14	11	58	281	58	79
RTOR Reduction (vph)	0	0	5	0	0	0	0	14	6	0	0	0
Lane Group Flow (vph)	218	3473	12	585	2438	261	8	18	37	141	198	79
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	13.9	90.6	90.6	28.0	104.7	170.0	7.2	7.2	35.2	16.2	16.2	170.0
Effective Green, g (s)	17.9	94.6	94.6	32.0	108.7	170.0	11.2	11.2	43.2	20.2	20.2	170.0
Actuated g/C Ratio	0.11	0.56	0.56	0.19	0.64	1.00	0.07	0.07	0.25	0.12	0.12	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	361	2830	881	646	4097	1583	106	194	392	191	389	1583
v/s Ratio Prot	0.06	c0.68		c0.17	0.38		0.00	0.01	0.02	c0.09	0.06	
v/s Ratio Perm			0.01			c0.16			0.01			0.05
v/c Ratio	0.60	1.23	0.01	0.91	0.60	0.16	0.08	0.09	0.09	0.74	0.51	0.05
Uniform Delay, d1	72.7	37.7	16.9	67.5	17.8	0.0	74.5	74.6	48.5	72.3	70.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	105.6	0.0	15.9	0.6	0.2	0.3	0.2	0.0	13.8	1.1	0.1
Delay (s)	74.6	143.3	16.9	83.5	18.5	0.2	74.8	74.8	48.5	86.2	71.3	0.1
Level of Service	E	F	B	F	B	A	E	E	D	F	E	A
Approach Delay (s)		138.7			28.6			61.2			62.9	
Approach LOS		F			C			E			E	

Intersection Summary

HCM Average Control Delay	85.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

1: Route 7 & Janelia Farm Blvd. — Existing Conditions (2008)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.95	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4940	1583	3433	4940	1583	1681	1713	1583	3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4940	1583	3433	4940	1583	1681	1713	1583	3433	1863	1583
Volume (vph)	4	2161	222	497	3512	321	327	70	278	317	124	10
Peak-hour factor, PHF	0.50	0.92	0.88	0.87	0.97	0.91	0.91	0.92	0.87	0.89	0.82	0.63
Adj. Flow (vph)	8	2349	252	571	3621	353	359	76	320	356	151	16
RTOR Reduction (vph)	0	0	0	0	0	63	0	0	1	0	0	4
Lane Group Flow (vph)	8	2349	252	571	3621	290	212	223	319	356	151	12
Heavy Vehicles (%)	2%	5%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Free	Prot		Perm	Split		pm+ov	Split		pm+ov
Protected Phases	1	6		5	2		4	4	5	3	3	1
Permitted Phases			Free			2			4			3
Actuated Green, G (s)	2.2	96.9	190.0	32.1	126.8	126.8	20.0	20.0	52.1	13.0	13.0	15.2
Effective Green, g (s)	6.2	100.9	190.0	36.1	130.8	130.8	24.0	24.0	60.1	17.0	17.0	23.2
Actuated g/C Ratio	0.03	0.53	1.00	0.19	0.69	0.69	0.13	0.13	0.32	0.09	0.09	0.12
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	2.0	2.0	3.0	3.0	2.0
Lane Grp Cap (vph)	112	2623	1583	652	3401	1090	212	216	526	307	167	193
v/s Ratio Prot	0.00	0.48		c0.17	c0.73		0.13	c0.13	0.12	c0.10	0.08	0.00
v/s Ratio Perm			0.16			0.18			0.09			0.01
v/c Ratio	0.07	0.90	0.16	0.88	1.06	0.27	1.00	1.03	0.61	1.16	0.90	0.06
Uniform Delay, d1	89.1	39.8	0.0	74.8	29.6	11.3	83.0	83.0	54.9	86.5	85.7	73.8
Progression Factor	1.00	1.00	1.00	0.75	1.24	2.16	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	5.3	0.2	1.3	29.9	0.1	61.8	69.9	1.4	101.9	42.9	0.1
Delay (s)	89.2	45.1	0.2	57.5	66.6	24.5	144.8	152.9	56.3	188.4	128.5	73.9
Level of Service	F	D	A	E	E	C	F	F	E	F	F	E
Approach Delay (s)		40.9			62.2			109.7			167.6	
Approach LOS		D			E			F			F	

Intersection Summary

HCM Average Control Delay	66.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	105.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

2: Route 7 & Smith Circle — Existing Conditions (2008)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.98	
Satd. Flow (prot)	1770	4940	1583	3433	4940	1583	1681	1709	1583		1724	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.98	
Satd. Flow (perm)	1770	4940	1583	3433	4940	1583	1681	1709	1583		1724	
Volume (vph)	201	2541	14	262	4294	18	23	4	231	14	7	13
Peak-hour factor, PHF	0.48	0.87	0.54	0.95	0.98	0.71	0.52	0.50	0.90	0.70	0.58	0.54
Adj. Flow (vph)	419	2921	26	276	4382	25	44	8	257	20	12	24
RTOR Reduction (vph)	0	0	8	0	0	6	0	0	0	0	14	0
Lane Group Flow (vph)	419	2921	18	276	4382	19	25	27	257	0	42	0
Heavy Vehicles (%)	2%	5%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Split		Free	Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			Free			
Actuated Green, G (s)	15.1	124.0	124.0	17.7	126.6	126.6	9.6	9.6	190.0		10.2	
Effective Green, g (s)	19.1	128.5	128.5	21.7	131.1	131.1	13.6	13.6	190.0		14.2	
Actuated g/C Ratio	0.10	0.68	0.68	0.11	0.69	0.69	0.07	0.07	1.00		0.07	
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5	7.5	7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	178	3341	1071	392	3409	1092	120	122	1583		129	
v/s Ratio Prot	c0.24	0.59		0.08	c0.89		0.01	c0.02			c0.02	
v/s Ratio Perm			0.01			0.01			c0.16			
v/c Ratio	2.35	0.87	0.02	0.70	1.29	0.02	0.21	0.22	0.16		0.33	
Uniform Delay, d1	85.5	24.4	10.1	81.1	29.5	9.2	83.1	83.2	0.0		83.4	
Progression Factor	0.98	0.49	0.66	1.20	0.51	0.44	1.00	1.00	1.00		1.00	
Incremental Delay, d2	619.0	2.0	0.0	0.5	128.7	0.0	0.9	0.9	0.2		1.5	
Delay (s)	703.2	13.9	6.6	98.1	143.7	4.1	84.0	84.1	0.2		84.8	
Level of Service	F	B	A	F	F	A	F	F	A		F	
Approach Delay (s)		99.7			140.3			14.3			84.8	
Approach LOS		F			F			B			F	

Intersection Summary

HCM Average Control Delay	119.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	114.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4940	1583	3433	4940	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	4940	1583	3433	4940	1583	1770	1863	1583	3433	1863	1583
Volume (vph)	162	2541	83	147	3957	7	398	90	160	26	63	219
Peak-hour factor, PHF	0.78	0.96	0.73	0.85	0.96	0.58	0.87	0.64	0.95	0.81	0.88	0.94
Adj. Flow (vph)	208	2647	114	173	4122	12	457	141	168	32	72	233
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	0	0	69
Lane Group Flow (vph)	208	2647	114	173	4122	9	457	141	168	32	72	164
Heavy Vehicles (%)	2%	5%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Free	Prot		Perm	Prot		Free	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			Free			2			Free			4
Actuated Green, G (s)	15.0	128.6	190.0	10.0	123.6	123.6	10.5	13.9	190.0	8.0	11.4	11.4
Effective Green, g (s)	19.0	133.1	190.0	14.0	128.1	128.1	14.5	18.9	190.0	12.0	16.4	16.4
Actuated g/C Ratio	0.10	0.70	1.00	0.07	0.67	0.67	0.08	0.10	1.00	0.06	0.09	0.09
Clearance Time (s)	7.0	7.5		7.0	7.5	7.5	7.0	8.0		7.0	8.0	8.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	177	3461	1583	253	3331	1067	135	185	1583	217	161	137
v/s Ratio Prot	c0.12	0.54		0.05	c0.83		c0.26	0.08		0.01	0.04	
v/s Ratio Perm			0.07			0.01			c0.11			c0.10
v/c Ratio	1.18	0.76	0.07	0.68	1.24	0.01	3.39	0.76	0.11	0.15	0.45	1.20
Uniform Delay, d1	85.5	18.4	0.0	85.8	31.0	10.1	87.8	83.4	0.0	84.2	82.5	86.8
Progression Factor	0.74	1.63	1.00	1.22	0.15	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	107.2	0.9	0.0	0.6	107.1	0.0	1091.9	15.3	0.1	0.1	0.7	140.7
Delay (s)	170.1	30.8	0.0	105.6	111.6	0.0	1179.7	98.6	0.1	84.3	83.2	227.5
Level of Service	F	C	A	F	F	A	F	F	A	F	F	F
Approach Delay (s)		39.4			111.1			722.0			183.1	
Approach LOS		D			F			F			F	

Intersection Summary

HCM Average Control Delay	144.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	124.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.95	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (prot)	1770	4940	1583	1770	4940	1583	1770	1583		1681	1630	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (perm)	1770	4940	1583	1770	4940	1583	1770	1583		1681	1630	
Volume (vph)	236	2485	6	10	4042	497	14	0	16	317	1	55
Peak-hour factor, PHF	0.33	0.88	0.58	0.83	0.95	0.85	0.70	0.25	0.40	0.88	0.25	0.81
Adj. Flow (vph)	715	2824	10	12	4255	585	20	0	40	360	4	68
RTOR Reduction (vph)	0	0	3	0	0	136	0	37	0	0	9	0
Lane Group Flow (vph)	715	2824	7	12	4255	449	20	3	0	222	201	0
Heavy Vehicles (%)	2%	5%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Split			Split		
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases			6			2						
Actuated Green, G (s)	13.6	125.1	125.1	4.0	115.5	115.5	8.1	8.1		23.8	23.8	
Effective Green, g (s)	17.6	130.1	130.1	8.0	120.5	120.5	12.1	12.1		27.8	27.8	
Actuated g/C Ratio	0.09	0.68	0.68	0.04	0.63	0.63	0.06	0.06		0.15	0.15	
Clearance Time (s)	7.0	8.0	8.0	7.0	8.0	8.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	164	3383	1084	75	3133	1004	113	101		246	238	
v/s Ratio Prot	c0.40	0.57		0.01	c0.86		c0.01	0.00		c0.13	0.12	
v/s Ratio Perm			0.00			0.28						
v/c Ratio	4.36	0.83	0.01	0.16	1.36	0.45	0.18	0.03		0.90	0.84	
Uniform Delay, d1	86.2	22.0	9.5	87.8	34.8	17.7	84.2	83.4		79.8	79.0	
Progression Factor	0.90	0.89	1.12	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1523.6	2.2	0.0	1.0	163.3	1.4	0.8	0.1		32.6	22.8	
Delay (s)	1601.6	21.8	10.6	88.8	198.1	19.2	85.0	83.5		112.4	101.8	
Level of Service	F	C	B	F	F	B	F	F		F	F	
Approach Delay (s)		340.0			176.2			84.0			107.2	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	237.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	118.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Volume (vph)	451	1591	143	624	2118	187	183	148	360	186	163	286
Peak-hour factor, PHF	0.66	0.86	0.87	0.70	0.94	0.89	0.83	0.80	0.89	0.72	0.87	0.72
Adj. Flow (vph)	683	1850	164	891	2253	210	220	185	404	258	187	397
RTOR Reduction (vph)	0	0	0	0	0	13	0	0	0	0	0	5
Lane Group Flow (vph)	683	1850	164	891	2253	197	220	185	404	258	187	392
Turn Type	Prot		Free	Prot		pm+ov	Prot		Free	Prot		pm+ov
Protected Phases	1	6		5	2	3	7	4		3	8	1
Permitted Phases			Free			2			Free			8
Actuated Green, G (s)	37.1	88.0	180.0	30.0	80.9	98.6	12.7	16.3	180.0	17.7	21.3	58.4
Effective Green, g (s)	41.1	92.0	180.0	34.0	84.9	106.6	16.7	20.3	180.0	21.7	25.3	66.4
Actuated g/C Ratio	0.23	0.51	1.00	0.19	0.47	0.59	0.09	0.11	1.00	0.12	0.14	0.37
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Vehicle Extension (s)	2.0	2.0		3.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	784	2599	1583	648	2398	964	319	399	1583	414	497	610
v/s Ratio Prot	c0.20	0.36		c0.26	c0.44	0.02	c0.06	0.05		c0.08	0.05	c0.15
v/s Ratio Perm			0.10			0.10			0.26			0.10
v/c Ratio	0.87	0.71	0.10	1.38	0.94	0.20	0.69	0.46	0.26	0.62	0.38	0.64
Uniform Delay, d1	66.9	33.8	0.0	73.0	45.1	17.0	79.1	74.8	0.0	75.3	70.2	47.0
Progression Factor	1.00	1.00	1.00	1.19	0.59	0.51	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.1	1.7	0.1	173.3	4.6	0.0	4.9	0.3	0.4	2.1	0.2	1.7
Delay (s)	77.0	35.5	0.1	259.9	31.1	8.7	84.0	75.1	0.4	77.4	70.4	48.7
Level of Service	E	D	A	F	C	A	F	E	A	E	E	D
Approach Delay (s)		43.9			90.5			40.2			62.3	
Approach LOS		D			F			D			E	

Intersection Summary

HCM Average Control Delay	65.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	1770	5085	1583	3433	1863	1583	3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	1770	5085	1583	3433	1863	1583	3433	1863	1583
Volume (vph)	283	1719	135	74	2304	161	391	97	234	225	77	234
Peak-hour factor, PHF	0.71	0.90	0.82	0.77	0.96	0.81	0.79	0.87	0.76	0.92	0.96	0.87
Adj. Flow (vph)	399	1910	165	96	2400	199	495	111	308	245	80	269
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	122	0	0	155
Lane Group Flow (vph)	399	1910	165	96	2400	199	495	111	186	245	80	114
Turn Type	Prot		Free	Prot		Free	Split		Perm	Split		Perm
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			Free			Free			4			3
Actuated Green, G (s)	24.3	97.1	180.0	12.5	85.3	180.0	25.3	25.3	25.3	17.1	17.1	17.1
Effective Green, g (s)	28.3	101.1	180.0	16.5	89.3	180.0	29.3	29.3	29.3	21.1	21.1	21.1
Actuated g/C Ratio	0.16	0.56	1.00	0.09	0.50	1.00	0.16	0.16	0.16	0.12	0.12	0.12
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	540	2856	1583	162	2523	1583	559	303	258	402	218	186
v/s Ratio Prot	c0.12	0.38		0.05	c0.47		c0.14	0.06		0.07	0.04	
v/s Ratio Perm			0.10			0.13			0.12			c0.07
v/c Ratio	0.74	0.67	0.10	0.59	0.95	0.13	0.89	0.37	0.72	0.61	0.37	0.61
Uniform Delay, d1	72.3	27.7	0.0	78.5	43.3	0.0	73.7	67.1	71.5	75.5	73.3	75.5
Progression Factor	0.92	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	1.0	0.1	3.8	9.7	0.2	15.5	0.8	9.5	2.6	1.0	5.8
Delay (s)	70.0	30.4	0.1	82.4	52.9	0.2	89.2	67.8	80.9	78.1	74.3	81.4
Level of Service	E	C	A	F	D	A	F	E	F	E	E	F
Approach Delay (s)		34.8			50.1			83.8			79.1	
Approach LOS		C			D			F			E	

Intersection Summary

HCM Average Control Delay	51.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection Sign configuration not allowed in HCM analysis.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	5085	1583	1770	5085
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	5085	1583	1770	5085
Volume (vph)	440	439	3871	323	323	1753
Peak-hour factor, PHF	0.87	0.94	0.96	0.83	0.84	0.93
Adj. Flow (vph)	506	467	4032	389	385	1885
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	506	467	4032	389	385	1885
Turn Type		Free		Free	Prot	
Protected Phases	4		2		1	6
Permitted Phases		Free		Free		
Actuated Green, G (s)	14.5	120.0	72.0	120.0	11.5	90.5
Effective Green, g (s)	19.0	120.0	76.5	120.0	15.5	95.0
Actuated g/C Ratio	0.16	1.00	0.64	1.00	0.13	0.79
Clearance Time (s)	7.5		7.5		7.0	7.5
Vehicle Extension (s)	3.0		6.0		3.0	6.0
Lane Grp Cap (vph)	544	1583	3242	1583	229	4026
v/s Ratio Prot	c0.15		c0.79		c0.22	0.37
v/s Ratio Perm		0.29		0.25		
v/c Ratio	0.93	0.30	1.24	0.25	1.68	0.47
Uniform Delay, d1	49.8	0.0	21.8	0.0	52.2	4.1
Progression Factor	1.00	1.00	0.41	1.00	1.00	1.00
Incremental Delay, d2	22.7	0.5	109.9	0.0	324.9	0.4
Delay (s)	72.6	0.5	118.8	0.0	377.1	4.5
Level of Service	E	A	F	A	F	A
Approach Delay (s)	38.0		108.3			67.7
Approach LOS	D		F			E

Intersection Summary

HCM Average Control Delay	87.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	115.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3183	1476		1770	5085	1583	1770	5085	1583
Flt Permitted	0.71	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1329	1863	1583	3183	1476		1770	5085	1583	1770	5085	1583
Volume (vph)	7	5	14	392	2	62	5	3782	302	53	2122	4
Peak-hour factor, PHF	0.70	0.83	0.85	0.83	0.92	0.96	0.71	0.91	0.90	0.71	0.92	0.83
Adj. Flow (vph)	10	6	16	472	2	65	7	4156	336	75	2307	5
RTOR Reduction (vph)	0	0	5	0	54	0	0	0	0	0	0	1
Lane Group Flow (vph)	10	6	11	472	13	0	7	4156	336	75	2307	4
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Turn Type	pm+pt		pm+ov	Prot			Prot		Free	Prot		pt+ov
Protected Phases	3	8	1	7	4		1	6		5	2	2 3
Permitted Phases	8		8						Free			
Actuated Green, G (s)	4.9	2.6	3.8	15.5	15.8		1.2	65.1	120.0	8.3	72.2	82.0
Effective Green, g (s)	12.9	6.6	11.8	19.5	19.8		5.2	69.6	120.0	12.3	76.7	86.0
Actuated g/C Ratio	0.11	0.05	0.10	0.16	0.17		0.04	0.58	1.00	0.10	0.64	0.72
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.5		7.0	7.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	166	102	195	517	244		77	2949	1583	181	3250	1134
v/s Ratio Prot	0.00	0.00	0.00	c0.15	0.01		0.00	c0.82		c0.04	c0.45	0.00
v/s Ratio Perm	0.00		0.00						c0.21			
v/c Ratio	0.06	0.06	0.05	0.91	0.05		0.09	1.41	0.21	0.41	0.71	0.00
Uniform Delay, d1	48.1	53.8	49.0	49.4	42.2		55.1	25.2	0.0	50.5	14.3	4.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.77	1.16	1.00	1.08	0.70	0.73
Incremental Delay, d2	0.1	0.1	0.0	20.2	0.0		0.0	184.7	0.1	0.5	1.1	0.0
Delay (s)	48.1	53.8	49.1	69.6	42.2		42.5	214.0	0.1	55.2	11.1	3.5
Level of Service	D	D	D	E	D		D	F	A	E	B	A
Approach Delay (s)		49.7			66.2			197.7			12.5	
Approach LOS		D			E			F			B	

Intersection Summary

HCM Average Control Delay	128.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1734		1681	1681	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1734		1681	1681	1583	1770	5085	1583	1770	5085	1583
Volume (vph)	4	1	4	313	0	107	14	3887	125	12	2984	3
Peak-hour factor, PHF	0.38	0.25	0.50	0.81	0.25	0.70	0.70	0.95	0.89	0.75	0.92	0.50
Adj. Flow (vph)	11	4	8	386	0	153	20	4092	140	16	3243	6
RTOR Reduction (vph)	0	7	0	0	0	118	0	0	42	0	0	2
Lane Group Flow (vph)	0	16	0	193	193	35	20	4092	98	16	3243	4
Turn Type	Split			Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3			6			2
Actuated Green, G (s)		3.6		6.0	6.0	6.0	2.0	79.9	79.9	2.0	79.9	79.9
Effective Green, g (s)		7.6		10.0	10.0	10.0	6.0	84.4	84.4	6.0	84.4	84.4
Actuated g/C Ratio		0.06		0.08	0.08	0.08	0.05	0.70	0.70	0.05	0.70	0.70
Clearance Time (s)		7.0		7.0	7.0	7.0	7.0	7.5	7.5	7.0	7.5	7.5
Vehicle Extension (s)		5.0		5.0	5.0	5.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		110		140	140	132	89	3576	1113	89	3576	1113
v/s Ratio Prot		c0.01		c0.11	0.11		c0.01	c0.80		0.01	0.64	
v/s Ratio Perm						0.02			0.06			0.00
v/c Ratio		0.14		1.38	1.38	0.26	0.22	1.14	0.09	0.18	0.91	0.00
Uniform Delay, d1		53.1		55.0	55.0	51.5	54.8	17.8	5.6	54.6	14.6	5.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.10	0.79	0.67
Incremental Delay, d2		1.2		208.6	208.6	2.2	0.5	68.7	0.2	0.3	3.7	0.0
Delay (s)		54.3		263.6	263.6	53.8	55.2	86.5	5.8	60.2	15.2	3.6
Level of Service		D		F	F	D	E	F	A	E	B	A
Approach Delay (s)		54.3			204.0			83.7			15.4	
Approach LOS		D			F			F			B	

Intersection Summary

HCM Average Control Delay	64.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3283	
Flt Permitted	0.03	1.00	1.00	0.18	1.00	1.00	0.36	1.00	1.00	0.71	1.00	
Satd. Flow (perm)	50	3539	1583	336	3539	1583	678	3539	1583	1318	3283	
Volume (vph)	14	1123	24	352	2180	142	115	32	397	162	55	50
Peak-hour factor, PHF	0.35	0.92	0.55	0.86	0.92	0.72	0.82	0.57	0.86	0.79	0.65	0.63
Adj. Flow (vph)	40	1221	44	409	2370	197	140	56	462	205	85	79
RTOR Reduction (vph)	0	0	17	0	0	47	0	0	97	0	73	0
Lane Group Flow (vph)	40	1221	27	409	2370	150	140	56	365	205	91	0
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		pm+ov	pm+pt		
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases	6		8	2		4	8		8	4		
Actuated Green, G (s)	153.0	147.0	22.5	167.5	154.5	22.5	22.5	12.0	26.0	22.5	12.0	
Effective Green, g (s)	160.5	150.5	30.0	171.0	158.0	30.0	30.0	15.5	33.0	30.0	15.5	
Actuated g/C Ratio	0.76	0.72	0.14	0.81	0.75	0.14	0.14	0.07	0.16	0.14	0.07	
Clearance Time (s)	7.0	6.5	7.0	6.5	6.5	7.0	7.0	6.5	6.5	7.0	6.5	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	120	2536	249	393	2663	249	172	261	271	219	242	
v/s Ratio Prot	0.02	0.34	0.01	0.09	0.67	0.04	0.06	0.02	c0.11	c0.06	0.03	
v/s Ratio Perm	0.24		0.01	c0.76		0.05	0.06		0.12	0.07		
v/c Ratio	0.33	0.48	0.11	1.04	0.89	0.60	0.81	0.21	1.35	0.94	0.38	
Uniform Delay, d1	41.5	12.9	78.4	28.8	19.5	84.4	84.3	91.5	88.5	87.9	92.6	
Progression Factor	1.00	1.00	1.00	2.13	0.46	1.19	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.7	0.1	46.4	3.1	1.7	23.5	0.2	178.7	42.5	0.4	
Delay (s)	42.1	13.5	78.4	107.6	12.0	102.5	107.8	91.7	267.2	130.4	93.0	
Level of Service	D	B	E	F	B	F	F	F	F	F	F	
Approach Delay (s)		16.6			31.1			218.4			113.8	
Approach LOS		B			C			F			F	

Intersection Summary

HCM Average Control Delay	56.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	210.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3321	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3321	1583
Volume (vph)	106	1277	123	1155	2789	641	126	180	657	293	207	267
Peak-hour factor, PHF	0.80	0.92	0.90	0.92	0.98	0.89	0.62	0.87	0.93	0.89	0.96	0.95
Adj. Flow (vph)	132	1388	137	1255	2846	720	203	207	706	329	216	281
RTOR Reduction (vph)	0	0	51	0	0	0	0	0	39	0	0	0
Lane Group Flow (vph)	132	1388	86	1255	2846	720	203	207	667	175	370	281
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	10.4	127.0	127.0	28.5	145.1	210.0	12.0	12.0	40.5	13.5	13.5	210.0
Effective Green, g (s)	14.4	131.5	131.5	32.5	149.6	210.0	16.5	16.5	49.0	17.5	17.5	210.0
Actuated g/C Ratio	0.07	0.63	0.63	0.15	0.71	1.00	0.08	0.08	0.23	0.08	0.08	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	235	2216	991	531	3622	1583	139	278	392	134	277	1583
v/s Ratio Prot	0.04	0.39		c0.37	c0.56		0.11	0.06	c0.26	0.11	c0.11	
v/s Ratio Perm			0.05			0.45			0.16			0.18
v/c Ratio	0.56	0.63	0.09	2.36	0.79	0.45	1.46	0.74	1.70	1.31	1.34	0.18
Uniform Delay, d1	94.7	24.1	15.5	88.8	19.7	0.0	96.8	94.7	80.5	96.2	96.2	0.0
Progression Factor	0.90	1.03	2.23	1.23	0.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.9	0.1	615.5	0.6	0.3	242.3	10.3	326.3	181.2	173.6	0.2
Delay (s)	87.8	25.7	34.6	725.0	5.5	0.3	339.1	105.0	406.8	277.5	269.8	0.2
Level of Service	F	C	C	F	A	A	F	F	F	F	F	A
Approach Delay (s)		31.4			192.0			338.5			179.7	
Approach LOS		C			F			F			F	

Intersection Summary

HCM Average Control Delay	178.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	210.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	2854	1441	1610	3247	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	2854	1441	1610	3247	1583
Volume (vph)	156	2047	10	51	3659	324	299	40	673	304	22	272
Peak-hour factor, PHF	0.71	0.92	0.83	0.71	0.91	0.90	0.70	0.83	0.85	0.83	0.92	0.96
Adj. Flow (vph)	220	2225	12	72	4021	360	427	48	792	366	24	283
RTOR Reduction (vph)	0	0	4	0	0	0	0	68	7	0	0	0
Lane Group Flow (vph)	220	2225	8	72	4021	360	258	545	389	183	207	283
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	11.0	132.4	132.4	8.6	130.0	210.0	23.0	23.0	31.6	18.0	18.0	210.0
Effective Green, g (s)	15.0	136.4	136.4	12.6	134.0	210.0	27.0	27.0	39.6	22.0	22.0	210.0
Actuated g/C Ratio	0.07	0.65	0.65	0.06	0.64	1.00	0.13	0.13	0.19	0.10	0.10	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	245	3303	1028	206	4089	1583	207	367	292	169	340	1583
v/s Ratio Prot	0.06	0.44		0.02	c0.63		0.16	c0.19	c0.08	c0.11	0.06	
v/s Ratio Perm			0.00			c0.23			0.19			0.18
v/c Ratio	0.90	0.67	0.01	0.35	0.98	0.23	1.25	1.57dr	1.33	1.08	1.04dl	0.18
Uniform Delay, d1	96.7	22.9	13.0	94.8	36.9	0.0	91.5	91.5	85.2	94.0	89.9	0.0
Progression Factor	1.00	1.09	1.48	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.3	0.1	0.0	0.4	10.7	0.3	144.6	232.4	170.7	93.1	3.1	0.2
Delay (s)	101.1	25.0	19.2	95.1	47.6	0.3	236.1	323.9	255.9	187.1	93.0	0.2
Level of Service	F	C	B	F	D	A	F	F	F	F	F	A
Approach Delay (s)		31.8			44.6			284.8			79.6	
Approach LOS		C			D			F			E	

Intersection Summary

HCM Average Control Delay	78.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	210.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4940	1583	3433	4940	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	4940	1583	3433	4940	1583	1770	1863	1583	3433	1863	1583
Volume (vph)	42	2914	102	119	3110	7	105	25	154	14	15	55
Peak-hour factor, PHF	0.70	0.93	0.80	0.85	0.93	0.44	0.82	0.89	0.92	0.58	0.54	0.86
Adj. Flow (vph)	60	3133	128	140	3344	16	128	28	167	24	28	64
RTOR Reduction (vph)	0	0	0	0	0	4	0	0	0	0	0	58
Lane Group Flow (vph)	60	3133	128	140	3344	12	128	28	167	24	28	6
Heavy Vehicles (%)	2%	5%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Free	Prot		Perm	Prot		Free	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			Free			2			Free			4
Actuated Green, G (s)	12.0	137.7	200.0	10.0	135.7	135.7	10.0	16.8	200.0	6.0	12.8	12.8
Effective Green, g (s)	16.0	142.2	200.0	14.0	140.2	140.2	14.0	21.8	200.0	10.0	17.8	17.8
Actuated g/C Ratio	0.08	0.71	1.00	0.07	0.70	0.70	0.07	0.11	1.00	0.05	0.09	0.09
Clearance Time (s)	7.0	7.5		7.0	7.5	7.5	7.0	8.0		7.0	8.0	8.0
Vehicle Extension (s)	2.0	3.0		2.0	3.0	3.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	142	3512	1583	240	3463	1110	124	203	1583	172	166	141
v/s Ratio Prot	0.03	0.63		c0.04	c0.68		c0.07	0.02		0.01	c0.02	
v/s Ratio Perm			0.08			0.01			c0.11			0.00
v/c Ratio	0.42	0.89	0.08	0.58	0.97	0.01	1.03	0.14	0.11	0.14	0.17	0.04
Uniform Delay, d1	87.6	22.8	0.0	90.2	27.7	9.0	93.0	80.6	0.0	90.9	84.3	83.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.04	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	3.9	0.1	2.3	9.2	0.0	89.7	0.1	0.1	0.1	0.2	0.0
Delay (s)	88.3	26.8	0.1	92.5	36.8	9.0	184.1	84.0	0.1	91.0	84.4	83.3
Level of Service	F	C	A	F	D	A	F	F	A	F	F	F
Approach Delay (s)		26.8			38.9			80.3			85.2	
Approach LOS		C			D			F			F	

Intersection Summary

HCM Average Control Delay	36.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	5085	1583	1770	5085
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	5085	1583	1770	5085
Volume (vph)	398	118	982	541	108	494
Peak-hour factor, PHF	0.67	0.70	0.92	0.87	0.72	0.92
Adj. Flow (vph)	594	169	1067	622	150	537
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	594	169	1067	622	150	537
Turn Type		Free		Free	Prot	
Protected Phases	4		2		1	6
Permitted Phases		Free		Free		
Actuated Green, G (s)	14.5	100.0	51.4	100.0	12.1	70.5
Effective Green, g (s)	19.0	100.0	55.9	100.0	16.1	75.0
Actuated g/C Ratio	0.19	1.00	0.56	1.00	0.16	0.75
Clearance Time (s)	7.5		7.5		7.0	7.5
Vehicle Extension (s)	3.0		6.0		3.0	6.0
Lane Grp Cap (vph)	652	1583	2843	1583	285	3814
v/s Ratio Prot	c0.17		0.21		c0.08	0.11
v/s Ratio Perm		0.11		c0.39		
v/c Ratio	0.91	0.11	0.38	0.39	0.53	0.14
Uniform Delay, d1	39.7	0.0	12.3	0.0	38.5	3.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.0	0.1	0.4	0.7	1.8	0.1
Delay (s)	56.7	0.1	12.7	0.7	40.2	3.6
Level of Service	E	A	B	A	D	A
Approach Delay (s)	44.1		8.3			11.6
Approach LOS	D		A			B

Intersection Summary

HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3282	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3282	1583
Volume (vph)	47	811	21	311	719	221	21	57	281	181	53	39
Peak-hour factor, PHF	0.87	0.98	0.69	0.81	0.90	1.00	0.67	0.88	0.89	0.76	0.85	0.68
Adj. Flow (vph)	54	828	30	384	799	221	31	65	316	238	62	57
RTOR Reduction (vph)	0	0	16	0	0	0	0	0	120	0	0	0
Lane Group Flow (vph)	54	828	14	384	799	221	31	65	196	119	181	57
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	8.7	88.7	88.7	36.6	116.6	200.0	20.3	20.3	56.9	25.4	25.4	200.0
Effective Green, g (s)	12.7	93.2	93.2	40.6	121.1	200.0	24.8	24.8	65.4	29.4	29.4	200.0
Actuated g/C Ratio	0.06	0.47	0.47	0.20	0.61	1.00	0.12	0.12	0.33	0.15	0.15	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	218	1649	738	697	3079	1583	219	439	541	237	482	1583
v/s Ratio Prot	0.02	c0.23		c0.11	0.16		0.02	0.02	c0.07	c0.07	0.06	
v/s Ratio Perm			0.01			0.14			0.05			0.04
v/c Ratio	0.25	0.50	0.02	0.55	0.26	0.14	0.14	0.15	0.36	0.50	0.38	0.04
Uniform Delay, d1	89.1	37.2	28.8	71.5	18.5	0.0	78.1	78.2	51.4	78.6	77.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	1.00
Incremental Delay, d2	0.6	1.1	0.0	0.9	0.2	0.2	0.3	0.2	0.4	1.7	0.5	0.0
Delay (s)	89.7	38.3	28.8	72.5	18.7	0.2	78.4	78.3	51.8	65.6	62.6	0.0
Level of Service	F	D	C	E	B	A	E	E	D	E	E	A
Approach Delay (s)		41.1			30.5			58.0			53.6	
Approach LOS		D			C			E			D	

Intersection Summary

HCM Average Control Delay	40.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	3204	1441	1610	3250	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	3204	1441	1610	3250	1583
Volume (vph)	450	1438	4	15	1082	846	9	49	34	673	41	601
Peak-hour factor, PHF	0.87	0.90	0.33	0.63	0.92	0.97	0.56	0.82	0.77	0.89	0.68	0.85
Adj. Flow (vph)	517	1598	12	24	1176	872	16	60	44	756	60	707
RTOR Reduction (vph)	0	0	5	0	0	0	0	0	18	0	0	0
Lane Group Flow (vph)	517	1598	7	24	1176	872	16	60	26	378	438	707
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	16.5	90.2	90.2	3.8	77.5	170.0	8.5	8.5	12.3	39.5	39.5	170.0
Effective Green, g (s)	20.5	94.2	94.2	7.8	81.5	170.0	12.5	12.5	20.3	43.5	43.5	170.0
Actuated g/C Ratio	0.12	0.55	0.55	0.05	0.48	1.00	0.07	0.07	0.12	0.26	0.26	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	414	2818	877	158	3072	1583	118	236	198	412	832	1583
v/s Ratio Prot	c0.15	c0.31		0.01	0.18		0.01	0.02	0.01	c0.23	0.13	
v/s Ratio Perm			0.00			c0.55			0.01			0.45
v/c Ratio	1.25	0.57	0.01	0.15	0.38	0.55	0.14	0.25	0.13	0.92	0.88dl	0.45
Uniform Delay, d1	74.8	24.6	17.0	77.9	28.2	0.0	73.7	74.3	67.0	61.5	54.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	130.7	0.8	0.0	0.2	0.4	1.4	0.5	0.6	0.1	24.9	0.6	0.9
Delay (s)	205.4	25.5	17.0	78.1	28.6	1.4	74.2	74.9	67.1	86.4	55.0	0.9
Level of Service	F	C	B	E	C	A	E	E	E	F	D	A
Approach Delay (s)		69.2			17.7			72.0			37.7	
Approach LOS		E			B			E			D	

Intersection Summary

HCM Average Control Delay	42.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3227	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.73	1.00	1.00	0.55	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1367	3539	1583	1028	3227	
Volume (vph)	57	1923	43	235	740	112	24	55	90	92	13	19
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	60	2024	45	247	779	118	25	58	95	97	14	20
RTOR Reduction (vph)	0	0	19	0	0	29	0	0	43	0	17	0
Lane Group Flow (vph)	60	2024	26	247	779	89	25	58	52	97	17	0
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt		pm+ov	pm+pt		
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		8	4		
Actuated Green, G (s)	5.6	63.4	66.6	21.8	79.1	92.9	9.7	6.5	28.3	25.3	17.1	
Effective Green, g (s)	9.6	66.9	72.1	25.3	82.6	98.4	15.2	10.0	35.3	28.8	20.6	
Actuated g/C Ratio	0.07	0.51	0.55	0.19	0.64	0.76	0.12	0.08	0.27	0.22	0.16	
Clearance Time (s)	7.0	6.5	5.0	6.5	6.5	5.0	5.0	6.5	6.5	5.0	6.5	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	131	1821	914	344	2249	1235	176	272	466	318	511	
v/s Ratio Prot	0.03	c0.57	0.00	c0.14	0.22	0.01	0.01	0.02	0.02	c0.04	0.01	
v/s Ratio Perm			0.02			0.05	0.01		0.01	c0.03		
v/c Ratio	0.46	1.11	0.03	0.72	0.35	0.07	0.14	0.21	0.11	0.31	0.03	
Uniform Delay, d1	57.7	31.5	13.1	49.0	11.1	4.1	51.4	56.3	35.6	41.7	46.3	
Progression Factor	1.10	0.68	0.16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	56.5	0.0	5.9	0.4	0.0	0.1	0.1	0.0	0.2	0.1	
Delay (s)	64.4	78.1	2.0	54.9	11.5	4.1	51.6	56.5	35.6	41.9	46.4	
Level of Service	E	E	A	D	B	A	D	E	D	D	D	
Approach Delay (s)		76.1			20.1			44.6			43.1	
Approach LOS		E			C			D			D	

Intersection Summary

HCM Average Control Delay	55.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3295	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3295	1583
Volume (vph)	126	2113	18	413	979	719	130	559	1299	673	244	80
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	133	2224	19	435	1031	757	137	588	1367	708	257	84
RTOR Reduction (vph)	0	0	5	0	0	0	0	0	6	0	0	0
Lane Group Flow (vph)	133	2224	14	435	1031	757	137	588	1361	354	611	84
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	12.3	121.0	121.0	15.5	124.2	200.0	24.0	24.0	39.5	10.5	10.5	200.0
Effective Green, g (s)	16.3	125.5	125.5	19.5	128.7	200.0	28.5	28.5	48.0	14.5	14.5	200.0
Actuated g/C Ratio	0.08	0.63	0.63	0.10	0.64	1.00	0.14	0.14	0.24	0.07	0.07	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	280	2221	993	335	3272	1583	252	504	404	117	239	1583
v/s Ratio Prot	0.04	c0.63		0.13	0.20		0.08	0.17	c0.33	c0.22	0.19	
v/s Ratio Perm			0.01			0.48			0.53			0.05
v/c Ratio	0.47	1.00	0.01	1.30	0.32	0.48	0.54	1.17	3.37	3.03	2.90dl	0.05
Uniform Delay, d1	87.8	37.2	14.0	90.2	15.9	0.0	79.7	85.8	76.0	92.8	92.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	19.4	0.0	154.6	0.3	1.0	2.4	94.8	1072.2	934.0	712.6	0.1
Delay (s)	89.0	56.7	14.0	244.9	16.2	1.0	82.1	180.5	1148.2	1026.7	805.3	0.1
Level of Service	F	E	B	F	B	A	F	F	F	F	F	A
Approach Delay (s)		58.1			55.8			806.4			815.6	
Approach LOS		E			E			F			F	

Intersection Summary

HCM Average Control Delay	362.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.79		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	167.5%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	3067	1441	1610	3294	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	3067	1441	1610	3294	1583
Volume (vph)	120	3276	199	432	2206	198	81	5	76	149	53	62
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	3448	209	455	2322	208	85	5	80	157	56	65
RTOR Reduction (vph)	0	0	73	0	0	0	0	0	3	0	0	0
Lane Group Flow (vph)	126	3448	136	455	2322	208	43	47	77	79	134	65
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	6.2	89.1	89.1	17.1	100.0	145.0	4.8	4.8	21.9	6.0	6.0	145.0
Effective Green, g (s)	10.2	93.1	93.1	21.1	104.0	145.0	8.8	8.8	29.9	10.0	10.0	145.0
Actuated g/C Ratio	0.07	0.64	0.64	0.15	0.72	1.00	0.06	0.06	0.21	0.07	0.07	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	241	3265	1016	500	4596	1583	98	186	327	111	227	1583
v/s Ratio Prot	0.04	c0.68		c0.13	0.36		c0.03	0.02	0.03	c0.05	0.04	
v/s Ratio Perm			0.09			0.13			0.02			0.04
v/c Ratio	0.52	1.06	0.13	0.91	0.51	0.13	0.44	0.25	0.23	0.71	0.59	0.04
Uniform Delay, d1	65.1	26.0	10.2	61.0	9.1	0.0	65.7	65.0	48.0	66.1	65.5	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	33.1	0.3	20.3	0.4	0.2	3.1	0.7	0.1	19.3	4.1	0.0
Delay (s)	66.0	59.1	10.4	81.3	9.5	0.2	68.8	65.7	48.1	85.4	69.6	0.0
Level of Service	E	E	B	F	A	A	E	E	D	F	E	A
Approach Delay (s)		56.6			19.8			58.2			57.8	
Approach LOS		E			B			E			E	

Intersection Summary

HCM Average Control Delay	41.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

19: Farmwell Road & Smith Switch Road — Future Background 2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3241	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.66	1.00	1.00	0.54	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1237	3539	1583	1013	3241	
Volume (vph)	17	1290	45	390	2329	146	130	32	415	194	58	74
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	18	1358	47	411	2452	154	137	34	437	204	61	78
RTOR Reduction (vph)	0	0	23	0	0	29	0	0	41	0	69	0
Lane Group Flow (vph)	18	1358	24	411	2452	125	137	34	396	204	70	0
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt		pm+ov	pm+pt		
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		8	4		
Actuated Green, G (s)	2.8	53.1	65.3	35.8	86.1	105.1	17.3	5.1	40.9	30.9	11.9	
Effective Green, g (s)	6.8	56.6	72.8	39.8	89.6	112.6	24.8	8.6	48.4	34.6	15.4	
Actuated g/C Ratio	0.05	0.40	0.52	0.28	0.64	0.80	0.18	0.06	0.35	0.25	0.11	
Clearance Time (s)	7.0	6.5	7.0	7.0	6.5	7.0	7.0	6.5	7.0	7.0	6.5	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	86	1431	857	503	2265	1307	281	217	581	375	357	
v/s Ratio Prot	0.01	0.38	0.00	0.23	c0.69	0.02	0.06	0.01	c0.19	c0.09	0.02	
v/s Ratio Perm			0.01			0.06	0.03		0.06	0.05		
v/c Ratio	0.21	0.95	0.03	0.82	1.08	0.10	0.49	0.16	0.68	0.54	0.19	
Uniform Delay, d1	64.0	40.3	16.4	46.7	25.2	2.9	51.4	62.3	39.2	44.9	56.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	14.4	0.0	9.4	45.6	0.0	0.5	0.1	2.6	0.9	1.2	
Delay (s)	64.5	54.7	16.4	56.1	70.8	2.9	51.9	62.4	41.8	45.7	57.9	
Level of Service	E	D	B	E	E	A	D	E	D	D	E	
Approach Delay (s)		53.5			65.4			45.2			50.7	
Approach LOS		D			E			D			D	

Intersection Summary

HCM Average Control Delay	59.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

20: Waxpool Road & Loudoun County Parkway — Future Background 2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3327	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3327	1583
Volume (vph)	142	1418	179	1197	2925	918	137	395	672	687	501	345
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	149	1493	188	1260	3079	966	144	416	707	723	527	363
RTOR Reduction (vph)	0	0	70	0	0	0	0	0	31	0	0	0
Lane Group Flow (vph)	149	1493	118	1260	3079	966	144	416	676	402	848	363
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	10.5	127.0	127.0	28.5	145.0	210.0	12.0	12.0	40.5	13.5	13.5	210.0
Effective Green, g (s)	14.5	131.5	131.5	32.5	149.5	210.0	16.5	16.5	49.0	17.5	17.5	210.0
Actuated g/C Ratio	0.07	0.63	0.63	0.15	0.71	1.00	0.08	0.08	0.23	0.08	0.08	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	237	2216	991	531	3620	1583	139	278	392	134	277	1583
v/s Ratio Prot	0.04	0.42		c0.37	c0.61		0.08	0.12	c0.27	0.25	c0.25	
v/s Ratio Perm			0.07			0.61			0.16			0.23
v/c Ratio	0.63	0.67	0.12	2.37	0.85	0.61	1.04	1.50	1.73	3.00	3.06	0.23
Uniform Delay, d1	95.1	25.4	15.9	88.8	22.1	0.0	96.8	96.8	80.5	96.2	96.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	1.7	0.2	623.6	2.2	1.8	86.2	241.4	337.0	919.7	937.2	0.3
Delay (s)	100.3	27.0	16.1	712.4	24.3	1.8	183.0	338.2	417.5	1016.0	1033.4	0.3
Level of Service	F	C	B	F	C	A	F	F	F	F	F	A
Approach Delay (s)		31.9			183.6			364.8			796.6	
Approach LOS		C			F			F			F	

Intersection Summary

HCM Average Control Delay	277.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	210.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	120.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	2855	1441	1610	3248	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	2855	1441	1610	3248	1583
Volume (vph)	156	2277	94	72	3919	324	343	40	680	304	22	272
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	164	2397	99	76	4125	341	361	42	716	320	23	286
RTOR Reduction (vph)	0	0	33	0	0	0	0	52	7	0	0	0
Lane Group Flow (vph)	164	2397	66	76	4125	341	217	469	374	160	183	286
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	5.0	92.0	92.0	5.0	92.0	145.0	10.0	10.0	15.0	10.0	10.0	145.0
Effective Green, g (s)	9.0	96.0	96.0	9.0	96.0	145.0	14.0	14.0	23.0	14.0	14.0	145.0
Actuated g/C Ratio	0.06	0.66	0.66	0.06	0.66	1.00	0.10	0.10	0.16	0.10	0.10	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	213	3367	1048	213	4243	1583	155	276	258	155	314	1583
v/s Ratio Prot	0.05	0.47		0.02	c0.64		0.13	c0.16	c0.09	c0.10	0.06	
v/s Ratio Perm			0.04			0.22			0.17			0.18
v/c Ratio	0.77	0.71	0.06	0.36	0.97	0.22	1.40	1.74dr	1.45	1.03	0.99dl	0.18
Uniform Delay, d1	67.0	15.7	8.6	65.2	23.2	0.0	65.5	65.5	61.0	65.5	62.7	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.0	1.3	0.1	0.4	8.7	0.3	214.2	329.2	223.2	81.1	2.7	0.3
Delay (s)	80.9	17.0	8.8	65.6	32.0	0.3	279.7	394.7	284.2	146.6	65.5	0.3
Level of Service	F	B	A	E	C	A	F	F	F	F	E	A
Approach Delay (s)		20.6			30.2			334.7			56.4	
Approach LOS		C			C			F			E	

Intersection Summary

HCM Average Control Delay	67.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3310	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3310	1583
Volume (vph)	69	859	27	321	760	474	28	226	298	406	218	59
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	73	904	28	338	800	499	29	238	314	427	229	62
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	108	0	0	0
Lane Group Flow (vph)	73	904	10	338	800	499	29	238	206	214	442	62
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	9.7	65.2	65.2	29.4	84.9	200.0	18.6	18.6	48.0	57.8	57.8	200.0
Effective Green, g (s)	13.7	69.7	69.7	33.4	89.4	200.0	23.1	23.1	56.5	61.8	61.8	200.0
Actuated g/C Ratio	0.07	0.35	0.35	0.17	0.45	1.00	0.12	0.12	0.28	0.31	0.31	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	235	1233	552	573	2273	1583	204	409	471	497	1023	1583
v/s Ratio Prot	0.02	c0.26		c0.10	0.16		0.02	c0.07	0.07	0.13	c0.13	
v/s Ratio Perm			0.01			0.32			0.06			0.04
v/c Ratio	0.31	0.73	0.02	0.59	0.35	0.32	0.14	0.58	0.44	0.43	0.43	0.04
Uniform Delay, d1	88.7	57.0	42.7	77.0	36.3	0.0	79.5	83.9	58.7	55.1	55.1	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	3.9	0.1	1.6	0.4	0.5	0.3	2.1	0.6	0.6	0.3	0.0
Delay (s)	89.4	60.9	42.8	78.5	36.7	0.5	79.9	86.0	59.4	55.7	55.4	0.0
Level of Service	F	E	D	E	D	A	E	F	E	E	E	A
Approach Delay (s)		62.5			34.3			71.3			50.7	
Approach LOS		E			C			E			D	

Intersection Summary

HCM Average Control Delay	49.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	3165	1441	1610	3245	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	3165	1441	1610	3245	1583
Volume (vph)	451	1708	40	20	1358	847	48	49	42	673	41	601
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	475	1798	42	21	1429	892	51	52	44	708	43	633
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	28	0	0	0
Lane Group Flow (vph)	475	1798	23	21	1429	892	34	69	16	354	397	633
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	15.8	76.2	76.2	4.0	64.4	145.0	5.6	5.6	9.6	31.2	31.2	145.0
Effective Green, g (s)	19.8	80.2	80.2	8.0	68.4	145.0	9.6	9.6	17.6	35.2	35.2	145.0
Actuated g/C Ratio	0.14	0.55	0.55	0.06	0.47	1.00	0.07	0.07	0.12	0.24	0.24	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	469	2813	876	189	3023	1583	107	210	205	391	788	1583
v/s Ratio Prot	c0.14	c0.35		0.01	0.22		0.02	0.02	0.00	c0.22	0.12	
v/s Ratio Perm			0.01			c0.56			0.01			0.40
v/c Ratio	1.01	0.64	0.03	0.11	0.47	0.56	0.32	0.33	0.08	0.91	0.87dl	0.40
Uniform Delay, d1	62.6	22.4	14.7	65.1	26.0	0.0	64.6	64.6	56.5	53.3	47.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	44.8	1.1	0.1	0.1	0.5	1.5	1.7	0.9	0.1	23.8	0.5	0.8
Delay (s)	107.4	23.5	14.8	65.2	26.6	1.5	66.3	65.5	56.6	77.0	47.9	0.8
Level of Service	F	C	B	E	C	A	E	E	E	E	D	A
Approach Delay (s)		40.6			17.4			63.0			33.8	
Approach LOS		D			B			E			C	

Intersection Summary

HCM Average Control Delay	30.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

19: Farmwell Road & Smith Switch Road — 2011 Total Future

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3227	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.73	1.00	1.00	0.55	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1367	3539	1583	1028	3227	
Volume (vph)	57	2198	43	249	809	112	24	55	127	92	13	19
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	60	2314	45	262	852	118	25	58	134	97	14	20
RTOR Reduction (vph)	0	0	17	0	0	29	0	0	42	0	17	0
Lane Group Flow (vph)	60	2314	28	262	852	89	25	58	92	97	17	0
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt		pm+ov	pm+pt		
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		8	4		
Actuated Green, G (s)	5.6	62.6	65.8	22.6	79.1	92.9	9.7	6.5	29.1	25.3	17.1	
Effective Green, g (s)	9.6	66.1	71.3	26.1	82.6	98.4	15.2	10.0	36.1	28.8	20.6	
Actuated g/C Ratio	0.07	0.51	0.55	0.20	0.64	0.76	0.12	0.08	0.28	0.22	0.16	
Clearance Time (s)	7.0	6.5	5.0	6.5	6.5	5.0	5.0	6.5	6.5	5.0	6.5	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	131	1799	905	355	2249	1235	176	272	476	318	511	
v/s Ratio Prot	0.03	c0.65	0.00	c0.15	0.24	0.01	0.01	0.02	0.04	c0.04	0.01	
v/s Ratio Perm			0.02			0.05	0.01		0.02	c0.03		
v/c Ratio	0.46	1.29	0.03	0.74	0.38	0.07	0.14	0.21	0.19	0.31	0.03	
Uniform Delay, d1	57.7	32.0	13.5	48.7	11.4	4.1	51.4	56.3	35.8	41.7	46.3	
Progression Factor	1.09	0.69	0.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	131.5	0.0	6.8	0.5	0.0	0.1	0.1	0.1	0.2	0.1	
Delay (s)	63.3	153.6	2.7	55.5	11.9	4.1	51.6	56.5	35.9	41.9	46.4	
Level of Service	E	F	A	E	B	A	D	E	D	D	D	
Approach Delay (s)		148.5			20.4			43.2			43.1	
Approach LOS		F			C			D			D	

Intersection Summary

HCM Average Control Delay	99.9	HCM Level of Service	F
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

20: Waxpool Road & Loudoun County Parkway — 2011 Total Future

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3295	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3295	1583
Volume (vph)	126	2426	18	450	1063	719	130	559	1424	673	244	80
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	133	2554	19	474	1119	757	137	588	1499	708	257	84
RTOR Reduction (vph)	0	0	4	0	0	0	0	0	2	0	0	0
Lane Group Flow (vph)	133	2554	15	474	1119	757	137	588	1497	354	611	84
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	12.3	121.0	121.0	15.5	124.2	200.0	24.0	24.0	39.5	10.5	10.5	200.0
Effective Green, g (s)	16.3	125.5	125.5	19.5	128.7	200.0	28.5	28.5	48.0	14.5	14.5	200.0
Actuated g/C Ratio	0.08	0.63	0.63	0.10	0.64	1.00	0.14	0.14	0.24	0.07	0.07	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	280	2221	993	335	3272	1583	252	504	404	117	239	1583
v/s Ratio Prot	0.04	c0.72		0.14	0.22		0.08	0.17	c0.36	c0.22	0.19	
v/s Ratio Perm			0.01			0.48			0.58			0.05
v/c Ratio	0.47	1.15	0.01	1.41	0.34	0.48	0.54	1.17	3.70	3.03	2.90dl	0.05
Uniform Delay, d1	87.8	37.2	14.0	90.2	16.3	0.0	79.7	85.8	76.0	92.8	92.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	73.2	0.0	203.5	0.1	1.0	2.4	94.8	1223.2	934.0	712.6	0.1
Delay (s)	89.0	110.4	14.0	293.8	16.4	1.0	82.1	180.5	1299.2	1026.7	805.3	0.1
Level of Service	F	F	B	F	B	A	F	F	F	F	F	A
Approach Delay (s)		108.7			67.4			928.5			815.6	
Approach LOS		F			E			F			F	

Intersection Summary

HCM Average Control Delay	405.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.98		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	183.9%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	3154	1441	1610	3304	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	3154	1441	1610	3304	1583
Volume (vph)	557	3276	199	432	2206	222	81	68	76	156	72	182
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	586	3448	209	455	2322	234	85	72	80	164	76	192
RTOR Reduction (vph)	0	0	71	0	0	0	0	0	4	0	0	0
Lane Group Flow (vph)	586	3448	138	455	2322	234	52	105	76	82	158	192
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	25.3	83.7	83.7	20.3	78.7	145.0	6.0	6.0	26.3	7.0	7.0	145.0
Effective Green, g (s)	29.3	87.7	87.7	24.3	82.7	145.0	10.0	10.0	34.3	11.0	11.0	145.0
Actuated g/C Ratio	0.20	0.60	0.60	0.17	0.57	1.00	0.07	0.07	0.24	0.08	0.08	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	694	3076	957	575	3655	1583	111	218	371	122	251	1583
v/s Ratio Prot	c0.17	c0.68		0.13	0.36		0.03	c0.03	0.03	c0.05	0.05	
v/s Ratio Perm			0.09			0.15			0.02			0.12
v/c Ratio	0.84	1.12	0.14	0.79	0.64	0.15	0.47	0.48	0.21	0.67	0.63	0.12
Uniform Delay, d1	55.7	28.6	12.4	57.9	21.0	0.0	64.9	65.0	44.4	65.2	65.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.9	59.4	0.3	6.9	0.9	0.2	3.1	1.7	0.1	13.6	4.9	0.2
Delay (s)	64.5	88.0	12.7	64.8	21.8	0.2	68.0	66.7	44.5	78.9	69.9	0.2
Level of Service	E	F	B	E	C	A	E	E	D	E	E	A
Approach Delay (s)		81.1			26.6			59.5			40.6	
Approach LOS		F			C			E			D	

Intersection Summary

HCM Average Control Delay	57.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora
19: Farmwell Road & Smith Switch Road — 2011 Total Future

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3241	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.66	1.00	1.00	0.54	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1237	3539	1583	1013	3241	
Volume (vph)	17	1482	45	429	2680	146	130	32	434	194	58	74
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	18	1560	47	452	2821	154	137	34	457	204	61	78
RTOR Reduction (vph)	0	0	23	0	0	25	0	0	38	0	69	0
Lane Group Flow (vph)	18	1560	24	452	2821	129	137	34	419	204	70	0
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt		pm+ov	pm+pt		
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		8	4		
Actuated Green, G (s)	2.8	50.5	62.7	38.4	86.1	105.1	17.3	5.1	43.5	30.9	11.9	
Effective Green, g (s)	6.8	54.0	70.2	42.4	89.6	112.6	24.8	8.6	51.0	34.6	15.4	
Actuated g/C Ratio	0.05	0.39	0.50	0.30	0.64	0.80	0.18	0.06	0.36	0.25	0.11	
Clearance Time (s)	7.0	6.5	7.0	7.0	6.5	7.0	7.0	6.5	7.0	7.0	6.5	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	86	1365	828	536	2265	1307	281	217	611	375	357	
v/s Ratio Prot	0.01	0.44	0.00	0.26	c0.80	0.02	0.06	0.01	c0.21	c0.09	0.02	
v/s Ratio Perm			0.01			0.07	0.03		0.06	0.05		
v/c Ratio	0.21	1.14	0.03	0.84	1.25	0.10	0.49	0.16	0.69	0.54	0.19	
Uniform Delay, d1	64.0	43.0	17.7	45.7	25.2	2.9	51.4	62.3	37.7	44.9	56.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	73.5	0.0	11.1	114.4	0.0	0.5	0.1	2.5	0.9	1.2	
Delay (s)	64.5	116.5	17.7	56.8	139.6	2.9	51.9	62.4	40.3	45.7	57.9	
Level of Service	E	F	B	E	F	A	D	E	D	D	E	
Approach Delay (s)		113.1			122.5			44.0			50.7	
Approach LOS		F			F			D			D	

Intersection Summary

HCM Average Control Delay	107.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	109.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora
20: Waxpool Road & Loudoun County Parkway — 2011 Total Future

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3327	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3327	1583
Volume (vph)	142	1630	179	1323	3315	918	137	395	729	687	501	345
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	149	1716	188	1393	3489	966	144	416	767	723	527	363
RTOR Reduction (vph)	0	0	64	0	0	0	0	0	18	0	0	0
Lane Group Flow (vph)	149	1716	124	1393	3489	966	144	416	749	402	848	363
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	10.5	127.0	127.0	28.5	145.0	210.0	12.0	12.0	40.5	13.5	13.5	210.0
Effective Green, g (s)	14.5	131.5	131.5	32.5	149.5	210.0	16.5	16.5	49.0	17.5	17.5	210.0
Actuated g/C Ratio	0.07	0.63	0.63	0.15	0.71	1.00	0.08	0.08	0.23	0.08	0.08	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	237	2216	991	531	3620	1583	139	278	392	134	277	1583
v/s Ratio Prot	0.04	0.48		c0.41	c0.69		0.08	0.12	c0.30	0.25	c0.25	
v/s Ratio Perm			0.08			0.61			0.18			0.23
v/c Ratio	0.63	0.77	0.13	2.62	0.96	0.61	1.04	1.50	1.91	3.00	3.06	0.23
Uniform Delay, d1	95.1	28.5	15.9	88.8	27.8	0.0	96.8	96.8	80.5	96.2	96.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	2.7	0.3	735.9	8.3	1.8	86.2	241.4	418.8	919.7	937.2	0.3
Delay (s)	100.3	31.2	16.2	824.7	36.1	1.8	183.0	338.2	499.3	1016.0	1033.4	0.3
Level of Service	F	C	B	F	D	A	F	F	F	F	F	A
Approach Delay (s)		34.8			218.2			414.5			796.6	
Approach LOS		C			F			F			F	

Intersection Summary

HCM Average Control Delay	293.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	210.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	129.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	2879	1441	1610	3283	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	2879	1441	1610	3283	1583
Volume (vph)	425	2277	94	72	3919	331	343	70	680	325	87	788
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	447	2397	99	76	4125	348	361	74	716	342	92	829
RTOR Reduction (vph)	0	0	31	0	0	0	0	56	7	0	0	0
Lane Group Flow (vph)	447	2397	68	76	4125	348	218	480	390	171	263	829
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	14.0	95.0	95.0	5.0	86.0	145.0	9.0	9.0	14.0	8.0	8.0	145.0
Effective Green, g (s)	18.0	99.0	99.0	9.0	90.0	145.0	13.0	13.0	22.0	12.0	12.0	145.0
Actuated g/C Ratio	0.12	0.68	0.68	0.06	0.62	1.00	0.09	0.09	0.15	0.08	0.08	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	426	3472	1081	213	3977	1583	144	258	248	133	272	1583
v/s Ratio Prot	c0.13	0.47		0.02	c0.64		0.14	c0.17	c0.10	c0.11	0.08	
v/s Ratio Perm			0.04			0.22			0.17			0.52
v/c Ratio	1.05	0.69	0.06	0.36	1.04	0.22	1.51	1.86	1.57	1.29	1.23dl	0.52
Uniform Delay, d1	63.5	13.8	7.6	65.2	27.5	0.0	66.0	66.0	61.5	66.5	66.3	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	57.1	1.1	0.1	0.4	25.1	0.3	263.6	401.0	276.6	173.7	45.0	1.2
Delay (s)	120.6	14.9	7.7	65.6	52.6	0.3	329.6	467.0	338.1	240.2	111.3	1.2
Level of Service	F	B	A	E	D	A	F	F	F	F	F	A
Approach Delay (s)		30.8			48.9			396.5			56.5	
Approach LOS		C			D			F			E	

Intersection Summary

HCM Average Control Delay	84.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

20: Waxpool Road & Loudoun County Parkway — Total Future 2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3310	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3310	1583
Volume (vph)	69	1330	27	368	1000	474	28	226	382	406	218	59
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	73	1400	28	387	1053	499	29	238	402	427	229	62
RTOR Reduction (vph)	0	0	14	0	0	0	0	0	39	0	0	0
Lane Group Flow (vph)	73	1400	14	387	1053	499	29	238	363	214	442	62
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	9.7	95.4	95.4	20.9	106.6	200.0	18.6	18.6	39.5	36.1	36.1	200.0
Effective Green, g (s)	13.7	99.9	99.9	24.9	111.1	200.0	23.1	23.1	48.0	40.1	40.1	200.0
Actuated g/C Ratio	0.07	0.50	0.50	0.12	0.56	1.00	0.12	0.12	0.24	0.20	0.20	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	235	1768	791	427	2825	1583	204	409	404	323	664	1583
v/s Ratio Prot	0.02	c0.40		c0.11	0.21		0.02	0.07	c0.11	0.13	c0.13	
v/s Ratio Perm			0.01			0.32			0.12			0.04
v/c Ratio	0.31	0.79	0.02	0.91	0.37	0.32	0.14	0.58	0.90	0.66	0.67	0.04
Uniform Delay, d1	88.7	41.4	25.3	86.4	24.9	0.0	79.5	83.9	73.7	73.7	73.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	3.7	0.0	22.4	0.1	0.5	0.3	2.1	22.0	5.0	2.5	0.0
Delay (s)	89.4	45.2	25.3	108.8	25.0	0.5	79.9	86.0	95.7	78.8	76.3	0.0
Level of Service	F	D	C	F	C	A	E	F	F	E	E	A
Approach Delay (s)		46.9			35.4			91.5			70.4	
Approach LOS		D			D			F			E	

Intersection Summary

HCM Average Control Delay	52.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

21: Waxpool Road & Pacific Blvd — Total Future 2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	3204	1441	1610	3254	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	3204	1441	1610	3254	1583
Volume (vph)	1007	1708	40	20	1358	853	48	95	42	677	66	888
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1060	1798	42	21	1429	898	51	100	44	713	69	935
RTOR Reduction (vph)	0	0	16	0	0	0	0	0	10	0	0	0
Lane Group Flow (vph)	1060	1798	26	21	1429	898	51	100	34	357	425	935
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	15.6	100.6	100.6	4.7	89.7	170.0	9.4	9.4	14.1	27.3	27.3	170.0
Effective Green, g (s)	19.6	104.6	104.6	8.7	93.7	170.0	13.4	13.4	22.1	31.3	31.3	170.0
Actuated g/C Ratio	0.12	0.62	0.62	0.05	0.55	1.00	0.08	0.08	0.13	0.18	0.18	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	396	3129	974	176	3532	1583	127	253	213	296	599	1583
v/s Ratio Prot	c0.31	0.35		0.01	0.22		0.03	0.03	0.01	c0.22	0.13	
v/s Ratio Perm			0.02			0.57			0.02			c0.59
v/c Ratio	2.68	0.57	0.03	0.12	0.40	0.57	0.40	0.40	0.16	1.21	1.15dl	0.59
Uniform Delay, d1	75.2	19.5	12.8	77.0	22.0	0.0	74.5	74.4	65.7	69.3	65.1	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	761.7	0.8	0.1	0.1	0.3	1.5	2.1	1.0	0.1	120.2	3.9	1.6
Delay (s)	836.9	20.2	12.8	77.1	22.4	1.5	76.6	75.5	65.8	189.5	68.9	1.6
Level of Service	F	C	B	E	C	A	E	E	E	F	E	A
Approach Delay (s)		318.6			14.9			73.6			57.4	
Approach LOS		F			B			E			E	

Intersection Summary

HCM Average Control Delay	149.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

19: Farmwell Road & Smith Switch Road — 2015 Future Background

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3189	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.73	1.00	1.00	0.54	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1354	3539	1583	997	3189	
Volume (vph)	125	2035	55	240	836	202	72	63	119	104	14	28
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	132	2142	58	253	880	213	76	66	125	109	15	29
RTOR Reduction (vph)	0	0	22	0	0	58	0	0	22	0	26	0
Lane Group Flow (vph)	132	2142	36	253	880	155	76	66	103	109	18	0
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt		pm+ov	pm+pt		
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		8	4		
Actuated Green, G (s)	13.2	75.0	80.0	23.2	84.5	96.2	10.6	5.6	28.8	22.3	12.3	
Effective Green, g (s)	17.2	78.5	85.5	26.7	88.0	101.7	16.1	9.1	35.8	25.8	15.8	
Actuated g/C Ratio	0.12	0.56	0.61	0.19	0.63	0.73	0.12	0.06	0.26	0.18	0.11	
Clearance Time (s)	7.0	6.5	5.0	6.5	6.5	5.0	5.0	6.5	6.5	5.0	6.5	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	217	1984	1001	338	2225	1184	177	230	439	259	360	
v/s Ratio Prot	0.07	c0.61	0.00	c0.14	0.25	0.01	0.02	0.02	0.04	c0.04	0.01	
v/s Ratio Perm			0.02			0.08	0.03		0.02	c0.04		
v/c Ratio	0.61	1.08	0.04	0.75	0.40	0.13	0.43	0.29	0.24	0.42	0.05	
Uniform Delay, d1	58.2	30.8	10.8	53.5	12.9	5.8	57.3	62.4	41.3	49.7	55.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.3	45.5	0.0	7.7	0.5	0.0	0.6	0.3	0.1	0.4	0.3	
Delay (s)	61.5	76.3	10.9	61.2	13.4	5.8	57.9	62.6	41.4	50.1	55.7	
Level of Service	E	E	B	E	B	A	E	E	D	D	E	
Approach Delay (s)		73.8			21.2			51.3			51.7	
Approach LOS		E			C			D			D	

Intersection Summary

HCM Average Control Delay	54.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

20: Waxpool Road & Loudoun County Parkway — 2015 Future Background

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3306	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3306	1583
Volume (vph)	196	2198	33	420	1091	1075	211	934	1335	740	356	92
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	206	2314	35	442	1148	1132	222	983	1405	779	375	97
RTOR Reduction (vph)	0	0	9	0	0	0	0	0	5	0	0	0
Lane Group Flow (vph)	206	2314	26	442	1148	1132	222	983	1400	390	764	97
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	13.4	121.0	121.0	15.5	123.1	200.0	24.0	24.0	39.5	10.5	10.5	200.0
Effective Green, g (s)	17.4	125.5	125.5	19.5	127.6	200.0	28.5	28.5	48.0	14.5	14.5	200.0
Actuated g/C Ratio	0.09	0.63	0.63	0.10	0.64	1.00	0.14	0.14	0.24	0.07	0.07	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	299	2221	993	335	3244	1583	252	504	404	117	240	1583
v/s Ratio Prot	0.06	c0.65		0.13	0.23		0.13	0.28	c0.34	c0.24	0.23	
v/s Ratio Perm			0.02			c0.71			0.55			0.06
v/c Ratio	0.69	1.04	0.03	1.32	0.35	0.72	0.88	1.95	3.47	3.33	3.18	0.06
Uniform Delay, d1	88.7	37.2	14.1	90.2	16.9	0.0	84.1	85.8	76.0	92.8	92.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	31.1	0.0	163.3	0.1	2.8	28.0	434.9	1116.1	1071.5	993.3	0.1
Delay (s)	95.1	68.3	14.2	253.5	17.0	2.8	112.1	520.6	1192.1	1164.3	1086.1	0.1
Level of Service	F	E	B	F	B	A	F	F	F	F	F	A
Approach Delay (s)		69.7			49.5			847.4			1026.2	
Approach LOS		E			D			F			F	

Intersection Summary

HCM Average Control Delay	416.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.84		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	174.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	3058	1441	1610	3294	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	3058	1441	1610	3294	1583
Volume (vph)	120	3490	227	436	2447	198	210	5	94	149	53	62
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	3674	239	459	2576	208	221	5	99	157	56	65
RTOR Reduction (vph)	0	0	76	0	0	0	0	0	7	0	0	0
Lane Group Flow (vph)	126	3674	163	459	2576	208	111	115	92	79	134	65
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	9.5	80.7	80.7	20.3	91.5	145.0	8.0	8.0	28.3	8.0	8.0	145.0
Effective Green, g (s)	13.5	84.7	84.7	24.3	95.5	145.0	12.0	12.0	36.3	12.0	12.0	145.0
Actuated g/C Ratio	0.09	0.58	0.58	0.17	0.66	1.00	0.08	0.08	0.25	0.08	0.08	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	320	2970	925	575	4220	1583	133	253	391	133	273	1583
v/s Ratio Prot	0.04	c0.72		c0.13	0.40		c0.07	0.04	0.04	c0.05	0.04	
v/s Ratio Perm			0.10			0.13			0.02			0.04
v/c Ratio	0.39	1.24	0.18	0.80	0.61	0.13	0.83	0.45	0.24	0.59	0.49	0.04
Uniform Delay, d1	61.9	30.1	14.0	58.0	14.1	0.0	65.5	63.4	43.3	64.1	63.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	109.7	0.4	7.1	0.7	0.2	34.1	1.3	0.1	6.9	1.4	0.0
Delay (s)	62.2	139.9	14.4	65.1	14.8	0.2	99.6	64.7	43.4	71.1	65.0	0.0
Level of Service	E	F	B	E	B	A	F	E	D	E	E	A
Approach Delay (s)		130.0			21.0			70.1			51.5	
Approach LOS		F			C			E			D	

Intersection Summary

HCM Average Control Delay	79.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

19: Farmwell Road & Smith Switch Road — 2015 Future Background

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3170	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	1.00	0.55	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1141	3539	1583	1027	3170	
Volume (vph)	27	1443	92	417	2493	159	145	33	421	290	65	147
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	1519	97	439	2624	167	153	35	443	305	68	155
RTOR Reduction (vph)	0	0	50	0	0	33	0	0	29	0	110	0
Lane Group Flow (vph)	28	1519	47	439	2624	134	153	35	414	305	113	0
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt		pm+ov	pm+pt		
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		8	4		
Actuated Green, G (s)	4.2	48.8	60.4	35.9	80.5	103.2	17.2	5.6	41.5	35.3	16.7	
Effective Green, g (s)	8.2	52.3	67.9	39.9	84.0	110.7	24.7	9.1	49.0	38.8	20.2	
Actuated g/C Ratio	0.06	0.37	0.49	0.28	0.60	0.79	0.18	0.06	0.35	0.28	0.14	
Clearance Time (s)	7.0	6.5	7.0	7.0	6.5	7.0	7.0	6.5	7.0	7.0	6.5	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	104	1322	802	504	2123	1286	271	230	588	426	457	
v/s Ratio Prot	0.02	0.43	0.01	0.25	c0.74	0.02	0.06	0.01	c0.20	c0.14	0.04	
v/s Ratio Perm			0.02			0.06	0.04		0.06	c0.06		
v/c Ratio	0.27	1.15	0.06	0.87	1.24	0.10	0.56	0.15	0.70	0.72	0.25	
Uniform Delay, d1	63.0	43.9	19.1	47.6	28.0	3.3	52.0	61.8	39.3	44.2	53.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	76.3	0.0	14.7	110.5	0.0	1.6	0.1	3.1	4.7	1.3	
Delay (s)	63.5	120.1	19.1	62.3	138.5	3.4	53.6	61.9	42.4	49.0	54.5	
Level of Service	E	F	B	E	F	A	D	E	D	D	D	
Approach Delay (s)		113.2			121.1			46.2			51.3	
Approach LOS		F			F			D			D	

Intersection Summary

HCM Average Control Delay	105.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

20: Waxpool Road & Loudoun County Parkway — 2015 Future Background

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3353	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3353	1583
Volume (vph)	173	1571	278	1229	3057	1054	175	543	682	1063	1195	431
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	182	1654	293	1294	3218	1109	184	572	718	1119	1258	454
RTOR Reduction (vph)	0	0	103	0	0	0	0	0	21	0	0	0
Lane Group Flow (vph)	182	1654	190	1294	3218	1109	184	572	697	764	1613	454
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	10.5	127.0	127.0	28.5	145.0	210.0	12.0	12.0	40.5	13.5	13.5	210.0
Effective Green, g (s)	14.5	131.5	131.5	32.5	149.5	210.0	16.5	16.5	49.0	17.5	17.5	210.0
Actuated g/C Ratio	0.07	0.63	0.63	0.15	0.71	1.00	0.08	0.08	0.23	0.08	0.08	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	237	2216	991	531	3620	1583	139	278	392	134	279	1583
v/s Ratio Prot	0.05	0.47		c0.38	c0.63		0.10	c0.16	0.27	0.47	c0.48	
v/s Ratio Perm			0.12			0.70			0.16			0.29
v/c Ratio	0.77	0.75	0.19	2.44	0.89	0.70	1.32	2.06	1.78	5.70	5.78	0.29
Uniform Delay, d1	96.1	27.5	16.7	88.8	23.7	0.0	96.8	96.8	80.5	96.2	96.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.8	2.3	0.4	652.3	3.7	2.6	186.9	488.2	359.8	2131.8	2159.4	0.5
Delay (s)	109.9	29.9	17.1	741.1	27.4	2.6	283.7	584.9	440.3	2228.1	2255.6	0.5
Level of Service	F	C	B	F	C	A	F	F	F	F	F	A
Approach Delay (s)		35.0			186.8			476.9			1886.5	
Approach LOS		C			F			F			F	

Intersection Summary

HCM Average Control Delay	594.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.66		
Actuated Cycle Length (s)	210.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	149.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	2882	1441	1610	3248	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	2882	1441	1610	3248	1583
Volume (vph)	156	2532	243	88	4153	324	400	40	685	304	22	272
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	164	2665	256	93	4372	341	421	42	721	320	23	286
RTOR Reduction (vph)	0	0	79	0	0	0	0	53	4	0	0	0
Lane Group Flow (vph)	164	2665	177	93	4372	341	225	491	411	160	183	286
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	11.1	96.0	96.0	5.0	89.9	145.0	8.0	8.0	13.0	8.0	8.0	145.0
Effective Green, g (s)	15.1	100.0	100.0	9.0	93.9	145.0	12.0	12.0	21.0	12.0	12.0	145.0
Actuated g/C Ratio	0.10	0.69	0.69	0.06	0.65	1.00	0.08	0.08	0.14	0.08	0.08	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	358	3507	1092	213	4150	1583	133	239	239	133	269	1583
v/s Ratio Prot	0.05	c0.52		0.03	c0.68		0.14	c0.17	c0.11	c0.10	0.06	
v/s Ratio Perm			0.11			0.22			0.18			0.18
v/c Ratio	0.46	0.76	0.16	0.44	1.05	0.22	1.69	2.05	1.72	1.20	1.15dl	0.18
Uniform Delay, d1	61.1	14.7	7.9	65.6	25.5	0.0	66.5	66.5	62.0	66.5	64.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.6	0.3	0.5	30.8	0.3	341.5	488.4	340.4	142.7	6.9	0.3
Delay (s)	61.4	16.3	8.2	66.1	56.3	0.3	408.0	554.9	402.4	209.2	71.5	0.3
Level of Service	E	B	A	E	E	A	F	F	F	F	E	A
Approach Delay (s)		18.0			52.5			473.5			74.1	
Approach LOS		B			D			F			E	

Intersection Summary

HCM Average Control Delay	94.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

20: Waxpool Road & Loudoun County Parkway — Future Background 2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3327	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3327	1583
Volume (vph)	79	932	63	328	835	535	67	382	301	524	379	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	83	981	66	345	879	563	71	402	317	552	399	74
RTOR Reduction (vph)	0	0	44	0	0	0	0	0	97	0	0	0
Lane Group Flow (vph)	83	981	22	345	879	563	71	402	220	307	644	74
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	10.3	61.2	61.2	15.9	66.8	200.0	23.6	23.6	39.5	70.3	70.3	200.0
Effective Green, g (s)	14.3	65.7	65.7	19.9	71.3	200.0	28.1	28.1	48.0	74.3	74.3	200.0
Actuated g/C Ratio	0.07	0.33	0.33	0.10	0.36	1.00	0.14	0.14	0.24	0.37	0.37	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	245	1163	520	342	1813	1583	249	497	404	598	1236	1583
v/s Ratio Prot	0.02	c0.28		c0.10	0.17		0.04	c0.11	0.05	0.19	c0.19	
v/s Ratio Perm			0.01			0.36			0.08			0.05
v/c Ratio	0.34	0.84	0.04	1.01	0.48	0.36	0.29	0.81	0.54	0.51	0.52	0.05
Uniform Delay, d1	88.4	62.4	45.7	90.0	50.1	0.0	77.0	83.3	66.4	48.8	49.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	7.5	0.2	50.9	0.9	0.6	0.6	9.4	1.5	0.7	0.4	0.1
Delay (s)	89.2	69.9	45.9	140.9	51.0	0.6	77.6	92.7	67.9	49.6	49.4	0.1
Level of Service	F	E	D	F	D	A	E	F	E	D	D	A
Approach Delay (s)		69.9			52.5			81.4			45.9	
Approach LOS		E			D			F			D	

Intersection Summary

HCM Average Control Delay	60.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

21: Waxpool Road & Pacific Blvd — Future Background 2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	3112	1441	1610	3245	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	3112	1441	1610	3245	1583
Volume (vph)	451	1844	127	23	1422	847	143	49	44	673	41	601
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	475	1941	134	24	1497	892	151	52	46	708	43	633
RTOR Reduction (vph)	0	0	57	0	0	0	0	0	4	0	0	0
Lane Group Flow (vph)	475	1941	77	24	1497	892	76	127	42	354	397	633
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	23.0	79.1	79.1	4.7	60.8	145.0	12.2	12.2	16.9	21.0	21.0	145.0
Effective Green, g (s)	27.0	83.1	83.1	8.7	64.8	145.0	16.2	16.2	24.9	25.0	25.0	145.0
Actuated g/C Ratio	0.19	0.57	0.57	0.06	0.45	1.00	0.11	0.11	0.17	0.17	0.17	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	639	2914	907	206	2864	1583	180	348	277	278	559	1583
v/s Ratio Prot	c0.14	c0.38		0.01	0.23		0.05	0.04	0.01	c0.22	0.12	
v/s Ratio Perm			0.05			c0.56			0.02			0.40
v/c Ratio	0.74	0.67	0.08	0.12	0.52	0.56	0.42	0.36	0.15	1.27	1.22dl	0.40
Uniform Delay, d1	55.7	21.4	13.9	64.5	28.9	0.0	60.0	59.6	51.1	60.0	56.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.1	1.2	0.2	0.1	0.7	1.5	1.6	0.7	0.1	148.1	4.2	0.8
Delay (s)	59.8	22.6	14.1	64.6	29.6	1.5	61.6	60.3	51.2	208.1	60.8	0.8
Level of Service	E	C	B	E	C	A	E	E	D	F	E	A
Approach Delay (s)		29.1			19.6			59.0			71.0	
Approach LOS		C			B			E			E	

Intersection Summary

HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

19: Farmwell Road & Smith Switch Road — Total Future 2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3189	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.73	1.00	1.00	0.54	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1354	3539	1583	997	3189	
Volume (vph)	125	2667	55	272	1105	202	72	63	193	104	14	28
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	132	2807	58	286	1163	213	76	66	203	109	15	29
RTOR Reduction (vph)	0	0	18	0	0	61	0	0	15	0	26	0
Lane Group Flow (vph)	132	2807	40	286	1163	152	76	66	188	109	18	0
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt		pm+ov	pm+pt		
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		8	4		
Actuated Green, G (s)	11.9	67.4	71.4	23.8	78.8	87.5	9.6	5.6	29.4	19.0	10.3	
Effective Green, g (s)	15.9	70.9	76.9	27.3	82.3	93.0	15.1	9.1	36.4	22.8	13.8	
Actuated g/C Ratio	0.12	0.55	0.59	0.21	0.63	0.72	0.12	0.07	0.28	0.18	0.11	
Clearance Time (s)	7.0	6.5	5.0	6.5	6.5	5.0	5.0	6.5	6.5	5.0	6.5	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	216	1930	973	372	2240	1169	176	248	480	238	339	
v/s Ratio Prot	0.07	c0.79	0.00	c0.16	0.33	0.01	0.02	0.02	0.08	c0.04	0.01	
v/s Ratio Perm			0.02			0.09	0.03		0.04	c0.04		
v/c Ratio	0.61	1.45	0.04	0.77	0.52	0.13	0.43	0.27	0.39	0.46	0.05	
Uniform Delay, d1	54.1	29.5	11.1	48.4	13.0	5.8	53.1	57.3	37.8	47.1	52.2	
Progression Factor	1.09	0.76	0.34	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	206.2	0.0	8.3	0.9	0.0	0.6	0.2	0.2	0.5	0.3	
Delay (s)	61.3	228.7	3.8	56.7	13.9	5.8	53.7	57.5	38.0	47.6	52.5	
Level of Service	E	F	A	E	B	A	D	E	D	D	D	
Approach Delay (s)		217.0			20.2			45.2			49.1	
Approach LOS		F			C			D			D	

Intersection Summary

HCM Average Control Delay	137.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	111.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

20: Waxpool Road & Loudoun County Parkway — Total Future 2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3306	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3306	1583
Volume (vph)	196	2904	33	511	1393	1075	211	934	1579	740	359	92
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	206	3057	35	538	1466	1132	222	983	1662	779	378	97
RTOR Reduction (vph)	0	0	7	0	0	0	0	0	1	0	0	0
Lane Group Flow (vph)	206	3057	28	538	1466	1132	222	983	1661	390	767	97
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	13.4	121.0	121.0	15.5	123.1	200.0	24.0	24.0	39.5	10.5	10.5	200.0
Effective Green, g (s)	17.4	125.5	125.5	19.5	127.6	200.0	28.5	28.5	48.0	14.5	14.5	200.0
Actuated g/C Ratio	0.09	0.63	0.63	0.10	0.64	1.00	0.14	0.14	0.24	0.07	0.07	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	299	2221	993	335	3244	1583	252	504	404	117	240	1583
v/s Ratio Prot	0.06	c0.86		0.16	0.29		0.13	0.28	c0.40	c0.24	0.23	
v/s Ratio Perm			0.02			c0.71			0.65			0.06
v/c Ratio	0.69	1.38	0.03	1.61	0.45	0.72	0.88	1.95	4.11	3.33	3.20	0.06
Uniform Delay, d1	88.7	37.2	14.1	90.2	18.4	0.0	84.1	85.8	76.0	92.8	92.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	172.3	0.1	286.3	0.5	2.8	28.0	434.9	1406.3	1071.5	998.9	0.1
Delay (s)	95.1	209.5	14.2	376.5	18.9	2.8	112.1	520.6	1482.3	1164.3	1091.7	0.1
Level of Service	F	F	B	F	B	A	F	F	F	F	F	A
Approach Delay (s)		200.3			74.4			1046.5			1029.8	
Approach LOS		F			E			F			F	

Intersection Summary

HCM Average Control Delay	491.3	HCM Level of Service	F
HCM Volume to Capacity ratio	2.23		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	209.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	3139	1441	1610	3314	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	3139	1441	1610	3314	1583
Volume (vph)	1082	3479	227	436	2447	241	210	133	91	173	100	454
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1139	3662	239	459	2576	254	221	140	96	182	105	478
RTOR Reduction (vph)	0	0	69	0	0	0	0	0	6	0	0	0
Lane Group Flow (vph)	1139	3662	170	459	2576	254	121	240	90	92	195	478
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	35.0	89.1	89.1	22.9	77.0	160.0	10.0	10.0	32.9	10.0	10.0	160.0
Effective Green, g (s)	39.0	93.1	93.1	26.9	81.0	160.0	14.0	14.0	40.9	14.0	14.0	160.0
Actuated g/C Ratio	0.24	0.58	0.58	0.17	0.51	1.00	0.09	0.09	0.26	0.09	0.09	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	837	2959	921	577	3244	1583	141	275	395	141	290	1583
v/s Ratio Prot	c0.33	c0.72		0.13	0.40		0.08	c0.08	0.04	0.06	c0.06	
v/s Ratio Perm			0.11			0.16			0.02			0.30
v/c Ratio	1.36	1.24	0.19	0.80	0.79	0.16	0.86	0.87	0.23	0.65	0.67	0.30
Uniform Delay, d1	60.5	33.5	15.7	63.9	32.6	0.0	72.0	72.1	47.1	70.6	70.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	170.1	110.0	0.4	7.0	2.1	0.2	37.1	24.8	0.1	10.3	6.0	0.5
Delay (s)	230.6	143.4	16.1	70.9	34.7	0.2	109.1	96.9	47.2	81.0	76.8	0.5
Level of Service	F	F	B	E	C	A	F	F	D	F	E	A
Approach Delay (s)		157.1			37.1			89.7			29.6	
Approach LOS		F			D			F			C	

Intersection Summary

HCM Average Control Delay	102.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

19: Farmwell Road & Smith Switch Road — Total Future 2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3170	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.78	1.00	1.00	0.49	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1461	3539	1583	920	3170	
Volume (vph)	27	2001	92	495	3278	159	145	33	466	290	65	147
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	2106	97	521	3451	167	153	35	491	305	68	155
RTOR Reduction (vph)	0	0	44	0	0	29	0	0	20	0	50	0
Lane Group Flow (vph)	28	2106	53	521	3451	138	153	35	471	305	173	0
Turn Type	Prot		pm+ov	Prot		pm+ov	pm+pt		pm+ov	pm+pt		
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		8	4		
Actuated Green, G (s)	2.4	54.2	57.2	27.0	78.8	99.0	4.6	1.6	28.6	28.8	18.8	
Effective Green, g (s)	6.4	57.7	64.7	31.0	82.3	106.5	12.1	5.1	36.1	32.3	22.3	
Actuated g/C Ratio	0.05	0.44	0.50	0.24	0.63	0.82	0.09	0.04	0.28	0.25	0.17	
Clearance Time (s)	7.0	6.5	7.0	7.0	6.5	7.0	7.0	6.5	7.0	7.0	6.5	
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	87	1571	824	422	2240	1333	153	139	476	387	544	
v/s Ratio Prot	0.02	0.60	0.00	0.29	c0.98	0.02	c0.05	0.01	c0.24	c0.15	0.05	
v/s Ratio Perm			0.03			0.07	0.04		0.06	c0.05		
v/c Ratio	0.32	1.34	0.06	1.23	1.54	0.10	1.00	0.25	0.99	0.79	0.32	
Uniform Delay, d1	59.7	36.1	16.9	49.5	23.9	2.3	58.7	60.6	46.8	44.4	47.2	
Progression Factor	0.91	1.20	2.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	156.1	0.0	124.6	245.6	0.2	72.8	0.3	37.9	15.0	1.5	
Delay (s)	55.0	199.4	49.5	174.1	269.4	2.5	131.4	60.9	84.6	59.4	48.7	
Level of Service	D	F	D	F	F	A	F	E	F	E	D	
Approach Delay (s)		191.1			246.6			94.0			54.9	
Approach LOS		F			F			F			D	

Intersection Summary

HCM Average Control Delay	203.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

20: Waxpool Road & Loudoun County Parkway — Total Future 2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3353	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3353	1583
Volume (vph)	173	2174	278	1482	3920	1054	175	543	818	1063	1195	1063
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	182	2288	293	1560	4126	1109	184	572	861	1119	1258	1119
RTOR Reduction (vph)	0	0	74	0	0	0	0	0	5	0	0	0
Lane Group Flow (vph)	182	2288	219	1560	4126	1109	184	572	856	764	1613	1119
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	10.5	127.0	127.0	28.5	145.0	210.0	12.0	12.0	40.5	13.5	13.5	210.0
Effective Green, g (s)	14.5	131.5	131.5	32.5	149.5	210.0	16.5	16.5	49.0	17.5	17.5	210.0
Actuated g/C Ratio	0.07	0.63	0.63	0.15	0.71	1.00	0.08	0.08	0.23	0.08	0.08	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	237	2216	991	531	3620	1583	139	278	392	134	279	1583
v/s Ratio Prot	0.05	0.65		c0.45	c0.81		0.10	0.16	c0.34	0.47	c0.48	
v/s Ratio Perm			0.14			0.70			0.20			0.71
v/c Ratio	0.77	1.03	0.22	2.94	1.14	0.70	1.32	2.06	2.18	5.70	5.78	0.71
Uniform Delay, d1	96.1	39.2	17.0	88.8	30.2	0.0	96.8	96.8	80.5	96.2	96.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.8	28.1	0.5	877.1	66.7	2.6	186.9	488.2	541.4	2131.8	2159.4	2.7
Delay (s)	109.9	67.3	17.5	965.9	97.0	2.6	283.7	584.9	621.9	2228.1	2255.6	2.7
Level of Service	F	E	B	F	F	A	F	F	F	F	F	A
Approach Delay (s)		64.8			281.1			570.4			1528.5	
Approach LOS		E			F			F			F	

Intersection Summary

HCM Average Control Delay	569.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.92		
Actuated Cycle Length (s)	210.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	173.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	2964	1441	1610	3297	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	2964	1441	1610	3297	1583
Volume (vph)	933	2495	243	88	4153	338	400	124	675	393	153	1389
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	982	2626	256	93	4372	356	421	131	711	414	161	1462
RTOR Reduction (vph)	0	0	94	0	0	0	0	49	2	0	0	0
Lane Group Flow (vph)	982	2626	162	93	4372	356	225	483	504	207	368	1462
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	21.0	88.0	88.0	12.0	79.0	145.0	9.0	9.0	21.0	8.0	8.0	145.0
Effective Green, g (s)	25.0	92.0	92.0	16.0	83.0	145.0	13.0	13.0	29.0	12.0	12.0	145.0
Actuated g/C Ratio	0.17	0.63	0.63	0.11	0.57	1.00	0.09	0.09	0.20	0.08	0.08	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	592	3226	1004	379	3668	1583	144	266	318	133	273	1583
v/s Ratio Prot	c0.29	0.52		0.03	c0.68		0.14	c0.16	c0.17	c0.13	0.11	
v/s Ratio Perm			0.10			0.22			0.17			0.92
v/c Ratio	1.66	0.81	0.16	0.25	1.19	0.22	1.56	1.82	1.58	1.56	1.49dl	0.92
Uniform Delay, d1	60.0	20.0	10.8	59.0	31.0	0.0	66.0	66.0	58.0	66.5	66.5	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	303.9	2.4	0.3	0.1	89.3	0.3	284.1	381.3	277.2	283.8	178.9	10.5
Delay (s)	363.9	22.4	11.1	59.1	120.3	0.3	350.1	447.3	335.2	350.3	245.4	10.5
Level of Service	F	C	B	E	F	A	F	F	F	F	F	B
Approach Delay (s)		108.5			110.3			385.1			87.5	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	134.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	125.9%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

20: Waxpool Road & Loudoun County Parkway — Total Future 2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3327	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3539	1583	3433	5085	1583	1770	3539	1583	1610	3327	1583
Volume (vph)	79	1900	63	439	1430	535	67	382	478	524	379	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	83	2000	66	462	1505	563	71	402	503	552	399	74
RTOR Reduction (vph)	0	0	20	0	0	0	0	0	10	0	0	0
Lane Group Flow (vph)	83	2000	46	462	1505	563	71	402	493	307	644	74
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			Free			4			Free
Actuated Green, G (s)	10.3	121.0	121.0	15.9	126.6	200.0	23.6	23.6	39.5	10.5	10.5	200.0
Effective Green, g (s)	14.3	125.5	125.5	19.9	131.1	200.0	28.1	28.1	48.0	14.5	14.5	200.0
Actuated g/C Ratio	0.07	0.63	0.63	0.10	0.66	1.00	0.14	0.14	0.24	0.07	0.07	1.00
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5		7.5	7.5	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	245	2221	993	342	3333	1583	249	497	404	117	241	1583
v/s Ratio Prot	0.02	c0.57		c0.13	0.30		0.04	0.11	c0.12	0.19	c0.19	
v/s Ratio Perm			0.03			0.36			0.19			0.05
v/c Ratio	0.34	0.90	0.05	1.35	0.45	0.36	0.29	0.81	1.22	2.62	2.67	0.05
Uniform Delay, d1	88.4	31.9	14.3	90.0	16.9	0.0	77.0	83.3	76.0	92.8	92.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	6.4	0.1	176.1	0.4	0.6	0.6	9.4	119.7	754.8	764.2	0.1
Delay (s)	89.2	38.3	14.4	266.1	17.3	0.6	77.6	92.7	195.7	847.6	857.0	0.1
Level of Service	F	D	B	F	B	A	E	F	F	F	F	A
Approach Delay (s)		39.5			59.0			144.7			792.3	
Approach LOS		D			E			F			F	

Intersection Summary

HCM Average Control Delay	177.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	109.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Kincora

21: Waxpool Road & Pacific Blvd — Total Future 2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.86	1.00	0.91	0.86	0.91	0.91	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	5085	1583	3433	6408	1583	1610	3170	1441	1610	3263	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	5085	1583	3433	6408	1583	1610	3170	1441	1610	3263	1583
Volume (vph)	1639	1802	127	23	1422	859	143	158	32	732	102	1307
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1725	1897	134	24	1497	904	151	166	34	771	107	1376
RTOR Reduction (vph)	0	0	59	0	0	0	0	0	5	0	0	0
Lane Group Flow (vph)	1725	1897	75	24	1497	904	106	211	29	386	492	1376
Turn Type	Prot		Perm	Prot		Free	Split		pm+ov	Split		Free
Protected Phases	1	6		5	2		4	4	5	3	3	
Permitted Phases			6			Free			4			Free
Actuated Green, G (s)	43.5	74.1	74.1	4.4	35.0	140.0	14.5	14.5	18.9	19.0	19.0	140.0
Effective Green, g (s)	47.5	78.1	78.1	8.4	39.0	140.0	18.5	18.5	26.9	23.0	23.0	140.0
Actuated g/C Ratio	0.34	0.56	0.56	0.06	0.28	1.00	0.13	0.13	0.19	0.16	0.16	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0	2.0	3.0	3.0	
Lane Grp Cap (vph)	1165	2837	883	206	1785	1583	213	419	308	265	536	1583
v/s Ratio Prot	c0.50	0.37		0.01	0.23		0.07	0.07	0.01	c0.24	0.15	
v/s Ratio Perm			0.05			0.57			0.01			c0.87
v/c Ratio	1.48	0.67	0.08	0.12	0.84	0.57	0.50	0.50	0.09	1.46	1.39dl	0.87
Uniform Delay, d1	46.2	21.8	14.4	62.3	47.5	0.0	56.4	56.5	46.5	58.5	57.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	221.0	1.3	0.2	0.1	4.9	1.5	1.8	1.0	0.0	225.2	20.6	6.8
Delay (s)	267.2	23.1	14.6	62.4	52.4	1.5	58.3	57.4	46.6	283.7	78.2	6.8
Level of Service	F	C	B	E	D	A	E	E	D	F	E	A
Approach Delay (s)		134.9			33.6			56.6			69.8	
Approach LOS		F			C			E			E	

Intersection Summary

HCM Average Control Delay	87.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	106.9%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group