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April 10, 2019

Cody Humphrey
Director of Planning
La Plata Communities
1755 Telstar Drive, Suite 211
Colorado Springs, CO 80920

RE: The Campus at Foothills Farm
Colorado Springs, CO
Traffic Technical Memorandum
LSC #184690

Dear Cody:

In response to your request, LSC Transportation Consultants, Inc. has prepared this Traffic Technical Memorandum for the proposed amendment to The Farm Master Plan. The area of amendment is located northwest of the intersection of New Life Drive and Federal Drive in Colorado Springs, Colorado. This report contains the following:

- The existing and future land uses within the study area.
- The projected additional average weekday and peak-hour vehicle trips to be generated by the future development within the study area.
- The assignment of the projected trips to the existing and planned street system.
- The resulting buildout traffic volumes on the street system.
- The resulting traffic impacts. The traffic impacts have been quantified by determining the future levels of service and projected vehicle queues at the key intersections along Federal Drive north of New Life Drive.
- Potential intersection improvements at key intersections to mitigate the projected traffic impacts.

EXISTING AND FUTURE LAND USE

The area north of Interquest Parkway and south of the wetlands area between Interstate 25 and Voyager Parkway was divided into 22 traffic analysis zones (TAZs). Figure 1 shows the location of each TAZ. Table 1 shows the existing and future land uses assumed for each TAZ. TAZs 1 through 11 include all the area included in the Interquest Marketplace. TAZs 12 and 13 include the existing and approved Foothill Farms residential land uses located northeast of the intersection of Federal Drive and New Life Drive. TAZs 14 through 22 include the currently proposed areas of amendment to The Farm Master Plan. This amendment area is located south of Black Squirrel Creek. As shown on the approved master plan, an annexation agreement restricts the commercial and employment use for this area to 1,100,000 square feet. The amendment requests that the property owners hereby

consent to the removal of the maximum square footage cap for commercial and employment uses per the Allison Ranch Addition Annexation Agreement. This area is planned to be developed with a mix of offices, hotels, restaurants, a gym, and multi-family residential uses.

TRIP GENERATION

Estimates of the traffic volumes expected to be generated by the assumed future land uses within the area north of Interquest Parkway and south of the wetlands area between Interstate 25 and Voyager Parkway were made using the nationally published trip generation rates found in *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Table 1 shows the trip generation estimates.

INTERSECTION TRAFFIC PROJECTIONS

A traffic analysis model has been developed and utilized to estimate the projected traffic volumes within the study area. The estimated trips to be generated by each TAZ shown in Table 1 have been distributed based on the distribution percentages shown in Figure 2. The trips were then assigned to the area street network using the model. Trips have been assigned based on both the distribution shown on the exhibit and a set of trip assignment path assumptions for each TAZ.

Figure 3 shows the projected buildout traffic volumes at the key intersections in the study area during both the morning and afternoon peak hours.

LEVEL OF SERVICE

The key area intersections have been analyzed to determine the projected levels of service for the buildout traffic volumes based on the signalized method of analysis from Synchro and the unsignalized method of analysis procedures outlined in the *Highway Capacity Manual, 6th Edition* by the Transportation Research Board. The results of the analysis are shown in Figure 4.

Federal/New Life

It was assumed that the intersection of Federal/New Life would be converted to signal control prior to buildout of the study area. As a signalized intersection all movements are projected to operate at LOS D or better during peak hours.

Federal Drive Access Points North of New Life Drive

All of the proposed access points to Federal Drive north of New Life Drive are projected to operate at a satisfactory level of service as stop-sign-controlled intersections based on the projected buildout peak-hour traffic volumes shown in Figure 3 and the recommended lane geometry shown in Figure 4.

Federal Drive/Rampart Hills View/Ent Parkway

The intersection of Federal Drive/Rampart is planned to be reconstructed to add a north leg (Ent Parkway). The intersection is currently designed as a one-lane roundabout; however, it could be restriped to provide two circulating lanes. The southbound approach of this leg should be designed to provide a two-lane approach. The westbound approach (Federal Drive) should also be restriped for a two-lane approach. Based on the lane geometry shown in Figure 4 all approaches are projected to operate at LOS B or better during the peak hours.

RECOMMENDED IMPROVEMENTS FOR FEDERAL/SUMMIT VIEW

LSC, Classic Consulting, and the owner considered and evaluated several alternatives for the intersection of Federal Drive/Summit View Parkway. A preferred alternative was selected and Figure 5 shows the associated recommended improvements to Federal Drive in the vicinity of the future intersection of Summit View Parkway. There are existing curb cuts on both sides of Federal Drive at this location. LSC recommends this section of Federal Drive be redesigned so that this intersection is a "T" intersection with access on the north side of Federal Drive only. The development access on the south would be relocated east to align with the access to the office development on the north side of Federal. The existing north curb west of the intersection should be moved south to shorten the required crossing distance for pedestrians. This will require the second westbound through lane on Federal Drive to become the right-turn lane approaching Summit View Parkway.

It will be necessary to provide good signage/markings in the median on the west leg. The following signs could be used:

West Leg: A pedestrian crossing sign with a directional sign as shown below placed in the median.



Color may be used for this sign or plaque.



OM3-L

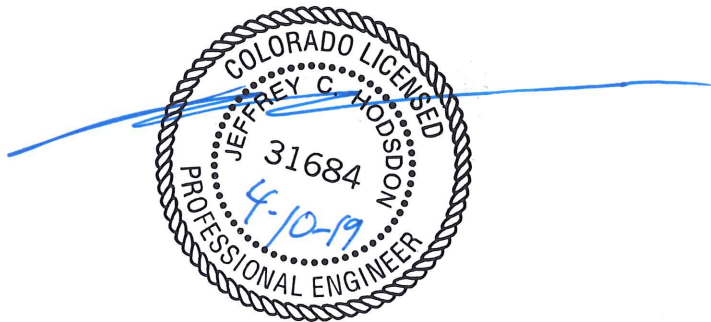
East Leg: A directional sign as shown below placed on the right-side of the road



OM3-R

Please contact me if you have any questions regarding this report.

LSC TRANSPORTATION CONSULTANTS, INC.



By: Jeffrey C. Hodsdon, P.E., PTOE
Principal

JCH:KDF/bjwb

Enclosures: Table 1
Figures 1-5
Level of Service Reports

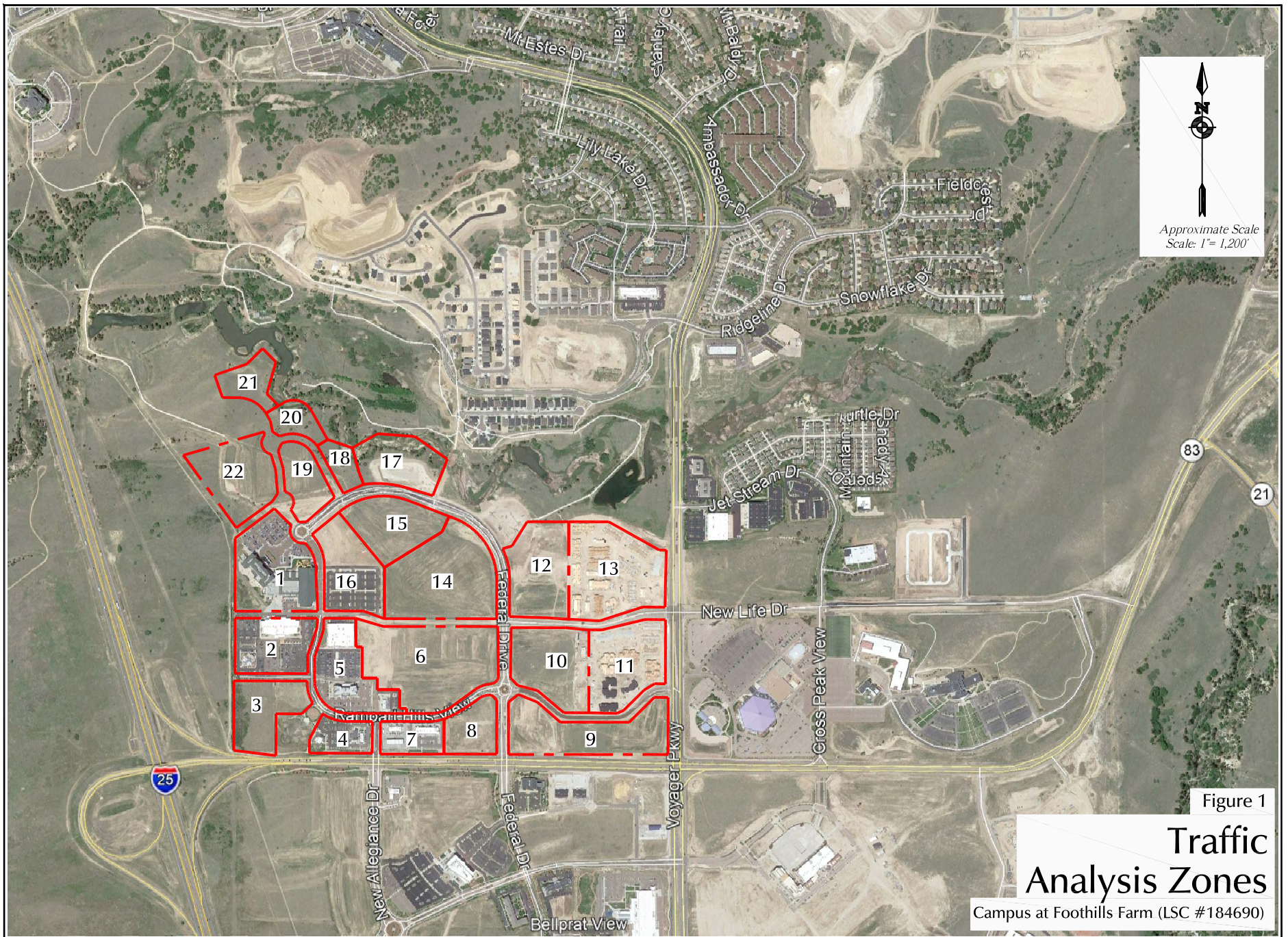
Table 1
Trip Generation Estimate
The Campus at Foothill Farms

TAZ	Land Use Code	Land Use Description	Trip Generation Units		Trip Generation Rates ⁽¹⁾					Estimated Existing Trips Generated				Total Future Trips Generated							
			Existing	Future	Unit	Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		
							In	Out	In	Out		In	Out	In	Out		In	Out	In	Out	
Interquest Marketplace																					
1	330	Resort Hotel ⁽²⁾	306	0	Rooms	5.70	0.23	0.09	0.18	0.23	1,745	71	27	54	72	0	0	0	0		
2	932	High-Turnover (Sit-Down) Restaurant	6,673	0	KSF ⁽³⁾	112.18	5.47	4.47	6.06	3.71	749	36	30	40	25	0	0	0	0		
	445	Multiplex Movie Theater	2,300	0	seats	1.76	0.00	0.00	0.03	0.05	4,048	0	0	66	118	0	0	0	0		
3	932	High-Turnover (Sit-Down) Restaurant	0	8,575	KSF	112.18	5.47	4.47	6.06	3.71	0	0	0	0	0	962	47	38	52		
	932	High-Turnover (Sit-Down) Restaurant	8	0,000	KSF	112.18	5.47	4.47	6.06	3.71	888	43	35	48	29	0	0	0	0		
4	912	Drive-in Bank	3,524	0	KSF	100.03	5.51	3.99	10.23	10.23	353	19	14	36	36	0	0	0	0		
	937	Coffee/Donut Shop With Drive-Through Window	2,186	0	KSF	820.38	45.38	43.61	21.69	21.69	1,793	99	95	47	47	0	0	0	0		
5	310	Hotel	180	0	Rooms	8.36	0.28	0.19	0.31	0.29	1,505	50	35	55	53	0	0	0	0		
	437	Bowling Alley	49,248	0	KSF	11.60	0.77	0.04	0.75	0.41	571	38	2	37	20	0	0	0	0		
	934	Fast-Food Restaurant with Drive-Through Window	2,610	0,000	KSF	470.95	20.50	19.69	16.99	15.68	1,229	53	51	44	41	0	0	0	0		
6	934	Fast-Food Restaurant with Drive-Through Window	0	3,500	KSF	470.95	20.50	19.69	16.99	15.68	0	0	0	0	0	1,648	72	69	59		
	861	Sporting Goods Superstore	0	216	KSF	28.75	0.27	0.07	0.97	1.05	0	0	0	0	0	6,224	59	15	210		
7	945	Gasoline/Service Station with Convenience Market	20	0	Rooms	210.41	7.23	6.95	0.31	0.29	4,208	145	139	6	6	0	0	0	0		
	820	Shopping Center	12,501	0	KSF	37.75	0.58	0.36	1.83	1.98	472	7	4	23	25	0	0	0	0		
8	912	Drive-in Bank	5	0	KSF	100.03	5.51	3.99	10.23	10.23	510	28	20	52	52	0	0	0	0		
	820	Shopping Center	0	13	KSF	37.75	0.58	0.36	1.83	1.98	0	0	0	0	0	502	8	5	24		
	934	Fast-Food Restaurant with Drive-Through Window	0	16,547	KSF	470.95	20.50	19.69	16.99	15.68	0	0	0	0	0	7,793	339	326	281		
9	932	High-Turnover (Sit-Down) Restaurant	0	7,300	KSF	112.18	5.47	4.47	6.06	3.71	0	0	0	0	0	819	40	33	44		
	820	Shopping Center	0	31	KSF	37.75	0.58	0.36	1.83	1.98	0	0	0	0	0	1,155	18	11	56		
10	220	Multifamily Housing (Low-Rise)	0	264	DU	7.32	0.11	0.35	0.35	0.21	0	0	0	0	0	1,932	28	94	93		
11	220	Multifamily Housing (Low-Rise)	264	0	DU	7.32	0.11	0.35	0.35	0.21	1,932	28	94	93	55	0	0	0	0		
											Subtotal	20,003	617	546	601	579	21,035	611	591	819	742
Approved Residential Uses Northeast of Federal/New Life																					
12	210	Single Family Detached Housing	0	83	DU ⁽⁴⁾	9.44	0.19	0.56	0.62	0.37	0	0	0	0	0	784	15	46	52		
13	220	Multifamily Housing (Low-Rise)	280	0	DU	7.32	0.11	0.35	0.35	0.21	2,050	30	99	99	58	0	0	0	0		
											Subtotal	2,050	30	99	99	58	784	15	46	52	30
The Campus at Foothill Farms																					
14	220	Multifamily Housing (Low-Rise)	0	260	DU	7.32	0.11	0.35	0.35	0.21	0	0	0	0	0	1,903	28	92	92		
	310	Hotel	0	80	Rooms	8.36	0.28	0.19	0.31	0.29	0	0	0	0	0	669	22	15	24		
15	930	Fast Casual Restaurant	0	5	KSF	315.17	1.39	0.68	7.77	6.36	0	0	0	0	0	1,576	7	3	39		
	820	Shopping Center	0	5	KSF	37.75	0.58	0.36	1.83	1.98	0	0	0	0	0	189	3	2	9		
16	310	Hotel	0	130	Rooms	8.36	0.28	0.19	0.31	0.29	0	0	0	0	0	1,087	36	25	40		
17	710	General Office Building	0	60	KSF	9.74	1.00	0.16	0.18	0.97	0	0	0	0	0	584	60	10	11		
18	930	Fast Casual Restaurant	0	8	KSF	315.17	1.39	0.68	7.77	6.36	0	0	0	0	0	2,521	11	5	62		
	937	Coffee/Donut Shop With Drive-Through Window	0	2.0	KSF	820.38	45.38	43.61	21.69	21.69	0	0	0	0	0	1,641	91	87	43		
	932	High-Turnover (Sit-Down) Restaurant	0	9.09	KSF	112.18	5.47	4.47	6.06	3.71	0	0	0	0	0	1,020	50	41	55		
19	930	Fast Casual Restaurant	0	9.09	KSF	315.17	1.39	0.68	7.77	6.36	0	0	0	0	0	2,865	13	6	71		
	492	Health/Fitness Club	0	26	KSF	38.70	0.67	0.64	1.97	1.48	0	0	0	0	0	1,006	17	17	51		
20	710	General Office Building	0	30	KSF	9.74	1.00	0.16	0.18	0.97	0	0	0	0	0	292	30	5	6		
21	710	General Office Building	0	50	KSF	9.74	1.00	0.16	0.18	0.97	0	0	0	0	0	487	50	8	9		
22	710	General Office Building	0	3,000 employees		3.28	0.31	0.06	0.08	0.32	0	0	0	0	0	9,840	921	189	240		
											Subtotal	0	0	0	0	0	25,680	1,339	505	752	1,478
											Total	22,053	647	645	700	637	47,499	1,965	1,142	1,623	2,250

Notes:

- (1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)
- (2) The Resort Hotel average weekday traffic trip generation rate is an estimate by LSC
- (3) KSF = thousand square feet of floor area
- (4) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.



North Arrow
Approximate Scale
Scale: 1" = 1,200'

Figure 1
Traffic Analysis Zones
Campus at Foothills Farm (LSC #184690)



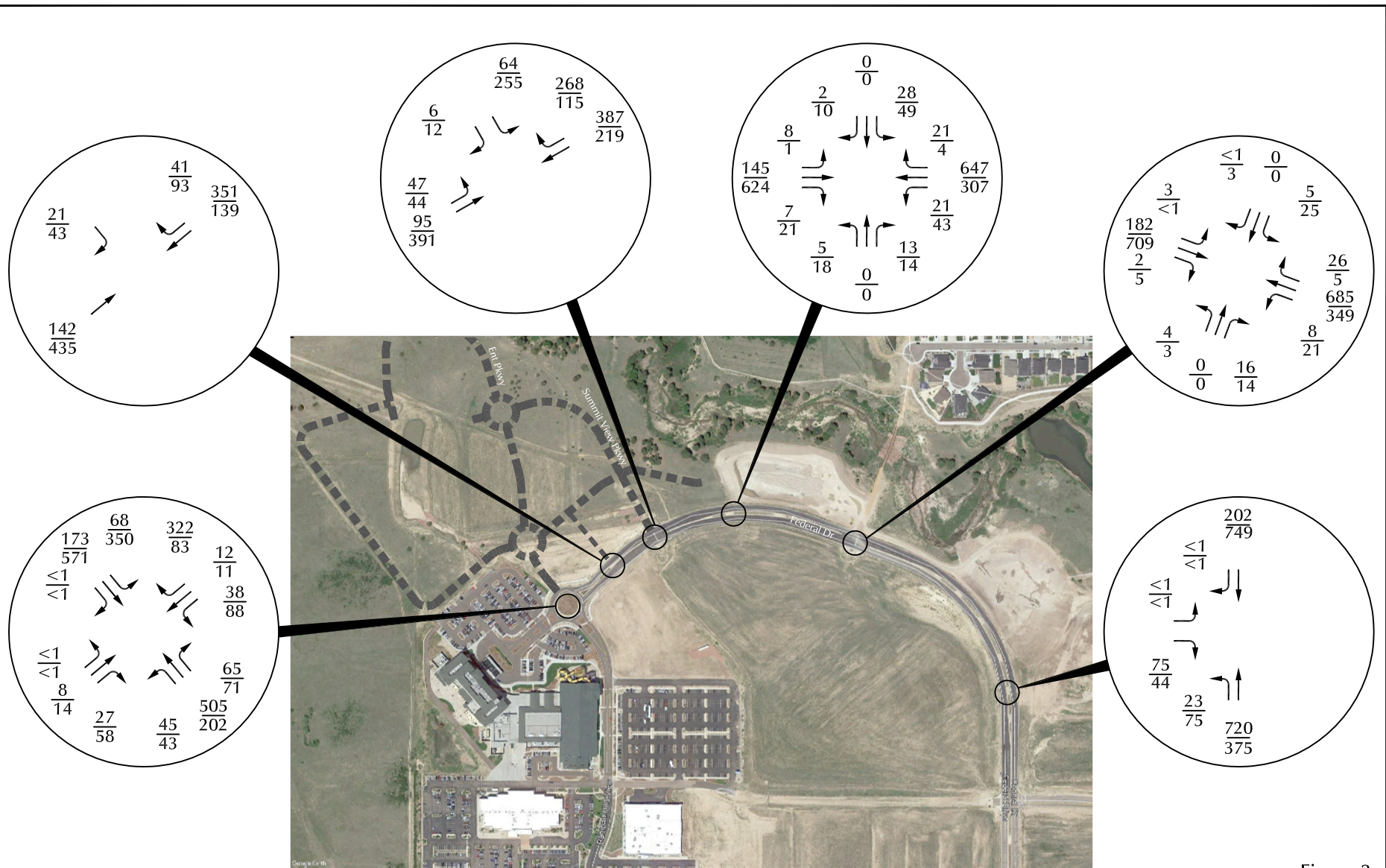
Figure 2

Directional Distribution of Site-Generated Traffic

Campus at Foothills Farm (LSC #184690)



LEGEND:
 $\frac{XX\%}{XX\%}$ = Residential Percent Directional Distribution / Non-Residential Percent Directional Distribution




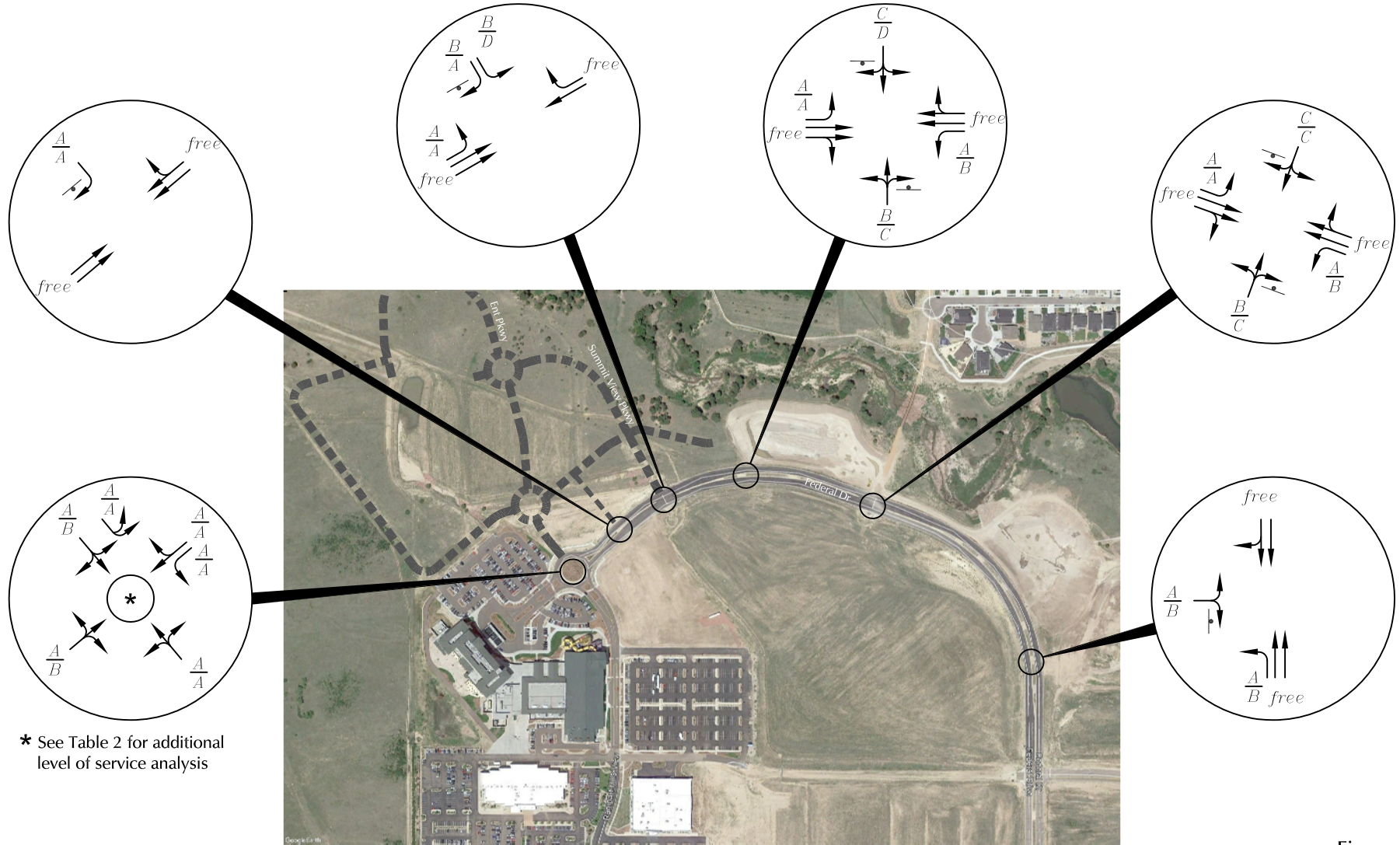

LEGEND:
 $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
 X,XXX = Average Weekday Traffic (vehicles per day)

Figure 3
**Buildout
 Traffic**

Campus at Foothills Farm (LSC #184690)



* See Table 2 for additional level of service analysis

LEGEND:



-  = Stop Sign
-  = Modern Roundabout
- $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service
PM Individual Movement Peak-Hour Level of Service



Figure 4

Buildout Lane Geometry, Traffic Control and Level of Service

Campus at Foothills Farm (LSC #184690)

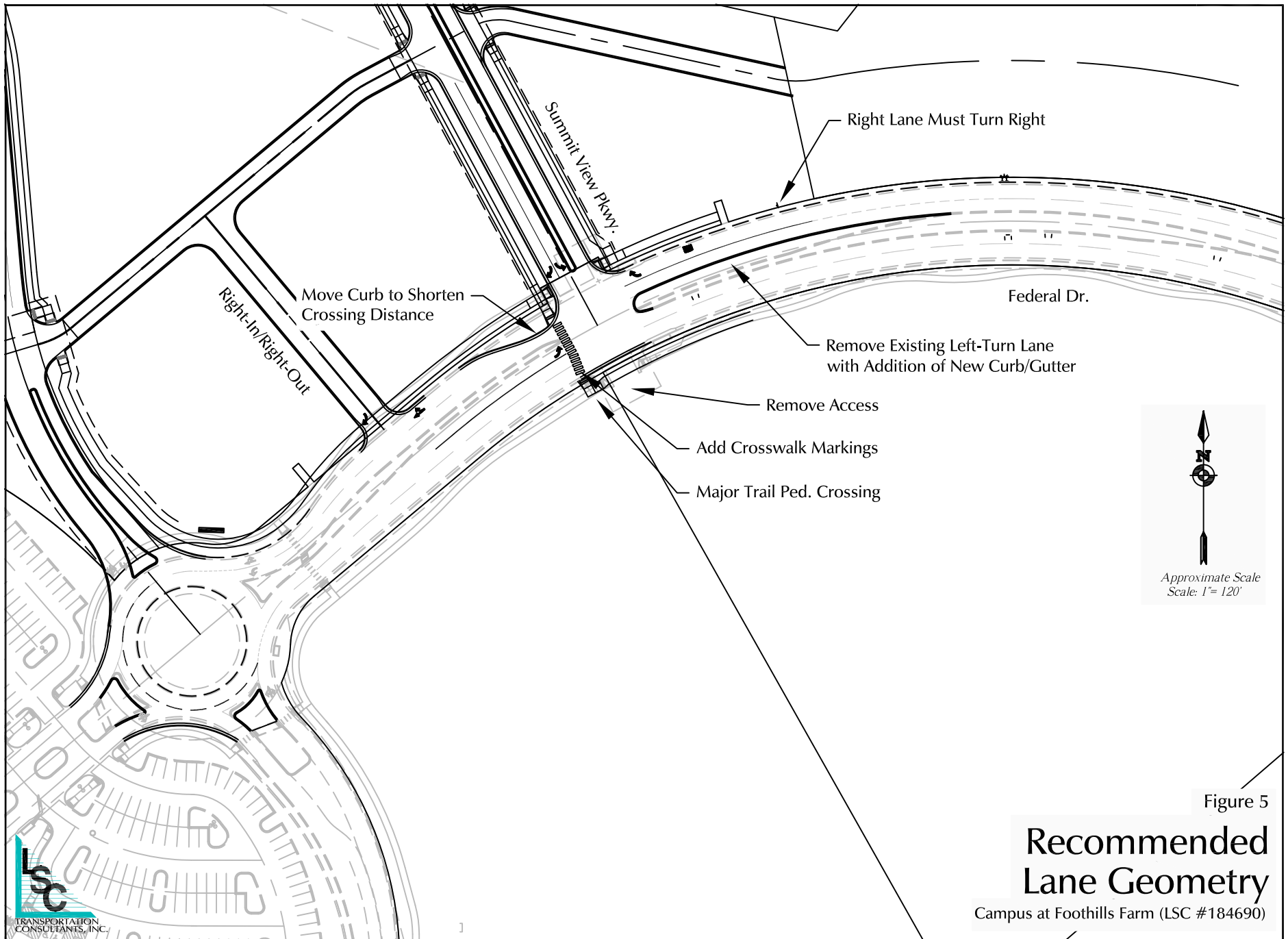


Figure 5

Recommended Lane Geometry

Campus at Foothills Farm (LSC #184690)



Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↗		↘	↑↑	↑↑	
Traffic Vol, veh/h	0	75	23	720	202	0
Future Vol, veh/h	0	75	23	720	202	0
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	-	155	-	-	-
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	0	82	25	783	220	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	662	110	220	0	-	0
Stage 1	220	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	395	922	1346	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	387	922	1346	-	-	-
Mov Cap-2 Maneuver	387	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1346	-	922	-	-
HCM Lane V/C Ratio	0.019	-	0.088	-	-
HCM Control Delay (s)	7.7	-	9.3	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	3	182	2	8	685	26	4	0	16	5	0	0
Future Vol, veh/h	3	182	2	8	685	26	4	0	16	5	0	0
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	155	-	-	155	-	-	-	-	-	-	-	-
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	3	198	2	9	745	28	4	0	17	5	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	773	0	0	200	0	0	596	996	100	882	983	387
Stage 1	-	-	-	-	-	-	205	205	-	777	777	-
Stage 2	-	-	-	-	-	-	391	791	-	105	206	-
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	838	-	-	1370	-	-	387	243	936	241	247	611
Stage 1	-	-	-	-	-	-	778	731	-	356	405	-
Stage 2	-	-	-	-	-	-	605	399	-	889	730	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	838	-	-	1370	-	-	384	240	936	235	244	611
Mov Cap-2 Maneuver	-	-	-	-	-	-	384	240	-	235	244	-
Stage 1	-	-	-	-	-	-	775	728	-	355	402	-
Stage 2	-	-	-	-	-	-	601	396	-	869	727	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.1			10.1			20.7		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	727	838	-	-	1370	-	-	235
HCM Lane V/C Ratio	0.03	0.004	-	-	0.006	-	-	0.023
HCM Control Delay (s)	10.1	9.3	-	-	7.6	-	-	20.7
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	
Traffic Vol, veh/h	8	145	7	21	647	21	5	0	13	28	0	2
Future Vol, veh/h	8	145	7	21	647	21	5	0	13	28	0	2
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	205	-	-	205	-	-	-	-	-	-	-	-
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	9	158	8	23	703	23	5	0	14	30	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	726	0	0	166	0	0	578	952	83	858	945	363
Stage 1	-	-	-	-	-	-	180	180	-	761	761	-
Stage 2	-	-	-	-	-	-	398	772	-	97	184	-
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	873	-	-	1410	-	-	399	258	960	251	260	634
Stage 1	-	-	-	-	-	-	804	749	-	364	412	-
Stage 2	-	-	-	-	-	-	599	407	-	899	746	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	873	-	-	1410	-	-	389	251	960	242	253	634
Mov Cap-2 Maneuver	-	-	-	-	-	-	389	251	-	242	253	-
Stage 1	-	-	-	-	-	-	796	742	-	360	405	-
Stage 2	-	-	-	-	-	-	587	400	-	877	739	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.2			10.4			21.4		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	682	873	-	-	1410	-	-	252
HCM Lane V/C Ratio	0.029	0.01	-	-	0.016	-	-	0.129
HCM Control Delay (s)	10.4	9.2	-	-	7.6	-	-	21.4
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.4

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑	↗	↘	↗
Traffic Vol, veh/h	47	95	387	268	64	6
Future Vol, veh/h	47	95	387	268	64	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	103	421	291	70	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	712	0	-	0	575 421
Stage 1	-	-	-	-	421 -
Stage 2	-	-	-	-	154 -
Critical Hdwy	4.13	-	-	-	6.63 6.23
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.83 -
Follow-up Hdwy	2.219	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	886	-	-	-	464 632
Stage 1	-	-	-	-	661 -
Stage 2	-	-	-	-	859 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	886	-	-	-	437 632
Mov Cap-2 Maneuver	-	-	-	-	512 -
Stage 1	-	-	-	-	623 -
Stage 2	-	-	-	-	859 -

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	886	-	-	-	512	632
HCM Lane V/C Ratio	0.058	-	-	-	0.136	0.01
HCM Control Delay (s)	9.3	-	-	-	13.1	10.8
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	0

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	142	351	41	0	21
Future Vol, veh/h	0	142	351	41	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
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	0	154	382	45	0	23

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	- 214
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	- 6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	- 3.32
Pot Cap-1 Maneuver	0	-	-	-	0 791
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	- 791
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	791
HCM Lane V/C Ratio	-	-	-	0.029
HCM Control Delay (s)	-	-	-	9.7
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection						
Intersection Delay, s/veh	7.4					
Intersection LOS	A					
Approach	EB	WB		NB	SB	
Entry Lanes	1	2		1	2	
Conflicting Circle Lanes	2	1		2	1	
Adj Approach Flow, veh/h	38	404		636	262	
Demand Flow Rate, veh/h	39	412		648	267	
Vehicles Circulating, veh/h	309	576		84	71	
Vehicles Exiting, veh/h	29	156		264	917	
Ped Vol Crossing Leg, #/h	0	0		0	0	
Ped Cap Adj	1.000	1.000		1.000	1.000	
Approach Delay, s/veh	3.7	9.4		7.9	3.7	
Approach LOS	A	A		A	A	
Lane	Left	Left	Right	Left	Left	Right
Designated Moves	LTR	L	TR	LTR	L	LTR
Assumed Moves	LTR	L	TR	LTR	L	TR
RT Channelized						
Lane Util	1.000	0.102	0.898	1.000	0.281	0.719
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.328	4.544	4.544	4.328	4.544	4.544
Entry Flow, veh/h	39	42	370	648	75	192
Cap Entry Lane, veh/h	1092	841	841	1322	1331	1331
Entry HV Adj Factor	0.970	0.976	0.980	0.982	0.987	0.980
Flow Entry, veh/h	38	41	363	636	74	188
Cap Entry, veh/h	1059	821	824	1298	1314	1305
V/C Ratio	0.036	0.050	0.440	0.490	0.056	0.144
Control Delay, s/veh	3.7	4.9	10.0	7.9	3.2	3.9
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	2	3	0	1

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↗		↘	↑↑	↑↑	
Traffic Vol, veh/h	0	44	75	375	749	0
Future Vol, veh/h	0	44	75	375	749	0
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	-	155	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	65	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	48	82	408	1152	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1520	576	1152	0	-	0
Stage 1	1152	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	109	460	602	-	-	-
Stage 1	263	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	94	460	602	-	-	-
Mov Cap-2 Maneuver	94	-	-	-	-	-
Stage 1	227	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	602	-	460	-	-
HCM Lane V/C Ratio	0.135	-	0.104	-	-
HCM Control Delay (s)	11.9	-	13.7	-	-
HCM Lane LOS	B	-	B	-	-
HCM 95th %tile Q(veh)	0.5	-	0.3	-	-

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕↗		↖	↕↗			↕↗			↕↗	
Traffic Vol, veh/h	0	709	5	21	349	5	3	0	14	25	0	3
Future Vol, veh/h	0	709	5	21	349	5	3	0	14	25	0	3
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	155	-	-	155	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	65	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	0	1091	5	23	379	5	3	0	15	27	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	384	0	0	1096	0	0	1330	1524	548	974	1524	192
Stage 1	-	-	-	-	-	-	1094	1094	-	428	428	-
Stage 2	-	-	-	-	-	-	236	430	-	546	1096	-
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	1171	-	-	633	-	-	113	117	480	206	117	817
Stage 1	-	-	-	-	-	-	228	288	-	575	583	-
Stage 2	-	-	-	-	-	-	746	582	-	490	287	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	1171	-	-	633	-	-	109	113	480	194	113	817
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	113	-	194	113	-
Stage 1	-	-	-	-	-	-	228	288	-	575	562	-
Stage 2	-	-	-	-	-	-	716	561	-	474	287	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.6			17.8			24.9		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	300	1171	-	-	633	-	-	211
HCM Lane V/C Ratio	0.062	-	-	-	0.036	-	-	0.144
HCM Control Delay (s)	17.8	0	-	-	10.9	-	-	24.9
HCM Lane LOS	C	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.5

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↗			↕↗			↕↗	
Traffic Vol, veh/h	1	624	21	43	307	4	18	0	41	49	0	10
Future Vol, veh/h	1	624	21	43	307	4	18	0	41	49	0	10
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	205	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	65	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	1	960	23	47	334	4	20	0	45	53	0	11

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	338	0	0	983	0	0	1235	1406	492	912	1415	169
Stage 1	-	-	-	-	-	-	974	974	-	430	430	-
Stage 2	-	-	-	-	-	-	261	432	-	482	985	-
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	1218	-	-	698	-	-	133	138	522	229	136	845
Stage 1	-	-	-	-	-	-	270	328	-	574	582	-
Stage 2	-	-	-	-	-	-	721	581	-	534	324	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1218	-	-	698	-	-	124	129	522	199	127	845
Mov Cap-2 Maneuver	-	-	-	-	-	-	124	129	-	199	127	-
Stage 1	-	-	-	-	-	-	270	328	-	573	543	-
Stage 2	-	-	-	-	-	-	664	542	-	488	324	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.3	23	26.7
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	264	1218	-	-	698	-	-	229
HCM Lane V/C Ratio	0.243	0.001	-	-	0.067	-	-	0.28
HCM Control Delay (s)	23	8	-	-	10.5	-	-	26.7
HCM Lane LOS	C	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0.9	0	-	-	0.2	-	-	1.1

Intersection						
Int Delay, s/veh	10					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗↗	↗	↘	↘	↘
Traffic Vol, veh/h	44	391	219	115	255	12
Future Vol, veh/h	44	391	219	115	255	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	155	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	70	92	92	65	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	559	238	125	392	13

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	363	0	-	0	614 238
Stage 1	-	-	-	-	238 -
Stage 2	-	-	-	-	376 -
Critical Hdwy	4.13	-	-	-	6.63 6.23
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.83 -
Follow-up Hdwy	2.219	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1194	-	-	-	439 800
Stage 1	-	-	-	-	801 -
Stage 2	-	-	-	-	665 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1194	-	-	-	421 800
Mov Cap-2 Maneuver	-	-	-	-	499 -
Stage 1	-	-	-	-	769 -
Stage 2	-	-	-	-	665 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	33.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1194	-	-	-	499	800
HCM Lane V/C Ratio	0.04	-	-	-	0.786	0.016
HCM Control Delay (s)	8.1	-	-	-	33.9	9.6
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.1	-	-	-	7.2	0.1

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	435	139	93	0	43
Future Vol, veh/h	0	435	139	93	0	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	65	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	669	151	101	0	47

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	- 126
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0 901
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	- 901
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	901
HCM Lane V/C Ratio	-	-	-	0.052
HCM Control Delay (s)	-	-	-	9.2
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection						
Intersection Delay, s/veh	10.6					
Intersection LOS	B					
Approach	EB	WB		NB	SB	
Entry Lanes	1	2		1	2	
Conflicting Circle Lanes	2	1		2	1	
Adj Approach Flow, veh/h	80	198		344	1419	
Demand Flow Rate, veh/h	81	202		351	1448	
Vehicles Circulating, veh/h	1543	274		566	158	
Vehicles Exiting, veh/h	63	643		1058	318	
Ped Vol Crossing Leg, #/h	0	0		0	0	
Ped Cap Adj	1.000	1.000		1.000	1.000	
Approach Delay, s/veh	13.2	4.1		9.0	11.7	
Approach LOS	B	A		A	B	
Lane	Left	Left	Right	Left	Left	Right
Designated Moves	LTR	L	TR	LTR	L	LTR
Assumed Moves	LTR	L	TR	LTR	L	TR
RT Channelized						
Lane Util	1.000	0.485	0.515	1.000	0.379	0.621
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.328	4.544	4.544	4.328	4.544	4.544
Entry Flow, veh/h	81	98	104	351	549	899
Cap Entry Lane, veh/h	383	1107	1107	878	1230	1230
Entry HV Adj Factor	0.984	0.980	0.979	0.979	0.980	0.980
Flow Entry, veh/h	80	96	102	344	538	881
Cap Entry, veh/h	376	1084	1083	859	1205	1206
V/C Ratio	0.212	0.089	0.094	0.400	0.446	0.731
Control Delay, s/veh	13.2	4.1	4.1	9.0	7.6	14.3
LOS	B	A	A	A	A	B
95th %tile Queue, veh	1	0	0	2	2	7