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MEMORANDUM

DATE:	February 1, 2018
TO:	Reh-Lin Chen, PE, PTOE, City of San Leandro Dean Hsiao, PhD, PE, PTOE, City of San Leandro
FROM:	David Mahama, PE Erin Vaca, TE Travis Low, EIT
SUBJECT:	Euclid Avenue One-Way Street Reversal Study P# 17148-001

This memorandum summarizes analysis undertaken for the Euclid Avenue One-Way Reversal Study for the City of San Leandro (Purchase Order 56271).

HISTORICAL BACKGROUND

Complaints about traffic issues along Euclid Avenue and Euclid court date back to December of 1967. The traffic issues include:

1. Narrow roadway width (30 feet for Euclid Avenue and 20 feet for Euclid Court) for two-way traffic and parking along both sides of the Euclid Avenue and Euclid Court
2. Traffic congestion along Euclid Avenue and Euclid Court
3. Unsafe condition for motorists with resulting frequent collisions with parked vehicles due to insufficient roadway widths along Euclid Avenue and Euclid Court
4. Speeding and cut through traffic along Euclid Avenue to avoid traffic delay at the East 14th Street/Dutton Avenue intersection

In June of 1975, 51 residents along Euclid Avenue and Euclid Court petitioned the City of San Leandro City Council to consider converting the two-way street into a one-way street to mitigate the traffic issues listed above. In August of 1975, the City Council granted the request to convert Euclid Avenue and Euclid court to a one-way street with parking allowed on both sides of the street. The City responded to residents' request by installing signing and striping to convert the two-way roadway to a one-way eastbound direction.

In October of 1981, residents again made a request to City Council to reverse the one-way eastbound direction to one-way westbound direction. They stated that they had originally requested westbound one-way direction instead of the eastbound one-way direction that was installed by the City. The reversal was supported by 60% of respondents to a resident survey for the direction reversal. The request was not granted due to concerns about potential traffic delay to westbound Euclid Avenue motorists making turns at the East 14th Street/Euclid Avenue intersection during afternoon peak periods when East 14th Street carries high traffic volumes.

Euclid Avenue is currently a one-way eastbound street that provides access to the Washington Elementary School in the City of San Leandro. Now, a traffic signal will be constructed at the East 14th Street/Euclid Avenue intersection as part of the East Bay Bus Rapid Transit project. To take advantage of the new traffic signal, some residents believe that it would be beneficial to reverse the direction of the one-way travel on Euclid Avenue.

Assessment of the potential one-way reversal was focused on three study intersections listed below and shown in **Figure 1**:

- East 14th Street & Euclid Avenue/Cherrywood Avenue
- East 14th Street & Dutton/Best Avenues
- Dutton Avenue & Euclid Court

DKS Associates built models of the study intersections using the Synchro software (version 9) for the existing and project conditions. Intersection delay and level of service were assessed for the morning peak, afternoon school peak and afternoon peak periods for both existing and project conditions.

To better assess the proposed traffic flow change and make recommendations, DKS Associates also visited the project site during school drop-off and pickup hours on weekdays in December of 2017 and recorded observations on the traffic flow and traffic behavior.

EXISTING CONDITIONS ANALYSIS

Existing Conditions Site Visit

The field visits were conducted on December 12, 2017 (PM) and December13, 2017 (AM). The morning drop-off was observed from approximately 7:30-8:30 AM and the afternoon pick-up was observed from approximately 1:30-3:15 PM (note that afternoon class dismissals are staggered).

General Notes

The main frontage of Washington Elementary School along Dowling Boulevard and Dutton Avenue includes a designated loading zone. The school also has a long eastern frontage to Breed Avenue. The western frontage to Euclid Avenue and Euclid Court, like the rest of the school, is fenced off. There are no gates along Euclid Court, except where Euclid Court turns into Euclid Avenue. The fence running along Euclid Court leaves only about two feet between the fence and the curb along the eastern side of the street.

Turning left from Euclid Court to Dutton Avenue is prohibited from 7:30-8:30 AM and 1:30-3:30 PM on school days only. However, multiple violations were observed during both the morning and afternoon.

There is a crosswalk across Dutton Avenue at Breed Avenue which includes push buttons, in-pavement lights, flashing pedestrian crossing signs, and static Yield to Pedestrians in Crosswalk signs. The push button installations may not be ADA compliant. A crossing guard was observed during both the morning pick-up and afternoon drop-off. Speeds appeared high sometimes on Dutton Avenue and several motorists refused to yield to pedestrians. Upgrading

LEGEND

XX - Study Intersection and Number

N

No Scale

DKS

Figure 1

Euclid Avenue One-Way Street Reversal Study
City of San Leandro
Study Area Map

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to flashing beacons may help, since the lights in the signs may not be bright enough to alert motorists.

There is an AT&T facility on the southeast corner of Euclid Avenue and East 14th Street. Currently, the parking lot entrance is on Euclid Avenue with the exit on East 14th Street. The proposed reversal of direction on Euclid Avenue will affect the path that traffic must follow to enter and exit this parking lot.

Morning Drop-Off

For all grades, instruction begins at 8:10 AM. However, breakfast begins at 7:45 AM and playground supervision begins at 7:55 AM. The earliest drop-offs observed on Euclid Avenue were parents stopping at the red curb in front of the fire hydrant and allowing children to exit from either side of the vehicle. As the arrivals became more frequent, cars began stopping or parking along the curb in other areas, some at red curbs or blocking driveways. A few vehicles were parked illegally and left unattended. Additionally, some cars stopped while in the travel lane to let children out (see **Figure 2**). The maximum queue in front of the school gates was approximately 3 vehicles. Several residents departing their homes became impatient while attempting to pass around the school traffic. After classes began, only one car was observed to still be parked illegally (it was at a red curb). Overall, instances of queuing were short and Euclid Avenue was generally not overwhelmed by the traffic volume.

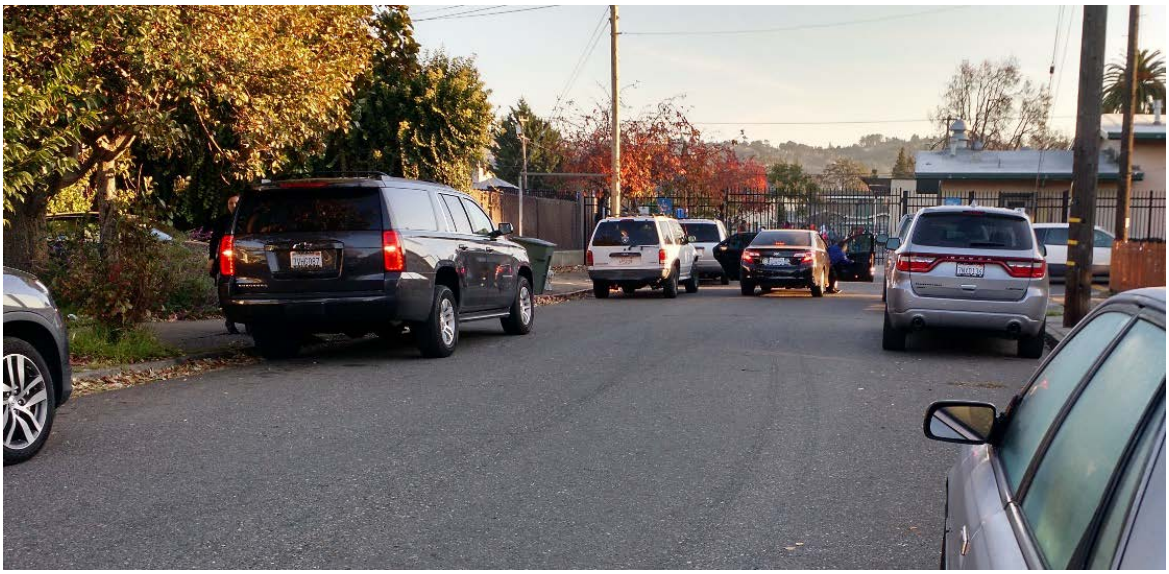


Figure 2: Vehicle stopped in travel lane while children exit from both sides. Several vehicles, both attended and unattended, can be seen at red curbs.

Afternoon Pick-Up

The afternoon pick-up is staggered into three separate dismissal times: 1:50, 2:10, and 3:00 PM. Furthermore, After School Programs are scheduled to run until 6:00 PM. Leading up to the first dismissal (Kindergarten), most parents appear to park near the Dutton Avenue/Breed Avenue intersection (in the designated Loading Zone areas) and then escort their child from the school. Euclid Avenue and Euclid Court were comparatively quiet, with mainly pedestrian activity. During the second and third dismissals, many vehicles were parked or actively

loading at the front of the school with some parked on Euclid Avenue and Euclid Court. Some of these vehicles were parked illegally at red curbs, both attended and unattended. Just before the second dismissal time a vehicle was observed to travel the wrong way down the full length of Euclid Court, U-turn, and park near the school gates. Just after the second dismissal time, a bicyclist was observed to travel the wrong way down Euclid Avenue. Compared to the morning drop-off, the afternoon pick-up had fewer instances of queueing on Euclid Avenue.

Comments from Residents

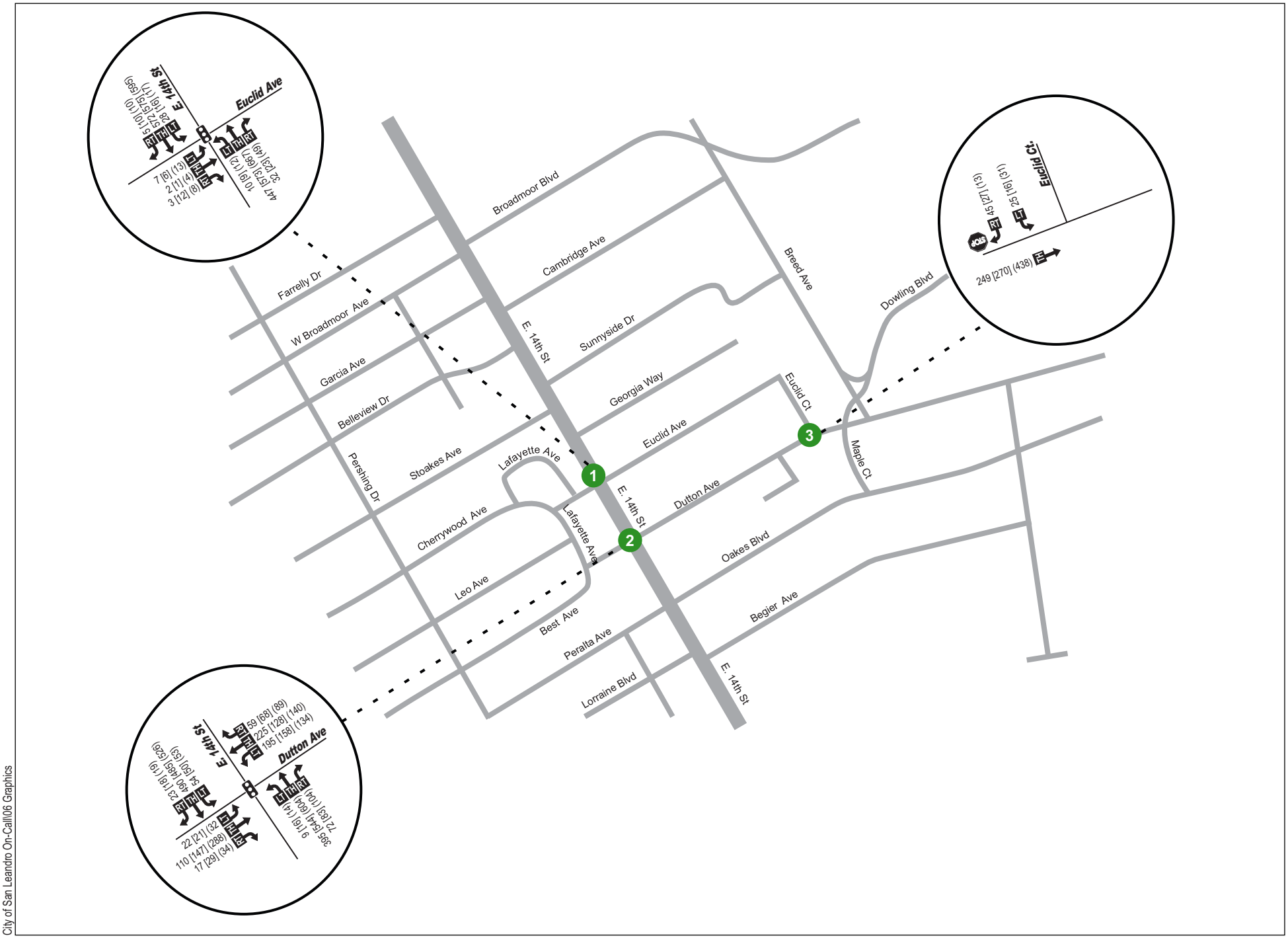
Informal conversations were held voluntarily with residents of two households along the portion of Euclid Avenue close to the west school gates. The first household complained of parents blocking driveways and the fire hydrant during drop-off/pick-up, including leaving the car unattended. Additionally, they mentioned that the crosswalk at Euclid Avenue/Euclid Court is not useful since the school only unlocks the gate at the north sidewalk and vehicles sometimes block the crosswalk's curb ramps. The worst periods on the street were observed to be from 7:45-8:15 AM, during morning drop-off, and 5:30-6:00 PM, when the after-school programs end. The residents do not see any regular parking enforcement. One resident believes a one-way street reversal would have the same problems as the current configuration, though they suggested the possibility of closing Euclid Court. Additionally, the resident feels the southbound left turn restriction to Dutton Avenue is not effective and should be removed.

A resident of the second household also complained of vehicles blocking driveways, some unattended. This resident suggested a crossing guard on Euclid, more No Parking signage, and increased use of Breed Avenue for drop-off/pick-up. They would like to see more parking enforcement during the busiest times and more communication/reminders from the school to the parents. The household thought the one-way street reversal might help, but only if the eastbound left from Dutton was possible. Additionally, the household believes the southbound left turn restriction to Dutton Avenue is violated often because the sign is too small for people to easily notice.

Existing Conditions Operational Analysis

Existing traffic operations at the three study intersections were assessed using the Synchro models and turning movement counts collected on Wednesday, November 8, 2017. **Figure 3** shows the existing turning movement volumes for the three study intersections. For comparison with Project Conditions, the East 14th Street/Euclid Avenue/Cherrywood Avenue intersection was modeled as a signalized intersection. Although the current East Bay BRT traffic signal design plan for the intersection shows a two-way Euclid Avenue, our analysis for the study assumes a one-way Euclid Avenue.

As shown in **Table 1**, all the study intersections currently operate at an acceptable level of service during the AM, School PM, and PM peak periods. The detailed reports from Synchro are included in **Appendix 1**.



LEGEND

- Traffic Signal
- Stop Sign
- Existing Lane Geometry
- XXX [XXX] (XXX) - AM Peak [School PM Peak] (PM Peak)
- XX - Study Intersection and Number

N

No Scale

DKS

Figure 3

Euclid Avenue One-Way Street Reversal Study
City of San Leandro
Existing Peak Hour Volumes

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Table 1: Existing Delay (Seconds)/LOS[(1)]

Study Intersection	Intersection Control	AM Peak	School PM Peak	PM Peak
1) East 14th St & Cherrywood Ave/Euclid Ave	Two-way stop-controlled[(2)]	7.2/A	6.5/A	7.3/A
2) East 14th St & Best/Dutton Ave	Signalized	15.7/B	12.9/B	14.2/B
3) Dutton Ave & Euclid Court	Minor street stop-controlled	15.0/C	12.0/B	15.7/C

Notes:
1) Average delay reported for signalized intersections using HCM 2010 methodology. Minor street delay reported for stop-controlled intersection.
2) Signalization assumed for existing and project conditions

PROJECT CONDITIONS ANALYSIS

Origin Destination Data Collection

Intercept surveys of motorists to collect origin and destination information was collected by the City in October of 2017. This data was used to inform the traffic assignment developed for the project conditions (westbound operation) analysis. A summary of the responses is shown in **Tables 2 and 3**.

Traffic Assignment for Project Conditions

Turning movement counts and origin-destination survey data collected by the City of San Leandro were used to forecast turning movements at the study intersections under project conditions. Turning movements into westbound Euclid Avenue and out of southbound Euclid Court were redistributed across the study intersections to appropriately reflect the one-way directional change proposed for Euclid Avenue/Court. The existing turning movements were used to estimate the proportion of diverted movements that would enter at Euclid Court or depart from Euclid Avenue at 14th Street. For example, the existing SBL turns from 14th Street to Euclid Avenue are redistributed as a SBT movement at this intersection and added to the SBL turns at 14th & Dutton and EBL turns from Dutton Avenue into Euclid Court under the proposed project. The existing NBR turns from 14th Street to Euclid Avenue are redistributed according to the existing distribution of movements entering the north leg of 14th Street & Dutton. Likewise, the existing SBR turns from Euclid Court are redistributed according to the existing distribution of movements on the westbound approach of 14th Street & Dutton. **Figure 4** summarizes the existing and re-assigned turning movements at the project study intersections. These re-assigned movements were compared with the origin-destination survey data to confirm their validity. The detailed re-assignment calculations may be found in **Appendix 2**.

Table 2: Origin and Destination Data – AM Period

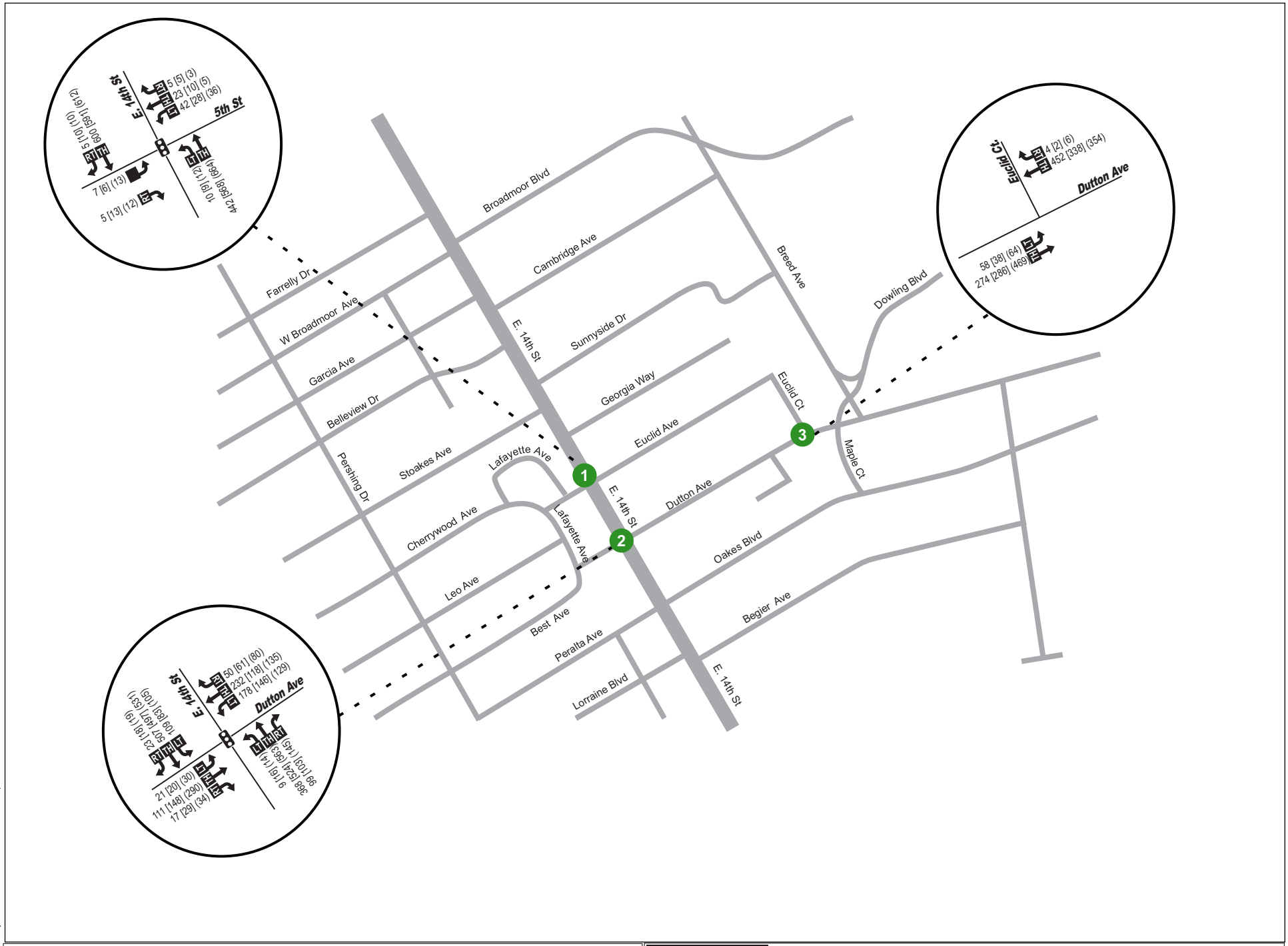
		Destination (Vehicle Trips)							
		Total	Dutton EB	Breed NB	Maple SB	14th SB	14th NB	Best WB	No Match
Origin and Direction of Travel (Trips)	14th NB: RT to Euclid	50	17	1	0	10	10	11	1
	14th SB: LT to Euclid	27	4	0	0	8	8	4	3
	Cherrywood EB through	5	1	0	0	1	0	2	1
	14th NB: LT to Dutton	115	73	25	3	N/A	N/A	N/A	14
	14th SB: LT to Dutton	56	47	3	0	N/A	N/A	N/A	6
	Best EB through	136	114	16	4	N/A	N/A	N/A	2
	Dutton WB #1	494	N/A	N/A	N/A	155	55	273	11
	Dowling WB to Dutton	137	N/A	N/A	N/A	52	22	69	-6
	Maple NB	4	N/A	N/A	N/A	3	0	3	-2
	Total	1024	256	45	7	229	95	362	30
		Destination (Percentage)							
Origin and Direction of Travel (Percent)	14th NB: RT to Euclid	100%	34%	2%	0%	20%	20%	22%	2%
	14th SB: LT to Euclid	100%	15%	0%	0%	30%	30%	15%	11%
	Cherrywood EB through	100%	20%	0%	0%	20%	0%	40%	20%
	14th NB: LT to Dutton	100%	63%	22%	3%	N/A	N/A	N/A	12%
	14th SB: LT to Dutton	100%	84%	5%	0%	N/A	N/A	N/A	11%
	Best EB through	100%	84%	12%	3%	N/A	N/A	N/A	1%
	Dutton WB #1	100%	N/A	N/A	N/A	31%	11%	55%	2%
	Dowling WB to Dutton	100%	N/A	N/A	N/A	38%	16%	50%	-4%
	Maple NB	100%	N/A	N/A	N/A	75%	0%	75%	-50%
	Total	100%	25%	4%	1%	22%	9%	35%	3%

Source: City of San Leandro 2017

Table 3: Origin and Destination Data – PM Period

		Destination (Vehicle Trips)							
		Total	Dutton EB	Breed NB	Maple SB	14th SB	14th NB	Best WB	No Match
Origin and Direction of Travel (Trips)	14th NB: RT to Euclid	32	12	0	0	7	3	3	7
	14th SB: LT to Euclid	13	5	4	0	1	4	4	-5
	Cherrywood EB through	2	0	1	0	0	0	0	1
	14th NB: LT to Dutton	139	102	23	3	N/A	N/A	N/A	11
	14th SB: LT to Dutton	50	43	7	1	N/A	N/A	N/A	-1
	Best EB through	180	151	24	7	N/A	N/A	N/A	-2
	Dutton WB #1	331	N/A	N/A	N/A	143	49	139	0
	Dowling WB to Dutton	94	N/A	N/A	N/A	44	25	42	-17
	Maple NB	4	N/A	N/A	N/A	3	0	1	0
	Total	845	313	59	11	198	81	189	-6
		Destination (Percentage)							
Origin and Direction of Travel (Percent)	14th NB: RT to Euclid	100%	38%	0%	0%	22%	9%	9%	22%
	14th SB: LT to Euclid	100%	38%	31%	0%	8%	31%	31%	-38%
	Cherrywood EB through	100%	0%	50%	0%	0%	0%	0%	50%
	14th NB: LT to Dutton	100%	73%	17%	2%	N/A	N/A	N/A	8%
	14th SB: LT to Dutton	100%	86%	14%	2%	N/A	N/A	N/A	-2%
	Best EB through	100%	84%	13%	4%	N/A	N/A	N/A	-1%
	Dutton WB #1	100%	N/A	N/A	N/A	43%	15%	42%	0%
	Dowling WB to Dutton	100%	N/A	N/A	N/A	47%	27%	45%	-18%
	Maple NB	100%	N/A	N/A	N/A	75%	0%	25%	0%
	Total	100%	37%	7%	1%	23%	10%	22%	-1%

Source: City of San Leandro 2017



LEGEND

- Traffic Signal
- Stop Sign
- Existing Lane Geometry
- XXX [XXX] (XXX) - AM Peak [School PM Peak] (PM Peak)
- XX - Study Intersection and Number

N

No Scale

DKS

Figure 4

Euclid Avenue One-Way Street Reversal Study
City of San Leandro
Existing Plus Project Peak Hour Volumes

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Operational Analysis for Project Conditions

The revised turning volumes were incorporated into the Synchro models to test the effect of the one-way direction reversal on Euclid Avenue. As shown in **Table 4**, delay and LOS would remain within acceptable limits after project implementation. Specifically, delay would increase slightly at Study Intersection #1 and decrease at Study Intersections #2 and 3. Furthermore, the eastbound left turn from Dutton Avenue into Euclid Court during any of the peak hours is not expected to have a 95th Percentile Queue more than one vehicle. This short queue does not necessitate the construction of a left turn pocket, which is consistent with driver expectation along this street.

Table 4: Existing Plus Project Delay (Seconds)/LOS

Study Intersection	Intersection Control	AM Peak	School PM Peak	PM Peak
1) East 14th St & Cherrywood Ave/Euclid Ave	Signalized	10.0/B	7.7/A	8.6/A
2) East 14th St & Best/Dutton Ave	Signalized	14.6/B	12.9/B	17.3/B
3) Dutton Ave & Euclid Court	Free*	2.0/A	1.3/A	1.6/A

Notes:
1. Average delay reported for signalized intersections using HCM 2010 methodology.
2. *LOS/Delay reported for worse movement (Eastbound approach) for the intersection of Dutton Avenue & Euclid Court using HCM 2000 methodology due to the limitations of the HCM 2010 methodology.

Euclid Avenue Cut-Through Potential Analysis

There is a concern about the potential for cut-through traffic via Euclid Court and Euclid Avenue to avoid traffic delay and queuing at the East 14th Street and Best/Dutton Avenue intersection. The cut-through is expected to occur during the PM peak period because of the absence of school traffic on Euclid Avenue and the westbound queuing and delay at the East 14th Street and Best/Dutton Avenue intersection is worst during the PM peak period.

The results of the queuing analysis are presented in **Table 5** below. The results show that reversing Euclid Avenue is expected to slightly increase the westbound queuing by less than 10 feet (i.e. not more than one additional vehicle). However, the delay and level of service is expected to significantly increase but not to unacceptable levels to trigger the need for cut-through.

Should significant cut-through traffic occur as a result of the Euclid Avenue reversal, the City can consider measures such as optimizing/retiming the traffic signal at the East 14th Street and Best/Dutton Avenue intersection and installing speed humps to calm traffic speeds and discourage cut-through traffic.

Table 5: Westbound PM peak 95th %tile Queue Length (Feet)/Delay (Seconds)/LOS

Study Intersection	Intersection Control	Existing PM	Existing + Project PM
East 14th St & Best/Dutton Ave	Signalized	309 ft/18.5 sec/B	318 ft/23.9 sec/C

Notes: Average delay reported for signalized intersections using HCM 2010 methodology.

CONCLUSIONS AND RECOMMENDATIONS

Overall, the proposed reversal of the one-way travel direction on Euclid Avenue/Euclid Court appears to be feasible. It would not unacceptably degrade the performance of the nearby study intersections and would not result in excessive queues waiting to turn left from Dutton Avenue to Euclid Court. Given the relatively short queuing observed at the school gate and parking along Euclid Avenue, there would appear to be sufficient storage on Euclid Court for school drop off and pickup operations.

However, the lack of sidewalk and limited space between the school fence and the curb on the east side of Euclid Court does pose a challenge. With the reversal of direction, vehicles pulling over to the west side of Euclid Court where there is a sidewalk would still require front seat passengers to exit into the travel lane. Vehicles could alternatively pull forward of the red curb on the north side of Euclid Avenue to discharge passengers to the sidewalk. However, it is likely that many vehicles would continue to park illegally at red curbs, block residential driveways, and discharge passengers into the travel lanes as is currently the case. To minimize such behaviors, we recommend that the City extend the sidewalk on the east side of Euclid Court by approximately four feet, creating a safer passenger loading zone extending to the north school gate. A sidewalk extension would leave approximately 20 feet remaining available for the travel lane and parking.

In addition, the city should communicate with the business located at the corner of 14th Street and Euclid Avenue prior to implementing the Euclid Avenue reversal. Without reconfiguration of the ingress and egress driveways, motorists would have to turn left from Dutton Avenue onto Euclid Court to enter the parking lot behind the facility at 530 East 14th Street.

Finally, concerns have been raised about the potential for Euclid Court and Euclid Avenue to attract some cut-through traffic from motorists seeking to avoid queues and congestion at the intersection of East 14th Street and Dutton Avenue. This is a valid concern as there was some cut-through traffic that occurred prior to the implementation of the one-way on Euclid Avenue. If an increase in cut-through traffic does occur, the City can the resolve the problem by retiming the signal to reduce westbound queuing (removal of parking to create a right or left turn pocket is not recommended due to the concerns of merchants). Alternatively, the City may consider installing traffic calming devices on Euclid Court and Euclid Avenue to make the route less attractive for cut-through traffic.

APPENDIX 1: SYNCHRO REPORTS

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Existing AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	2	3	0	0	0	10	447	32	28	572	5
Future Volume (veh/h)	7	2	3	0	0	0	10	447	32	28	572	5
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96				1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900				1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	2	3				11	491	35	31	629	5
Adj No. of Lanes	0	1	0				1	2	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	0				2	2	2	2	2	2
Cap, veh/h	57	14	21				41	1573	112	107	936	7
Arrive On Green	0.05	0.05	0.05				0.02	0.47	0.47	0.06	0.51	0.51
Sat Flow, veh/h	1058	265	397				1774	3342	237	1774	1845	15
Grp Volume(v), veh/h	13	0	0				11	259	267	31	0	634
Grp Sat Flow(s),veh/h/ln	1719	0	0				1774	1770	1809	1774	0	1859
Q Serve(g_s), s	0.2	0.0	0.0				0.2	3.0	3.0	0.5	0.0	8.3
Cycle Q Clear(g_c), s	0.2	0.0	0.0				0.2	3.0	3.0	0.5	0.0	8.3
Prop In Lane	0.62		0.23				1.00		0.13	1.00		0.01
Lane Grp Cap(c), veh/h	93	0	0				41	833	852	107	0	944
V/C Ratio(X)	0.14	0.00	0.00				0.27	0.31	0.31	0.29	0.00	0.67
Avail Cap(c_a), veh/h	1322	0	0				436	979	1001	436	0	1086
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	0.0				15.6	5.3	5.3	14.6	0.0	6.0
Incr Delay (d2), s/veh	1.0	0.0	0.0				4.8	0.3	0.3	2.1	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0				0.1	1.5	1.6	0.3	0.0	4.5
LnGrp Delay(d),s/veh	15.6	0.0	0.0				20.4	5.6	5.6	16.7	0.0	7.6
LnGrp LOS	B						C	A	A	B		A
Approach Vol, veh/h		13						537			665	
Approach Delay, s/veh		15.6						5.9			8.0	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	4.8	21.1			6.0	19.9		6.7
Change Period (Y+Rc), s	4.0	4.6			4.0	4.6		4.9
Max Green Setting (Gmax), s	8.0	19.0			8.0	18.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	10.3			2.5	5.0		2.2
Green Ext Time (p_c), s	0.0	5.9			0.0	8.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.2
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	110	17	195	255	59	9	395	72	54	490	23
Future Volume (veh/h)	22	110	17	195	255	59	9	395	72	54	490	23
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.98	1.00		0.95	0.99		0.95
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	24	120	18	212	277	64	10	429	78	59	533	25
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	1	0
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	2	2	2	2	2	2	2	2
Cap, veh/h	127	574	80	312	350	77	263	1276	230	402	756	35
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	153	1360	189	560	829	182	844	2970	535	880	1761	83
Grp Volume(v), veh/h	162	0	0	553	0	0	10	254	253	59	0	558
Grp Sat Flow(s),veh/h/ln	1702	0	0	1571	0	0	844	1770	1736	880	0	1843
Q Serve(g_s), s	0.0	0.0	0.0	16.7	0.0	0.0	0.6	6.3	6.4	3.2	0.0	16.3
Cycle Q Clear(g_c), s	3.7	0.0	0.0	20.5	0.0	0.0	17.0	6.3	6.4	9.6	0.0	16.3
Prop In Lane	0.15		0.11	0.38		0.12	1.00		0.31	1.00		0.04
Lane Grp Cap(c), veh/h	781	0	0	738	0	0	263	760	746	402	0	792
V/C Ratio(X)	0.21	0.00	0.00	0.75	0.00	0.00	0.04	0.33	0.34	0.15	0.00	0.70
Avail Cap(c_a), veh/h	1204	0	0	1136	0	0	565	1394	1368	717	0	1452
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.1	0.0	0.0	16.7	0.0	0.0	22.3	12.5	12.6	15.8	0.0	15.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.6	0.0	0.0	0.1	0.3	0.3	0.2	0.0	1.2
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	1.9	0.0	0.0	9.2	0.0	0.0	0.2	3.1	3.1	0.8	0.0	8.5
LnGrp Delay(d),s/veh	12.2	0.0	0.0	18.2	0.0	0.0	22.4	12.8	12.8	15.9	0.0	16.6
LnGrp LOS	B			B			C	B	B	B		B
Approach Vol, veh/h		162			553			517			617	
Approach Delay, s/veh		12.2			18.2			13.0			16.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		33.5		32.5		33.5		32.5
Change Period (Y+Rc), s		5.1		* 4.7		5.1		* 4.7
Max Green Setting (Gmax), s		52.0		* 45		52.0		* 45
Max Q Clear Time (g_c+I1), s		18.3		22.5		19.0		5.7
Green Ext Time (p_c), s		9.4		5.4		9.4		6.1

Intersection Summary	
HCM 2010 Ctrl Delay	15.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↱	
Traffic Vol, veh/h	0	249	456	0	25	45
Future Vol, veh/h	0	249	456	0	25	45
Conflicting Peds, #/hr	23	0	0	23	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	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	296	543	0	30	54

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	839	543
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	296	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	336	540
Stage 1	0	-	-	0	582	-
Stage 2	0	-	-	0	755	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	336	540
Mov Cap-2 Maneuver	-	-	-	-	336	-
Stage 1	-	-	-	-	582	-
Stage 2	-	-	-	-	755	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	444
HCM Lane V/C Ratio	-	-	0.188
HCM Control Delay (s)	-	-	15
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.7

Existing School PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	1	12	0	0	0	9	573	23	16	575	10
Future Volume (veh/h)	6	1	12	0	0	0	9	573	23	16	575	10
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97				1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900				1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	6	1	12				9	597	24	17	599	10
Adj No. of Lanes	0	1	0				1	2	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	2	0				2	2	2	2	2	2
Cap, veh/h	24	4	48				34	1726	69	62	939	16
Arrive On Green	0.05	0.05	0.05				0.02	0.50	0.50	0.04	0.51	0.51
Sat Flow, veh/h	511	85	1022				1774	3461	139	1774	1825	30
Grp Volume(v), veh/h	19	0	0				9	305	316	17	0	609
Grp Sat Flow(s),veh/h/ln	1619	0	0				1774	1770	1831	1774	0	1856
Q Serve(g_s), s	0.4	0.0	0.0				0.2	3.4	3.4	0.3	0.0	7.6
Cycle Q Clear(g_c), s	0.4	0.0	0.0				0.2	3.4	3.4	0.3	0.0	7.6
Prop In Lane	0.32		0.63				1.00		0.08	1.00		0.02
Lane Grp Cap(c), veh/h	77	0	0				34	883	913	62	0	955
V/C Ratio(X)	0.25	0.00	0.00				0.26	0.35	0.35	0.27	0.00	0.64
Avail Cap(c_a), veh/h	1255	0	0				440	988	1022	440	0	1094
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.8	0.0	0.0				15.6	4.9	4.9	15.2	0.0	5.7
Incr Delay (d2), s/veh	2.4	0.0	0.0				5.7	0.3	0.3	3.3	0.0	1.3
Initial Q Delay(d3),s/veh	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	0.0	0.0				0.1	1.7	1.7	0.2	0.0	4.1
LnGrp Delay(d),s/veh	17.2	0.0	0.0				21.3	5.2	5.2	18.5	0.0	6.9
LnGrp LOS	B						C	A	A	B		A
Approach Vol, veh/h		19						630			626	
Approach Delay, s/veh		17.2						5.4			7.2	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	4.6	21.2			5.1	20.7		6.4
Change Period (Y+Rc), s	4.0	4.6			4.0	4.6		4.9
Max Green Setting (Gmax), s	8.0	19.0			8.0	18.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	9.6			2.3	5.4		2.4
Green Ext Time (p_c), s	0.0	6.4			0.0	8.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	6.5
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	147	29	158	128	68	16	544	83	50	485	18
Future Volume (veh/h)	21	147	29	158	128	68	16	544	83	50	485	18
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.96	1.00		0.96
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	22	155	31	166	135	72	17	573	87	53	511	19
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	1	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	483	90	291	214	101	378	1539	233	413	895	33
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	85	1422	264	608	632	297	866	3064	464	767	1781	66
Grp Volume(v), veh/h	208	0	0	373	0	0	17	330	330	53	0	530
Grp Sat Flow(s),veh/h/ln	1772	0	0	1537	0	0	866	1770	1758	767	0	1848
Q Serve(g_s), s	0.0	0.0	0.0	7.1	0.0	0.0	0.9	7.1	7.1	2.8	0.0	12.4
Cycle Q Clear(g_c), s	5.3	0.0	0.0	12.4	0.0	0.0	13.3	7.1	7.1	9.9	0.0	12.4
Prop In Lane	0.11		0.15	0.45		0.19	1.00		0.26	1.00		0.04
Lane Grp Cap(c), veh/h	666	0	0	606	0	0	378	889	883	413	0	928
V/C Ratio(X)	0.31	0.00	0.00	0.62	0.00	0.00	0.04	0.37	0.37	0.13	0.00	0.57
Avail Cap(c_a), veh/h	1327	0	0	1165	0	0	670	1486	1476	672	0	1552
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	0.0	17.3	0.0	0.0	15.4	9.4	9.4	12.5	0.0	10.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	1.5	0.0	0.0	0.1	0.4	0.4	0.2	0.0	0.8
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	0.0	0.0	5.6	0.0	0.0	0.2	3.5	3.5	0.6	0.0	6.4
LnGrp Delay(d),s/veh	15.6	0.0	0.0	18.8	0.0	0.0	15.5	9.8	9.8	12.7	0.0	11.6
LnGrp LOS	B			B			B	A	A	B		B
Approach Vol, veh/h		208			373			677			583	
Approach Delay, s/veh		15.6			18.8			10.0			11.7	
Approach LOS		B			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.2		25.7		36.2		25.7
Change Period (Y+Rc), s		5.1		* 4.7		5.1		* 4.7
Max Green Setting (Gmax), s		52.0		* 45		52.0		* 45
Max Q Clear Time (g_c+I1), s		14.4		14.4		15.3		7.3
Green Ext Time (p_c), s		16.0		6.3		15.8		6.6

Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Traffic Vol, veh/h	0	270	340	0	16	27
Future Vol, veh/h	0	270	340	0	16	27
Conflicting Peds, #/hr	21	0	0	21	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	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	287	362	0	17	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	649	362
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	287	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	434	683
Stage 1	0	-	-	0	704	-
Stage 2	0	-	-	0	762	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	434	683
Mov Cap-2 Maneuver	-	-	-	-	434	-
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	762	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	563
HCM Lane V/C Ratio	-	-	0.081
HCM Control Delay (s)	-	-	12
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3

Existing PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	4	8	0	0	0	12	667	49	17	595	10
Future Volume (veh/h)	13	4	8	0	0	0	12	667	49	17	595	10
Number	3	8	18				1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900				1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	14	4	9				13	710	52	18	633	11
Adj No. of Lanes	0	1	0				1	2	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	0				2	2	2	2	2	2
Cap, veh/h	56	16	36				48	1678	123	65	936	16
Arrive On Green	0.06	0.06	0.06				0.03	0.50	0.50	0.04	0.51	0.51
Sat Flow, veh/h	886	253	570				1774	3331	244	1774	1824	32
Grp Volume(v), veh/h	27	0	0				13	377	385	18	0	644
Grp Sat Flow(s),veh/h/ln	1710	0	0				1774	1770	1805	1774	0	1855
Q Serve(g_s), s	0.5	0.0	0.0				0.2	4.6	4.6	0.3	0.0	8.8
Cycle Q Clear(g_c), s	0.5	0.0	0.0				0.2	4.6	4.6	0.3	0.0	8.8
Prop In Lane	0.52		0.33				1.00		0.14	1.00		0.02
Lane Grp Cap(c), veh/h	107	0	0				48	892	910	65	0	953
V/C Ratio(X)	0.25	0.00	0.00				0.27	0.42	0.42	0.28	0.00	0.68
Avail Cap(c_a), veh/h	1256	0	0				417	936	955	417	0	1036
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	0.0				16.2	5.3	5.3	15.9	0.0	6.2
Incr Delay (d2), s/veh	1.7	0.0	0.0				4.2	0.5	0.4	3.2	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0				0.2	2.3	2.4	0.2	0.0	4.8
LnGrp Delay(d),s/veh	16.9	0.0	0.0				20.4	5.8	5.8	19.2	0.0	8.0
LnGrp LOS	B						C	A	A	B		A
Approach Vol, veh/h		27						775			662	
Approach Delay, s/veh		16.9						6.0			8.3	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	4.9	22.1			5.3	21.7		7.0
Change Period (Y+Rc), s	4.0	4.6			4.0	4.6		4.9
Max Green Setting (Gmax), s	8.0	19.0			8.0	18.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	10.8			2.3	6.6		2.5
Green Ext Time (p_c), s	0.0	6.3			0.0	8.3		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	288	34	134	140	89	14	604	104	53	526	19
Future Volume (veh/h)	32	288	34	134	140	89	14	604	104	53	526	19
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.95	0.99		0.95
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	34	306	36	143	149	95	15	643	111	56	560	20
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	558	62	238	230	127	316	1444	249	352	860	31
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	88	1533	172	441	631	349	827	2994	516	703	1784	64
Grp Volume(v), veh/h	376	0	0	387	0	0	15	379	375	56	0	580
Grp Sat Flow(s),veh/h/ln	1793	0	0	1421	0	0	827	1770	1741	703	0	1848
Q Serve(g_s), s	0.0	0.0	0.0	4.3	0.0	0.0	0.9	9.0	9.0	3.6	0.0	15.1
Cycle Q Clear(g_c), s	10.5	0.0	0.0	14.8	0.0	0.0	16.0	9.0	9.0	12.7	0.0	15.1
Prop In Lane	0.09		0.10	0.37		0.25	1.00		0.30	1.00		0.03
Lane Grp Cap(c), veh/h	714	0	0	595	0	0	316	853	839	352	0	891
V/C Ratio(X)	0.53	0.00	0.00	0.65	0.00	0.00	0.05	0.44	0.45	0.16	0.00	0.65
Avail Cap(c_a), veh/h	1305	0	0	1066	0	0	592	1444	1421	587	0	1508
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	17.3	0.0	0.0	18.5	10.9	10.9	15.1	0.0	12.5
Incr Delay (d2), s/veh	0.6	0.0	0.0	1.2	0.0	0.0	0.1	0.4	0.4	0.2	0.0	0.8
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	5.3	0.0	0.0	6.1	0.0	0.0	0.2	4.4	4.4	0.7	0.0	7.8
LnGrp Delay(d),s/veh	16.8	0.0	0.0	18.5	0.0	0.0	18.6	11.2	11.3	15.3	0.0	13.3
LnGrp LOS	B			B			B	B	B	B		B
Approach Vol, veh/h		376			387			769			636	
Approach Delay, s/veh		16.8			18.5			11.4			13.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		35.8		27.9		35.8		27.9
Change Period (Y+Rc), s		5.1		* 4.7		5.1		* 4.7
Max Green Setting (Gmax), s		52.0		* 45		52.0		* 45
Max Q Clear Time (g_c+I1), s		17.1		16.8		18.0		12.5
Green Ext Time (p_c), s		12.8		6.2		12.7		6.4

Intersection Summary	
HCM 2010 Ctrl Delay	14.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	376	387	15	754	56	580
v/c Ratio	0.54	0.76	0.07	0.49	0.23	0.70
Control Delay	19.8	29.6	15.3	15.7	17.6	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	19.8	29.6	15.3	15.7	17.6	23.1
Queue Length 50th (ft)	109	123	3	109	14	189
Queue Length 95th (ft)	253	309	18	217	50	412
Internal Link Dist (ft)	151	976		275		269
Turn Bay Length (ft)			100		60	
Base Capacity (vph)	1179	840	366	2643	424	1418
Starvation Cap Reductn	0	0	0	0	0	221
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.46	0.04	0.29	0.13	0.48

Intersection Summary

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↱	
Traffic Vol, veh/h	0	438	360	0	31	13
Future Vol, veh/h	0	438	360	0	31	13
Conflicting Peds, #/hr	10	0	0	10	1	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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	471	387	0	33	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	859	387
Stage 1	-	-	-	-	387	-
Stage 2	-	-	-	-	472	-
Critical Hdwy	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	0	-	-	0	327	661
Stage 1	0	-	-	0	686	-
Stage 2	0	-	-	0	628	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	327	661
Mov Cap-2 Maneuver	-	-	-	-	327	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	628	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	384
HCM Lane V/C Ratio	-	-	0.123
HCM Control Delay (s)	-	-	15.7
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.4

Existing Plus Project AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	5	42	23	5	10	442	0	0	600	5
Future Volume (veh/h)	7	0	5	42	23	5	10	442	0	0	600	5
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	0.99		0.96	0.97		0.99	1.00		1.00	1.00		0.96
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h	8	0	5	46	25	5	11	480	0	0	652	5
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	1	0
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	2	2	2	2	0	0	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			No		
Cap, veh/h	279	34	96	283	126	18	41	2018	0	0	807	6
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
Prop Arrive On Green	0.17	0.00	0.17	0.17	0.17	0.17	0.02	0.57	0.00	0.00	0.44	0.44
Ln Grp Delay, s/veh	12.7	0.0	0.0	13.4	0.0	0.0	22.4	4.0	0.0	0.0	0.0	13.8
Ln Grp LOS	B			B			C	A				B
Approach Vol, veh/h		13			76			491			657	
Approach Delay, s/veh		12.7			13.4			4.4			13.8	
Approach LOS		B			B			A			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Case No	2.0	8.0		8.0		4.0		8.0
Phs Duration (G+Y+Rc), s	4.8	20.6		11.1		25.4		11.1
Change Period (Y+Rc), s	4.0	4.6		* 4.9		4.6		* 4.9
Max Green (Gmax), s	8.0	19.0		* 27		18.0		* 25
Max Allow Headway (MAH), s	4.9	6.4		6.5		6.4		6.5
Max Q Clear (g_c+I1), s	2.2	13.2		3.3		4.5		2.2
Green Ext Time (g_e), s	0.0	2.5		0.6		8.3		0.6
Prob of Phs Call (p_c)	0.11	1.00		0.63		1.00		0.63
Prob of Max Out (p_x)	0.24	1.00		0.00		0.68		0.00

Left-Turn Movement Data								
Assigned Mvmt	1	5		7				3
Mvmt Sat Flow, veh/h	1774	0		734				708

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1845		740		3632		201

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		14		104		0		568

Left Lane Group Data								
Assigned Mvmt	1	5	0	7	0	0	0	3
Lane Assignment	(Prot)			L+T+R				L+T+R

Lanes in Grp	1	0	0	1	0	0	0	1
Grp Vol (v), veh/h	11	0	0	76	0	0	0	13
Grp Sat Flow (s), veh/h/ln	1774	0	0	1578	0	0	0	1477
Q Serve Time (g_s), s	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.2	0.0	0.0	1.3	0.0	0.0	0.0	0.2
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	1396	0	0	0	1382
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1779	0	0	0	1792
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	6.2	0.0	0.0	0.0	6.2
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	6.0	0.0	0.0	0.0	4.9
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	16.0	0.0	1.2	0.0	0.0	0.0	1.2
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.2
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.61	0.00	0.00	0.00	0.62
Lane Grp Cap (c), veh/h	41	0	0	426	0	0	0	410
V/C Ratio (X)	0.27	0.00	0.00	0.18	0.00	0.00	0.00	0.03
Avail Cap (c_a), veh/h	389	0	0	1288	0	0	0	1137
Upstream Filter (I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	17.5	0.0	0.0	13.1	0.0	0.0	0.0	12.7
Incr Delay (d2), s/veh	4.9	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	22.4	0.0	0.0	13.4	0.0	0.0	0.0	12.7
1st-Term Q (Q1), veh/ln	0.1	0.0	0.0	0.7	0.0	0.0	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.2	0.0	0.0	0.7	0.0	0.0	0.0	0.1
%ile Storage Ratio (RQ%)	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.01
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment						T		
Lanes in Grp	0	0	0	0	0	2	0	0
Grp Vol (v), veh/h	0	0	0	0	0	480	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1770	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	2018	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	2018	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0

2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R						
Lanes in Grp	0	1	0	0	0	0	0	0
Grp Vol (v), veh/h	0	657	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1860	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.01	0.00	0.07	0.00	0.00	0.00	0.38
Lane Grp Cap (c), veh/h	0	814	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.81	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	968	0	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	8.9	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.8	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	10.0
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	111	17	178	232	50	9	368	99	109	507	23
Future Volume (veh/h)	21	111	17	178	232	50	9	368	99	109	507	23
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.97	0.99		0.98	1.00		0.95	0.99		0.95
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	23	121	18	193	252	54	10	400	108	118	551	25
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	1	0
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	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	120	549	75	296	331	67	285	1239	330	430	800	36
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
Prop Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.45	0.45	0.45	0.45	0.45	0.45
Ln Grp Delay, s/veh	12.9	0.0	0.0	18.2	0.0	0.0	20.1	11.2	11.2	15.3	0.0	14.6
Ln Grp LOS	B			B			C	B	B	B		B
Approach Vol, veh/h		162			499			518			694	
Approach Delay, s/veh		12.9			18.2			11.4			14.8	
Approach LOS		B			B			B			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Case No		6.0		8.0		6.0		8.0
Phs Duration (G+Y+Rc), s		33.5		29.2		33.5		29.2
Change Period (Y+Rc), s		5.1		* 4.7		5.1		* 4.7
Max Green (Gmax), s		52.0		* 45		52.0		* 45
Max Allow Headway (MAH), s		5.4		5.6		5.4		5.6
Max Q Clear (g_c+I1), s		17.6		19.4		18.2		5.7
Green Ext Time (g_e), s		10.3		5.0		10.3		5.5
Prob of Phs Call (p_c)		1.00		1.00		1.00		1.00
Prob of Max Out (p_x)		0.11		0.04		0.12		0.00

Left-Turn Movement Data								
Assigned Mvmt		5		7		1		3
Mvmt Sat Flow, veh/h		880		555		830		139

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1764		849		2733		1407

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		80		170		728		193

Left Lane Group Data								
Assigned Mvmt	0	5	0	7	0	1	0	3
Lane Assignment				L+T+R				L+T+R

Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	118	0	499	0	10	0	162
Grp Sat Flow (s), veh/h/ln	0	880	0	1575	0	830	0	1739
Q Serve Time (g_s), s	0.0	6.2	0.0	13.7	0.0	0.6	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	12.2	0.0	17.4	0.0	16.2	0.0	3.7
Perm LT Sat Flow (s_l), veh/h/ln	0	880	0	1261	0	830	0	1088
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1822	0	0	0	1712
Perm LT Eff Green (g_p), s	0.0	28.4	0.0	24.5	0.0	28.4	0.0	24.5
Perm LT Serve Time (g_u), s	0.0	22.5	0.0	20.7	0.0	12.9	0.0	7.0
Perm LT Q Serve Time (g_ps), s	0.0	6.2	0.0	13.7	0.0	0.6	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	1.9	0.0	0.0	0.0	10.2
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	1.9	0.0	0.0	0.0	3.7
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.39	0.00	1.00	0.00	0.14
Lane Grp Cap (c), veh/h	0	430	0	694	0	285	0	744
V/C Ratio (X)	0.00	0.27	0.00	0.72	0.00	0.04	0.00	0.22
Avail Cap (c_a), veh/h	0	760	0	1195	0	597	0	1284
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	14.9	0.0	16.7	0.0	20.1	0.0	12.8
Incr Delay (d2), s/veh	0.0	0.3	0.0	1.4	0.0	0.0	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.3	0.0	18.2	0.0	20.1	0.0	12.9
1st-Term Q (Q1), veh/ln	0.0	1.5	0.0	7.6	0.0	0.1	0.0	1.8
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.5	0.0	7.9	0.0	0.1	0.0	1.9
%ile Storage Ratio (RQ%)	0.00	0.66	0.00	0.20	0.00	0.04	0.00	0.24
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment						T		
Lanes in Grp	0	0	0	0	0	1	0	0
Grp Vol (v), veh/h	0	0	0	0	0	257	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1770	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	5.8	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	5.8	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	802	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	1467	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	11.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0

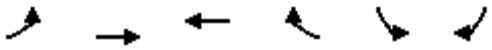
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R				T+R		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	576	0	0	0	251	0	0
Grp Sat Flow (s), veh/h/ln	0	1844	0	0	0	1692	0	0
Q Serve Time (g_s), s	0.0	15.6	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	15.6	0.0	0.0	0.0	6.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.04	0.00	0.11	0.00	0.43	0.00	0.11
Lane Grp Cap (c), veh/h	0	836	0	0	0	767	0	0
V/C Ratio (X)	0.00	0.69	0.00	0.00	0.00	0.33	0.00	0.00
Avail Cap (c_a), veh/h	0	1529	0	0	0	1402	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	13.6	0.0	0.0	0.0	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	14.6	0.0	0.0	0.0	11.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	7.8	0.0	0.0	0.0	2.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	8.1	0.0	0.0	0.0	2.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.70	0.00	0.00	0.00	0.22	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	58	274	452	4	0	0
Future Volume (Veh/h)	58	274	452	4	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	298	491	4	0	0
Pedestrians					23	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1056				
pX, platoon unblocked						
vC, conflicting volume	518				940	516
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	518				940	516
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	100
cM capacity (veh/h)	1048				275	559

Direction, Lane #	EB 1	WB 1
Volume Total	361	495
Volume Left	63	0
Volume Right	0	4
cSH	1048	1700
Volume to Capacity	0.06	0.29
Queue Length 95th (ft)	5	0
Control Delay (s)	2.0	0.0
Lane LOS	A	
Approach Delay (s)	2.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

Existing Plus Project School PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	0	13	28	10	5	9	568	0	0	591	10
Future Volume (veh/h)	6	0	13	28	10	5	9	568	0	0	591	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	0.99		0.97	0.98		0.99	1.00		1.00	1.00		0.96
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h	7	0	14	30	11	5	10	617	0	0	642	11
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	1	0
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	2	2	2	2	0	0	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			No		
Cap, veh/h	179	25	126	271	75	21	38	2113	0	0	835	14
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
Prop Arrive On Green	0.12	0.00	0.12	0.12	0.12	0.12	0.02	0.60	0.00	0.00	0.46	0.46
Ln Grp Delay, s/veh	13.3	0.0	0.0	13.6	0.0	0.0	21.6	3.4	0.0	0.0	0.0	11.0
Ln Grp LOS	B			B			C	A				B
Approach Vol, veh/h		21			46			627			653	
Approach Delay, s/veh		13.3			13.6			3.7			11.0	
Approach LOS		B			B			A			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Case No	2.0	8.0		8.0		4.0		8.0
Phs Duration (G+Y+Rc), s	4.7	20.1		9.1		24.8		9.1
Change Period (Y+Rc), s	4.0	4.6		* 4.9		4.6		* 4.9
Max Green (Gmax), s	8.0	19.0		* 27		18.0		* 25
Max Allow Headway (MAH), s	4.9	6.4		6.5		6.4		6.5
Max Q Clear (g_c+I1), s	2.2	12.0		2.8		4.9		2.4
Green Ext Time (g_e), s	0.0	3.4		0.4		8.8		0.4
Prob of Phs Call (p_c)	0.09	1.00		0.49		1.00		0.49
Prob of Max Out (p_x)	0.22	0.97		0.00		0.75		0.00

Left-Turn Movement Data								
Assigned Mvmt	1	5		7				3
Mvmt Sat Flow, veh/h	1774	0		777				307

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1824		608		3632		205

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		31		169		0		1024

Left Lane Group Data								
Assigned Mvmt	1	5	0	7	0	0	0	3
Lane Assignment	(Prot)			L+T+R				L+T+R

Lanes in Grp	1	0	0	1	0	0	0	1
Grp Vol (v), veh/h	10	0	0	46	0	0	0	21
Grp Sat Flow (s), veh/h/ln	1774	0	0	1554	0	0	0	1536
Q Serve Time (g_s), s	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.2	0.0	0.0	0.8	0.0	0.0	0.0	0.4
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	1400	0	0	0	1407
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1786	0	0	0	1827
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	4.2	0.0	0.0	0.0	4.2
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	3.8	0.0	0.0	0.0	3.4
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	15.5	0.0	0.8	0.0	0.0	0.0	1.6
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.4
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.65	0.00	0.00	0.00	0.33
Lane Grp Cap (c), veh/h	38	0	0	367	0	0	0	330
V/C Ratio (X)	0.27	0.00	0.00	0.13	0.00	0.00	0.00	0.06
Avail Cap (c_a), veh/h	418	0	0	1367	0	0	0	1238
Upstream Filter (I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	16.3	0.0	0.0	13.4	0.0	0.0	0.0	13.2
Incr Delay (d2), s/veh	5.2	0.0	0.0	0.2	0.0	0.0	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	21.6	0.0	0.0	13.6	0.0	0.0	0.0	13.3
1st-Term Q (Q1), veh/ln	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.2
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.2
%ile Storage Ratio (RQ%)	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment						T		
Lanes in Grp	0	0	0	0	0	2	0	0
Grp Vol (v), veh/h	0	0	0	0	0	617	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1770	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	2113	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	2113	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0

2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R						
Lanes in Grp	0	1	0	0	0	0	0	0
Grp Vol (v), veh/h	0	653	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1856	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.02	0.00	0.11	0.00	0.00	0.00	0.67
Lane Grp Cap (c), veh/h	0	850	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.77	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1039	0	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.81	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	148	29	146	118	61	16	524	103	83	497	18
Future Volume (veh/h)	20	148	29	146	118	61	16	524	103	83	497	18
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.99	0.99		0.99	1.00		0.96	1.00		0.96
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	22	161	32	159	128	66	17	570	112	90	540	20
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	1	0
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	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	90	461	85	281	205	93	379	1532	300	419	932	35
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
Prop Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.52	0.52	0.52	0.52	0.52	0.52
Ln Grp Delay, s/veh	17.0	0.0	0.0	19.8	0.0	0.0	15.3	9.3	9.4	13.1	0.0	11.2
Ln Grp LOS	B			B			B	A	A	B		B
Approach Vol, veh/h		215			353			699			650	
Approach Delay, s/veh		17.0			19.8			9.5			11.4	
Approach LOS		B			B			A			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Case No		6.0		8.0		6.0		8.0
Phs Duration (G+Y+Rc), s		38.4		25.3		38.4		25.3
Change Period (Y+Rc), s		5.1		* 4.7		5.1		* 4.7
Max Green (Gmax), s		52.0		* 45		52.0		* 45
Max Allow Headway (MAH), s		6.5		6.6		6.5		6.6
Max Q Clear (g_c+I1), s		15.2		14.1		16.1		7.8
Green Ext Time (g_e), s		17.4		6.1		17.2		6.4
Prob of Phs Call (p_c)		1.00		1.00		1.00		1.00
Prob of Max Out (p_x)		0.33		0.03		0.34		0.01

Left-Turn Movement Data								
Assigned Mvmt		5		7		1		3
Mvmt Sat Flow, veh/h		752		617		843		84

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1782		636		2930		1426

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		66		288		574		264

Left Lane Group Data								
Assigned Mvmt	0	5	0	7	0	1	0	3
Lane Assignment				L+T+R				L+T+R

Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	90	0	353	0	17	0	215
Grp Sat Flow (s), veh/h/ln	0	752	0	1541	0	843	0	1774
Q Serve Time (g_s), s	0.0	5.1	0.0	6.3	0.0	0.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	12.5	0.0	12.1	0.0	14.1	0.0	5.8
Perm LT Sat Flow (s_l), veh/h/ln	0	752	0	1201	0	843	0	1204
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1806	0	0	0	1853
Perm LT Eff Green (g_p), s	0.0	33.3	0.0	20.6	0.0	33.3	0.0	20.6
Perm LT Serve Time (g_u), s	0.0	25.9	0.0	14.8	0.0	20.1	0.0	8.5
Perm LT Q Serve Time (g_ps), s	0.0	5.1	0.0	6.3	0.0	0.9	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	2.0	0.0	0.0	0.0	10.8
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	2.0	0.0	0.0	0.0	5.8
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.45	0.00	1.00	0.00	0.10
Lane Grp Cap (c), veh/h	0	419	0	580	0	379	0	635
V/C Ratio (X)	0.00	0.21	0.00	0.61	0.00	0.04	0.00	0.34
Avail Cap (c_a), veh/h	0	641	0	1132	0	627	0	1293
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	12.7	0.0	18.4	0.0	15.2	0.0	16.5
Incr Delay (d2), s/veh	0.0	0.4	0.0	1.5	0.0	0.1	0.0	0.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.1	0.0	19.8	0.0	15.3	0.0	17.0
1st-Term Q (Q1), veh/ln	0.0	1.1	0.0	5.3	0.0	0.2	0.0	2.9
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.1	0.0	5.5	0.0	0.2	0.0	2.9
%ile Storage Ratio (RQ%)	0.00	0.46	0.00	0.14	0.00	0.05	0.00	0.38
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment						T		
Lanes in Grp	0	0	0	0	0	1	0	0
Grp Vol (v), veh/h	0	0	0	0	0	343	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1770	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	925	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	1446	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0

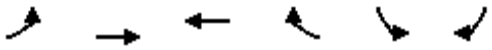
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R				T+R		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	560	0	0	0	339	0	0
Grp Sat Flow (s), veh/h/ln	0	1848	0	0	0	1734	0	0
Q Serve Time (g_s), s	0.0	13.2	0.0	0.0	0.0	7.4	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	13.2	0.0	0.0	0.0	7.4	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.04	0.00	0.19	0.00	0.33	0.00	0.15
Lane Grp Cap (c), veh/h	0	966	0	0	0	907	0	0
V/C Ratio (X)	0.00	0.58	0.00	0.00	0.00	0.37	0.00	0.00
Avail Cap (c_a), veh/h	0	1510	0	0	0	1416	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	10.4	0.0	0.0	0.0	9.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.0	0.0	0.4	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	11.2	0.0	0.0	0.0	9.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	6.7	0.0	0.0	0.0	3.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	6.9	0.0	0.0	0.0	3.6	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.60	0.00	0.00	0.00	0.28	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	286	338	2	0	0
Future Volume (Veh/h)	38	286	338	2	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	311	367	2	0	0
Pedestrians					21	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1056				
pX, platoon unblocked						
vC, conflicting volume	390				782	389
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	390				782	389
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	100
cM capacity (veh/h)	1169				350	659

Direction, Lane #	EB 1	WB 1
Volume Total	352	369
Volume Left	41	0
Volume Right	0	2
cSH	1169	1700
Volume to Capacity	0.04	0.22
Queue Length 95th (ft)	3	0
Control Delay (s)	1.3	0.0
Lane LOS	A	
Approach Delay (s)	1.3	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

Existing Plus Project PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	12	36	5	3	12	664	0	0	612	10
Future Volume (veh/h)	13	0	12	36	5	3	12	664	0	0	612	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	0.99		0.99	0.98		0.99	1.00		1.00	1.00		0.96
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h	14	0	13	39	5	3	13	722	0	0	665	11
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	1	0
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	2	2	2	2	0	0	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			No		
Cap, veh/h	227	39	101	336	39	13	48	2092	0	0	819	14
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
Prop Arrive On Green	0.14	0.00	0.14	0.14	0.14	0.14	0.03	0.59	0.00	0.00	0.45	0.45
Ln Grp Delay, s/veh	13.3	0.0	0.0	13.5	0.0	0.0	20.8	3.8	0.0	0.0	0.0	13.0
Ln Grp LOS	B			B			C	A				B
Approach Vol, veh/h		27			47			735			676	
Approach Delay, s/veh		13.3			13.5			4.1			13.0	
Approach LOS		B			B			A			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Case No	2.0	8.0		8.0		4.0		8.0
Phs Duration (G+Y+Rc), s	4.9	20.2		9.6		25.1		9.6
Change Period (Y+Rc), s	4.0	4.6		* 4.9		4.6		* 4.9
Max Green (Gmax), s	8.0	19.0		* 27		18.0		* 25
Max Allow Headway (MAH), s	4.9	6.4		6.5		6.4		6.5
Max Q Clear (g_c+I1), s	2.2	13.0		2.9		5.6		2.5
Green Ext Time (g_e), s	0.0	2.5		0.5		9.0		0.5
Prob of Phs Call (p_c)	0.12	1.00		0.53		1.00		0.53
Prob of Max Out (p_x)	0.26	1.00		0.00		0.81		0.00

Left-Turn Movement Data								
Assigned Mvmt	1	5		7				3
Mvmt Sat Flow, veh/h	1774	0		1084				514

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1826		287		3632		287

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		30		93		0		744

Left Lane Group Data								
Assigned Mvmt	1	5	0	7	0	0	0	3
Lane Assignment	(Prot)			L+T+R				L+T+R

Lanes in Grp	1	0	0	1	0	0	0	1
Grp Vol (v), veh/h	13	0	0	47	0	0	0	27
Grp Sat Flow (s), veh/h/ln	1774	0	0	1464	0	0	0	1545
Q Serve Time (g_s), s	0.2	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.2	0.0	0.0	0.9	0.0	0.0	0.0	0.5
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	1399	0	0	0	1415
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1763	0	0	0	1806
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	4.7	0.0	0.0	0.0	4.7
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	4.2	0.0	0.0	0.0	3.8
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	15.6	0.0	0.4	0.0	0.0	0.0	1.5
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.5
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.83	0.00	0.00	0.00	0.52
Lane Grp Cap (c), veh/h	48	0	0	388	0	0	0	366
V/C Ratio (X)	0.27	0.00	0.00	0.12	0.00	0.00	0.00	0.07
Avail Cap (c_a), veh/h	409	0	0	1302	0	0	0	1224
Upstream Filter (I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	16.6	0.0	0.0	13.3	0.0	0.0	0.0	13.2
Incr Delay (d2), s/veh	4.2	0.0	0.0	0.2	0.0	0.0	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	20.8	0.0	0.0	13.5	0.0	0.0	0.0	13.3
1st-Term Q (Q1), veh/ln	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.2
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.2	0.0	0.0	0.4	0.0	0.0	0.0	0.2
%ile Storage Ratio (RQ%)	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.03
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment						T		
Lanes in Grp	0	0	0	0	0	2	0	0
Grp Vol (v), veh/h	0	0	0	0	0	722	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1770	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	2092	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	2092	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0

2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R						
Lanes in Grp	0	1	0	0	0	0	0	0
Grp Vol (v), veh/h	0	676	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1856	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.02	0.00	0.06	0.00	0.00	0.00	0.48
Lane Grp Cap (c), veh/h	0	833	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.81	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1016	0	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	290	34	129	135	80	14	563	145	105	531	19
Future Volume (veh/h)	30	290	34	129	135	80	14	563	145	105	531	19
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.98	0.99		0.98	1.00		0.95	1.00		0.95
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	33	315	37	140	147	87	15	612	158	114	577	21
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	1	0
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	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	81	566	64	221	221	115	310	1396	360	343	903	33
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
Prop Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.51	0.51	0.51	0.51	0.51	0.51
Ln Grp Delay, s/veh	21.0	0.0	0.0	23.9	0.0	0.0	21.9	13.0	13.1	20.2	0.0	15.5
Ln Grp LOS	C			C			C	B	B	C		B
Approach Vol, veh/h		385			374			785			712	
Approach Delay, s/veh		21.0			23.9			13.2			16.2	
Approach LOS		C			C			B			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Case No		6.0		8.0		6.0		8.0
Phs Duration (G+Y+Rc), s		45.8		34.5		45.8		34.5
Change Period (Y+Rc), s		5.1		* 4.7		5.1		* 4.7
Max Green (Gmax), s		52.0		* 45		52.0		* 45
Max Allow Headway (MAH), s		6.5		6.6		6.5		6.6
Max Q Clear (g_c+I1), s		23.4		22.0		22.1		15.5
Green Ext Time (g_e), s		17.3		7.8		17.8		8.6
Prob of Phs Call (p_c)		1.00		1.00		1.00		1.00
Prob of Max Out (p_x)		0.54		0.21		0.52		0.11

Left-Turn Movement Data								
Assigned Mvmt		5		7		1		3
Mvmt Sat Flow, veh/h		693		430		816		86

Through Movement Data								
Assigned Mvmt		2		4		6		8
Mvmt Sat Flow, veh/h		1782		595		2756		1524

Right-Turn Movement Data								
Assigned Mvmt		12		14		16		18
Mvmt Sat Flow, veh/h		65		311		710		171

Left Lane Group Data								
Assigned Mvmt	0	5	0	7	0	1	0	3
Lane Assignment				L+T+R				L+T+R

Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	114	0	374	0	15	0	385
Grp Sat Flow (s), veh/h/ln	0	693	0	1335	0	816	0	1782
Q Serve Time (g_s), s	0.0	10.0	0.0	6.5	0.0	1.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	21.4	0.0	20.0	0.0	20.1	0.0	13.5
Perm LT Sat Flow (s_l), veh/h/ln	0	693	0	1038	0	816	0	1162
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	1145	0	0	0	1765
Perm LT Eff Green (g_p), s	0.0	40.7	0.0	29.8	0.0	40.7	0.0	29.8
Perm LT Serve Time (g_u), s	0.0	29.3	0.0	16.3	0.0	21.7	0.0	9.8
Perm LT Q Serve Time (g_ps), s	0.0	10.0	0.0	6.5	0.0	1.1	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	3.1	0.0	0.0	0.0	12.7
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	3.1	0.0	0.0	0.0	12.7
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.37	0.00	1.00	0.00	0.09
Lane Grp Cap (c), veh/h	0	343	0	557	0	310	0	710
V/C Ratio (X)	0.00	0.33	0.00	0.67	0.00	0.05	0.00	0.54
Avail Cap (c_a), veh/h	0	441	0	817	0	425	0	1039
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	19.4	0.0	21.9	0.0	21.8	0.0	20.1
Incr Delay (d2), s/veh	0.0	0.8	0.0	2.0	0.0	0.1	0.0	0.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	20.2	0.0	23.9	0.0	21.9	0.0	21.0
1st-Term Q (Q1), veh/ln	0.0	1.9	0.0	7.3	0.0	0.2	0.0	6.7
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.0	0.0	7.6	0.0	0.3	0.0	6.9
%ile Storage Ratio (RQ%)	0.00	0.84	0.00	0.19	0.00	0.06	0.00	0.90
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment						T		
Lanes in Grp	0	0	0	0	0	1	0	0
Grp Vol (v), veh/h	0	0	0	0	0	392	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1770	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	11.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	11.3	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	896	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	1146	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	12.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0

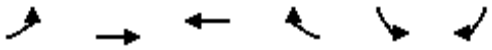
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R				T+R		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	598	0	0	0	378	0	0
Grp Sat Flow (s), veh/h/ln	0	1847	0	0	0	1696	0	0
Q Serve Time (g_s), s	0.0	19.0	0.0	0.0	0.0	11.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	19.0	0.0	0.0	0.0	11.3	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.04	0.00	0.23	0.00	0.42	0.00	0.10
Lane Grp Cap (c), veh/h	0	936	0	0	0	859	0	0
V/C Ratio (X)	0.00	0.64	0.00	0.00	0.00	0.44	0.00	0.00
Avail Cap (c_a), veh/h	0	1197	0	0	0	1099	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	14.4	0.0	0.0	0.0	12.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.0	0.0	0.5	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.5	0.0	0.0	0.0	13.1	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	9.6	0.0	0.0	0.0	5.2	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	9.9	0.0	0.0	0.0	5.4	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.86	0.00	0.00	0.00	0.42	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	64	469	354	6	0	0
Future Volume (Veh/h)	64	469	354	6	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	510	385	7	0	0
Pedestrians			1		10	
Lane Width (ft)			12.0		0.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		1056				
pX, platoon unblocked					0.96	
vC, conflicting volume	402				1050	398
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	402				1032	398
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	100
cM capacity (veh/h)	1157				233	651

Direction, Lane #	EB 1	WB 1
Volume Total	580	392
Volume Left	70	0
Volume Right	0	7
cSH	1157	1700
Volume to Capacity	0.06	0.23
Queue Length 95th (ft)	5	0
Control Delay (s)	1.6	0.0
Lane LOS	A	
Approach Delay (s)	1.6	0.0
Approach LOS		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	385	374	15	770	114	598
v/c Ratio	0.55	0.76	0.07	0.49	0.46	0.71
Control Delay	21.2	30.9	15.0	15.3	23.9	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	21.2	30.9	15.0	15.3	23.9	23.3
Queue Length 50th (ft)	118	124	4	113	33	203
Queue Length 95th (ft)	277	318	18	217	103	426
Internal Link Dist (ft)	151	976		275		269
Turn Bay Length (ft)			100		60	
Base Capacity (vph)	1149	799	345	2539	403	1376
Starvation Cap Reductn	0	0	0	0	0	244
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.47	0.04	0.30	0.28	0.53

Intersection Summary

APPENDIX 2: PROJECT TRAFFIC ASSIGNMENT

Appendix 2: Turning Movement Re-Assignment Process

Study #	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
	Existing AM												
1	E 14th St/Euclid Ave	10	447	32	28	572	5	7	2	3	0	0	0
2	E 14th St/Dutton Ave	9	395	72	54	490	23	22	110	17	195	255	59
3	Dutton Ave/Euclid Ct	0	0	0	25	0	45	0	249	0	0	456	0
	Existing School PM												
1	E 14th St/Euclid Ave	9	573	23	16	575	10	6	1	12	0	0	0
2	E 14th St/Dutton Ave	16	544	83	50	485	18	21	147	29	158	128	68
3	Dutton Ave/Euclid Ct	0	0	0	16	0	27	0	270	0	0	340	0
	Existing PM												
1	E 14th St/Euclid Ave	12	667	49	17	595	10	13	4	8	0	0	0
2	E 14th St/Dutton Ave	14	604	104	53	526	19	32	288	34	134	140	89
3	Dutton Ave/Euclid Ct	0	0	0	31	0	13	0	438	0	0	360	0

Inbound Deltas:		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
	AM												
1	E 14th St/Euclid Ave			-32	-28	28			-2	2			
2	E 14th St/Dutton Ave		-27	27	30			-1	1				-4
3	Dutton Ave/Euclid Ct							58				-4	4
	SPM												
1	E 14th St/Euclid Ave			-23	-16	16			-1	1			
2	E 14th St/Dutton Ave		-20	20	17			-1	1				-2
3	Dutton Ave/Euclid Ct							38				-2	2
	PM												
1	E 14th St/Euclid Ave			-49	-17	17			-4	4			
2	E 14th St/Dutton Ave		-41	41	21			-2	2				-6
3	Dutton Ave/Euclid Ct							64				-6	6

Outbound Deltas:		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
	AM												
1	E 14th St/Euclid Ave		-5								42	23	5
2	E 14th St/Dutton Ave				25	17					-17	-23	-5
3	Dutton Ave/Euclid Ct				-25		-45		25				
	SPM												
1	E 14th St/Euclid Ave		-5								28	10	5
2	E 14th St/Dutton Ave				16	12					-12	-10	-5
3	Dutton Ave/Euclid Ct				-16		-27		16				
	PM												
1	E 14th St/Euclid Ave		-3								36	5	3
2	E 14th St/Dutton Ave				31	5					-5	-5	-3
3	Dutton Ave/Euclid Ct				-31		-13		31				

E+P VOLUMES:		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
	E+P AM												
1	E 14th St/Euclid Ave	10	442	0	0	600	5	7	0	5	42	23	5
2	E 14th St/Dutton Ave	9	368	99	109	507	23	21	111	17	178	232	50
3	Dutton Ave/Euclid Ct	0	0	0	0	0	0	58	274	0	0	452	4
	E+P SPM												
1	E 14th St/Euclid Ave	9	568	0	0	591	10	6	0	13	28	10	5
2	E 14th St/Dutton Ave	16	524	103	83	497	18	20	148	29	146	118	61
3	Dutton Ave/Euclid Ct	0	0	0	0	0	0	38	286	0	0	338	2
	E+P PM												
1	E 14th St/Euclid Ave	12	664	0	0	612	10	13	0	12	36	5	3
2	E 14th St/Dutton Ave	14	563	145	105	531	19	30	290	34	129	135	80
3	Dutton Ave/Euclid Ct	0	0	0	0	0	0	64	469	0	0	354	6

Calculations: Intersection #2						
	Entering N Leg			WB Approach		
	Coming from:			*Destined for:*		
	14th	Best	Dutton	14th SB	Best	14th NB
AM	27	1	4	17	23	5
SPM	20	1	2	12	10	5
PM	41	2	6	5	5	3

Calculations: Intersection #2 (As Percentages)						
	Entering N Leg			WB Approach		
	Coming from:			*Destined for:*		
	14th	Best	Dutton	14th SB	Best	14th NB
AM	84%	3%	13%	38%	51%	11%
SPM	87%	4%	9%	44%	37%	19%
PM	84%	4%	12%	38%	38%	23%