

# Memorandum

Date: September 24, 2020  
To: Karen Hong, Stanford Lands, Buildings and Real Estate  
From: Ellen Poling, PE, Fehr & Peers  
Subject: **Responses to AECOM Comments on the LBRE Replacement Building Local Access and Circulation Study**

WC19-3607.00

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This memorandum provides Fehr & Peers' responses to the comments in AECOM's memorandum *LBRE Replacement Building – Traffic Reports Peer Review*, dated August 14, 2020. Please also see Stanford's Response letter to the incomplete letter, as well as Stanford's Master Response to traffic and parking-related comments.

## **Response to Comment LU-1**

The site at Bonair Siding will be mulched over after building demolition. There is no use proposed at the Bonair Siding site as part of this proposed project. For a further discussion of the GUP EIR's analysis of the impacts of full buildout of future academic uses, please see Master Response.

## **Response to Comment PK-1**

Please see Stanford's response to County Planning Department Comment 3.

## **Response to Comment PK-2**

Please see the Master Response for Stanford's overall approach to managing its parking inventory. Stanford has many tools that it can use to shift employees from lot to lot, to connect individual building sites to multiple parking areas through use of Marguerite shuttles, and to incentivize commuters to use alternative modes of transportation. The parking management program is dynamic, and responsive to shifts in demand.

The GUP conditions of approval and County-approved methodology for conducting project-specific traffic studies do not require Stanford to demonstrate parking availability for occupants of an individual new building. Nevertheless, the following response describes Stanford's currently anticipated approach to support the commute needs of employees relocated to this area.



First, Stanford expects that many commuters currently parking in the Searsville lot will shift to other nearby garages and surface lots that are underutilized, or are opening up. It is important to note that from a comprehensive perspective, there are over 2,500 new parking spaces that will become available on campus in 2020, under prior project approvals. For example, the garage under the new Center for Academic Medicine (CAM) on the west side of campus will be operational in late 2020, before the construction of the LBRE Building is complete. The CAM garage is about 830 spaces, plus nearly 150 surface spaces, for a total addition of 980 commuter parking spaces. The Thoburn garage, Manzanita garage, plus surface spaces associated with the Escondido Village Graduate Residences project, have either opened or are opening up this Fall for campus users, adding over 1,600 spaces to the East Campus area.

The new parking lots and structures can enable commuters to shift locations. Some employees who work on the core academic areas of campus will choose to park in the newer Manzanita Garage and CAM garages, freeing up spaces in the Roth garage, Stock Farm Garage and Lot-17, as well as the Via Ortega Garage and Roble Field Garage. This in turn will enable current users of the Searsville parking lot with work locations closer to the center of campus to park in lots more convenient for them, freeing up spaces in the Searsville parking lot for commuters who work near that lot.

Second, Stanford does not assume that all 295 employees working in the LBRE Building would need a parking space. Campus-wide, 58% of employees use alternative modes of transportation, and 42% drive alone.

The Searsville Parking Lot was approved for 611 spaces. By removing about 250 from 611 (i.e. re-designating them for university maintenance vehicle storage), there would be 361 spaces remaining in the Searsville Parking Lot. Electioneer Road currently has over 100 spaces and about half will be removed, with about 50 spaces to be retained. Therefore, over 400 spaces in these two parking areas would be available for commuters who choose to drive. In addition, Stanford could reallocate parking use, or change the TDM program in the future if desired to address any future parking difficulties in this localized area.

### **Response to Comment PK-3**

Please see the Master Response for Stanford's overall approach to managing its parking inventory. Although the utilization of lots does not affect Stanford's compliance with the GUP Conditions, the information responsive to this question is provided below.

Lot-22 was about 80% full before and during Covid-19 due to some Hospital use. This means there are about 490 existing users of the lot. However, further changes will occur to this lot in Fall



2020, with Hospital permit holders to be shifted to Hospital parking lots in Palo Alto jurisdiction. Hence, we expect this utilization to further decrease.

Electioneer Road parking spaces have been typically underutilized, with 60% utilization before Covid-19 and under 10% utilization during Covid-19.

### **Response to Comment R1-1**

Please see Stanford's response to Planning Item #8, and Sheet C9.0.

### **Response to Comment R1-2**

Please see the Master Response for the 2000 GUP EIR's overall approach to transportation analyses.

Under the 2000 General Use Permit Conditions of Approval, the LBRE Replacement Building Local Access and Circulation Study scope addresses intersections directly adjacent to the project site. Because Campus Drive West/Searsville Road is not directly adjacent to the project site (including the LBRE building and the equipment shed), it was not included in the scope.

Stanford plans for internal campus network improvements on an ongoing basis to serve expected changes in traffic, pedestrian and bicyclist flows, and these improvements are reviewed by the County when required under the General Use Permit Conditions of Approval. In addition, the proposed project's estimated 12 additional AM and PM peak hour trips at Campus Drive/Searsville Road would not be expected to substantially change conditions for vehicles, bicyclists nor pedestrians at the intersection. Also, as noted in the report on page 11, traffic volumes at the Searsville lot driveways, and thus at the intersection of Campus Drive West/Searsville Road, are actually expected to drop due to the conversion of a portion of the Searsville lot to maintenance vehicle storage; however, this effect was not quantified in the report in order to provide a conservative analysis.

### **Response to Comment R1-3**

Fremont Road/Electioneer Road is currently an all-way stop with very low volumes (under 50 trips in both peak hours). The intersection will be modified to approximate a neighborhood traffic circle design (not a traditional roundabout), with a low mountable center island to allow larger vehicles to enter and exit the equipment shed and to facilitate three-point turns if and when needed. The current eastbound leg will not be part of the modified intersection. The project would not increase peak hour trips at the intersection. Because the peak hour volumes will remain at their very low levels, the intersection is expected to continue to operate, effectively, as an all-way stop with a neighborhood traffic circle, and therefore a separate Existing Plus Project analysis was not provided.



#### **Response to Comment R1-4**

The comment is correct that all peak hour vehicle trips, summarized in Table 3, will enter and exit the building driveway north of the Fremont Road/Electioneer Road intersection. As noted in the response above, this means that no vehicle trips would use the Fremont Road/Electioneer intersection in the peak hour. Note that this intersection effectively becomes Fremont Road/Equipment Shed Access Driveway as opposed to Fremont Road/Electioneer, since no through traffic on Electioneer will be allowed.

#### **Response to Comment TR-1**

Truck trips were previously contemplated in the 2000 GUP EIR, and are counted under the monitoring to meet the No Net New Commute Trips standard.

The referenced truck trips are existing trips currently accessing the Bonair Siding location that will shift to access the project site. As shown in Table 3, in the peak hour, only two heavy truck round-trips to the project site are expected in the peak commute hours, and potentially up to 15 daily heavy truck round trips are expected on a daily basis. The estimated total truck traffic, including lighter box trucks, is eight round trips during peak hours and 65 round trips on a daily basis. These trips will primarily use Fremont Road and Searsville Road to access Campus Drive West, then dispersing to various points on campus. There are no residential or academic uses fronting this route. In addition, as noted in response to comment R1-2, Stanford manages its roadway network to ensure that the needs of pedestrians, bicyclists, and drivers are met as the campus changes over time.

#### **Response to Comment TR-2**

Please see Sheet C2.0 for truck maneuvering diagrams.

#### **Response to Comment OU-1**

The pedestrian volumes were incorrectly entered in the Synchro model. Pedestrian volumes are low at these intersections. However, Fehr & Peers tested the effect of the corrected pedestrian volumes on the LOS results, and found that delays changed by approximately 0.3 seconds. The corrected output is attached. Given the negligible effect on the results, Fehr & Peers has not updated the report appendices.

#### **Response to Comment OU-2**

Please see Stanford's response to Planning Item 6.

Attachment 1: Corrected Synchro Results

**Attachment 1**

**Corrected Synchro Results**

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	55	7	3	25	7	1
Future Vol, veh/h	55	7	3	25	7	1
Conflicting Peds, #/hr	0	22	22	0	3	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	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	63	8	3	28	8	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	93	0	126
Stage 1	-	-	-	-	89
Stage 2	-	-	-	-	37
Critical Hdwy	-	-	4.13	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.227	-	3.527
Pot Cap-1 Maneuver	-	-	1495	-	866
Stage 1	-	-	-	-	932
Stage 2	-	-	-	-	983
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1464	-	843
Mov Cap-2 Maneuver	-	-	-	-	843
Stage 1	-	-	-	-	912
Stage 2	-	-	-	-	978

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	855	-	-	1464	-
HCM Lane V/C Ratio	0.011	-	-	0.002	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	6	2	9	2	6	1	1	6	5	3	2
Future Vol, veh/h	1	6	2	9	2	6	1	1	6	5	3	2
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	20	20	20	20	20	20	20	20	20	20	20	20
Mvmt Flow	1	8	3	11	3	8	1	1	8	6	4	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.3	6.9	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	11%	53%	50%
Vol Thru, %	12%	67%	12%	30%
Vol Right, %	75%	22%	35%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	9	17	10
LT Vol	1	1	9	5
Through Vol	1	6	2	3
RT Vol	6	2	6	2
Lane Flow Rate	10	11	22	13
Geometry Grp	1	1	1	1
Degree of Util (X)	0.011	0.013	0.025	0.015
Departure Headway (Hd)	3.881	4.184	4.182	4.284
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	923	857	858	837
Service Time	1.902	2.201	2.196	2.304
HCM Lane V/C Ratio	0.011	0.013	0.026	0.016
HCM Control Delay	6.9	7.3	7.3	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0	0.1	0

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	9	16	19	652	193	9
Future Vol, veh/h	9	16	19	652	193	9
Conflicting Peds, #/hr	0	4	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	10	17	21	709	210	10

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	967	220	221	0	0
Stage 1	216	-	-	-	-
Stage 2	751	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-
Pot Cap-1 Maneuver	281	817	1342	-	-
Stage 1	818	-	-	-	-
Stage 2	464	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	273	813	1341	-	-
Mov Cap-2 Maneuver	273	-	-	-	-
Stage 1	796	-	-	-	-
Stage 2	464	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1341	-	475	-	-
HCM Lane V/C Ratio	0.015	-	0.057	-	-
HCM Control Delay (s)	7.7	0	13	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	22	3	0	47	4	0
Future Vol, veh/h	22	3	0	47	4	0
Conflicting Peds, #/hr	0	19	19	0	3	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	90	90	90	90	90	90
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	24	3	0	52	4	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	46	0	100
Stage 1	-	-	-	-	45
Stage 2	-	-	-	-	55
Critical Hdwy	-	-	4.15	-	6.45
Critical Hdwy Stg 1	-	-	-	-	5.45
Critical Hdwy Stg 2	-	-	-	-	5.45
Follow-up Hdwy	-	-	2.245	-	3.545
Pot Cap-1 Maneuver	-	-	1543	-	891
Stage 1	-	-	-	-	970
Stage 2	-	-	-	-	960
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1515	-	872
Mov Cap-2 Maneuver	-	-	-	-	872
Stage 1	-	-	-	-	953
Stage 2	-	-	-	-	957

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	872	-	-	1515	-
HCM Lane V/C Ratio	0.005	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	1	0	7	1	3	0	1	9	10	3	2
Future Vol, veh/h	3	1	0	7	1	3	0	1	9	10	3	2
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	5	2	0	11	2	5	0	2	15	16	5	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.1	6.5	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	75%	64%	67%
Vol Thru, %	10%	25%	9%	20%
Vol Right, %	90%	0%	27%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	4	11	15
LT Vol	0	3	7	10
Through Vol	1	1	1	3
RT Vol	9	0	3	2
Lane Flow Rate	16	6	18	24
Geometry Grp	1	1	1	1
Degree of Util (X)	0.016	0.008	0.02	0.027
Departure Headway (Hd)	3.472	4.185	3.99	4.059
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1032	857	899	884
Service Time	1.488	2.202	2.005	2.073
HCM Lane V/C Ratio	0.016	0.007	0.02	0.027
HCM Control Delay	6.5	7.2	7.1	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0	0.1	0.1

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	8	21	14	267	736	14
Future Vol, veh/h	8	21	14	267	736	14
Conflicting Peds, #/hr	0	9	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	8	22	14	275	759	14

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1075	781	779	0	-	0
Stage 1	772	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	242	393	834	-	-	-
Stage 1	454	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	234	387	829	-	-	-
Mov Cap-2 Maneuver	234	-	-	-	-	-
Stage 1	442	-	-	-	-	-
Stage 2	743	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.1	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	829	-	328	-	-
HCM Lane V/C Ratio	0.017	-	0.091	-	-
HCM Control Delay (s)	9.4	0	17.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	55	9	9	25	9	7
Future Vol, veh/h	55	9	9	25	9	7
Conflicting Peds, #/hr	0	22	22	0	3	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	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	63	10	10	28	10	8

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	95	0	141
Stage 1	-	-	-	-	90
Stage 2	-	-	-	-	51
Critical Hdwy	-	-	4.13	-	6.43
Critical Hdwy Stg 1	-	-	-	-	5.43
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.227	-	3.527
Pot Cap-1 Maneuver	-	-	1493	-	850
Stage 1	-	-	-	-	931
Stage 2	-	-	-	-	969
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1462	-	824
Mov Cap-2 Maneuver	-	-	-	-	824
Stage 1	-	-	-	-	911
Stage 2	-	-	-	-	959

Approach	EB	WB	NB
HCM Control Delay, s	0	2	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	873	-	-	1462	-
HCM Lane V/C Ratio	0.021	-	-	0.007	-
HCM Control Delay (s)	9.2	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	6	2	9	2	6	1	1	6	5	3	2
Future Vol, veh/h	1	6	2	9	2	6	1	1	6	5	3	2
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	20	20	20	20	20	20	20	20	20	20	20	20
Mvmt Flow	1	8	3	11	3	8	1	1	8	6	4	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.3	6.9	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	11%	53%	50%
Vol Thru, %	12%	67%	12%	30%
Vol Right, %	75%	22%	35%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	9	17	10
LT Vol	1	1	9	5
Through Vol	1	6	2	3
RT Vol	6	2	6	2
Lane Flow Rate	10	11	22	13
Geometry Grp	1	1	1	1
Degree of Util (X)	0.011	0.013	0.025	0.015
Departure Headway (Hd)	3.881	4.184	4.182	4.284
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	923	857	858	837
Service Time	1.902	2.201	2.196	2.304
HCM Lane V/C Ratio	0.011	0.013	0.026	0.016
HCM Control Delay	6.9	7.3	7.3	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0	0.1	0

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	9	16	19	653	194	9
Future Vol, veh/h	9	16	19	653	194	9
Conflicting Peds, #/hr	0	4	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
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, %	3	3	3	3	3	3
Mvmt Flow	10	17	21	710	211	10

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	969	221	222	0	0
Stage 1	217	-	-	-	-
Stage 2	752	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-
Pot Cap-1 Maneuver	280	816	1341	-	-
Stage 1	817	-	-	-	-
Stage 2	464	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	272	812	1340	-	-
Mov Cap-2 Maneuver	272	-	-	-	-
Stage 1	795	-	-	-	-
Stage 2	464	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1340	-	474	-	-
HCM Lane V/C Ratio	0.015	-	0.057	-	-
HCM Control Delay (s)	7.7	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	22	5	6	47	6	6
Future Vol, veh/h	22	5	6	47	6	6
Conflicting Peds, #/hr	0	19	19	0	3	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	90	90	90	90	90	90
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	24	6	7	52	7	7

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	49	0	115
Stage 1	-	-	-	-	46
Stage 2	-	-	-	-	69
Critical Hdwy	-	-	4.15	-	6.45
Critical Hdwy Stg 1	-	-	-	-	5.45
Critical Hdwy Stg 2	-	-	-	-	5.45
Follow-up Hdwy	-	-	2.245	-	3.545
Pot Cap-1 Maneuver	-	-	1539	-	874
Stage 1	-	-	-	-	969
Stage 2	-	-	-	-	946
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1511	-	851
Mov Cap-2 Maneuver	-	-	-	-	851
Stage 1	-	-	-	-	952
Stage 2	-	-	-	-	938

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	918	-	-	1511	-
HCM Lane V/C Ratio	0.015	-	-	0.004	-
HCM Control Delay (s)	9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	1	0	7	1	3	0	1	9	10	3	2
Future Vol, veh/h	3	1	0	7	1	3	0	1	9	10	3	2
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	5	2	0	11	2	5	0	2	15	16	5	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.1	6.5	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	75%	64%	67%
Vol Thru, %	10%	25%	9%	20%
Vol Right, %	90%	0%	27%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	4	11	15
LT Vol	0	3	7	10
Through Vol	1	1	1	3
RT Vol	9	0	3	2
Lane Flow Rate	16	6	18	24
Geometry Grp	1	1	1	1
Degree of Util (X)	0.016	0.008	0.02	0.027
Departure Headway (Hd)	3.472	4.185	3.99	4.059
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1032	857	899	884
Service Time	1.488	2.202	2.005	2.073
HCM Lane V/C Ratio	0.016	0.007	0.02	0.027
HCM Control Delay	6.5	7.2	7.1	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0	0.1	0.1



Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	8	21	14	267	737	14
Future Vol, veh/h	8	21	14	267	737	14
Conflicting Peds, #/hr	0	9	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	8	22	14	275	760	14

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1076	782	780	0	-	0
Stage 1	773	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	242	393	833	-	-	-
Stage 1	454	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	234	387	828	-	-	-
Mov Cap-2 Maneuver	234	-	-	-	-	-
Stage 1	442	-	-	-	-	-
Stage 2	743	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.1	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	828	-	328	-	-
HCM Lane V/C Ratio	0.017	-	0.091	-	-
HCM Control Delay (s)	9.4	0	17.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-