

October 5, 2022

Project# 28386

To: Habib Matin  
 Placid Holdings, LLC  
 10475 SW Helenius St  
 Tualatin, OR 97062

From: Kristine Connolly, PE, Matt Hughart, AICP, and Russ Doubleday

CC: Wendie Kellington, Kellington Law Group

RE: Scholls Development, LLC Traffic Impact Analysis Companion

Dear Habib:

This letter serves as a companion to the Scholls Development, LLC Traffic Impact Analysis (TIA) dated May 2021 and prepared by ETRC, LLC. This letter addresses intersection operations and queuing at the SW 158<sup>th</sup> Avenue/SW Black Bird Drive/SW Scholls Ferry Road intersection assuming an alternative access scenario with a single site access at SW Winterhawk Lane, and a discussion of the unlikelihood of site traffic using SW Mallard Drive.

### Updated Intersection Operations and Queuing Analysis

Since the TIA was submitted in May 2021, it was determined through further review of the proposed access through the SW Bunting Street and SW Sagehen Street corridors that it may not be feasible. As an alternative, a new site access scenario is proposed that would provide access to SW 158<sup>th</sup> Avenue via SW Winterhawk Lane, SW Sheldrake Way and SW Harlequin Drive. To analyze the potential impact of this alternative access scenario, all site-generated trips were re-assigned to the SW 158<sup>th</sup> Avenue/SW Black Bird Drive/SW Scholls Ferry Road intersection. This analysis maintains all assumptions, including the trip generation and distribution, from the May 2021 TIA.

Exhibit 1 shows the existing traffic volumes, anticipated in-process and site-generated trips, and resultant total traffic volumes at the SW 158<sup>th</sup> Avenue/SW Black Bird Drive/SW Scholls Ferry Road intersection. The existing and in-process volumes are from the TIA, while the site trips have been re-assigned.

**Exhibit 1. Existing and Projected Traffic Volumes at the SW 158<sup>th</sup> Avenue/SW Black Bird Drive/SW Scholls Ferry Road Intersection**

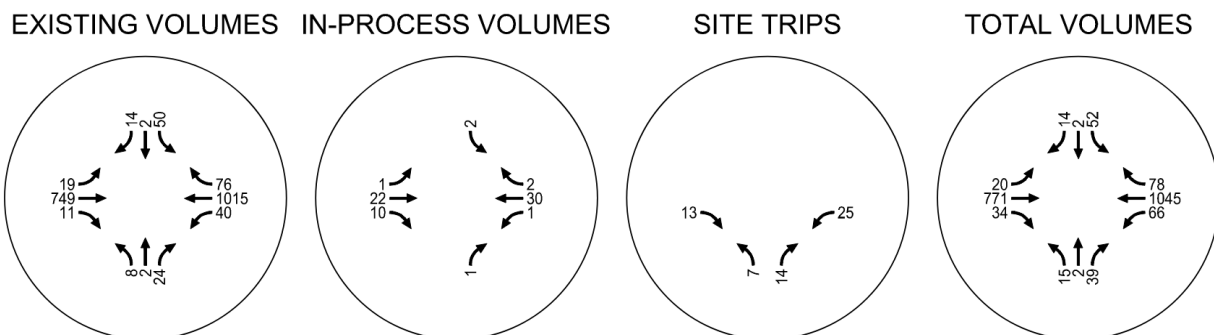


Table 1 shows the intersection operations at the SW 158<sup>th</sup> Avenue/SW Black Bird Drive/SW Scholls Ferry Road intersection under existing traffic conditions and under total traffic conditions with the updated site trip assignment through this single intersection. As shown, the intersection operates at level of service (LOS) B under both scenarios with a marginal increase in the volume-to-capacity (v/c) ratio under total traffic conditions. Under both existing and total traffic conditions, the intersection operates within the signalized intersection performance standards outlined in Section 60.55.10.7 of the Beaverton Development Code (BDC) with intersection delay no greater than 65 seconds and lane group v/c no greater than 0.98.

**Table 1. SW 158<sup>th</sup> Avenue/SW Black Bird Drive/SW Scholls Ferry Road Intersection Operations**

Scenario	Intersection v/c Ratio	Intersection LOS	Intersection Delay
Existing Traffic Conditions	0.48	B	17.0 seconds
Total Traffic Conditions	0.50	B	16.9 seconds

Table 2 below also shows the 95<sup>th</sup> percentile queuing at the SW 158<sup>th</sup> Avenue/SW Black Bird Drive/SW Scholls Ferry Road under both existing conditions and total traffic conditions (which includes background growth and site-generated trips). All queues have been rounded up to the nearest 25 feet.

**Table 2. SW 158<sup>th</sup> Avenue/SW Black Bird Drive/SW Scholls Ferry Road 95<sup>th</sup> Percentile Queuing Volumes**

Lane Group Approach	Existing 95 <sup>th</sup> Percentile Queues	Total Traffic 95 <sup>th</sup> Percentile Queues
Eastbound Left	25 feet	25 feet
Eastbound Through/Right	200 feet	225 feet
Westbound Left	25 feet	50 feet
Westbound Through/Right	300 feet	325 feet
Northbound	50 feet	50 feet
Southbound Left	75 feet	75 feet
Southbound Through/Right	25 feet	25 feet

As shown in Table 2 above, there are marginal projected increases in queuing for the eastbound through/right turn lanes, the westbound left turn lane, and the westbound through/right turn lanes. Across both existing and total traffic scenarios, all approaches are projected to have adequate lane storage to meet the projected the 95<sup>th</sup> percentile queue lengths. Appendix "A" includes the Synchro intersection operations and queuing sheets.

## SW Mallard Drive Traffic

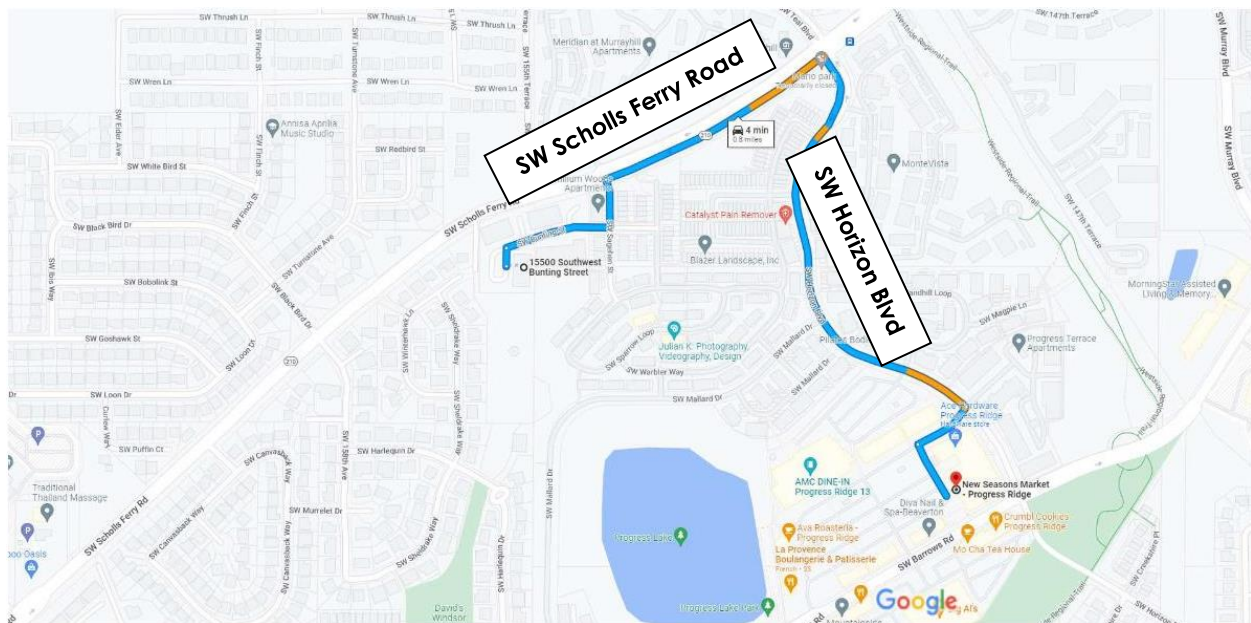
PM peak hour travel times from the site to the Progress Ridge commercial center were reviewed under both potential site access scenarios in response to public comments that additional traffic may be added

to SW Mallard Drive. To address these concerns, travel time runs were assessed using Google Maps during the weekday PM peak hour and general knowledge of the overall study area.

### Access from SW Bunting Street

Under the preferred access scenario with site access to SW Bunting Street, the quickest route from the site to the Progress Ridge commercial centers during the weekday PM peak hour is via SW Scholls Ferry Road to SW Horizon Boulevard as shown in Exhibit 2. Exhibits 3 and 4 illustrate two other potential routes which utilize the local street connections through the adjacent residential neighborhoods and segments of SW Mallard Drive. However, these routes include relatively narrow street segments with an overall travel path that is winding, circuitous, and has a slightly longer travel time.

**Exhibit 2. SW Bunting Street to Progress Ridge via SW Scholls Ferry Rd (~4 min)**

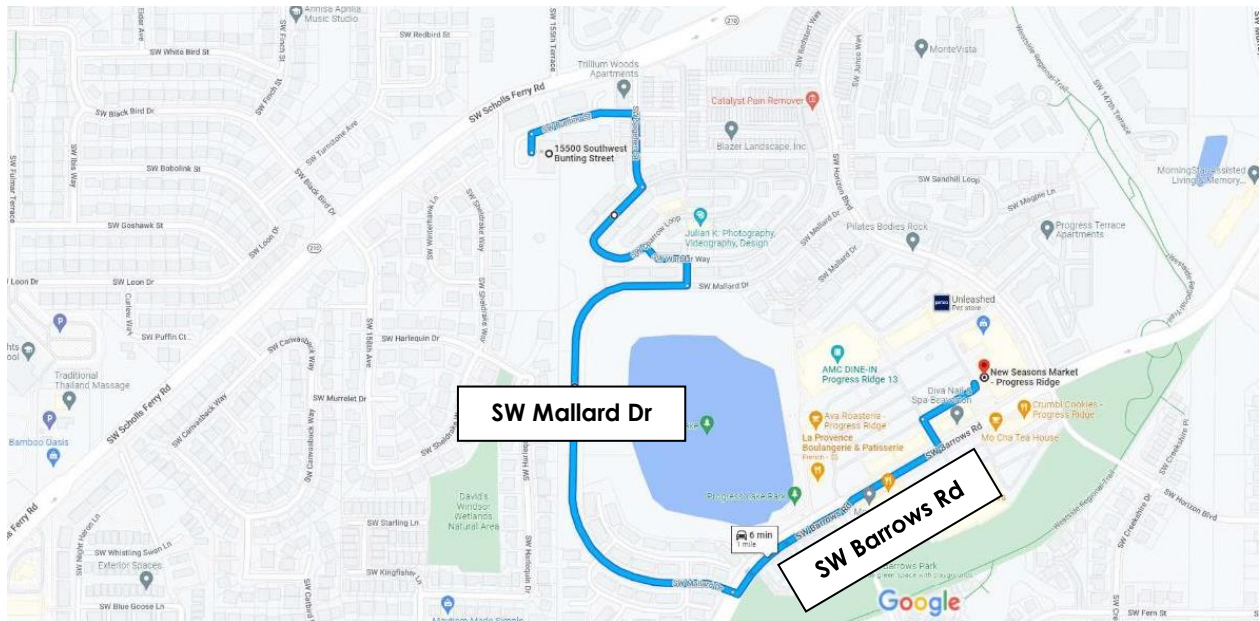


**Exhibit 3. SW Bunting Street to Progress Ridge via SW Warbler Way (~5 min)**





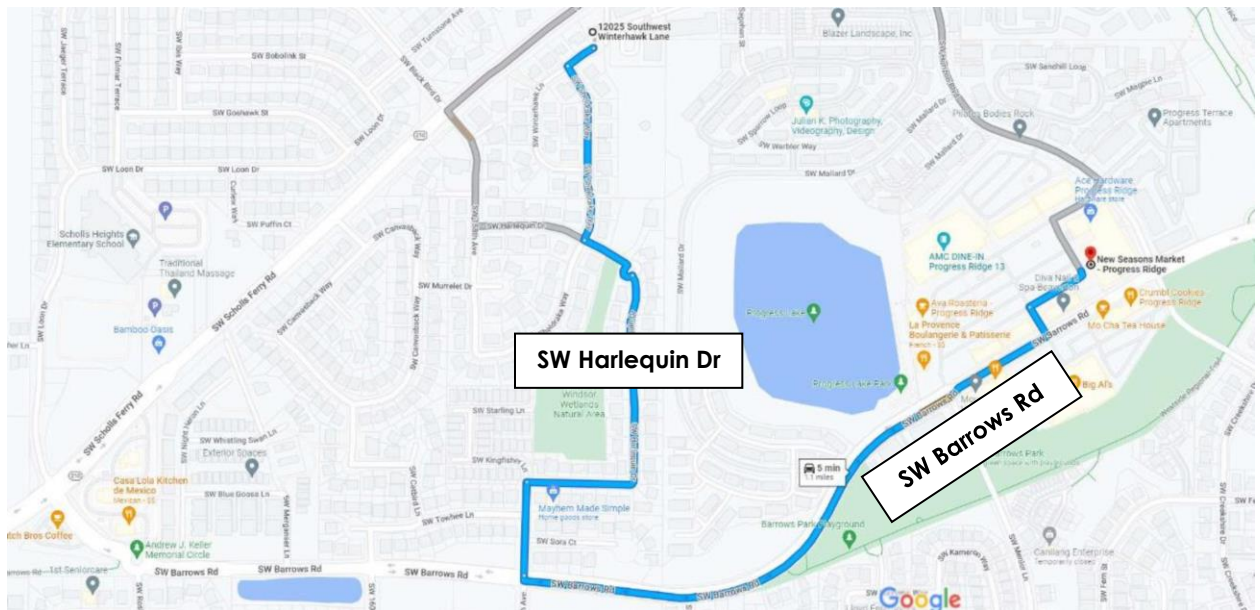
**Exhibit 4. SW Bunting Street to Progress Ridge via SW Mallard Drive (~6 min)**



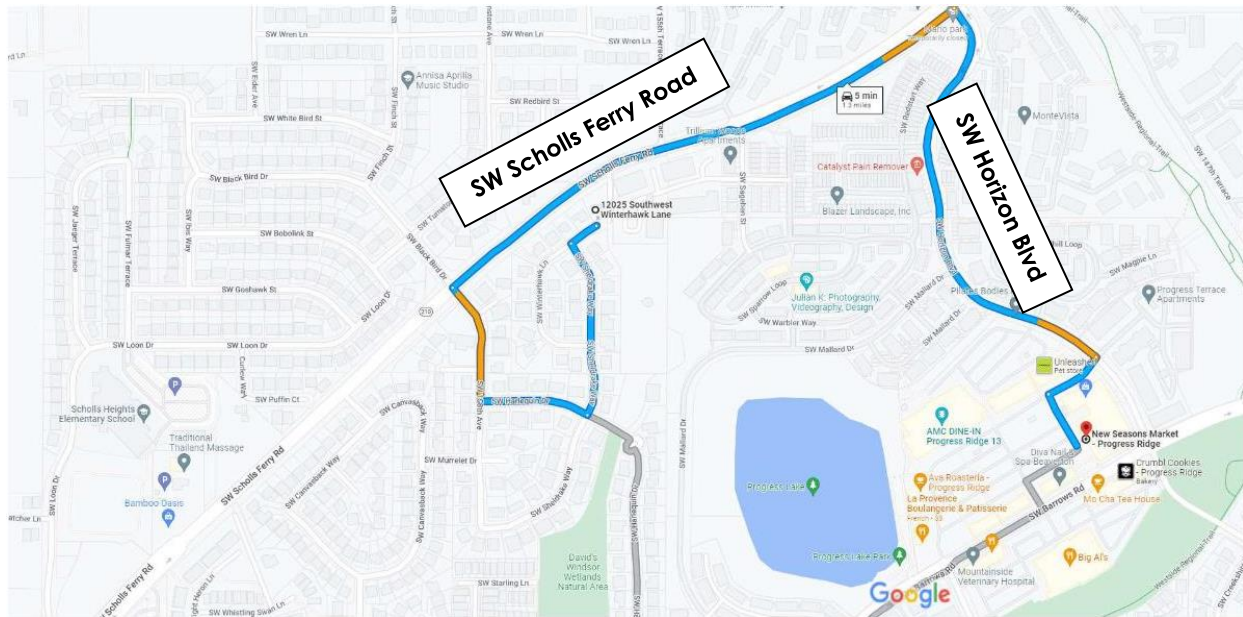
**Access from SW Winterhawk Lane**

Under the alternative access scenario with access only to SW Winterhawk Lane, the quickest route from the site to the Progress Ridge commercial center during the weekday PM peak hour is either to travel on SW Harlequin Drive to SW Barrows Road (see Exhibit 5) or to travel on SW Scholls Ferry Road to SW Horizon Boulevard (see Exhibit 6). Both routes have similar travel times and neither would utilize SW Mallard Drive.

**Exhibit 5. SW Winterhawk Lane to Progress Ridge via SW Harlequin Drive (~5 min)**



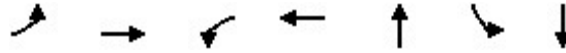
**Exhibit 6. SW Winterhawk Lane to Progress Ridge via SW Scholls Ferry Road (~5 min)**



The intersection operations and queuing analysis contained in this report assumes all site-generated trips will travel through at the SW 158<sup>th</sup> Avenue/SW Black Bird Drive/SW Scholls Ferry Road intersection. Even if 10% of the site-generated trips were to travel to or from the Progress Ridge commercial center during the weekday PM peak hour this would equate to approximately 6 trips, or one trip every 10 minutes. The travel time analysis shown in Exhibit 5 and Exhibit 6 suggests that the weekday PM peak hour travel times from the site to the Progress Ridge commercial center are identical via SW Scholls Ferry Road or SW Barrows Road and therefore the 6 trips would likely be split between the two routes in the alternative access scenario with access only to SW Winterhawk Lane. In the proposed access scenario with access to SW Bunting Lane most, if not all, of the 6 trips would be expected to use SW Scholls Ferry Road route shown in Exhibit 2. Based on this analysis, the proposed development is not likely to generate a consistent and measurable level of vehicular traffic on SW Mallard Drive.

Please contact us at 503.535.7448 or [kconnolly@kittelton.com](mailto:kconnolly@kittelton.com) if you have any questions or require additional information.

# Appendix A Synchro Worksheets



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	21	826	43	1186	37	54	17
v/c Ratio	0.08	0.55	0.13	0.73	0.06	0.11	0.03
Control Delay	7.3	16.1	7.7	17.3	12.1	21.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	16.1	7.7	17.3	12.1	21.2	12.5
Queue Length 50th (ft)	4	142	8	165	3	14	1
Queue Length 95th (ft)	12	190	19	298	28	52	16
Internal Link Dist (ft)		1321		1404	592		495
Turn Bay Length (ft)	125		125			125	
Base Capacity (vph)	248	2596	349	2632	580	475	572
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.32	0.12	0.45	0.06	0.11	0.03

Intersection Summary



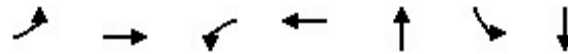
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	749	11	40	1015	76	8	2	24	50	2	14
Future Volume (vph)	19	749	11	40	1015	76	8	2	24	50	2	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99			0.91		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3532		1770	3502			1666		1770	1616	
Flt Permitted	0.13	1.00		0.24	1.00			0.96		0.73	1.00	
Satd. Flow (perm)	240	3532		455	3502			1620		1365	1616	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	814	12	43	1103	83	9	2	26	54	2	15
RTOR Reduction (vph)	0	1	0	0	7	0	0	17	0	0	10	0
Lane Group Flow (vph)	21	825	0	43	1179	0	0	20	0	54	7	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	32.9	29.5		32.9	31.1			23.4		23.4	23.4	
Effective Green, g (s)	32.9	29.5		32.9	31.1			23.4		23.4	23.4	
Actuated g/C Ratio	0.47	0.42		0.47	0.45			0.34		0.34	0.34	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	152	1492		278	1560			543		457	541	
v/s Ratio Prot	0.00	0.23		c0.01	c0.34						0.00	
v/s Ratio Perm	0.06			0.07				0.01		c0.04		
v/c Ratio	0.14	0.55		0.15	0.76			0.04		0.12	0.01	
Uniform Delay, d1	11.8	15.2		10.5	16.2			15.6		16.1	15.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.4		0.3	2.1			0.1		0.5	0.0	
Delay (s)	12.2	15.6		10.8	18.3			15.7		16.6	15.5	
Level of Service	B	B		B	B			B		B	B	
Approach Delay (s)		15.5			18.0			15.7			16.3	
Approach LOS		B			B			B			B	

#### Intersection Summary

HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group





Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	22	875	72	1221	60	57	17
v/c Ratio	0.09	0.57	0.22	0.73	0.10	0.12	0.03
Control Delay	7.2	16.0	8.5	17.3	11.6	22.3	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	16.0	8.5	17.3	11.6	22.3	13.0
Queue Length 50th (ft)	4	153	13	172	5	15	1
Queue Length 95th (ft)	12	202	28	309	38	56	17
Internal Link Dist (ft)		1321		1404	592		495
Turn Bay Length (ft)	125		125			125	
Base Capacity (vph)	243	2541	337	2585	574	457	562
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.34	0.21	0.47	0.10	0.12	0.03

Intersection Summary

Scholls Development  
 3: SW 158th Ave/SW Blackbird Dr. & SW Scholl's Ferry Road

Total PM Traffic Conditions  
 09/30/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	771	34	66	1045	78	15	2	39	52	2	14
Future Volume (vph)	20	771	34	66	1045	78	15	2	39	52	2	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99			0.91		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3517		1770	3502			1665		1770	1616	
Flt Permitted	0.12	1.00		0.23	1.00			0.95		0.72	1.00	
Satd. Flow (perm)	229	3517		420	3502			1600		1337	1616	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	838	37	72	1136	85	16	2	42	57	2	15
RTOR Reduction (vph)	0	4	0	0	7	0	0	28	0	0	10	0
Lane Group Flow (vph)	22	871	0	72	1214	0	0	32	0	57	7	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	34.3	30.8		34.3	32.5			23.4		23.4	23.4	
Effective Green, g (s)	34.3	30.8		34.3	32.5			23.4		23.4	23.4	
Actuated g/C Ratio	0.48	0.43		0.48	0.46			0.33		0.33	0.33	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	149	1521		268	1598			525		439	531	
v/s Ratio Prot	0.00	0.25		c0.01	c0.35						0.00	
v/s Ratio Perm	0.07			0.12				0.02		c0.04		
v/c Ratio	0.15	0.57		0.27	0.76			0.06		0.13	0.01	
Uniform Delay, d1	11.8	15.2		10.7	16.1			16.4		16.8	16.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.5		0.5	2.1			0.2		0.6	0.0	
Delay (s)	12.3	15.8		11.2	18.2			16.6		17.4	16.2	
Level of Service	B	B		B	B			B		B	B	
Approach Delay (s)		15.7			17.8			16.6			17.1	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group