August 16, 2024

Mr. Garrett Fugate
Christie Development Associates, LLC
7217 W. 110th Street
Overland Park, KS 66210

Re: Arborwalk Lot #5 TIS Addendum – Lee's Summit, MO

Dear Mr. Fugate:

In response to your request, Priority Engineers, Inc. has completed an analysis of the Arborwalk Development to consider the impacts of only the Day Care opening and the convenience store and quick lubrication vehicle shop being developed at some time in the future. This report will document that analysis and serve as an Addendum to the approved March 20, 2023 traffic impact study.

The approved site plan is shown in Figure A. The proposed driveway onto Arboridge Drive will be constructed to serve the Day Care Center. The right-in/right-out driveway onto Missouri Route 150 will not be constructed at this time.

TRIP GENERATION

The vehicle trips generated by the proposed development were estimated using the Institute of Transportation Engineers' Trip Generation Manuel, 11th Edition. The estimated AM and PM peak hour traffic volumes associated with the Day Care use is shown in Table 1.

Table 1: Trip Generation

			AM Peak			PM Peak		
Land Use	***Intensity***	***Daily***	***Total***	***In***	***Out***	***Total***	***In***	***Out***
Day Care Center	10,000 SF	476	110	58	52	111	52	59
Total Trips			**110**	**58**	**52**	**111**	**52**	**59**

TRIP DISTRIBUTION

The trips generated by the Day Care were distributed as outlined in the approved study with trips being distributed onto the existing street system approximately as follows:

- 10 percent to/from the north on SW Pryor Road
- 10 percent to/from the south on SW Pryor Road
- 5 percent to/from the north on SW Arborlake Drive
- 5 percent to/from the south on SW Stoney Creek Drive
- 10 percent to/from the north on SW Arboridge Drive
- 30 percent to/from the west on Missouri Route 150
- 30 percent to/from the east on Missouri Route 150

The proposed development trips were added to the existing and approved development volumes (which are shown in Figures 7 and 8 of the approved study) and are shown in Figure B and C.

LEVEL OF SERVICE AND VOLUME/CAPACITY ANALYSIS

Capacity analysis was used to quantify the impacts of the increased traffic on the intersections studied. The methodology outlined in the Highway Capacity Manual, 7th Edition, was used as a basis to perform the analysis for this study. The 6th Edition of the HCM was used in the approved study. Capacity analysis defines the quality of traffic operation for an intersection using a grading system called Level of Service (LOS). The LOS is defined in terms of average vehicle delay. Levels of service A through F have been established with A representing the best and F the worst.

Table 2: Level of Service Definitions

Level of Service	*Unsignalized Intersection*	*Signalized Intersection*
A	< 10 Seconds	< 10 Seconds
B	< 15 Seconds	< 20 Seconds
C	< 25 Seconds	< 35 Seconds
D	< 35 Seconds	< 55 Seconds
E	< 50 Seconds	< 80 Seconds
F	≥ 50 Seconds	≥ 80 Seconds

The study intersections were evaluated using Synchro, an analysis package based in part on Highway Capacity Manual methods. The analysis reports are included in this memo. Signal timing at the intersection of SW Pryor Road and Missouri Route 150 and SW Arborlake Drive / SW Stoney Creek Drive and Missouri Route 150 was based upon observed cycle lengths with optimized splits.

The levels of service, lane configuration, and queue lengths for the existing plus approved development plus the day care trips are shown in Figures D and E.

Both existing Signalized intersections continue to have an overall level of service of C or better in both peak hours. The intersection of SW Arboridge and Missouri Route 150 was assumed to remain unsignalized. In the AM Peak Hour, the southbound left turn movement at this intersection has a level of service F with a one vehicle design queue. In the PM Peak Hour, both the north and southbound left turn movements experience a level of service F with a 40' design queue for the southbound left, and less than one

vehicle design queue for the northbound. All other movements at this intersection will operate at a level of service of B or better with minimal queueing.

SIGNAL WARRANT ANALYSIS

The intersection of SW Arboridge and Missouri Route 150 was evaluated for a signalization. EPG section 902.3.4 (Warrant 2, Four Hour Vehicular Volumes) was applied to this intersection. Since the posted speed limit is 45 MPH, the 70% factor is appropriate to consider. The maximum point on the curve is a major street volume of 1,000 VPH with a minor street volume of 80 VPH.

Current traffic count data at this intersection was collected between the hours of 7 and 9 AM and 4 and 6 PM with the Peak Hours found to be 7:15 to 8:15 and 4:30 to 5:30. While the current ITE trip generation manual has hourly trip data, there is significant variance between the *Trip Generation Manual's* anticipated Peak of the Adjacent Street and the hourly predicted volumes. For this reason, the Peak Hour of the Adjacent Street trip generation was applied to both AM and PM hours counted. The resulting anticipated traffic volumes are shown in Figures F and G of Appendix 1. The seventy percent factor, only three of the four hours are met. Without applying the 70% factor, none of the four hours are met. If this intersection was to remain unsignalized, the southbound left turning movement, would have average delays of 55.9 seconds in the AM Peak Hour and 80.7 seconds in the PM Peak Hour.

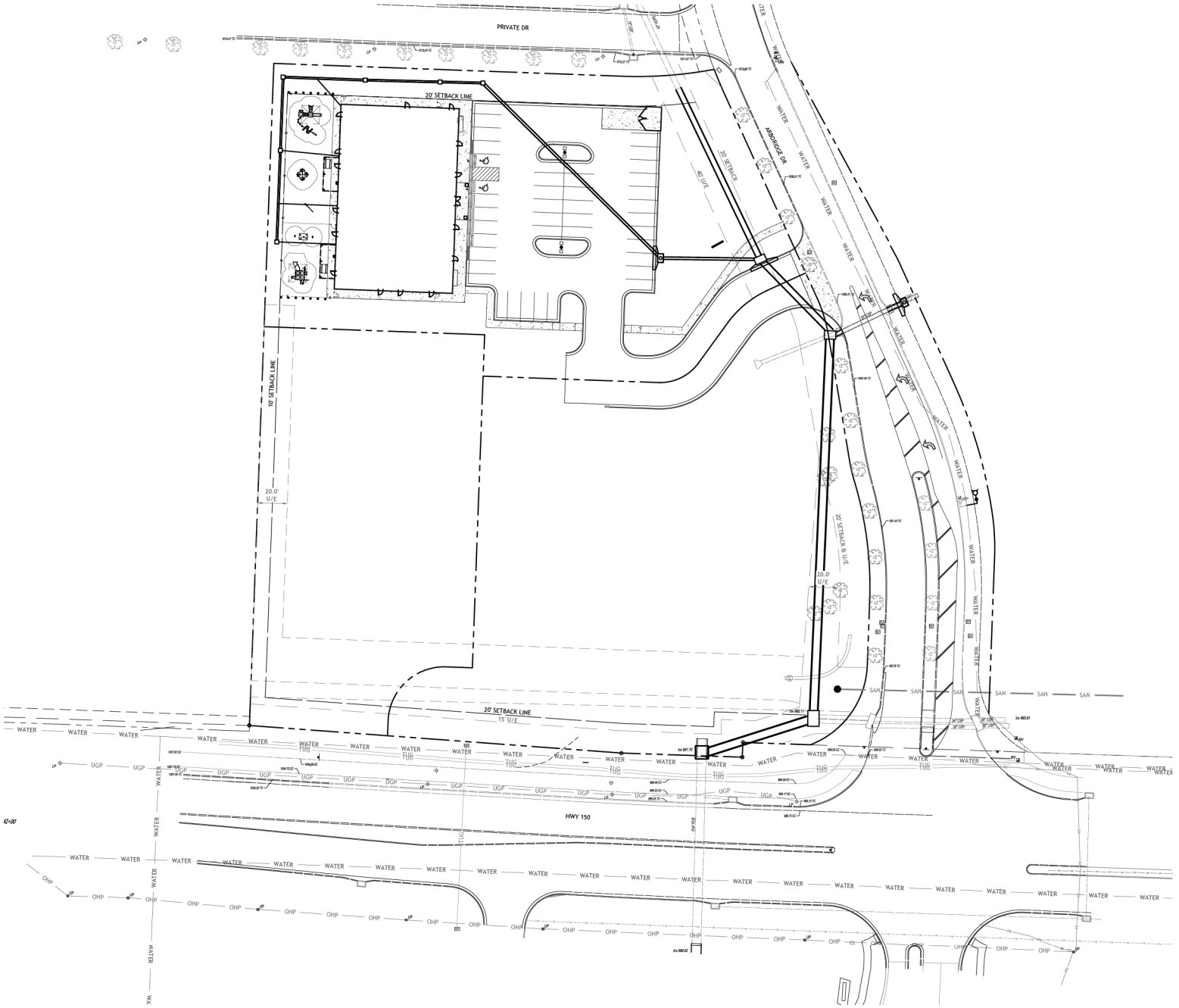
Due to the delay in the construction of the convenience store and the quick lubrication vehicle shop, it is recommended that the intersection of SW Arboridge and Missouri Route 150 remain unsignalized until the next lot of this development, or other nearby development, is constructed.

Sincerely,

PRIORITY ENGINEERS, INC.

Kristin L. Skinner, P.E., PTOE
President

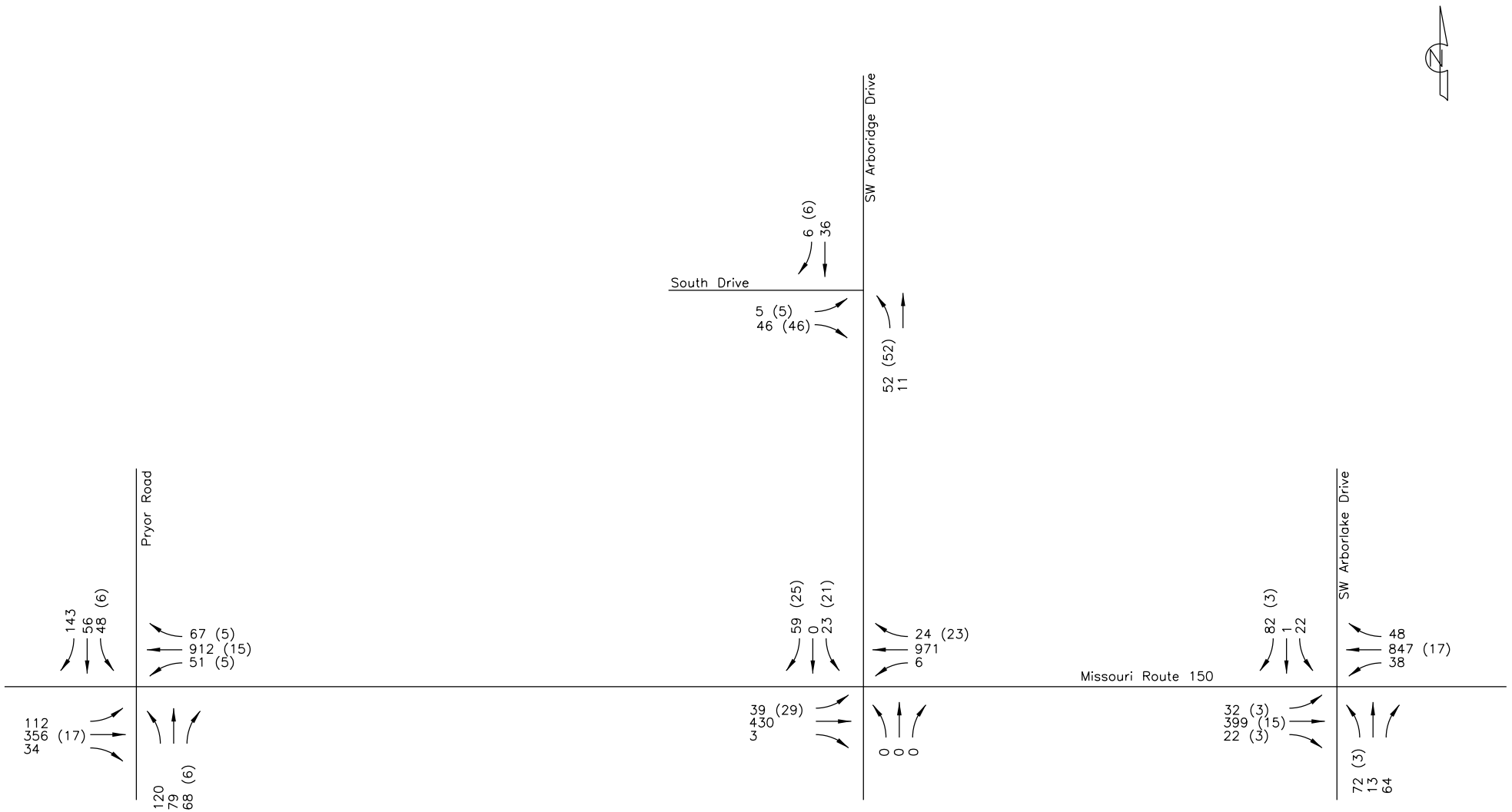
Priority Engineers, Inc.
PO Box 563
Garden City, MO 64747
816.738.4400



Site Plan	Arborwalk Lee's Summit, MO	No Scale Figure A

SM Engineering
5507 High Meadow Circle
Manhattan Kansas, 66503
smcivilengr@gmail.com
785.341.9747

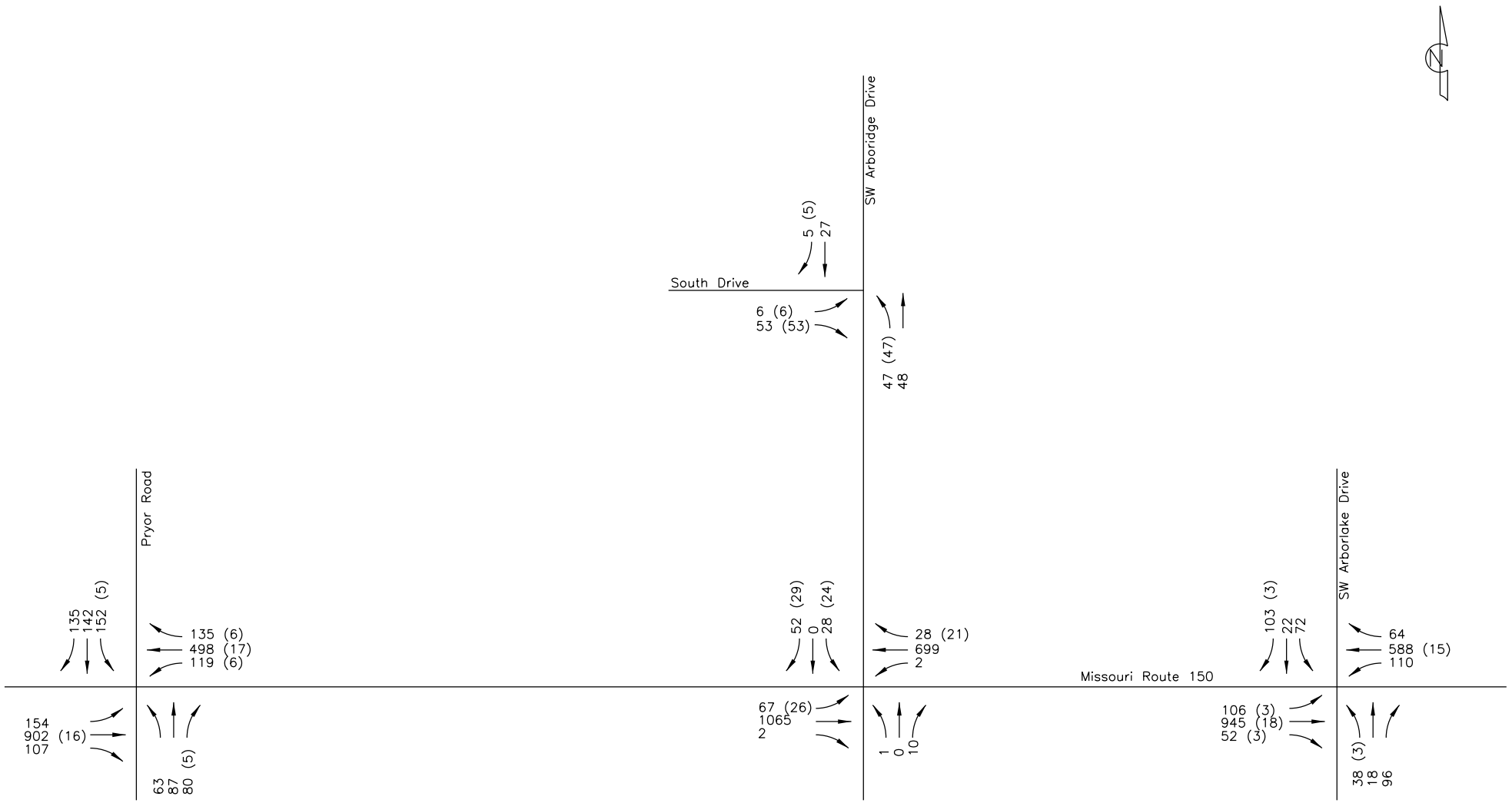
priority ENGINEERS
PO Box 563
Garden City, MO 64747
816.738.4400



LEGEND

Total Volume (Site Generated)[Pass-By]

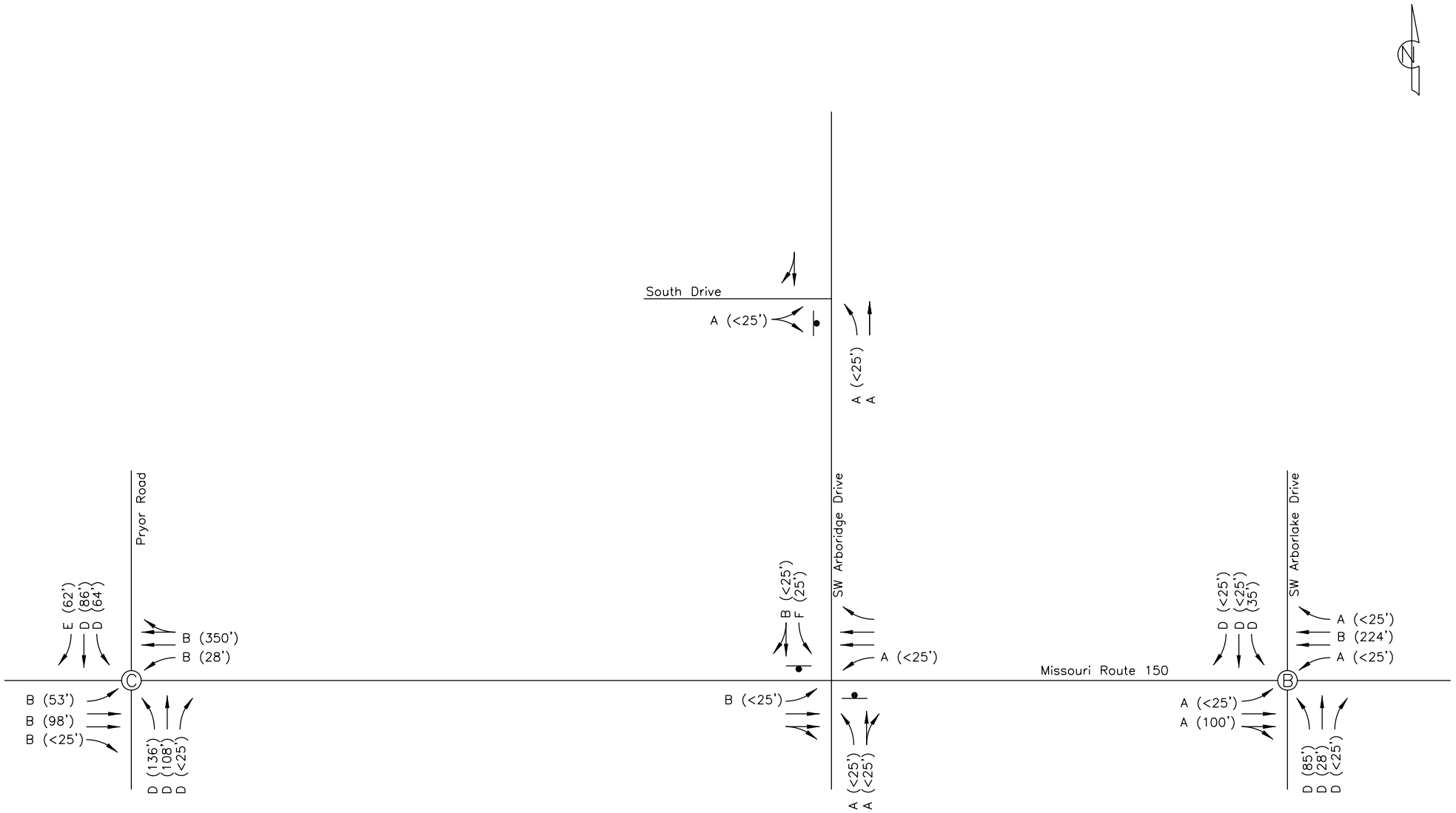
Existing + Approved + Day Care AM Peak Hour Traffic Volumes	Arborwalk Lee's Summit, MO	No Scale Figure B	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



LEGEND

Total Volume (Site Generated)[Pass-By]

Existing + Approved + Day Care PM Peak Hour Traffic Volumes	Arborwalk Lee's Summit, MO	No Scale Figure C	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400



Existing + Approved + Day Care
AM Peak Hour
Lane Configuration &
Levels of Service

Arborwalk
Lee's Summit, MO

No Scale

Figure D

priority ENGINEERS
PO Box 563
Garden City, MO 64747
816.738.4400

Existing + Approved + Day Care
PM Peak Hour
Lane Configuration &
Levels of Service

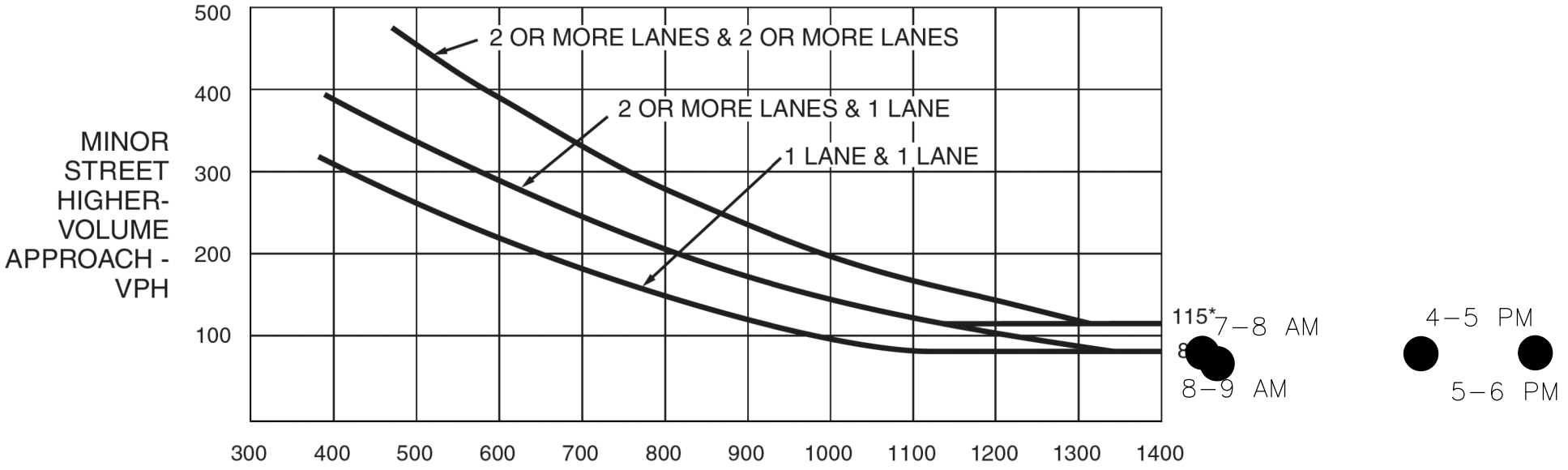
Arborwalk
Lee's Summit, MO

No Scale

Figure E

priority ENGINEERS
PO Box 563
Garden City, MO 64747
816.738.4400

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



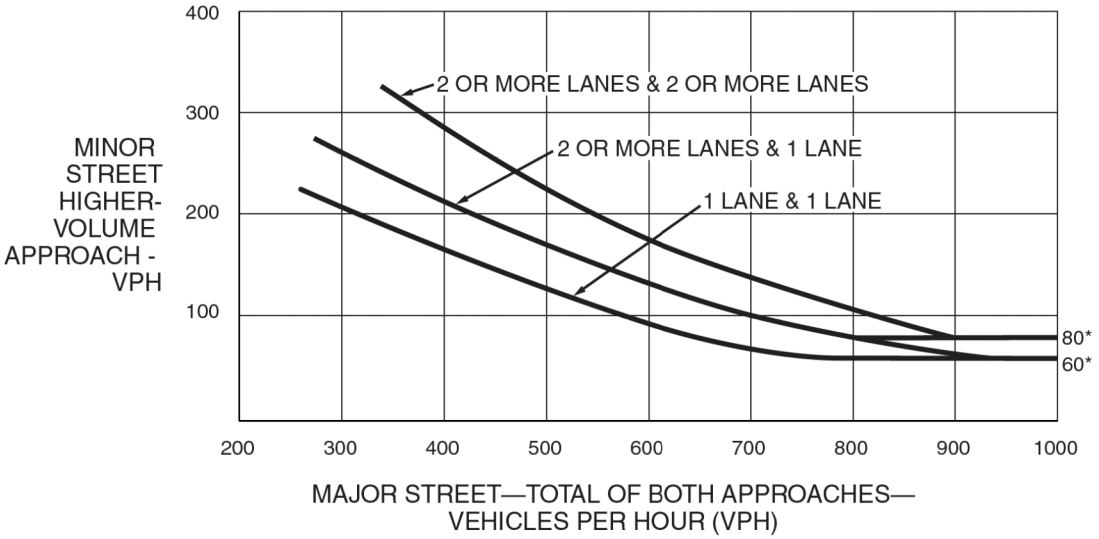
*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Total Major Street Volume	Total Major Street Volume	Minor Street Volume
7–8 AM	1449	82
8–9 AM	1467	69
4–5 PM	1713	81
5–6 PM	1851	82

4– Hour Signal Warrant Analysis	Arborwalk Lee's Summit, MO	No Scale Figure F	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



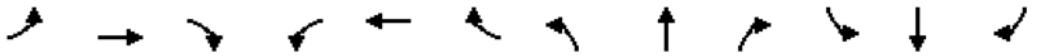
*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Total Major Street Volume	Total Major Street Volume	Minor Street Volume
7–8 AM	1449	82
8–9 AM	1467	69
4–5 PM	1713	81
5–6 PM	1851	82

4– Hour Signal Warrant Analysis (70% Factor)	Arborwalk Lee's Summit, MO	No Scale Figure G	priority ENGINEERS PO Box 563 Garden City, MO 64747 816.738.4400

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	122	387	37	55	1064	130	86	74	52	61	155
v/c Ratio	0.37	0.19	0.03	0.09	0.57	0.51	0.33	0.22	0.27	0.40	0.57
Control Delay (s/veh)	9.9	11.3	0.0	7.4	18.5	44.6	48.5	1.5	39.5	56.5	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.9	11.3	0.0	7.4	18.5	44.6	48.5	1.5	39.5	56.5	16.4
Queue Length 50th (ft)	27	65	0	12	248	79	58	0	30	42	0
Queue Length 95th (ft)	53	98	0	28	350	136	108	1	64	86	62
Internal Link Dist (ft)		1541			1744		1778			1399	
Turn Bay Length (ft)	225		100	200		50		50	45		50
Base Capacity (vph)	371	1972	988	572	1844	253	373	426	187	299	386
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.20	0.04	0.10	0.58	0.51	0.23	0.17	0.28	0.20	0.40

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	356	34	51	912	67	120	79	68	48	56	143
Future Volume (veh/h)	112	356	34	51	912	67	120	79	68	48	56	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1767	1856	1767	1811	1856	1870	1870	1870	1870	1841	1856
Adj Flow Rate, veh/h	122	387	37	55	991	73	130	86	74	52	61	155
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	9	3	9	6	3	2	2	2	2	4	3
Cap, veh/h	332	1876	879	580	1779	131	304	300	254	269	215	184
Arrive On Green	0.05	0.56	0.56	0.04	0.55	0.55	0.08	0.16	0.16	0.04	0.12	0.12
Sat Flow, veh/h	1781	3357	1572	1682	3249	239	1781	1870	1585	1781	1841	1572
Grp Volume(v), veh/h	122	387	37	55	525	539	130	86	74	52	61	155
Grp Sat Flow(s),veh/h/ln	1781	1678	1572	1682	1721	1768	1781	1870	1585	1781	1841	1572
Q Serve(g_s), s	3.4	6.6	1.2	1.6	22.7	22.7	7.2	4.6	4.7	2.9	3.5	11.1
Cycle Q Clear(g_c), s	3.4	6.6	1.2	1.6	22.7	22.7	7.2	4.6	4.7	2.9	3.5	11.1
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	332	1876	879	580	942	968	304	300	254	269	215	184
V/C Ratio(X)	0.37	0.21	0.04	0.09	0.56	0.56	0.43	0.29	0.29	0.19	0.28	0.84
Avail Cap(c_a), veh/h	419	1876	879	592	942	968	304	359	305	284	289	247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.0	12.6	11.4	10.4	16.9	16.9	39.2	42.3	42.4	42.4	46.2	49.5
Incr Delay (d2), s/veh	0.7	0.2	0.1	0.1	2.4	2.3	1.0	0.5	0.6	0.3	0.7	17.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.5	0.4	0.6	8.8	9.0	3.1	2.1	1.8	1.3	1.6	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.7	12.8	11.5	10.5	19.2	19.2	40.2	42.9	43.0	42.7	46.9	67.1
LnGrp LOS	B	B	B	B	B	B	D	D	D	D	D	E
Approach Vol, veh/h		546			1119			290			268	
Approach Delay, s/veh		12.9			18.8			41.7			57.8	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	68.7	15.0	19.4	10.1	70.0	10.0	24.3
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	11.0	58.0	9.0	18.0	5.0	64.0	5.0	22.0
Max Q Clear Time (g_c+I1), s	5.4	24.7	9.2	13.1	3.6	8.6	4.9	6.7
Green Ext Time (p_c), s	0.1	7.4	0.0	0.3	0.0	3.0	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	25.0
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	430	3	6	971	24	0	0	0	23	0	59
Future Vol, veh/h	39	430	3	6	971	24	0	0	0	23	0	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	250	-	160	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	467	3	7	1055	26	0	0	0	25	0	64

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1082	0	0	471	0	0	1095	1648	235	1387	1624	528
Stage 1	-	-	-	-	-	-	554	554	-	1068	1068	-
Stage 2	-	-	-	-	-	-	541	1095	-	318	555	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	641	-	-	1087	-	-	168	98	766	102	102	495
Stage 1	-	-	-	-	-	-	484	512	-	237	296	-
Stage 2	-	-	-	-	-	-	493	288	-	667	511	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	641	-	-	1087	-	-	136	91	766	95	94	495
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	91	-	95	94	-
Stage 1	-	-	-	-	-	-	452	478	-	235	294	-
Stage 2	-	-	-	-	-	-	427	286	-	623	477	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.91	0.05	0	25.3
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	-	641	-	-	1087	-	-	95	495
HCM Lane V/C Ratio	-	-	0.066	-	-	0.006	-	-	0.263	0.13
HCM Control Delay (s/veh)	0	0	11	-	-	8.3	-	-	55.9	13.3
HCM Lane LOS	A	A	B	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	-	-	0.2	-	-	0	-	-	1	0.4

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	35	458	41	921	52	78	14	70	24	1	89
v/c Ratio	0.08	0.20	0.06	0.39	0.04	0.45	0.07	0.22	0.15	0.01	0.35
Control Delay (s/veh)	5.2	8.4	4.9	10.1	0.0	45.6	42.7	1.6	36.7	44.0	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	5.2	8.4	4.9	10.1	0.0	45.6	42.7	1.6	36.7	44.0	3.8
Queue Length 50th (ft)	6	66	7	160	0	44	8	0	13	1	0
Queue Length 95th (ft)	15	100	17	224	0	85	28	0	35	6	0
Internal Link Dist (ft)		1340		3250			205			235	
Turn Bay Length (ft)	200		200		200	30		100	200		200
Base Capacity (vph)	402	2253	664	2348	1091	172	353	433	159	180	433
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.20	0.06	0.39	0.05	0.45	0.04	0.16	0.15	0.01	0.21

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	399	22	38	847	48	72	13	64	22	1	82
Future Volume (veh/h)	32	399	22	38	847	48	72	13	64	22	1	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1870	1781	1811	1796	1870	1870	1870	1870	418	1870
Adj Flow Rate, veh/h	35	434	24	41	921	52	78	14	70	24	1	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	2	8	6	7	2	2	2	2	100	2
Cap, veh/h	371	1924	106	607	2074	917	258	191	161	215	32	121
Arrive On Green	0.03	0.60	0.60	0.03	0.60	0.60	0.05	0.10	0.10	0.02	0.08	0.08
Sat Flow, veh/h	1668	3207	177	1697	3441	1522	1781	1870	1585	1781	418	1585
Grp Volume(v), veh/h	35	225	233	41	921	52	78	14	70	24	1	89
Grp Sat Flow(s),veh/h/ln	1668	1664	1720	1697	1721	1522	1781	1870	1585	1781	418	1585
Q Serve(g_s), s	0.8	6.2	6.3	0.9	14.5	1.4	4.0	0.7	4.1	1.2	0.2	5.5
Cycle Q Clear(g_c), s	0.8	6.2	6.3	0.9	14.5	1.4	4.0	0.7	4.1	1.2	0.2	5.5
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	371	998	1032	607	2074	917	258	191	161	215	32	121
V/C Ratio(X)	0.09	0.23	0.23	0.07	0.44	0.06	0.30	0.07	0.43	0.11	0.03	0.74
Avail Cap(c_a), veh/h	403	998	1032	634	2074	917	258	355	301	261	79	301
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.0	9.3	9.3	7.1	10.8	8.2	39.9	40.6	42.2	41.0	42.8	45.2
Incr Delay (d2), s/veh	0.1	0.5	0.5	0.0	0.7	0.1	0.7	0.2	1.8	0.2	0.4	8.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.1	2.2	0.3	4.9	0.5	1.8	0.3	1.7	0.5	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.1	9.8	9.8	7.1	11.5	8.3	40.6	40.8	44.0	41.2	43.2	53.6
LnGrp LOS	A	A	A	A	B	A	D	D	D	D	D	D
Approach Vol, veh/h		493			1014			162			114	
Approach Delay, s/veh		9.7			11.1			42.1			50.9	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	66.3	11.0	13.6	9.4	66.0	8.4	16.2
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	5.0	47.0	5.0	19.0	5.0	47.0	5.0	19.0
Max Q Clear Time (g_c+I1), s	2.8	16.5	6.0	7.5	2.9	8.3	3.2	6.1
Green Ext Time (p_c), s	0.0	6.9	0.0	0.2	0.0	2.6	0.0	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	16.1
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	46	52	11	36	6
Future Vol, veh/h	5	46	52	11	36	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	50	57	12	39	7

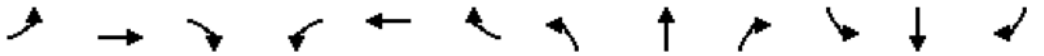
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	167	42	46	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	823	1028	1562	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	901	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	793	1028	1562	-	-	-
Mov Cap-2 Maneuver	793	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	901	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.81	6.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1562	-	999	-	-
HCM Lane V/C Ratio	0.036	-	0.055	-	-
HCM Control Delay (s/veh)	7.4	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	167	980	116	129	688	68	95	87	165	154	147
v/c Ratio	0.38	0.57	0.13	0.43	0.42	0.28	0.48	0.27	0.52	0.49	0.37
Control Delay (s/veh)	14.6	20.7	1.3	13.8	10.5	31.0	50.0	2.2	35.8	44.3	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.6	20.7	1.3	13.8	10.5	31.0	50.0	2.2	35.8	44.3	7.3
Queue Length 50th (ft)	44	230	0	11	55	32	58	0	83	93	0
Queue Length 95th (ft)	77	318	13	52	124	65	105	0	139	150	42
Internal Link Dist (ft)		1541			1744		1778			1399	
Turn Bay Length (ft)	225		100	200		50		50	45		50
Base Capacity (vph)	472	1714	851	333	1621	240	335	419	314	409	469
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.57	0.14	0.39	0.42	0.28	0.28	0.21	0.53	0.38	0.31

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	902	107	119	498	135	63	87	80	152	142	135
Future Volume (veh/h)	154	902	107	119	498	135	63	87	80	152	142	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1841	1870	1870	1870	1870	1870	1870	1841
Adj Flow Rate, veh/h	167	980	116	129	541	147	68	95	87	165	154	147
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	4	2	2	2	2	2	2	4
Cap, veh/h	618	1421	634	504	1061	287	197	139	118	262	220	184
Arrive On Green	0.21	0.40	0.40	0.20	0.39	0.39	0.05	0.07	0.07	0.09	0.12	0.12
Sat Flow, veh/h	1781	3554	1585	1781	2721	736	1781	1870	1585	1781	1870	1560
Grp Volume(v), veh/h	167	980	116	129	347	341	68	95	87	165	154	147
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1749	1708	1781	1870	1585	1781	1870	1560
Q Serve(g_s), s	0.0	22.8	3.1	0.0	15.1	15.2	3.5	5.0	3.5	8.5	7.9	5.9
Cycle Q Clear(g_c), s	0.0	22.8	3.1	0.0	15.1	15.2	3.5	5.0	3.5	8.5	7.9	5.9
Prop In Lane	1.00		1.00	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	618	1421	634	504	682	666	197	139	118	262	220	184
V/C Ratio(X)	0.27	0.69	0.18	0.26	0.51	0.51	0.35	0.68	0.74	0.63	0.70	0.80
Avail Cap(c_a), veh/h	618	1421	634	504	682	666	203	337	285	262	411	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	24.9	8.2	27.1	23.2	23.2	40.2	45.1	19.0	38.3	42.4	17.7
Incr Delay (d2), s/veh	0.2	2.8	0.6	0.3	2.7	2.8	1.0	5.8	8.7	4.8	4.0	7.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	9.9	1.7	2.5	6.3	6.2	1.5	2.4	2.3	4.0	3.8	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.1	27.6	8.8	27.4	25.9	26.0	41.3	51.0	27.7	43.1	46.4	25.5
LnGrp LOS	C	C	A	C	C	C	D	D	C	D	D	C
Approach Vol, veh/h		1263			817			250			466	
Approach Delay, s/veh		24.9			26.2			40.2			38.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.6	45.0	10.7	17.8	25.6	46.0	15.0	13.4
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	10.0	39.0	5.0	22.0	9.0	40.0	9.0	18.0
Max Q Clear Time (g_c+I1), s	2.0	17.2	5.5	9.9	2.0	24.8	10.5	7.0
Green Ext Time (p_c), s	0.3	3.9	0.0	1.0	0.2	6.6	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	28.9
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	67	1065	2	2	699	28	1	0	10	28	0	52
Future Vol, veh/h	67	1065	2	2	699	28	1	0	10	28	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	250	-	160	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	73	1158	2	2	760	30	1	0	11	30	0	57

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	790	0	0	1160	0	0	1689	2099	580	1489	2070	380
Stage 1	-	-	-	-	-	-	1304	1304	-	764	764	-
Stage 2	-	-	-	-	-	-	384	795	-	724	1305	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	826	-	-	598	-	-	61	51	458	86	54	618
Stage 1	-	-	-	-	-	-	169	229	-	362	411	-
Stage 2	-	-	-	-	-	-	610	398	-	383	228	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	826	-	-	598	-	-	50	47	458	76	49	618
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	47	-	76	49	-
Stage 1	-	-	-	-	-	-	154	208	-	361	409	-
Stage 2	-	-	-	-	-	-	553	396	-	341	208	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.58	0.03	18.99	35.65
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	50	458	826	-	-	598	-	-	76	618
HCM Lane V/C Ratio	0.022	0.024	0.088	-	-	0.004	-	-	0.399	0.091
HCM Control Delay (s/veh)	78.3	13.1	9.8	-	-	11	-	-	80.7	11.4
HCM Lane LOS	F	B	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0.1	0.1	0.3	-	-	0	-	-	1.6	0.3

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	115	1084	120	639	70	41	20	104	78	24	112
v/c Ratio	0.22	0.53	0.31	0.30	0.06	0.24	0.15	0.39	0.44	0.14	0.38
Control Delay (s/veh)	4.3	5.0	10.4	10.7	0.1	37.7	45.8	5.9	44.1	44.7	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	4.3	5.0	10.4	10.7	0.1	37.7	45.8	5.9	44.1	44.7	5.9
Queue Length 50th (ft)	12	68	21	102	0	22	12	0	43	15	0
Queue Length 95th (ft)	21	81	42	143	0	51	35	13	84	40	18
Internal Link Dist (ft)		1340		3250			205			235	
Turn Bay Length (ft)	200		200		200	30		100	200		200
Base Capacity (vph)	514	2017	379	2095	1020	170	335	419	177	322	419
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.54	0.32	0.31	0.07	0.24	0.06	0.25	0.44	0.07	0.27

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	945	52	110	588	64	38	18	96	72	22	103
Future Volume (veh/h)	106	945	52	110	588	64	38	18	96	72	22	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1841	1870	1870	1870	1870	1870	1811	1870
Adj Flow Rate, veh/h	115	1027	57	120	639	70	41	20	104	78	24	112
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	4	2	2	2	2	2	6	2
Cap, veh/h	617	1506	84	537	1644	745	217	126	107	234	151	133
Arrive On Green	0.17	0.44	0.44	0.20	0.47	0.47	0.03	0.07	0.07	0.05	0.08	0.08
Sat Flow, veh/h	1781	3423	190	1781	3497	1585	1781	1870	1585	1781	1811	1585
Grp Volume(v), veh/h	115	533	551	120	639	70	41	20	104	78	24	112
Grp Sat Flow(s),veh/h/ln	1781	1777	1836	1781	1749	1585	1781	1870	1585	1781	1811	1585
Q Serve(g_s), s	0.0	24.0	24.0	0.0	11.8	1.7	2.1	1.0	4.5	4.0	1.2	4.5
Cycle Q Clear(g_c), s	0.0	24.0	24.0	0.0	11.8	1.7	2.1	1.0	4.5	4.0	1.2	4.5
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	617	782	808	537	1644	745	217	126	107	234	151	133
V/C Ratio(X)	0.19	0.68	0.68	0.22	0.39	0.09	0.19	0.16	0.97	0.33	0.16	0.85
Avail Cap(c_a), veh/h	617	782	808	537	1644	745	246	337	285	234	326	285
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	22.4	22.4	23.2	17.2	7.4	41.3	43.9	21.9	40.7	42.6	19.0
Incr Delay (d2), s/veh	0.1	4.8	4.6	0.2	0.7	0.3	0.4	0.6	33.8	0.8	0.5	13.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	10.2	10.5	2.1	4.5	0.9	0.9	0.5	3.5	1.8	0.6	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.3	27.2	27.0	23.4	17.9	7.6	41.7	44.5	55.7	41.5	43.0	32.4
LnGrp LOS	B	C	C	C	B	A	D	D	E	D	D	C
Approach Vol, veh/h		1199			829			165			214	
Approach Delay, s/veh		26.0			17.8			50.9			36.9	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.2	53.0	9.4	14.4	26.2	50.0	11.0	12.8
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	47.0	5.0	18.0	9.0	44.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.0	13.8	4.1	6.5	2.0	26.0	6.0	6.5
Green Ext Time (p_c), s	0.1	4.6	0.0	0.3	0.1	6.2	0.0	0.3

Intersection Summary	
HCM 7th Control Delay, s/veh	25.8
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	53	47	48	27	5
Future Vol, veh/h	6	53	47	48	27	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	58	51	52	29	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	186	32	35	0	-	0
Stage 1	32	-	-	-	-	-
Stage 2	154	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	803	1042	1577	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	777	1042	1577	-	-	-
Mov Cap-2 Maneuver	777	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	874	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	8.82	3.64	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1577	-	1007	-	-
HCM Lane V/C Ratio	0.032	-	0.064	-	-
HCM Control Delay (s/veh)	7.4	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-