

APPENDIX D

REVISED TRAFFIC IMPACT ANALYSIS

April 28, 2023

Project #: 27715.5

Eric Hahn, PE
City of Vancouver Public Works
4500 SE Columbia Way
Vancouver, WA 97668-1995

RE: Traffic Impact Analysis for the Revised Vancouver Innovation Center (The VIC) Mixed Use Master Plan

Dear Eric,

The VIC Building Owner LLC (the Applicant) proposes revisions to The VIC Mixed Use Master Plan and Development Agreement¹. Primary objectives of the revisions are to 1) consolidate industrial areas to optimize opportunities for employment-generating development and 2) more substantially integrate development types to allow for greater density while creating an opportunity to provide more open spaces throughout the site to enhance design and placemaking opportunities.

From a traffic impact perspective, key changes associated with the revised Master Plan include:

- A small reduction in overall daily campus trip generation, a modest increase in AM peak hour trip generation, and no change in the PM peak hour trip generation compared to the current approvals and trip vesting;
- Refinement of the on-site transportation network;
- Elimination of one existing campus vehicular access on SE 34th Street; and
- Refinement of the on and-off site transportation mitigation measures into four distinct project phases.

In addition to the Master Plan changes noted above, this study incorporates transportation system changes anticipated associated with the City of Vancouver's *SE 34th Street Safety & Mobility Project*². The documentation presented in this report is prepared to inform updates to the Development Agreement, in particular memorialization of The VIC trip vesting and transportation mitigation requirements with additional specificity by each of four master plan phases.

BACKGROUND

The VIC is an approximately 179-acre site located at 18110 SE 34th Street and is developed with approximately 715,000 square feet of campus building area supported by surface parking. Today, the

¹ Third Amended and Restated Development Agreement (Restated DA) approved by the Vancouver City Council by Ordinance 4346 on August 16, 2021.

² <https://www.cityofvancouver.us/cdd/page/se-34th-street-safety-and-mobility-project>

campus is accessible at two locations on SE 34th Street including 1) a private vehicle circulation route that extends north into the site from the signalized intersection of SE Hiddenbrook Drive and 2) a private vehicle route that extends north into the site from the stop-controlled intersection near the southwest corner of the site aligned with SE 177th Avenue to the south. Figure 1 shows the site vicinity map and Figure 2 illustrates the revised Master Plan land use areas.

Master Plan development is generally anticipated in four phases that each have different supporting transportation infrastructure, with Phases 2-4 providing new on-site public roadways:

- Phase 1 includes the VIC Building North and up to 300 homes using existing campus access.
- Phase 2 will construct the southwest portion of a new on-site loop road between SE Hiddenbrook Drive and SE 29th Street, SE 29th Street between the new west loop road roundabout and a new roundabout at SE 176th Avenue, and will close the existing The VIC campus roadway connection to SE 34th Street aligned with SE 177th Avenue upon completion of the on-site loop road and Hiddenbrook Drive renovations.
- Phase 3 will extend SE 29th travel from the Phase 2 west roundabout terminus east across the VIC campus to a new signalized intersection at SE 192nd Avenue.
- Phase 4 will complete the loop road between a new east roundabout on the loop road and SE Hiddenbrook Drive to the south. Upon completion of Phase 4 all roadways shall be complete.

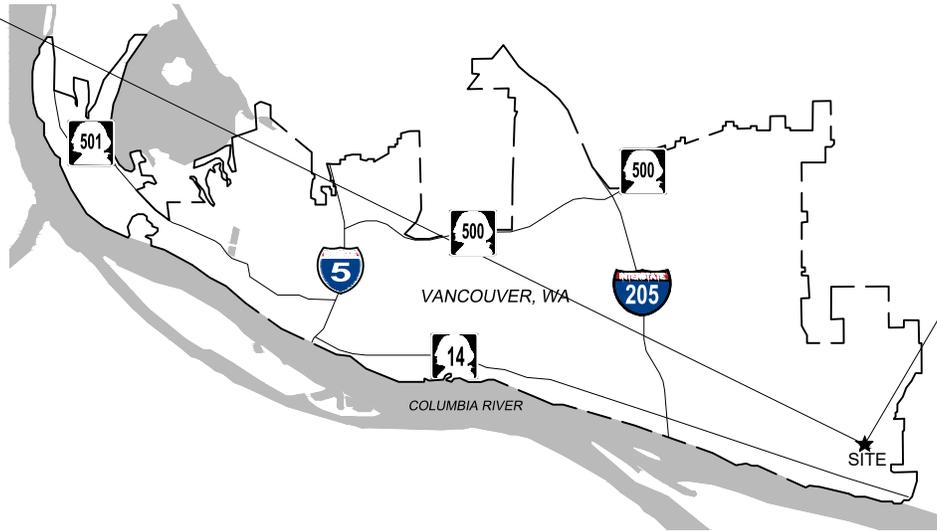
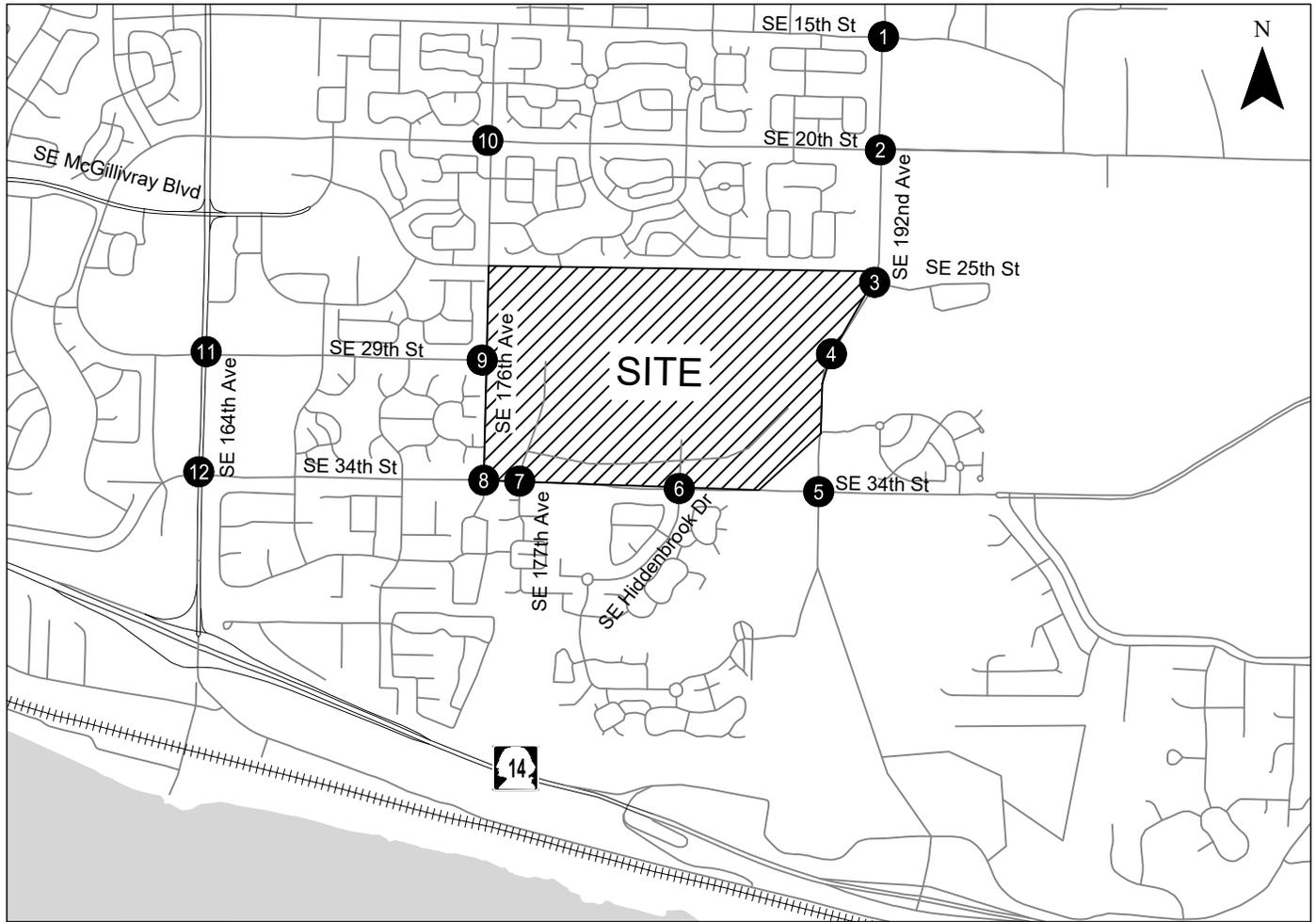
Some site development was already underway at the time this report was prepared consistent with the approved master plan and development agreement. Consistent with the prior master plan, full build-out and occupancy is anticipated to occur over a 15-year period. Accordingly, current and future year 2038 transportation conditions were analyzed.

This letter documents the methodology and findings of a traffic impact analysis (TIA) prepared for the proposed revisions to the Master Plan. Consistent with current obligations, future site development applications under the proposed revised Master Plan and Development Agreement will each be required to demonstrate compliance with the Master Plan transportation requirements through preparation of a Transportation Compliance letter.

TRANSPORTATION MITIGATION SUMMARY

In addition to typical roadway frontage improvements along the streets abutting VIC, several transportation improvements are recommended in conjunction with Master Plan site development (subject to City of Vancouver approval). Table 1 summarizes the recommended transportation improvements and reflects which are triggered by the VIC Master Plan versus those needed regardless of any additional development within the campus. Further details on each improvement are described more fully in later sections of this report.

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Study Intersections

Site Vicinity Map
Vancouver, Washington

Figure
1

GENERAL NOTES:

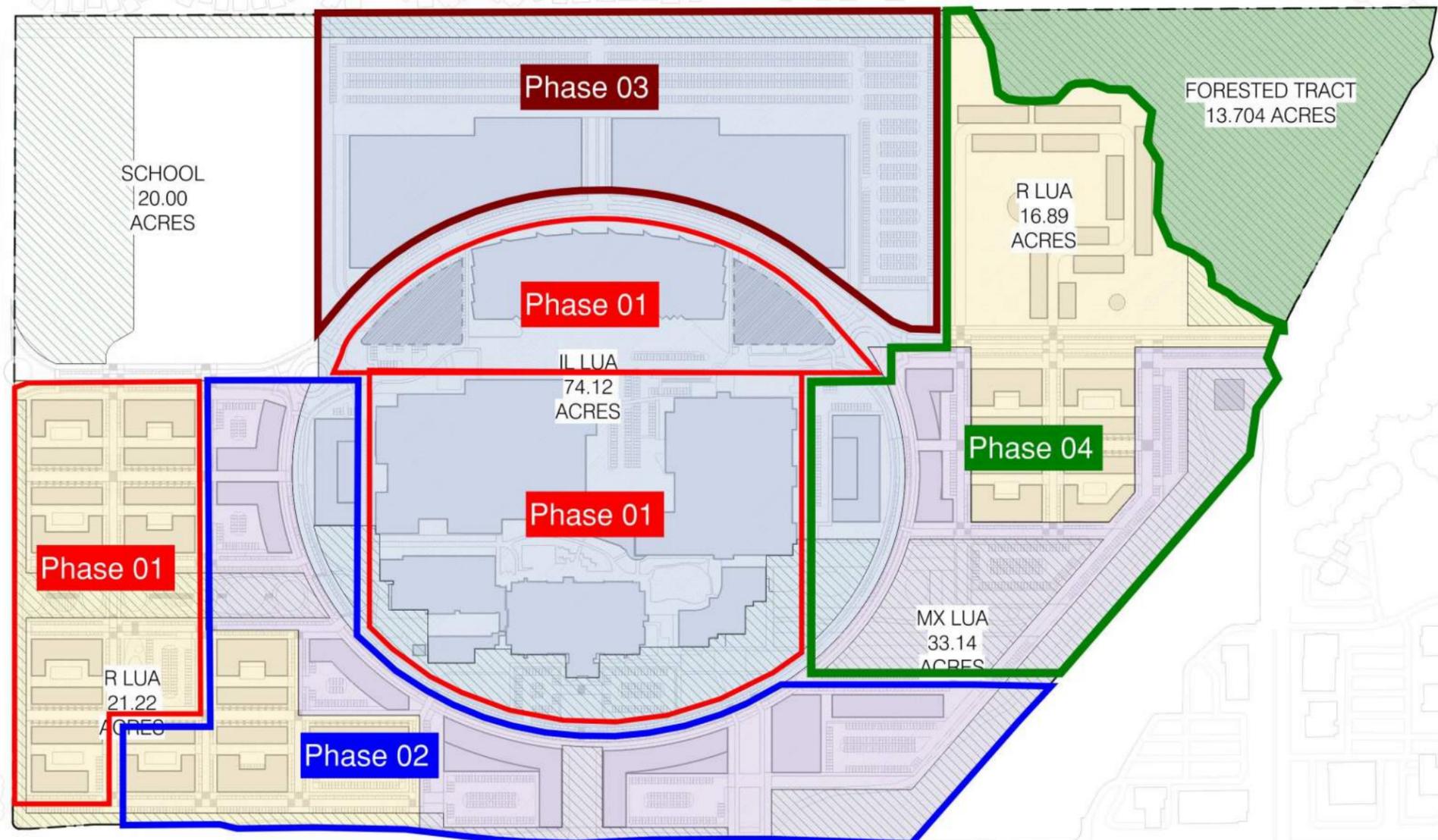
1. BUILDING FOOTPRINTS ARE ILLUSTRATIVE AND SUBJECT TO CHANGE.
2. OPEN SPACE BOUNDARIES ARE CONCEPTUAL. THE LOCATIONS AND SIZE OF EACH OPEN SPACE AREA WILL BE REFINED AT THE SITE DEVELOPMENT STAGE.

LAND USE LEGEND

	LIGHT INDUSTRIAL (IL) - 74.13 ACRES (41.4%)
	RESIDENTIAL (R) - 38.12 ACRES (21.3%)
	MIXED-USE (MX) - 33.15 ACRES (18.5%)
	FORESTED TRACT - 13.704 ACRES (7.6%)
	SCHOOL - 20.00 ACRES (11.2%)
TOTAL - 179.10 ACRES	
	POTENTIAL OPEN SPACE



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VANCOUVER INNOVATION CENTER
URBAN DESIGN / MASTERPLAN



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Phasing plan provided by The VIC Building Owner, LLC 4/6/2023

Proposed Master Plan
Vancouver, WA

Figure
2

Table 1. Summary of Mitigation Recommendations

Facility	Segment/ Study Intersection ID	Mitigation Recommendation	Needed Pre- VIC Master Plan?	Triggered by VIC Master Plan Trips?	VIC Master Plan Trigger Phase?
On-Site Roadways & Intersections					
SE 29 th Street	<i>Extend collector arterial roadway across the VIC Master Plan site in three segments</i>				
	West Segment	From SE 176 th Avenue to West Loop Road	N/A	Yes	2
	North Segment	From West Loop Road to East Loop Road	N/A	Yes	3
	East Segment	From East Loop Road to SE 192 nd Avenue	N/A	Yes	3
SE 184 th Avenue	N/A	Renovate collector arterial roadway within The VIC Master Plan site from SE 34 th Street to Loop Road	N/A	Yes	2
West Loop Road	N/A	From SE 184 th Avenue to SE 29 th Street	N/A	Yes	2
East Loop Road	N/A	From SE 184 th Avenue to SE 29 th Street	N/A	Yes	4
West Loop Road/ SE 29 th Street	N/A	Construct single lane roundabout	N/A	Yes	2
East Loop Road/ SE 29 th Street	N/A	Construct single lane roundabout	N/A	Yes	3
Site-Access Changes					
West Site Access/ SE 34 th Street	7	Close and vacate motor vehicle site-access (intersection north approach)	No	No	2
SE 29 th Street/ SE 176 th Avenue	9	Reconstruct as a single lane roundabout	No	Yes	2
SE 29 th Street/ SE 192 nd Avenue	4	Install traffic signal with interconnect Construct and stripe separate eastbound left and right turn lanes with 250 feet of storage each Stripe northbound left-turn lane with 200 feet of storage	No	Yes	3
Off-site Intersection Mitigations with Master Plan Development					
SE 29 th Street/ SE 164 th Avenue	11	Modify traffic signal to provide east-west protected/permissive left-turn phasing	No	Yes	2
		Extend westbound left-turn lane striping to provide 225 feet of storage (striping only)	No	Yes	2
		Extend southbound left-turn storage to provide 300 feet of storage (reconstruct center median area)	No	Yes	2
SE 192 nd Avenue/ SR-14 Westbound Ramp Terminal	N/A	Pay proportionate share contribution toward future capacity improvements with each site development application. Estimated total fee of \$430,000 based on assumed Master Plan land use plan.	Yes	No	Each phase based on trips added
SE 20 th Street/ SE 176 th Avenue	10	Pay proportionate share contribution toward future capacity improvements with each site development application. Estimated total fee of \$33,600 based on assumed Master Plan land use plan.	Yes	No	Each phase based on trips added
SE 34 th Street/ SE 192 nd Avenue	5	Pay proportional share contribution towards re-constructing streets with a more durable pavement treatment to reduce maintenance needs. Estimated total fee of \$83,400 based on assumed Master Plan land use plan.	Yes	No	Each phase based on trips added

N/A = Not applicable

SCOPE OF THE REPORT

The TIA identifies the transportation-related impacts associated with the proposed development. Per Vancouver Municipal Code (VMC) Section 11.80.130, a TIA is needed given the trips collectively generated by the proposed Master Plan land uses will exceed 20 net new weekday PM peak hour trips.

The study intersections and overall study area for the Master Plan were determined based on a review of the prior master plan, existing travel patterns, TIA requirements pursuant to Vancouver Municipal Code (VMC) Sections 11.80.080 and 11.80.130 as well as scoping direction provided by City staff.

Study Intersections

As coordinated with City staff, the following 12 intersections were analyzed:

- 1) SE 15th Street/SE 192nd Avenue
- 2) SE 20th Street/SE 192nd Avenue
- 3) SE 25th Street/SE 192nd Avenue
- 4) SE 29th Street/SE 192nd Avenue (analyzed in year 2038 with Master Plan development only)
- 5) SE 34th Street/SE 192nd Avenue
- 6) SE 34th Street/SE Hiddenbrook Drive-East Site Access
- 7) SE 34th Street/SE 177th Place-West Site Access
- 8) SE 34th Street/SE 176th Avenue
- 9) SE 29th Street/SE 176th Avenue
- 10) SE 20th Street/SE 176th Avenue
- 11) SE 29th Street/SE 164th Avenue
- 12) SE 34th Street/SE 164th Avenue

Additionally, though not a study intersection, future site-generated trips projected to travel through the SR-14/SE 192nd Avenue westbound ramp terminal are documented to estimate proportional share contributions that will be required of future Master Plan development site plan applications.

Analysis Periods

Weekday AM and PM peak hour conditions were assessed for three analysis periods:

- Existing conditions;
- Future 15-year conditions (year 2038) that do not include any Master Plan build-out; and
- Year 2038 Build Out conditions with full Master Plan development and occupancy.

Report Format

The remaining sections of this report address the following transportation issues:

- Existing land use and transportation system conditions near The VIC;
- Study intersection crash history review;
- Trip generation and distribution estimates for the proposed The VIC land uses;
- Concurrency corridor trip assignment;
- Forecast future year (2038) baseline traffic conditions;
- Forecast future year (2038) Phase 1 to Phase 4 build out traffic conditions;
- A review of potential mitigation options;
- Intersection sight distance considerations; and,
- Findings and recommendations.

ANALYSIS METHODOLOGY

Intersection Levels-of-Service

Study intersection performance was evaluated using Synchro 11 and Sidra 9 software. All level-of-service (LOS) analyses for the intersections described in this report were performed in accordance with the procedures stated in the *Highway Capacity Manual 6th Edition* (HCM, Reference 1).

Queuing Analysis

Queuing analyses were prepared by reporting Synchro 95th percentile queues for the peak 15-minute analysis during both the weekday AM and PM peak hours.

Operating Standards

City of Vancouver Municipal Code Section 11.80.130.B states the following:

A proposed development that adds at least five net new peak hour trips to an intersection approach operating at a LOS E or lower within the required traffic impact analysis area may be denied based upon any of the following:

- 1. For signalized intersections, when off-site intersection conditions are at a LOS F, or*
- 2. For signalized intersections, when the LOS E and the volume to capacity ratio is greater than 0.95, or*
- 3. For unsignalized intersections, when the volume to capacity ratio for any lane on any approach is greater than 0.95, and*
- 4. When significant traffic hazards would be caused or materially aggravated by the proposed development.*

The above operating standards are applicable to all study intersections. Existing and year 2038 operational analyses at the study intersections were prepared using Synchro 11 and Sidra 9 software and compared to these standards. Current timing parameters and phasing information for the signalized study intersections was provided by City staff.

Existing Conditions Traffic Volume Development

Turning movement counts were obtained at the study intersections on a mid-week day during the morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak hour periods. Traffic counts collected at the SE 34th Street corridor study intersections by the City of Vancouver in early December 2022 were used in this study (the December 2022 counts were conducted as part of the City's *SE 34th Street Safety and Mobility Project* to provide consistency in the base existing conditions analyses presented in this report and the City's study). Traffic counts at the remaining study intersection counts were completed on a mid-week day in January 2023 while local schools were in-session when no inclement weather occurred that would alter traffic patterns³. *Appendix "A" provides the traffic count data sheets.*

EXISTING CONDITIONS

The existing conditions analysis identifies site conditions and the current operational and geometric characteristics of roadways within the study area. These conditions are compared with future conditions later in this report.

³ At the time of the traffic counts, a portion of the existing buildings on the VIC campus had been leased but not yet re-occupied. Trips associated with re-occupancy of the vacant space are addressed in the future 2038 baseline analysis.

Site Conditions and Adjacent Land Uses

Today, a portion of the VIC campus is occupied by a total building area of 715,000 square feet and associated surface parking lots. The campus has two gated accesses to SE 34th Street and is bounded by existing residential developments to the north, west and south with a commercial development and SE 192nd Avenue to the east. Fisher’s Landing Elementary School is located south across SE 34th Street and is accessed via SE Hiddenbrook Drive.

Adjacent Roadway Facilities

Table 2 summarizes the existing transportation facilities and roadways in the study area.

Table 2: Existing Transportation Facilities and Roadway Designations

Roadway	Functional Classification ¹	Number of Travel Lanes	Posted Speed (mph)	Sidewalks?	Bicycle Lanes?	Median?	On-Street Parking?
SE 15 th Street	Collector Arterial	2	30	Yes ²	Yes ³	No	No
SE 20 th Street	Minor Arterial	2-3	40	Yes	Yes	Striped	No
SE 192 nd Avenue	Principal Arterial	4-5	40	Yes	Yes	Raised	No
SE 34 th Street	Principal Arterial	4-5	40	Yes	No	Raised	No
SE Hiddenbrook Drive	Local Street	2	25	Yes ⁴	Yes	No	No
SE 177 th Place	Local Street	2	25	Yes	No	No	Yes
SE 176 th Avenue	Collector Arterial	2	35	Yes	No	Striped	No
SE 29 th Street	Collector Arterial	2	25	Yes	Yes	No	No
SE 164 th Avenue	Principal Arterial	5-6	40	Yes	No	Raised	No

¹ Source: *City of Vancouver Arterial Street System and Classification Map*, Adopted June 27, 2022 (Reference 2).

²Continuous sidewalks only provided on the south side of SE 15th Street, west of SE 192nd Avenue. Sidewalks terminate approximately 900 feet east of SE 192nd Avenue.

³Bicycle lanes are only provided west of SE 192nd Avenue.

⁴Continuous sidewalks only provided on west side on SE Hiddenbrook Drive.

Transit Facilities

C-Tran currently offers multiple fixed transit routes that service the Fisher’s Landing Transit Center (Reference 3) located approximately two-thirds of a mile west of the VIC. Route 30 - *Burton* operates daily along the SE 164th Avenue/NE 162nd Avenue corridor and has a stop located between SE 29th Street and SE 34th Street, approximately ½ mile west of the site. Additionally, Route 37 - *Mill Plain/Fisher’s* operates along SE 164th Avenue, SE 192nd Avenue and along the site frontage on SE 34th Street, with daily service. A posted westbound transit stop for Route 37 is provided near both existing The VIC site access points on SE 34th Street. No shelter area is provided at either stop location.

Crash Analysis

Table 3 summarizes the crash frequency at the study intersections. Generally, the City of Vancouver considers a crash rate greater than one crash per million entering vehicles (MEV) to be an indicator that a potential geometric or operational issue may exist, and that further evaluation should be considered.

Table 3: Study Intersection Crash Frequency and Severity (January 2018 through December 2022)

Study Intersection		Crash Type ¹						Severity			Total	Crash Rate ³
ID	Location	Angle	Turn	Rear-End	Side Swipe	Fixed Object	Ped/Bike	PDO ²	Injury	Fatal		
1	SE 15 th Street/ SE 192 nd Avenue	4	1	3	-	-	-	5	3	0	8	0.18
2	SE 20 th Street/ SE 192 nd Avenue	2	1	5	1	1	-	6	4	0	10	0.21
3	SE 25 th Street/ SE 192 nd Avenue	-	-	-	-	-	-	0	0	0	0	0.00
4	SE 29 th Street/ SE 192 nd Avenue	No data reported (Future Intersection)										
5	SE 34 th Street/ SE 192 nd Avenue	3	14	-	-	-	-	8	9	0	17	0.34
6	SE 34 th Street/ SE Hiddenbrook Drive (East Site Access)	-	1	-	-	-	-	1	0	0	1	0.06
7	SE 34 th Street/ SE 177 th Place (West Site Access)	1	-	-	-	-	-	1	0	0	1	0.06
8	SE 34 th Street/ SE 176 th Avenue	1	5	-	-	2	-	4	4	0	8	0.38
9	SE 29 th Street/ SE 176 th Avenue	1	-	-	-	-	1	1	1	0	2	0.24
10	SE 20 th Street/ SE 176 th Avenue	1	1	6	-	-	1	7	2	0	9	0.41
11	SE 29 th Street/ SE 164 th Avenue	-	2	-	-	-	-	2	0	0	2	0.04
12	SE 34 th Street/ SE 164 th Avenue	8	4	11	-	-	-	15	8	0	23	0.33

¹ No backing or head-on crashes were reported.

² PDO = Property Damage Only

³ Crash rate is calculated as the number of crashes per million entering vehicles (Crashes/MEV). Average daily traffic volumes were estimated using PM peak hour total entering volume at the intersection.

As shown in Table 3, there were no reported fatal collisions, and each study intersection experienced a crash rate less than 1.0 per million entering vehicles. Three trends were noted in reviewing the crash data. First, the SE 34th Street/SE 176th Avenue intersection was noted to have two fixed object collisions, both of which involved a median placed traffic sign on the east-west intersection approaches. The median on the west approach to the intersection was observed to interface with the marked crosswalk. Considering the crash history and current median placement, regardless of the proposed Master Plan, the City may consider reinstallation/replacement of the median end treatments nearest the intersection on SE 34th Street, additional median nose striping, or reflective bollards to increase the visibility of the narrow median curb and signs (the existing end treatments are shown in Exhibits 1 and 2 for reference).

Such changes could be evaluated and addressed as part of the City’s planned *SE 34th Street Safety & Mobility Project*.

Exhibit 1: Facing East at the SE 34th Street/ SE 176th Avenue intersection (image source Google Earth)



Exhibit 2: Facing West at the SE 34th Street / SE 176th Avenue intersection (image source Google Earth)



A second apparent trend amongst the crash data is that 6 of the reported 11 rear-end crashes at the SE 34th Street/SE 164th Avenue intersection involved southbound vehicles. This pattern may be reflective of the tendency for motorists to congregate towards the right-most through lane to reach the single SR-14 westbound on-ramp lane to the south of the intersection.

The third trend amongst the crash data is that 12 of the reported 14 turning crashes at the SE 34th Street/SE 192nd Avenue intersection involved eastbound (6) and westbound (6) vehicles turning left to travel north and south respectively. This pattern may be reflective of the motorists who error in selecting

gaps to complete their turn during the permissive portion of the protected/permissive left-turn phase. The City's 34th Street Safety & Mobility project may be changing the intersection lane configuration as discussed later in this report which would impact gap acceptance.

There were two reported crashes involving a cyclist:

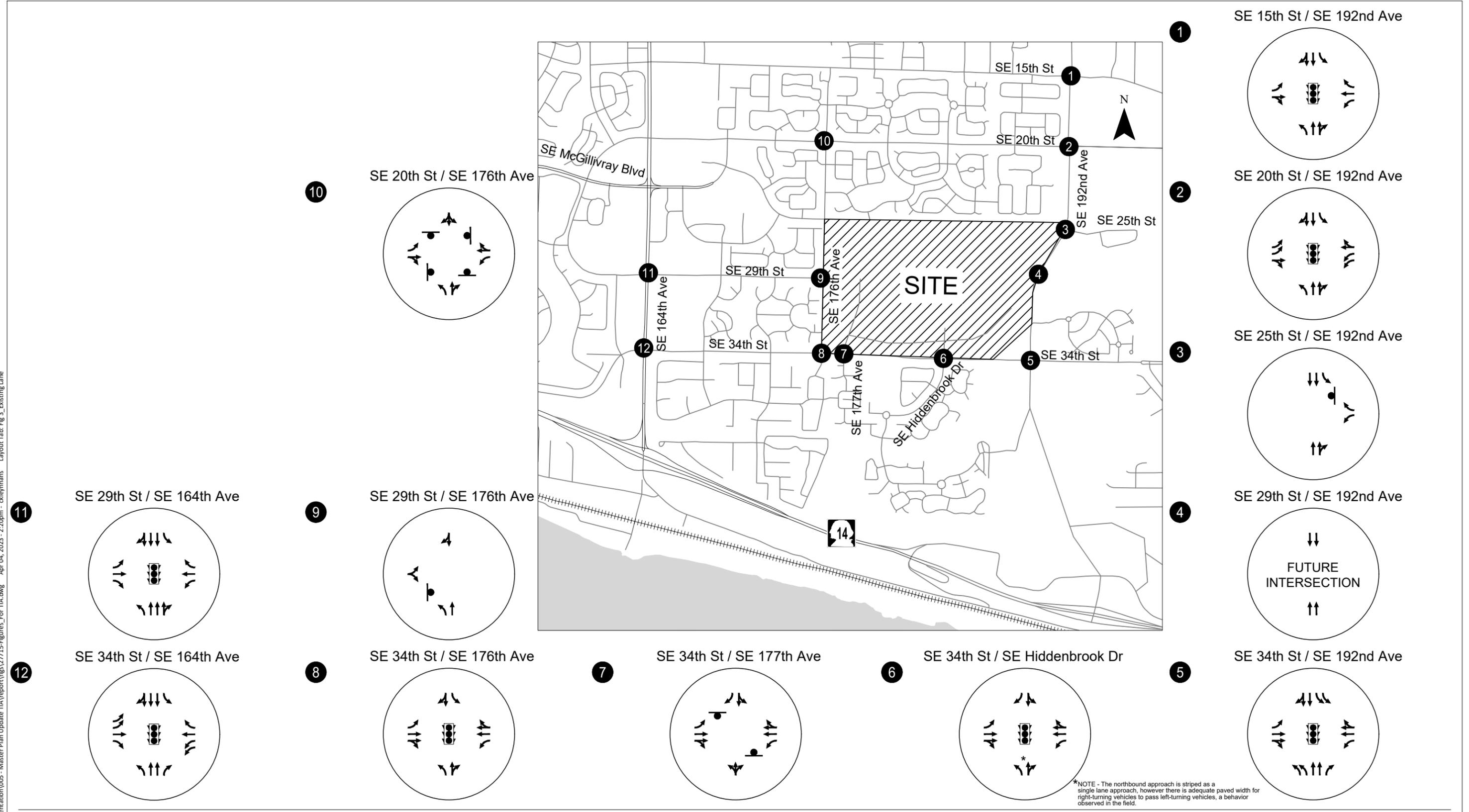
- In July 2020 on a clear dry day, a motorist struck a cyclist at the SE 20th Street/SE 176th Avenue AWSC intersection. No cause of the crash was provided in the crash report.
- In May 2022 on a wet rainy day, a motorist struck a cyclist at the SE 29th Street/SE 176th Avenue TWSC intersection. Per the crash report, the driver was inattentive.

No other safety-based mitigation needs were identified through review of the available crash data. *Appendix "B" includes the crash data provided for each of the study intersections.*

Existing Traffic Conditions

Figure 3 illustrates the existing lane configuration and traffic control devices at each of the study intersections. Figure 4 presents the existing traffic volumes and corresponding intersection operations during the weekday AM and PM peak hours. As shown, all intersections currently satisfy applicable City standards during both peak hours. *Appendix "C" contains the existing conditions operational analysis worksheets.*

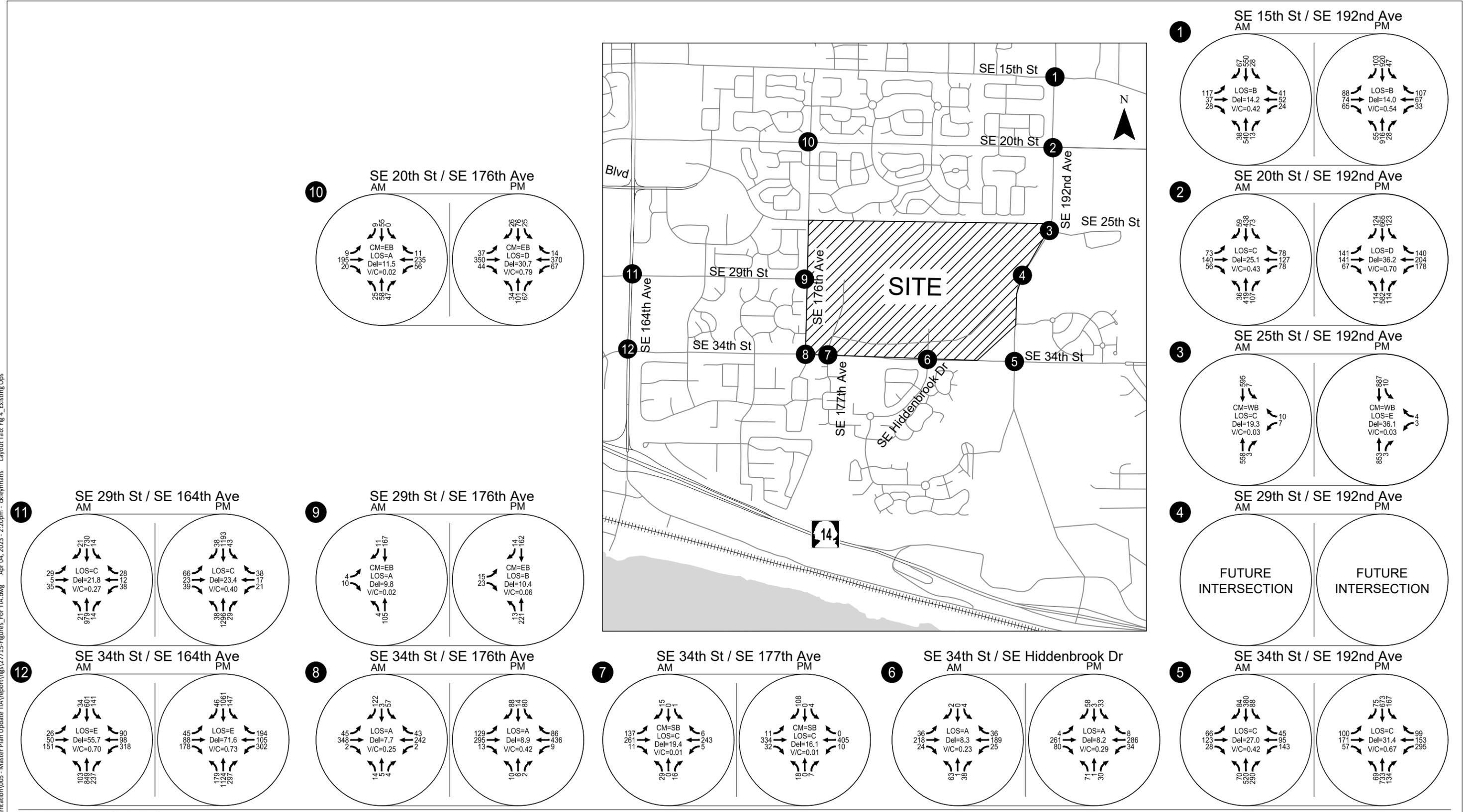
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Existing Lane Configurations and Traffic Control Devices Vancouver, WA

Figure 3

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CM = Critical Movement (Unsignalized)
 LOS = Intersection Level of Service (Signalized) / Critical Movement Level of Service (Unsignalized)
 Del = Intersection Average Control Delay (Signalized) / Critical Movement Control Delay (Unsignalized)
 V/C = Intersection Volume-to-Capacity Ratio (Signalized) / Critical Movement Volume-to-Capacity Ratio (Unsignalized)

Existing Year 2023 Traffic Conditions
 Weekday AM & PM Peak Hour
 Vancouver, WA

Figure
 4

PROPOSED MASTER PLAN

The VIC Building Owner LLC is requesting City of Vancouver approval of a major revision to the VIC Mixed Use Master Plan that was approved by the Vancouver City Council by Ordinance 4346 on August 16, 2021. The Revised Master Plan maintains a mixture of uses and land use areas (LUAs) on the site similar to the original plan. The proposed LUAs on the site include a school (approximately 20 acres), residential (approximately 38.12 acres), light industrial/employment area (approximately 74.13 acres), mixed use area (approximately 33.15 acres) and open space (approximately 24 acres) including the approximately 13.7-acre forested tract. The master plan revision proposes a maximum of 1,800 residential dwelling units and a minimum of 1,703,065 square feet of gross floor area for employment uses.

Key transportation elements of the revised Master Plan vision include:

- The east-west extension of SE 29th Street as a new collector arterial across the campus;
- A central right-of-way loop or “ring road” for main site circulation, the northern arc of the loop will serve as the SE 29th Street collector;
- A vibrant and pedestrian friendly mixed-use corridor along the proposed ring road; and
- An enhanced pedestrian and bicycle network.

The SE 29th Street collector arterial extension east-west across the site completes the anticipated network connection identified in the City’s Transportation Plan. The addition of a future traffic signal at the SE 29th Street/SE 192nd Avenue intersection and a single lane roundabout at the SE 29th Street/SE 176th Avenue intersection are planned in conjunction with the new SE 29th Street roadway corridor. SE 29th Street will serve as the designated freight delivery route to and from the campus with trucks entering the campus at SE 192nd Avenue, traveling across SE 29th Street to the industrial areas, completing delivery, and then returning to SE 192nd Avenue across SE 29th Street upon completion of all four phases.

The northern portion of the new ring road will include two single lane roundabouts where the southern segments of the ring road intersect with SE 29th Street. The existing unsignalized western campus access to SE 34th Street aligned with SE 177th Place will be closed and vacated. Vehicular access to SE 34th Street will be via the signalized SE 34th Street/SE Hiddenbrook Drive-East Site Access intersection which will be reconstructed to one travel lane in each direction between SE 34th Street and the loop road on-site with left-turn lanes provided at SE 34th Street and the loop road.

Master Plan development is generally anticipated in four phases. Phase 1, uses by right, will allow for the VIC Building North (previously entitled) and up to 300 homes using the existing site access. Phase 1 access will be via the two existing campus roadway connections to SE 34th Street. Phase 2 will provide the southwest portion of the new on-site loop road between SE Hiddenbrook Drive and SE 29th Street as well as construction of SE 29th Street between the new west loop road roundabout and a new roundabout at SE 176th Avenue. The existing VIC campus roadway connection to SE 34th Street (aligned with SE 177th Avenue to the south) will be closed and vacated with Phase 2 site development. Phase 3 will extend SE 29th Street from the Phase 2 west roundabout terminus east across the VIC campus to a new signalized

intersection at SE 192nd Avenue. Phase 4 will complete the loop road between a new east roundabout on the loop road and SE Hiddenbrook Drive to the south.

Trip Generation Estimates

Trip generation estimates for The VIC Master Plan land uses were developed using trip rates contained within the *Trip Generation Manual, 11th Edition* as published by the Institute of Transportation Engineers (Reference 4)⁴. The trip estimates account for “internal trip-making” that reflects the interaction between the employment, residential, and retail uses within the VIC campus (including the existing VIC buildings but excluding the potential middle school). Table 4 presents the trip estimates. Peak hour trip estimates for the residential uses were developed using the fitted equation trip rates while the average peak hour trip rates were used for the remaining new uses as well as for all the daily trip estimates. Trips associated with the existing VIC buildings are shown for the purpose of tracking internal trip sharing that will occur as a function of the proposed new uses.

Given no new PM peak hour trips are anticipated because of the proposed mater plan revisions, the Applicant requests that the current daily and PM peak hour trip vesting in the VIC Development Agreement be retained to allow maximum flexibility to respond to market conditions over the life of the master plan.

⁴ Weekday AM and PM peak hour trips associated with the 715,000 square feet of existing building at VIC were included in the existing conditions analysis based on trip rates previously measured at the campus when it was in full use.

Table 4: Site Trip Generation Estimate

Land Use	ITE Code	Size	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Existing The VIC Buildings ¹	1996 Traffic Counts	715,000 Square Feet	10,200 ²	382	262	120	444	76	368
<i>Less Trips Internal to the Campus Area</i>			(236)	(24)	(12)	(12)	(26)	(8)	(18)
Net New			9,964	358	250	108	418	68	350
General Light Industrial	110	600,565 Square Feet	2,925	444	391	53	390	55	335
<i>Less Trips Internal to the Campus Area</i>			(198)	(20)	(10)	(10)	(22)	(7)	(15)
Net New			2,727	424	381	43	368	48	320
General Office Building	710	87,500 Square Feet	949	133	117	16	126	21	105
<i>Less Trips Internal to the Campus Area</i>			(29)	(2)	(1)	(1)	(3)	(1)	(2)
Net New			920	131	116	15	123	20	103
Medical Office Building	720	10,000 square feet	360	31	24	7	39	12	27
<i>Less Trips Internal to the Campus Area</i>			(4)	(1)	(1)	(0)	(0)	(0)	(0)
Net New			356	30	23	7	39	12	27
Shopping Center	820	140,000 square feet	5,181	118	73	45	476	228	248
<i>Less Trips Internal to the Campus Area</i>			(1,607)	(45)	(29)	(16)	(110)	(41)	(69)
<i>Less Pass-by Reduction</i>			(1,036)	(21)	(13)	(8)	(106)	(54)	(52)
Net New			2,538	52	31	21	260	133	127
Multifamily Housing (Mid-Rise)	221	1,248 Units	5,666	538	124	414	487	297	190
<i>Less Trips Internal to the Campus Area</i>			(790)	(14)	(2)	(12)	(80)	(56)	(24)
Net New			4,876	524	122	402	407	241	166
Multifamily Housing (Low-Rise)	220	552 Units	3,720	194	47	147	258	163	98
<i>Less Trips Internal to the Campus Area</i>			(350)	(6)	(1)	(5)	(35)	(25)	(10)
Net New			3,370	188	46	142	223	138	85
Middle School ²	522	900 Students	1,917	522	282	240	153	75	78
Total Trips			30,918	2,362	1,320	1,042	2,373	927	1,446
<i>Less Total Trips Internal to the Campus Area</i>			(3,214)	(112)	(56)	(56)	(276)	(138)	(138)
<i>Less Total Pass-by Reduction</i>			(1,036)	(21)	(13)	(8)	(106)	(54)	(52)
Total Net New Trips			26,668	2,229	1,251	978	1,991	735	1,256
The VIC Development Agreement Vested Net New Trips			26,982	2,088	1,343	745	1,991	627	1,364
Proposed Total Net New – The VIC DA Vested Net New			-314	141	-92	233	0	108	-108
Total Net New Trips – Existing The VIC Building Net New Trips			16,704	1,871	1,001	870	1,573	667	906

¹ Source: Traffic Impact Analysis for The VIC Master Plan dated November 20, 2020.

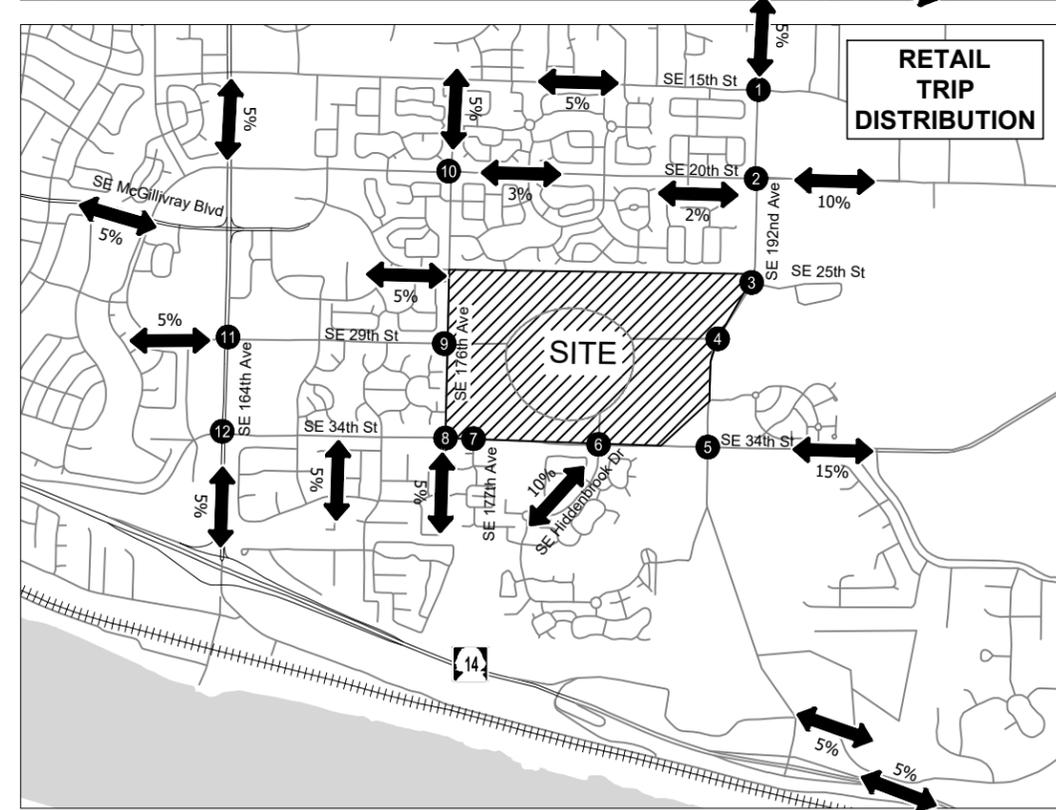
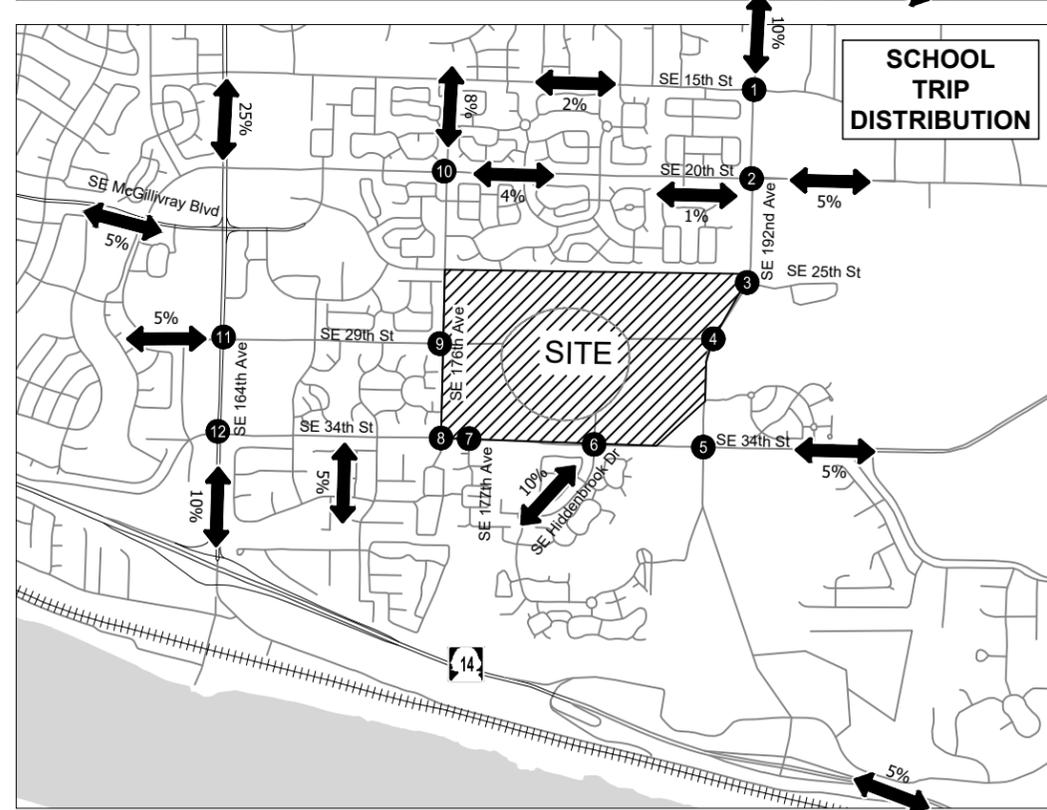
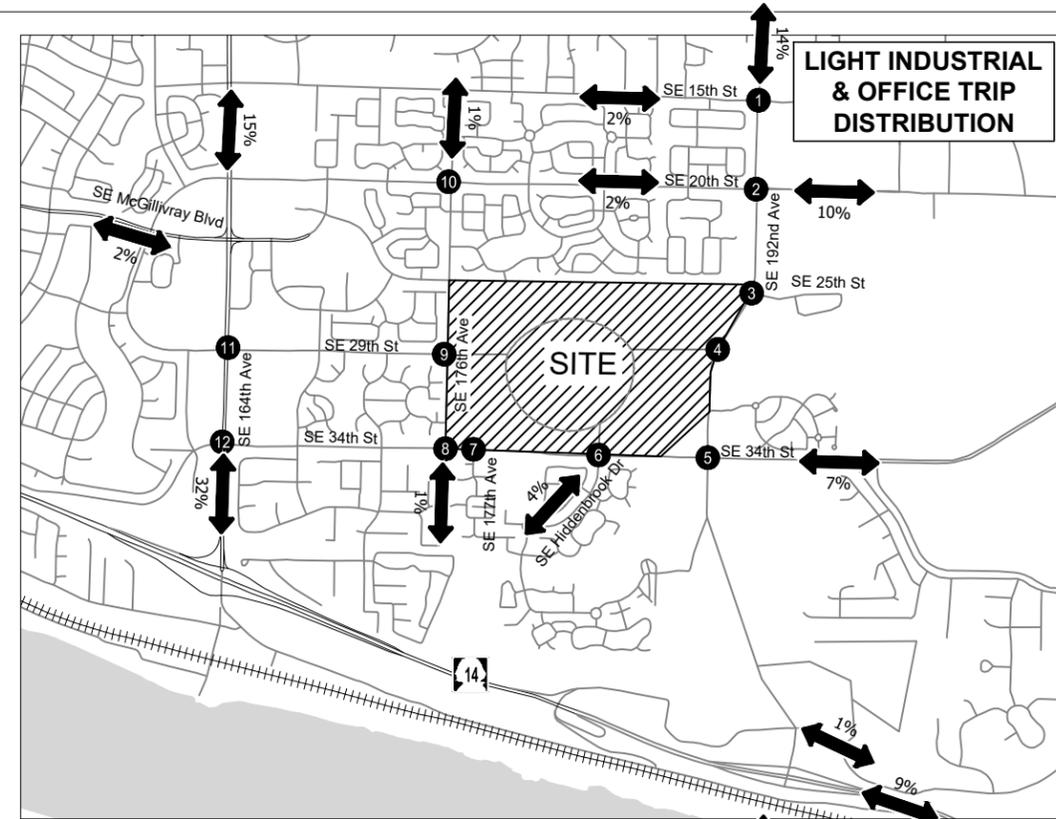
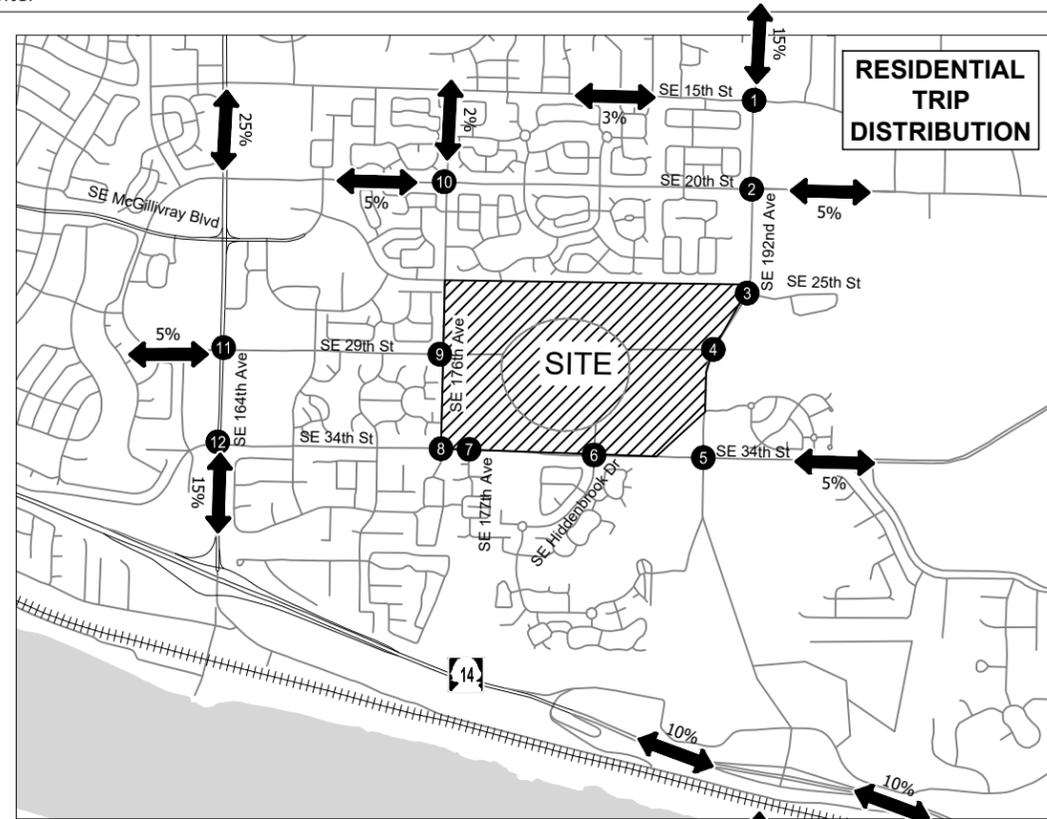
² Trip estimates from approved 2020 The VIC Traffic Impact Analysis. The potential for internal trips associated with a school could be revisited in conjunction with a more specific school development proposal.

Trip Distribution and Assignment

The site-generated trips shown in Table 4 (total net new trips less the existing VIC buildings net new trips along with the pass-by trips) were assigned to the study area roadways based on four trip distribution patterns developed for the VIC campus. The distribution estimates and associated vehicular trips at campus buildout are shown in Figure 5 and Figure 6 and summarized below.

- *On-site employment trip distribution pattern:* applied to office and light industrial uses, this distribution pattern was derived from the Southwest Washington Regional Transportation Council travel demand model transportation analysis zone (TAZ 1758) for the VIC site⁵.
- *Residential trip distribution pattern:* this pattern was estimated based on review of other recent traffic studies prepared for nearby residential areas, review of the surrounding land uses and review of the existing traffic turning movement patterns.
- *Middle school trip distribution pattern:* this pattern was estimated based on review of the existing school district middle schools and boundaries, surrounding residential uses as well as the roadway network (the school distribution estimate is preliminary given there was no specific school proposal or boundary change proposed at the time this study was prepared). No vehicle trips were assigned between the school site and homes within the VIC, rather, these were assumed to be walking trips. The full school site vehicle trip generation was assigned off-site from the VIC.
- *Retail trip distribution pattern:* this pattern was estimated based on the location of other commercial/retail uses in the area and in recognizing that the anticipated retail uses within The VIC are expected to be smaller, locally serving retail type uses (as opposed to destination or “big box” retailers).

⁵ The land use assumptions in the RTC model for this TAZ were reflective of employment uses only and do not offer insight as to residential or retail use travel patterns.

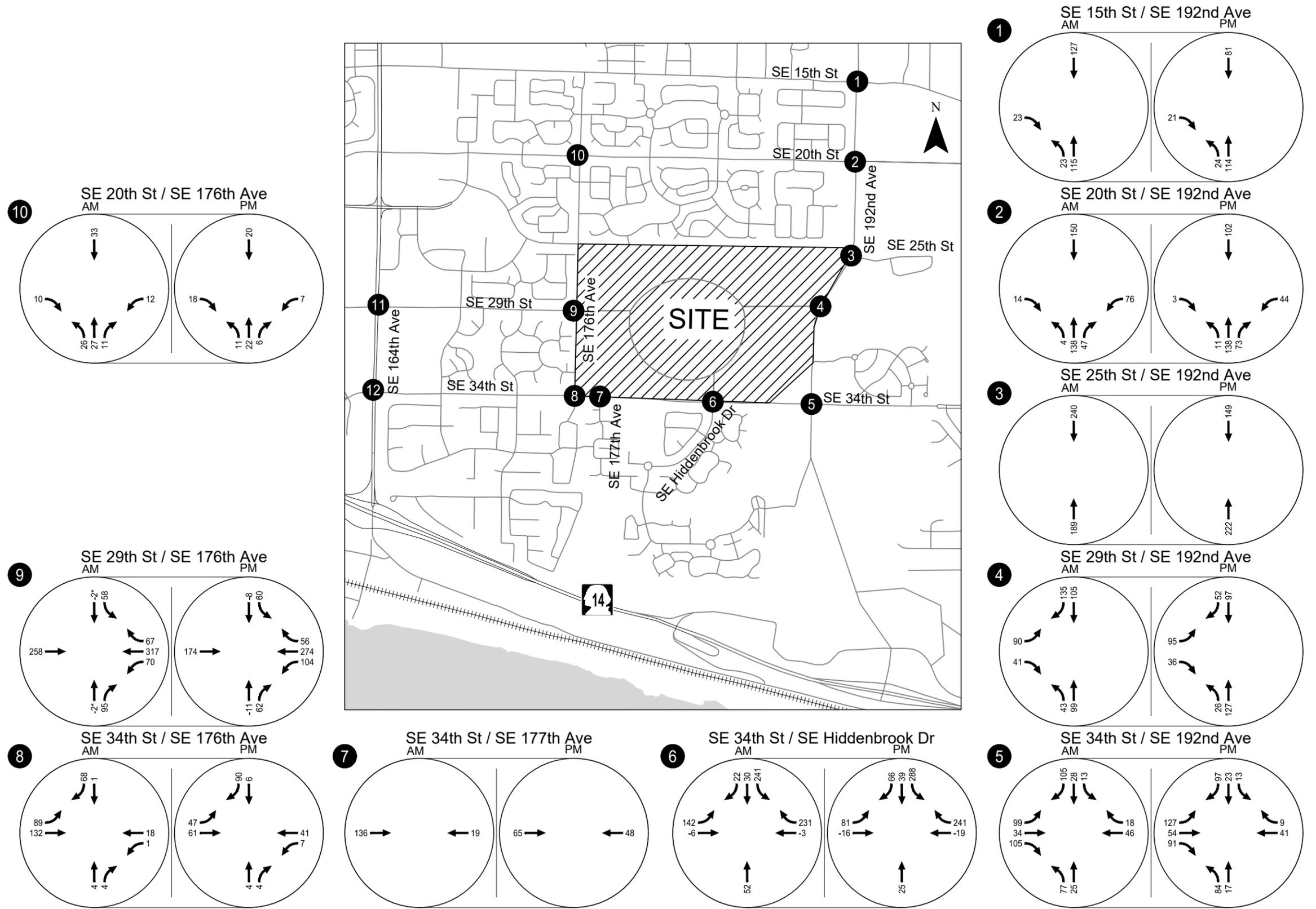


Estimated Trip Distributions for Future Site Uses
Vancouver, WA

Figure
5

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H:\272715 - VIC Implementation\005 - Master Plan Update TIA\report\figs\272715-Figures_For TIA.dwg Apr 04, 2023 - 2:20pm - ckeyhans Layout Tab: Fig 6_Trip Assignment



NOTE - Trips shown include net new trip assignment (all land uses) and pass-by trip assignment (retail use only). Negative trips represent pass-by trips.

Trip Assignment at Campus Buildout (Phase 1 - 4)
Weekday AM & PM Peak Hour
Vancouver, WA

Figure
6

CONCURRENCY CORRIDOR TRIP ASSIGNMENT

Per City of Vancouver requirements, Table 5 summarizes the estimated number of complete build-out site-generated weekday PM peak hour trips entering each of the City’s adopted concurrency corridors per development phase. Assigned trips were recorded counting trips only once along each of the specified corridors. Further concurrency corridor tracking by individual buildings or phases can be provided with subsequent trip compliance letters if needed.

Table 5: Concurrency Corridor Weekday PM Peak Hour Trip Assignment

Corridor Name	Corridor Limit	PM Peak Trips to Corridor
Mill Plain Blvd.	Fourth Plain to I-5	0
	I-5 to Andresen	0
	Andresen to I-205	5
	I-205 to 136 th Ave.	9
	136 th Ave. to 164 th Ave.	86
	164 th Ave. to 192 nd Ave.	10
St. Johns / Ft. Van Way	Mill Plain to 63 rd St.	0
Fourth Plain Blvd.	Mill Plain to I-5	0
	I-5 to Andresen	0
	Andresen to I-205	0
	I-205 to 162 nd Ave.	6
Andresen Road	Mill Plain to SR500	2
	SR500 to 78 th St.	2
112 th Avenue	Mill Plain to 28 th St.	2
	28 th St. to 51 st St.	1
164 th /162 nd Avenue	SR14 to SE 1 st St.	388
	SE 1 st St. to Fourth Plain	250
Burton Road / 28 th Street	18 th St. to 112 th Ave.	3
	112 th Ave. to 138 th Ave.	5
	138 th Ave. to 162 nd Ave.	10
18 th Street	112 th Ave. to 138 th Ave.	1
	138 th Ave. to 164 th Ave.	26
136 th /137 th Avenue	Mill Plain to 28 th St.	6
	28 th St. to Fourth Plain	2
192 nd Avenue	SR14 to NE 18 th St.	498

TRAFFIC IMPACT ANALYSIS

The remainder of this report documents intersection operations under future year conditions without and with phased Master Plan development. Four phases of site development were considered to inform the traffic mitigations analysis. While the site land uses will buildout incrementally over the life of the master plan based on market conditions, the traffic impacts were assessed by phase using a common future horizon year of 2038.

FUTURE YEAR 2038 BASELINE TRAFFIC CONDITIONS

The baseline traffic analysis identifies how the study intersections will operate in the proposed 15-year horizon of the Master Plan Development Agreement after accounting for traffic growth from approved in-process developments within the study area and anticipated regional traffic growth, but only assuming full occupancy of the existing VIC site buildings (no additional Master Plan development assumed).

To reflect the anticipated re-use of the vacant existing building space on-site, previously documented trips associated with typical operations of the site were added to the study intersections to arrive at existing AM and PM peak period traffic volumes.⁶

Study Intersection Changes

The City of Vancouver's *SE 34th Street Safety & Mobility Project* proposes to implement several changes at the study intersections to improve safety and mobility on SE 34th Street between SE 164th Avenue and SE 192nd Avenue. The project anticipates repurposing a travel lane in each direction to add dedicated space for people walking, biking, rolling, and using mobility-assistance devices, and other safety improvements in the corridor for all users. The following changes were assumed at the study intersections by year the 2038 as part of the City project:

- Intersection 5, SE 34th Street/SE 192nd Avenue:
 - Remove 1 northbound left-turn lane
 - Remove 1 eastbound and 1 westbound through lane

⁶ For reference, a total of 382 weekday AM peak hour trips (262 in/120 out) and 444 weekday PM peak hour trips (76 in/368 out) were previously documented to be generated by the existing 715,000 square feet of campus buildings. The traffic volumes measured at the campus access points in December 2022 were increased and the additional trips assigned to the study intersections to reflect full occupancy. Further details of the volume adjustments are presented in Appendix "D".

- Intersection 6), SE 34th Street/SE Hiddenbrook Drive-East Site Access
 - Remove 1 eastbound and 1 westbound through lane
- Intersection 7) SE 34th Street/SE 177th Place-West Site Access
 - Remove 1 eastbound and 1 westbound through lane
 - Add 1 westbound right-turn lane
- Intersection 8) SE 34th Street/SE 176th Avenue
 - Remove 1 eastbound and 1 westbound through lane
- Intersection 12) SE 34th Street/SE 164th Avenue
 - Remove 1 eastbound and 1 westbound left-turn lane

Figure 7 illustrates the assumed lane configurations and traffic control devices at the study intersections under year 2038 baseline conditions.

In-process Developments

Trips from the following approved but not yet constructed (in-process) developments were included in the future baseline traffic volumes estimates per coordination with City Transportation staff.

- 192nd Station West II Lofts (located northwest of the SE 192nd Avenue/SE 34th Street intersection);
- Columbia Palisades Subdivision (located within the Columbia Palisades Master Plan area; 30% of the units were assumed to be sold and occupied at the time of the traffic counts for this study);
- Valley View Estates (located near the intersection of SE Grand Ridge Drive and SE 40th Street);
- The Casey (formerly Kate's Woods located along SE 34th Street to the east of SE Payne Road);
- Dawson's Ridge (located near the intersection of NW Sacajawea Street and NW McIntosh Road);
- First Street Village (located near intersection SE 1st Street/NE 197th Avenue);
- Vancouver Clinic Phase 2 (located within the Columbia Palisades master plan area along SE Columbia Palisades Drive);
- Columbia Palisades Lots 2 & 3 (located within the Columbia Palisades master plan area with access via the west leg of the SE Brady Road/SE Columbia Palisades Drive roundabout);
- Fisher's Creek Subdivision (located at 17700 SE Evergreen Highway);
- Kirkland Car Wash and Medical Building (located on the east side of SE 192nd Avenue and north of SE 20th Street);
- Oak Tree Station (located near the intersection of NW Lake Road/NW Friberg-Strunk Street);
- Lacamas Creek Tech Center (located near the intersection of NE 13th Street/NW Friberg-Strunk Street);
- Panattoni Industrial Building Lot 6 (located near the intersection of NE Goodwin Road/NW Camas Meadows Drive);
- Camas Business Center (located at 4704 NW Lake Road); and,
- Parklands Archery Business Center – Commercial component (located at 542 NW 218th Street); Section 30 (located north of SE 1st Street, including HP);
- PeaceHealth Ambulatory Care Center (located at the southeast corner of the SE 1st Street/SE 192nd Avenue intersection

Regional Traffic Growth

In addition to the in-process development trips, a 0.5 percent annual growth rate was identified along public roadway corridors to account for regional growth over the next 15 years. This growth rate was derived based on review of the Travel Demand Model 2015 and 2040 PM peak hour model outputs provided by the Southwest Washington Regional Transportation Council (RTC) for the study area and in consideration of the numerous in-process development trips identified for inclusion by City staff.

FUTURE YEAR 2038 BASELINE TRAFFIC OPERATIONS

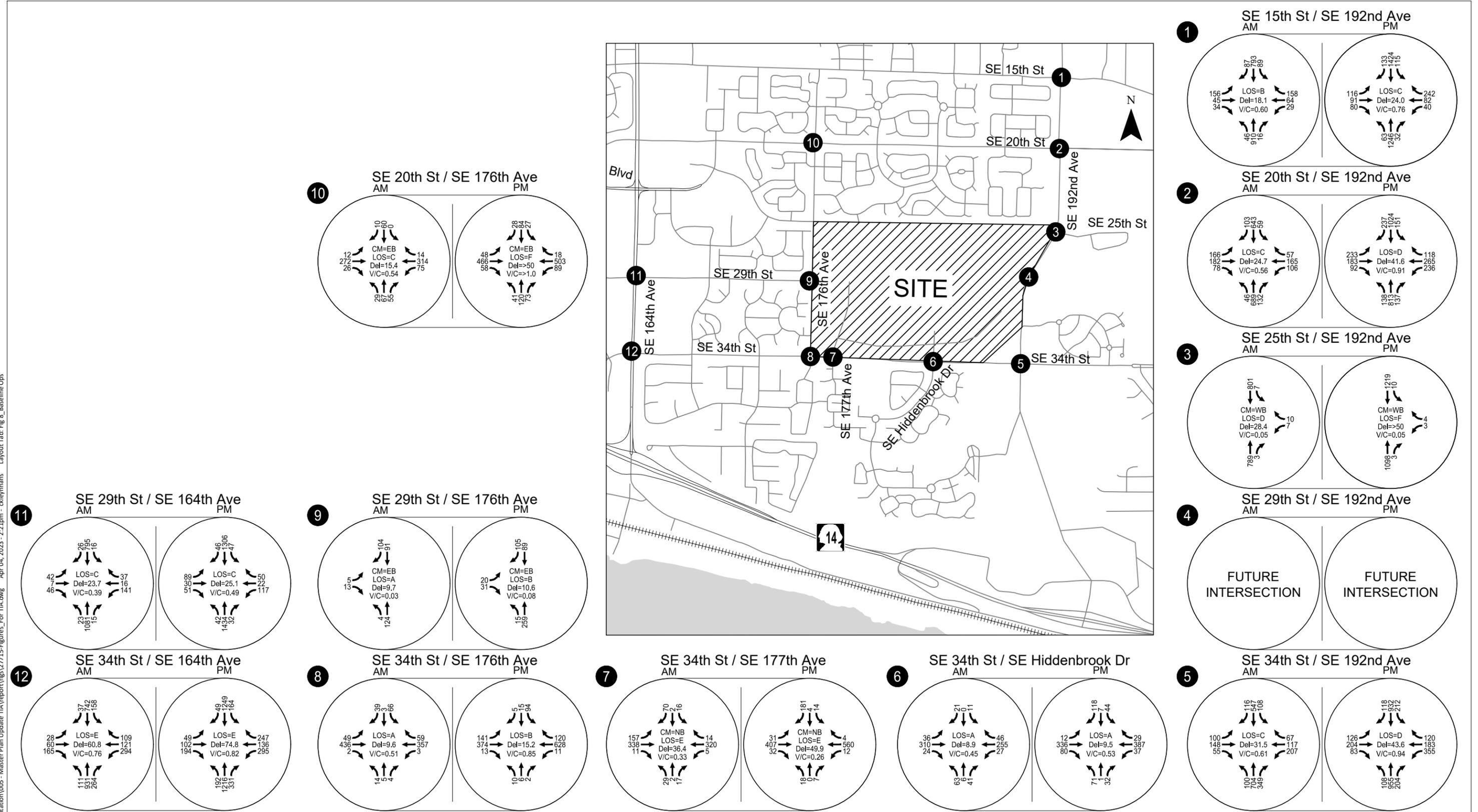
Figure 8 shows the projected 2038 baseline traffic volumes and resulting operations for all study intersections during the weekday AM and PM peak hours. Although the study intersections are projected to operate acceptably per City standards during the AM peak hour, two are projected to exceed City standards during the PM peak hour, including:

- The stop-controlled westbound left-turn movement on SE 25th Street at SE 192nd Avenue (Intersection #3) is projected to operate at LOS F during the PM peak hour but well under capacity (V/C ratio of 0.05). Despite the high delays forecast for this movement, a review of the projected weekday PM peak hour volumes at the intersection confirms that installation of a traffic signal is not warranted.
- The SE 20th Street/SE 176th Avenue intersection (Intersection #10) is forecast to operate at LOS F with the eastbound and westbound approaches over capacity during the weekday PM peak hour. The City of Vancouver is collecting proportional share mitigation fees in the amount of \$400 for each weekday PM peak hour trip added to this intersection.

Note the SE 34th Street/SE 192nd Avenue intersection (Intersection #5) is forecast to operate at an acceptable LOS D with the westbound left-turn lane at capacity (V/C ratio of 1.0). The City of Vancouver is collecting proportional share mitigation fees in the amount of \$150 for each weekday PM peak hour trip added to this intersection. Further, the SE 34th Street/SE 164th Avenue intersection (Intersection #12) is forecast to operate at LOS E during both the AM and PM peak hours. The westbound left-turn V/C ratio is projected to be 1.1 during the AM peak hour and 1.72 with a 35+ vehicle 95th percentile queue during the PM peak hour.

Appendix "E" contains the 2038 baseline operational analysis worksheets and Figure E-1 (a summary of the cumulative in-process trip assignment that was included in the baseline 2038 volumes).

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CM = Critical Movement (Unsignalized)
 LOS = Intersection Level of Service (Signalized) / Critical Movement Level of Service (Unsignalized)
 Del = Intersection Average Control Delay (Signalized) / Critical Movement Control Delay (Unsignalized)
 V/C = Intersection Volume-to-Capacity Ratio (Signalized) / Critical Movement Volume-to-Capacity Ratio (Unsignalized)

Future Year 2038 Baseline Traffic Conditions
 Weekday AM & PM Peak Hour
 Vancouver, WA

Figure
 8

FUTURE YEAR 2038 WITH PROJECT TRAFFIC CONDITIONS

The with project traffic analysis identifies how the study intersections will operate in the proposed 15-year horizon of the Master Plan Development Agreement upon phased development of the VIC. The proposed transportation infrastructure, site trip generation and corresponding traffic impacts associated with each phase of master plan site development were assessed as documented herein.

Master Plan Roadway Network

Multiple roadway network and study intersection changes are anticipated in conjunction with continued The VIC Master Plan development. As previously indicated, implementation is expected to occur in four distinct phases with the following transportation changes anticipated by phase (refer also to Figure 9).

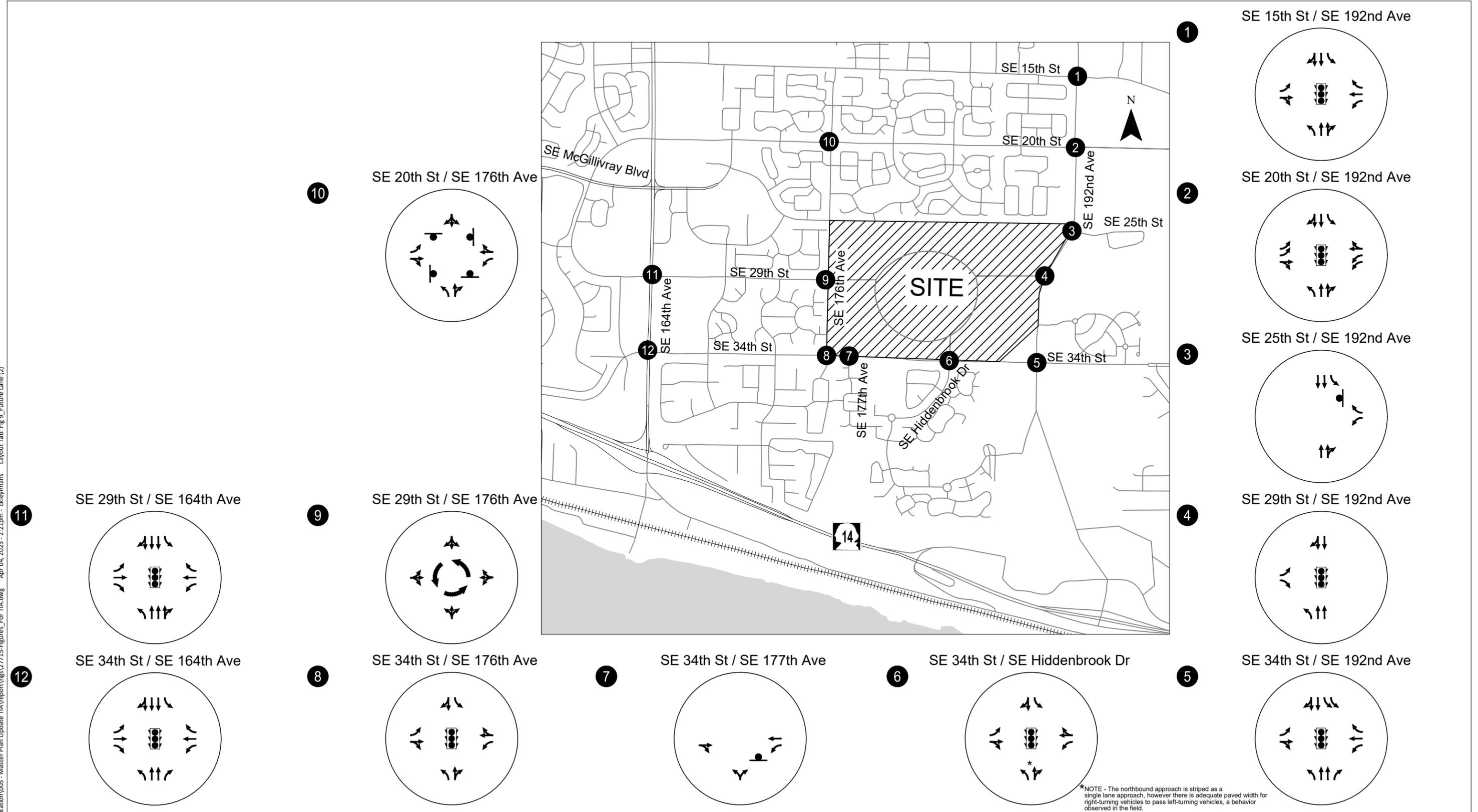
Master Plan Phase 1

- No changes to the transportation system, access to the VIC campus will remain as it exists today.

Master Plan Phase 2

- Construct SE 29th Street between SE 176th Avenue and the west portion of the loop road within the VIC campus;
- Implement the previously identified VIC capacity mitigations at the signalized SE 29th Street/SE 164th Avenue intersection including:
 - Convert the existing east-west left-turn permissive signal phasing on SE 29th Street to protected/permissive left-turn phasing;
 - Extend the westbound left-turn lane striping to provide 225 feet of storage; and
 - Extend the existing southbound left-turn lane on SE 162nd Avenue at SE 29th Street to provide 300 feet of left-turn storage (the existing left-turn storage is approximately 135 feet long; the extension will required reconstruction of the existing median area and drainage facilities within the median).
- Construct the southwest portion of the loop road within the VIC campus between the SE Hiddenbrook site access and SE 29th Street;
- Close and vacate the existing west campus access connection to SE 34th Street (the site access aligned with SE 177th Avenue);
- Reconstruct the existing east campus access connection to SE 34th Street (the site access aligned with SE Hiddenbrook Drive) to have one northbound lane, one southbound left-turn lane and one southbound shared through/right lane at the SE 34th Street traffic signal;
- Construct a new single lane roundabout at SE 29th Street/SE 176th Avenue; and
- Construct a new single lane roundabout at SE 29th Street/west loop road intersection.

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- STOP SIGN
- TRAFFIC SIGNAL
- ROUNDABOUT

*NOTE - The northbound approach is striped as a single lane approach, however there is adequate paved width for right-turning vehicles to pass left-turning vehicles, a behavior observed in the field.

Assumed Lane Configuration Changes by VIC
Vancouver, WA | Figure 9

Master Plan Phase 3

- Extend SE 29th Street to SE 192nd Avenue, including signalization of the intersection at SE 192nd Avenue.

Master Plan Phase 4

- Construct the southeast portion of the loop road within the VIC campus between the SE Hiddenbrook site access and SE 29th Street, completing the loop road.

Trip Generation

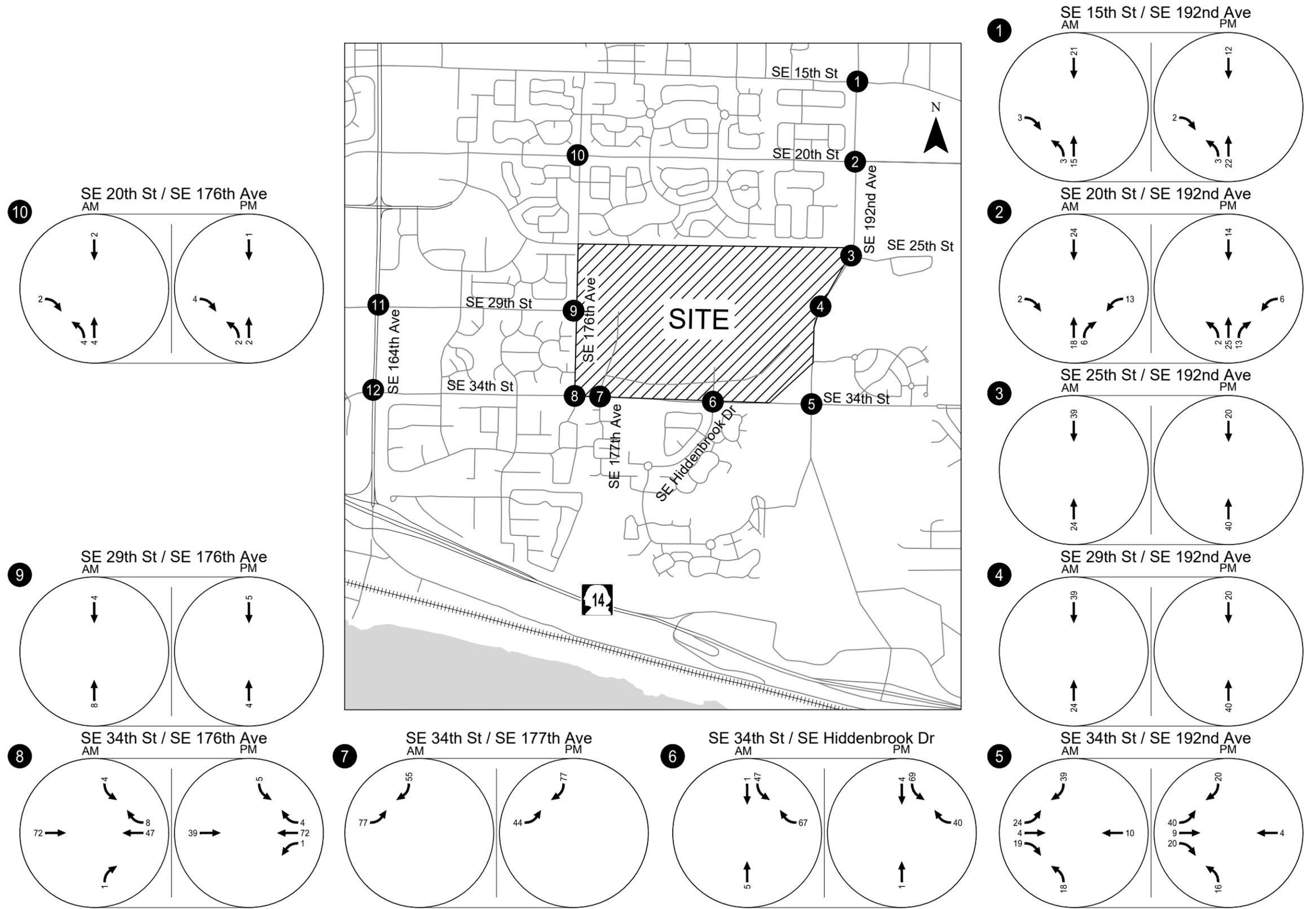
The VIC site trip generation estimates by phase are shown in Tables 6 through 9 and are a subset of the trip generation previously presented in Table 4. Figures 10 through 13 show the corresponding site-generated trip assignment to the study intersections. Note that Master Plan Phase 1 site development reflects uses that are approved “by right” under the current VIC development agreement. The Phase 1 uses and their traffic impacts can be constructed today.

Table 6: Phase 1 Site Trip Generation Estimate

Land Use	ITE Code	Size	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
General Light Industrial ¹	110	200,700 (Square Feet)	995	140	123	17	126	16	110
<i>Less Trips Internal to the Campus Area</i>			(43)	(4)	(2)	(2)	(4)	(0)	(4)
Net New			952	136	121	15	122	16	106
Multifamily Housing (Mid-Rise)	221	134 units	608	58	13	45	52	32	20
<i>Less Trips Internal to the Campus Area</i>			(85)	(1)	(0)	(1)	(9)	(6)	(3)
Net New			523	57	13	44	43	26	17
Multifamily Housing (Low-Rise)	220	174 units	1,173	61	15	46	81	51	30
<i>Less Trips Internal to the Campus Area</i>			(110)	(2)	(0)	(2)	(11)	(8)	(3)
Net New			1,063	59	15	44	70	43	27
Total Trips			2,776	259	151	108	259	99	160
<i>Less Total Trips Internal to the Campus Area</i>			(238)	(7)	(2)	(5)	(24)	(14)	(10)
Total Net New Trips			2,538	252	149	103	235	85	150

¹ Source: Refer to September 2, 2022 VIC Building North Trip Compliance Letter (PRJ-168116, PIR-82415)

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NOTE - Trips shown include net new trip assignment (all land uses) and pass-by trip assignment (retail use only).

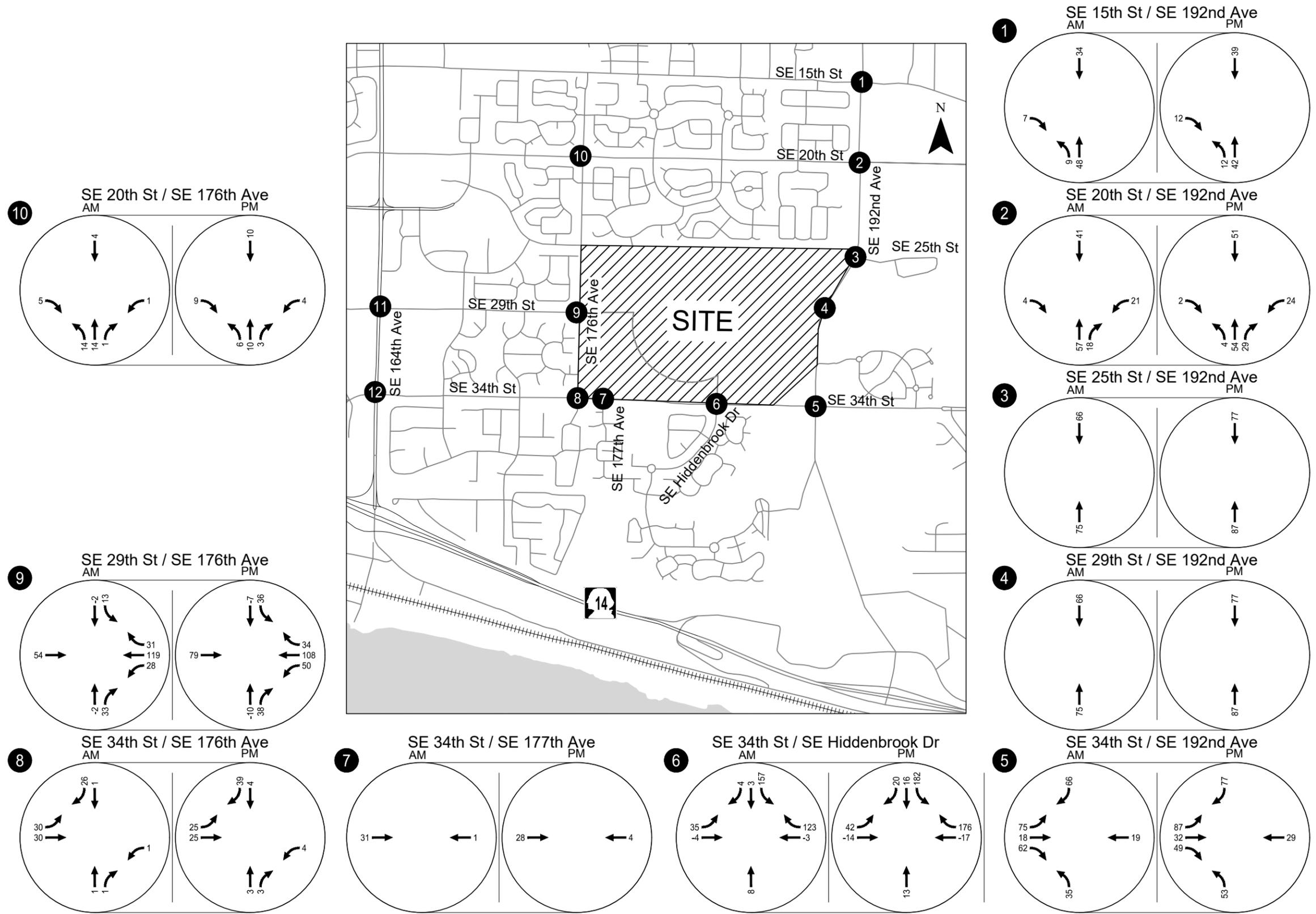
Phase 1 Trip Assignment
Weekday AM & PM Peak Hour
Vancouver, WA

Figure
10

Table 7: Phase 2 Site Trip Generation Estimate

Land Use	ITE Code	Size	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
General Light Industrial	110	34,439 Square Feet	166	26	23	3	22	3	19
<i>Less Trips Internal to the Campus Area</i>			(13)	(2)	(1)	(1)	(2)	(1)	(1)
Net New			153	24	22	2	20	2	18
Medical Office Building	720	8,200 Square Feet	295	26	20	6	32	1	22
<i>Less Trips Internal to the Campus Area</i>			(3)	(1)	(1)	(0)	(0)	(0)	(0)
Net New			292	25	19	6	32	10	22
General Office Building	710	71,750 square feet	778	109	96	13	103	17	86
<i>Less Trips Internal to the Campus Area</i>			(24)	(2)	(1)	(1)	(3)	(1)	(2)
Net New			754	107	95	12	100	16	84
Shopping Center	820	123,200 square feet	4,559	103	64	39	419	201	218
<i>Less Trips Internal to the Campus Area</i>			(1,414)	(40)	(26)	(14)	(97)	(36)	(61)
<i>Less Pass-by Reduction</i>			(912)	(18)	(11)	(7)	(94)	(48)	(46)
Net New			2,233	45	27	18	228	117	111
Multifamily Housing (Mid-Rise)	221	824 Units	3,741	355	82	273	322	196	126
<i>Less Trips Internal to the Campus Area</i>			(522)	(9)	(1)	(8)	(53)	(37)	(16)
Net New			763	43	11	32	51	32	19
Multifamily Housing (Low-Rise)	220	125 Units	842	44	11	33	59	38	21
<i>Less Trips Internal to the Campus Area</i>			(79)	(1)	(0)	(1)	(8)	(6)	(2)
Net New			763	43	11	32	51	32	19
Total Phase 2 Trips			10,381	663	296	367	957	465	492
<i>Less Total Trips Internal to the Campus Area</i>			(2,055)	(55)	(30)	(25)	(163)	(81)	(82)
<i>Less Total Pass-by Reduction</i>			(912)	(18)	(11)	(7)	(94)	(48)	(46)
Total Phase 2 Net New Trips			7,414	590	255	335	700	336	364

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NOTE - Trips shown include net new trip assignment (all land uses) and pass-by trip assignment (retail use only). Negative trips represent pass-by trips.

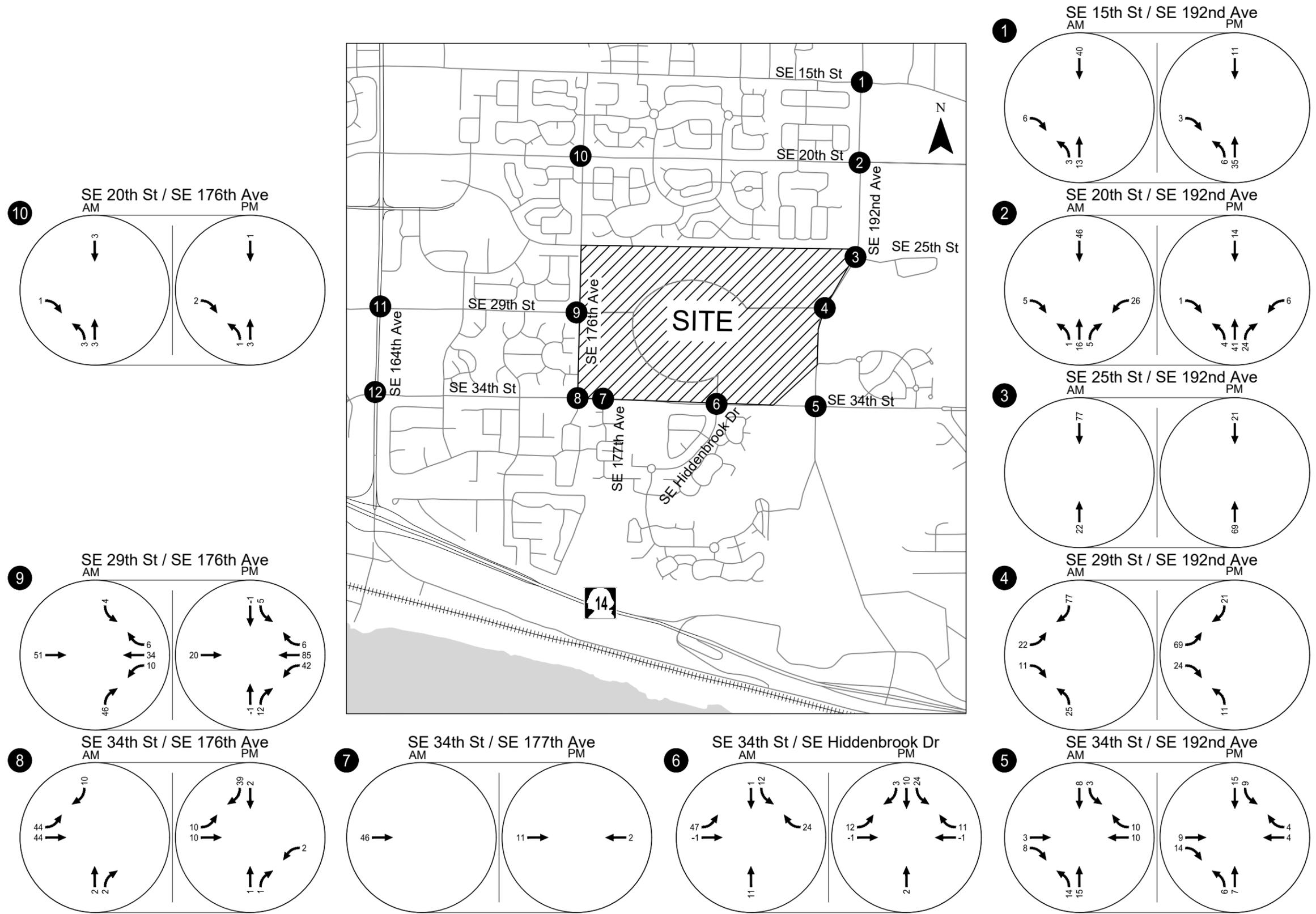
Phase 2 Trip Assignment
Weekday AM & PM Peak Hour
Vancouver, WA

Figure
11

Table 8: Phase 3 Site Trip Generation Estimate

Land Use	ITE Code	Size	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
General Light Industrial	110	365,426 Square Feet	1,764	278	245	33	242	36	206
<i>Less Trips Internal to the Campus Area</i>			(142)	(14)	(7)	(7)	(16)	(6)	(10)
Net New			1,622	264	238	26	226	30	196
Medical Office Building	720	1,800 Square Feet	65	5	4	1	7	2	5
<i>Less Trips Internal to the Campus Area</i>			(1)	(0)	(0)	(0)	(0)	(0)	(0)
Net New			64	5	4	1	7	2	5
General Office Building	710	15,750 square feet	171	24	21	3	23	4	19
<i>Less Trips Internal to the Campus Area</i>			(5)	(0)	(0)	(0)	(0)	(0)	(0)
Net New			166	24	21	3	23	4	19
Shopping Center	820	11,200 square feet	415	10	6	4	38	18	20
<i>Less Trips Internal to the Campus Area</i>			(129)	(3)	(2)	(1)	(9)	(3)	(6)
<i>Less Pass-by Reduction</i>			(83)	(2)	(1)	(1)	(8)	(4)	(4)
Net New			203	5	3	2	21	11	10
Multifamily Housing (Mid-Rise)	221	154 Units	699	66	15	51	60	37	23
<i>Less Trips Internal to the Campus Area</i>			(97)	(2)	(0)	(2)	(9)	(7)	(2)
Net New			602	64	15	49	51	30	21
Multifamily Housing (Low-Rise)	220	52 Units	350	18	4	14	24	15	9
<i>Less Trips Internal to the Campus Area</i>			(33)	(1)	(1)	(0)	(3)	(2)	(1)
Net New			317	17	3	14	21	13	8
Total Phase 3 Trips			3,464	401	295	106	394	112	282
<i>Less Total Trips Internal to the Campus Area</i>			(407)	(20)	(10)	(10)	(37)	(18)	(19)
<i>Less Total Pass-by Reduction</i>			(83)	(2)	(1)	(1)	(8)	(4)	(4)
Total Phase 3 Net New Trips			2,974	379	284	95	349	90	259

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NOTE - Trips shown include net new trip assignment (all land uses) and pass-by trip assignment (retail use only). Negative trips represent pass-by trips.

Phase 3 Trip Assignment
Weekday AM & PM Peak Hour
Vancouver, WA

Figure
12

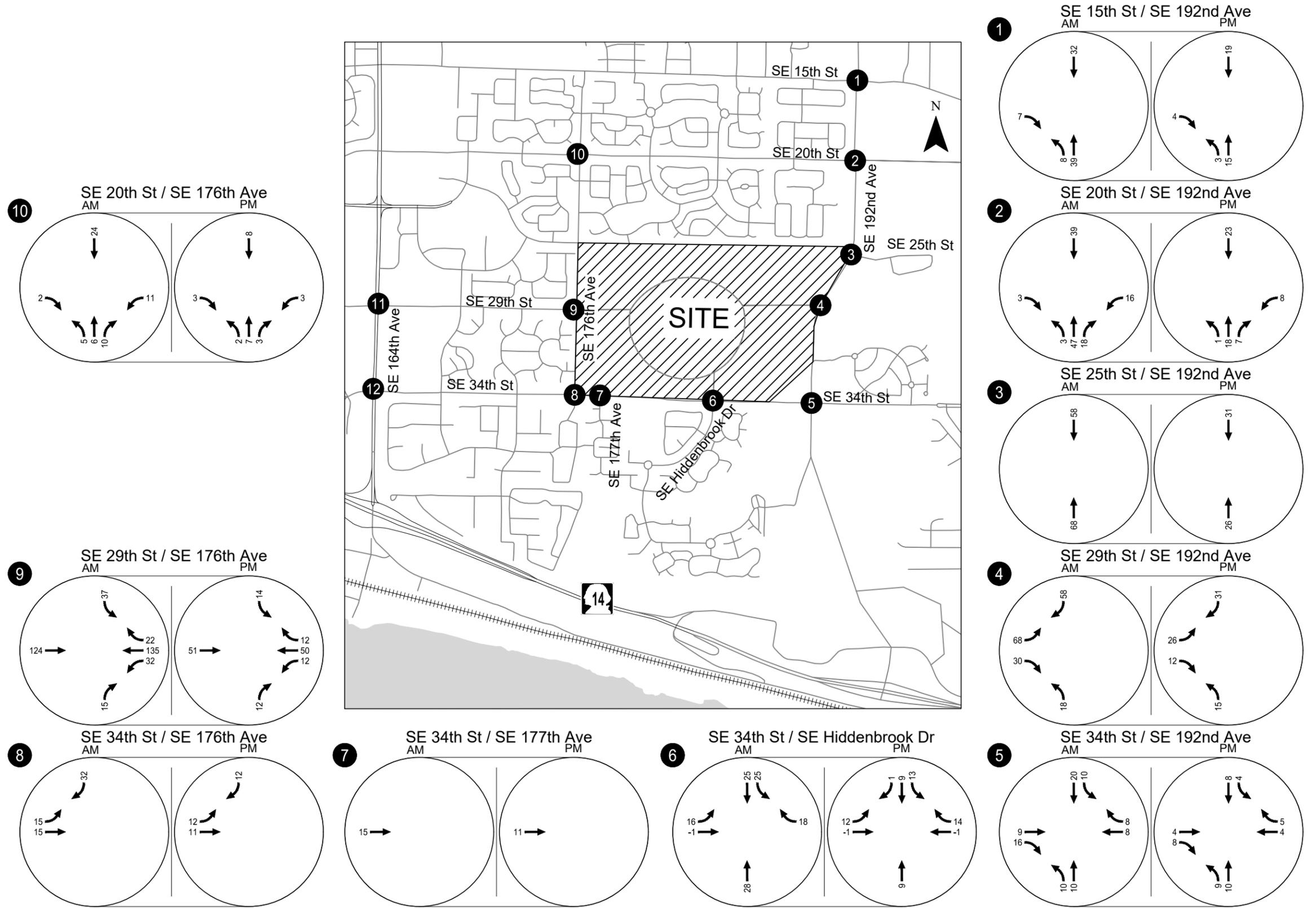
Table 9: Phase 4 Site Trip Generation Estimate

Land Use	ITE Code	Size	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Shopping Center	820	5,600 square feet	207	5	3	2	19	9	10
<i>Less Trips Internal to the Campus Area</i>			(64)	(2)	(1)	(1)	(4)	(2)	(2)
<i>Less Pass-by Reduction</i>			(41)	(1)	(1)	(0)	(4)	(2)	(2)
Net New			102	2	1	1	11	5	6
Multifamily Housing (Mid-Rise)	221	136 Units	618	59	14	45	53	32	21
<i>Less Trips Internal to the Campus Area</i>			(86)	(2)	(1)	(1)	(9)	(6)	(3)
Net New			532	57	13	44	44	26	18
Multifamily Housing (Low-Rise)	220	201 Units	1,355	71	17	54	94	59	35
<i>Less Trips Internal to the Campus Area</i>			(128)	(2)	(0)	(2)	(13)	(9)	(4)
Net New			1,227	69	17	52	81	50	31
Middle School ²	522	900 Students	1,917	522	282	240	153	75	78
Total Phase 4 Trips			4,097	657	316	341	319	175	144
<i>Less Total Trips Internal to the Campus Area</i>			(278)	(6)	(2)	(4)	(26)	(17)	(9)
<i>Less Total Pass-by Reduction</i>			(41)	(69)	(17)	(52)	(81)	(50)	(31)
Total Phase 4 Net New Trips			3,778	582	297	285	212	108	104

¹ Source: Traffic Impact Analysis for VIC Master Plan dated November 20, 2020.

² Trip estimates from approved 2020 VIC Traffic Impact Analysis. The potential for internal trips associated with a school could be revisited in conjunction with a more specific school development proposal.

H:\272715 - VIC Implementation\005 - Master Plan Update TIA\report\figs\272715-Figures_For TIA.dwg Apr 04, 2023 - 2:21pm - ckleynhans Layout Tab: Fig.13_Phase 4 Trip Assignment



NOTE - Trips shown include net new trip assignment (all land uses) and pass-by trip assignment (retail use only). Negative trips represent pass-by trips.

Phase 4 Trip Assignment
Weekday AM & PM Peak Hour
Vancouver, WA

Figure
13

FUTURE YEAR 2038 MASTER PLAN TRAFFIC CONDITIONS

The site-generated trips associated with each phase were added to the baseline traffic volumes to yield with project traffic volumes that were then analyzed. Re-routing of localized trips was assumed in conjunction with the introduction of new road connections by phase where appropriate. The discussion below summarizes key changes and findings by development phase.

Phase 1 With Project Conditions

Vehicle access to and from the VIC campus will remain the same as it is today under Phase 1 master plan development. As such, the Phase 1 site-generated trips (reflected in Figure 10) were added to the baseline traffic volumes in Figure 8 to result in the Master Plan build-out traffic volumes and intersection operations reflected in Figure 14. Note that actual build-out of Phase 1 is allowed by-right today and is anticipated well before 2028 as previously noted.

Two study intersections are projected to not satisfy City performance standards with buildout of the Phase 1 Master Plan land uses:

- SE 25th Street/SE 192nd Avenue (did not satisfy standards under baseline conditions)
- SE 20th Street/SE 176th Avenue (did not satisfy standards under baseline conditions)

Additional details regarding the operations of the two intersections above and mitigation considerations is described below. *Appendix "F" contains the 2038 With Project Phase 1 operational analysis worksheets.*

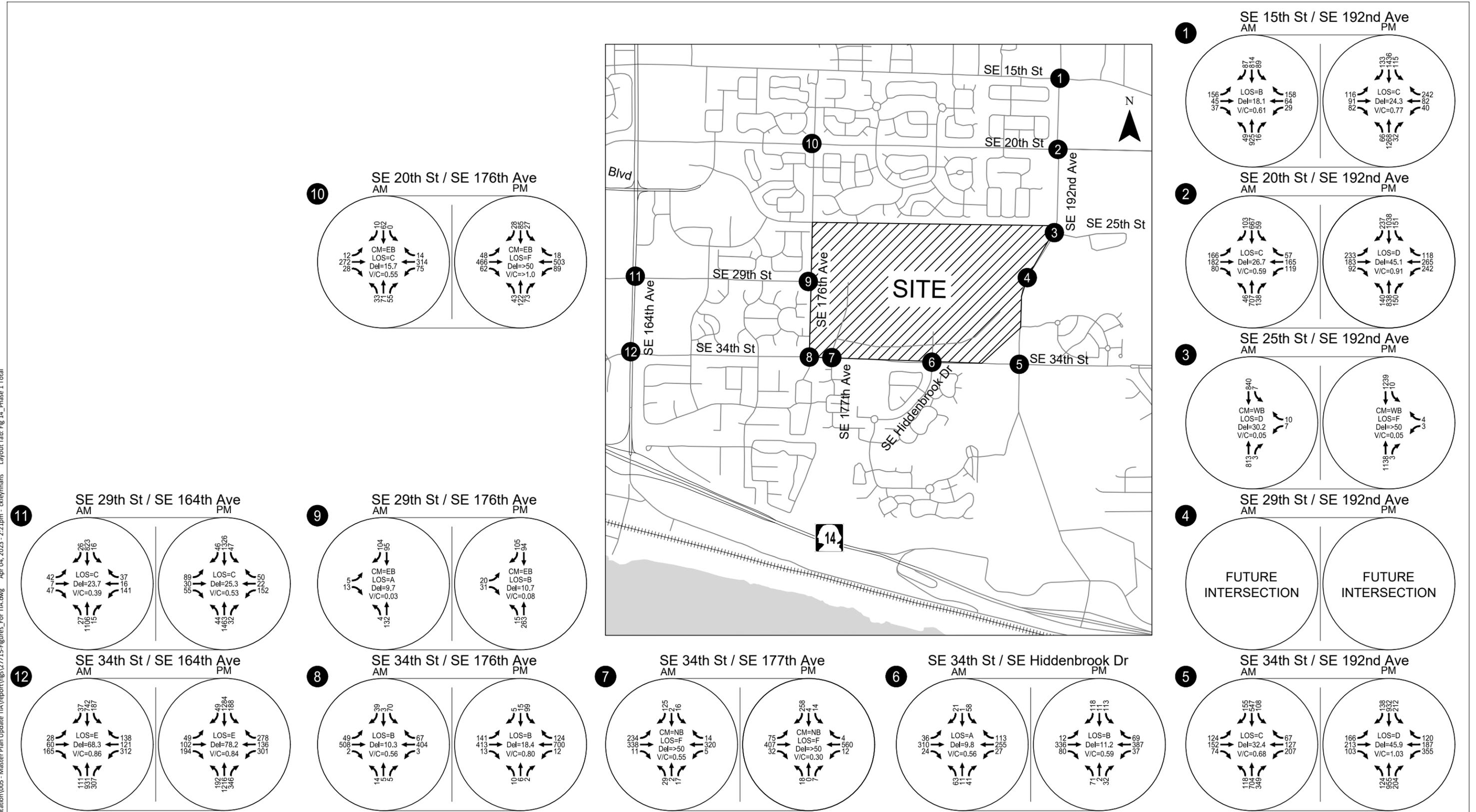
SE 25th Street/SE 192nd Avenue (Study Intersection #3)

The stop-controlled westbound left-turn lane on SE 25th Street is projected to continue to operate at LOS F during the weekday PM peak hour but well under capacity (V/C ratio of 0.05). The proposed The VIC project is not projected to add any turning movements to the westbound approach and therefore does not trigger mitigation per Vancouver Municipal Code Section 11.80.130.B.

SE 20th Street/SE 176th Avenue (Study Intersection #10)

Consistent with 2038 Baseline conditions, intersection is forecast to continue to operate at LOS F with the eastbound and westbound approaches over capacity during the weekday PM peak hour. As previously noted, the City of Vancouver has previously identified capacity mitigation needs at the intersection and is collecting proportional share mitigation fees from new development (current fee of \$400 per weekday PM peak hour trip added to the intersection) to be used to fund the intersection improvements. Accordingly, the proposed development will be required to pay a proportional share contribution to the SE 20th Street/SE 176th Avenue intersection for mitigation purposes. Further details on the proportionate share amounts to be assessed are documented separately in this report.

H:\2715-VIC Implementation\05 - Master Plan Update TIA\report\figs\2715-Figures_For TIA.dwg Apr 04, 2023 - 2:21pm - ckleyhans Layout Tab: Fig.14_Phase 1 Total



CM = Critical Movement (Unsignalized)
 LOS = Intersection Level of Service (Signalized) / Critical Movement Level of Service (Unsignalized)
 Del = Intersection Average Control Delay (Signalized) / Critical Movement Control Delay (Unsignalized)
 V/C = Intersection Volume-to-Capacity Ratio (Signalized) / Critical Movement Volume-to-Capacity Ratio (Unsignalized)

Future Year 2038 Phase 1 With-Project Traffic Conditions
 Weekday AM & PM Peak Hour
 Vancouver, WA

Figure 14

Phase 2 With Project Conditions

The Phase 2 site-generated volumes shown in Figure 11 were added to the Phase 1 with project volumes to obtain the Phase 2 Master Plan build-out traffic volumes and intersection operations shown in Figure 15. In addition to assigning the new site-generated trips, some existing VIC campus trips destined to the east were re-routed from the existing SE 34th Street campus access to the assumed new SE 29th Street connection to SE 192nd Avenue (re-routing reflects more direct campus connection to SE 192nd Avenue for buildings on the western portion of the VIC campus, refer to Appendix “G” Figure G-1 and Figure G-2).

Upon buildout of the Phase 2 Master Plan transportation network and land uses, study intersections projected to not satisfy City performance standards and/or that experience projected 95th percentile queues that exceed the available queue storage include:

- SE 25th Street/SE 192nd Avenue (did not satisfy standards under baseline conditions)
- SE 34th Street/SE 192nd Avenue
- SE 20th Street/SE 176th Avenue (did not satisfy standards under baseline conditions)

Additional details regarding the operations of the three intersections above and mitigation considerations are described below. *Appendix “G” contains the 2038 With Project Phase 2 operational analysis worksheets.*

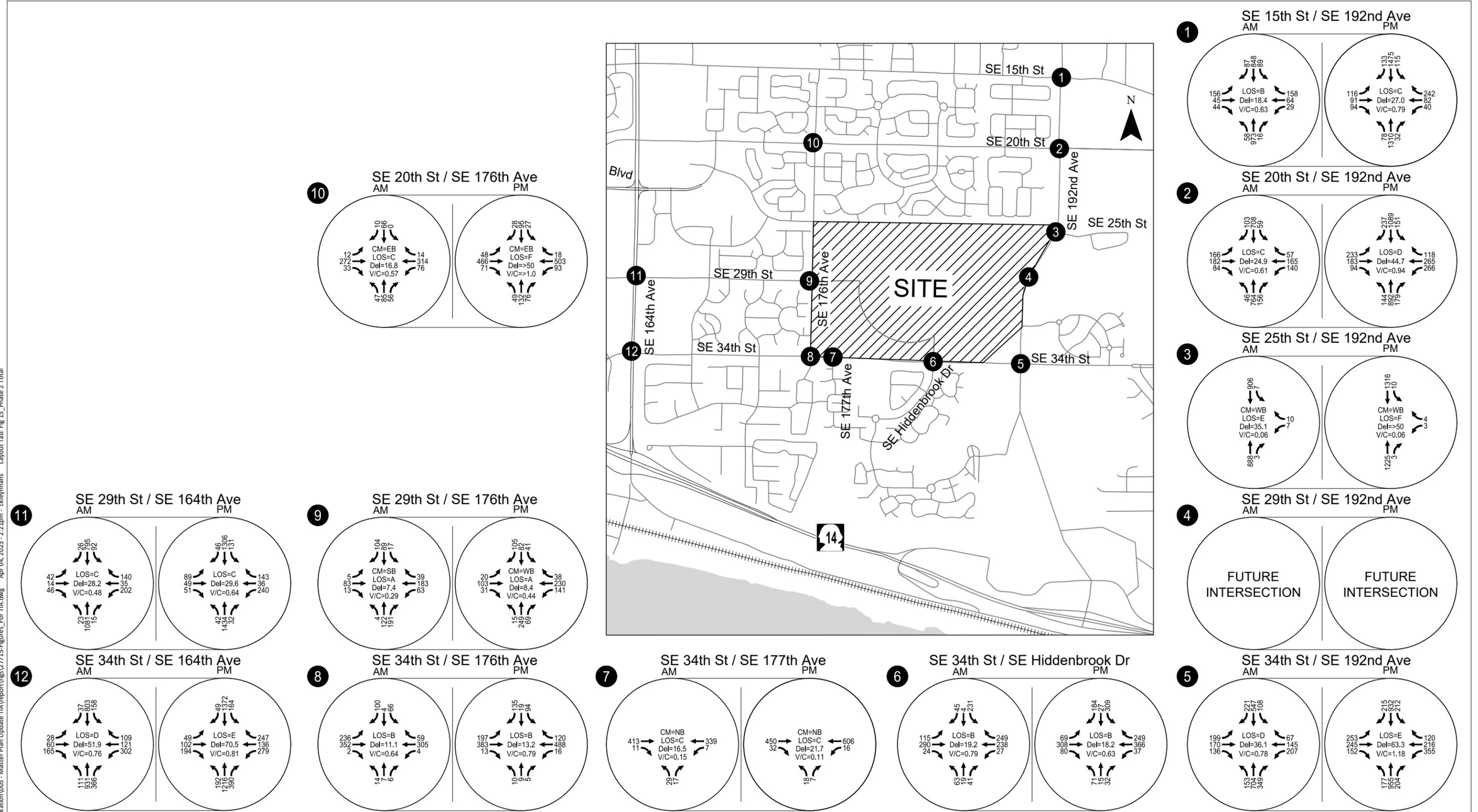
SE 25th Street/SE 192nd Avenue (Study Intersection #3)

The stop-controlled westbound left-turn lane on SE 25th Street is projected to continue to operate at LOS F during the weekday PM peak hour but well under capacity (V/C ratio of 0.06). The proposed The VIC project is not projected to add any turning movements to the westbound approach and therefore does not trigger mitigation per Vancouver Municipal Code Section 11.80.130.B.

SE 34th Street/SE 192nd Avenue (Study Intersection #5)

As shown, the SE 192nd Avenue/SE 34th Street signalized intersection is projected to at LOS E and over capacity during the weekday PM peak hour. The City of Vancouver has previously determined that no additional capacity will be added to the intersection and is collecting proportional share mitigation fees from new development (current fee of \$150 per weekday PM peak hour trip added to the intersection) to be used to reconstruct the intersection with a concrete surface. Accordingly, the proposed development will be required to pay a proportional share contribution to the SE 192nd Avenue/SE 34th Street intersection for mitigation purposes. Further details on the proportionate share amounts to be assessed are documented separately in this report.

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CM = Critical Movement (Unsignalized)
 LOS = Intersection Level of Service (Signalized) / Critical Movement Level of Service (Unsignalized)
 Del = Intersection Average Control Delay (Signalized) / Critical Movement Control Delay (Unsignalized)
 V/C = Intersection Volume-to-Capacity Ratio (Signalized) / Critical Movement Volume-to-Capacity Ratio (Unsignalized)

Future Year 2038 Phase 2 With-Project Traffic Conditions
 Weekday AM & PM Peak Hour
 Vancouver, WA

Figure
 15

SE 20th Street/SE 176th Avenue (Study Intersection #10)

The intersection is forecast to continue to operate over capacity during the weekday PM peak hour and the proposed development will be required to pay a proportional share contribution for mitigation purposes.

It is further noted that northbound vehicles on SE 177th Avenue at SE 34th Street experience much less delay due to closure of the opposing VIC west campus access to SE 34th Street with Master Plan Phase 2.

Phase 3 With Project Conditions

The Phase 3 site-generated volumes shown in Figure 12 were added to the 2038 Phase 2 With Project volumes shown in Figure 14 to obtain the Phase 3 Master Plan build-out traffic volumes and intersection operations shown in Figure 16. In addition to assigning the new site-generated trips, previously assigned The VIC trips were re-routed from the existing SE 34th Street campus access to the assumed new SE 29th Street connection to SE 192nd Avenue (re-routing reflects the more direct campus connection to SE 192nd Avenue for buildings on the eastern portion of the VIC campus, refer to Appendix “H” Figure H-1). Further, some local trips were also re-routed, reflecting the new alternative path compared to prior conditions where local trips use the SE 34th Street corridor to travel to and from SE 192nd Avenue.

Upon buildout of the Phase 3 Master Plan transportation network and land uses, study intersections projected to not satisfy City performance standards and/or that experience projected 95th percentile queues that exceed the available queue storage include:

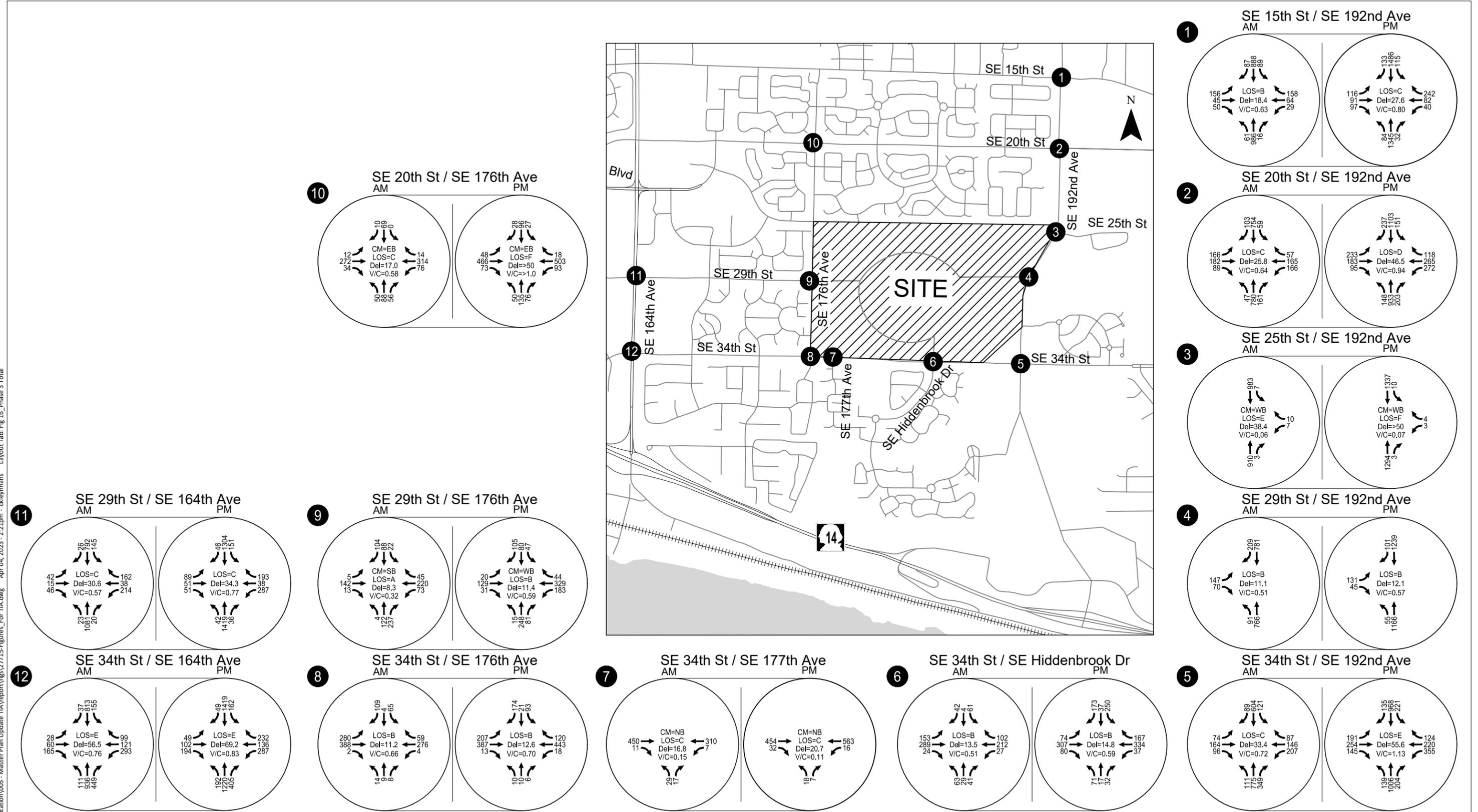
- SE 25th Street/SE 192nd Avenue (did not satisfy standards under baseline conditions)
- SE 34th Street/SE 192nd Avenue (improved compared to Phase 2 conditions)
- SE 20th Street/SE 176th Avenue (did not satisfy standards under baseline conditions)

Additional details regarding the operations of each intersection and mitigation considerations is described below. *Appendix “H” contains the 2038 With Project Phase 3 operational analysis worksheets, the traffic signal warrant analysis worksheets.*

SE 25th Street/SE 192nd Avenue (Study Intersection #3)

The stop-controlled westbound left-turn lane on SE 25th Street is projected to continue to operate at LOS F with a V/C ratio of 0.07 during the weekday PM peak hour. The proposed The VIC project is not projected to add any turning movements to the westbound approach and therefore does not trigger mitigation per Vancouver Municipal Code Section 11.80.130.B.

H:\2715-VIC Implementation\05 - Master Plan Update TIA\report\figs\2715-Figures_For TIA.dwg Apr 04, 2023 - 2:21pm - ckleyhans Layout Tab: Fig. 16 - Phase 3 Total



CM = Critical Movement (Unsignalized)
 LOS = Intersection Level of Service (Signalized) / Critical Movement Level of Service (Unsignalized)
 Del = Intersection Average Control Delay (Signalized) / Critical Movement Control Delay (Unsignalized)
 V/C = Intersection Volume-to-Capacity Ratio (Signalized) / Critical Movement Volume-to-Capacity Ratio (Unsignalized)

Future Year 2038 Phase 3 With-Project Traffic Conditions
 Weekday AM & PM Peak Hour
 Vancouver, WA

Figure 16

SE 34th Street/SE 192nd Avenue (Study Intersection #5)

The intersection is forecast to continue to operate over capacity during the weekday PM peak hour but operates comparatively better than under Phase 2 conditions due to the diversion of VIC and local traffic to the new parallel SE 29th Street corridor through the VIC campus. The proposed development will be required to pay a proportional share contribution for mitigation purposes.

SE 20th Street/SE 176th Avenue (Study Intersection #10)

The intersection is forecast to continue to operate over capacity during the weekday PM peak hour and the proposed development will be required to pay a proportional share contribution for mitigation purposes.

Phase 4 With Project Conditions

The Phase 4 site-generated volumes shown in Figure 13 were added to the 2038 Phase 3 With Project volumes shown in Figure 16 to obtain the Phase 4 Master Plan build-out traffic volumes and intersection operations shown in Figure 17.

Upon buildout of the Phase 4 Master Plan (full buildout of the VIC Master Plan uses) transportation network and land uses, study intersections projected to not satisfy City performance standards and/or that experience projected 95th percentile queues that exceed the available queue storage include:

- SE 25th Street/SE 192nd Avenue (did not satisfy standards under baseline conditions)
- SE 34th Street/SE 192nd Avenue
- SE 20th Street/SE 176th Avenue (did not satisfy standards under baseline conditions)

Additional details regarding the operations of each intersection and mitigation considerations is described below. *Appendix "I" contains the 2038 With Project Phase 4 operational analysis worksheets, .*

SE 25th Street/SE 192nd Avenue (Study Intersection #3)

The stop-controlled westbound left-turn lane on SE 25th Street is projected to continue to operate at LOS F with a V/C ratio of 0.08 during the weekday PM peak hour. The proposed The VIC project is not projected to add any turning movements to the westbound approach and therefore does not trigger mitigation per Vancouver Municipal Code Section 11.80.130.B.

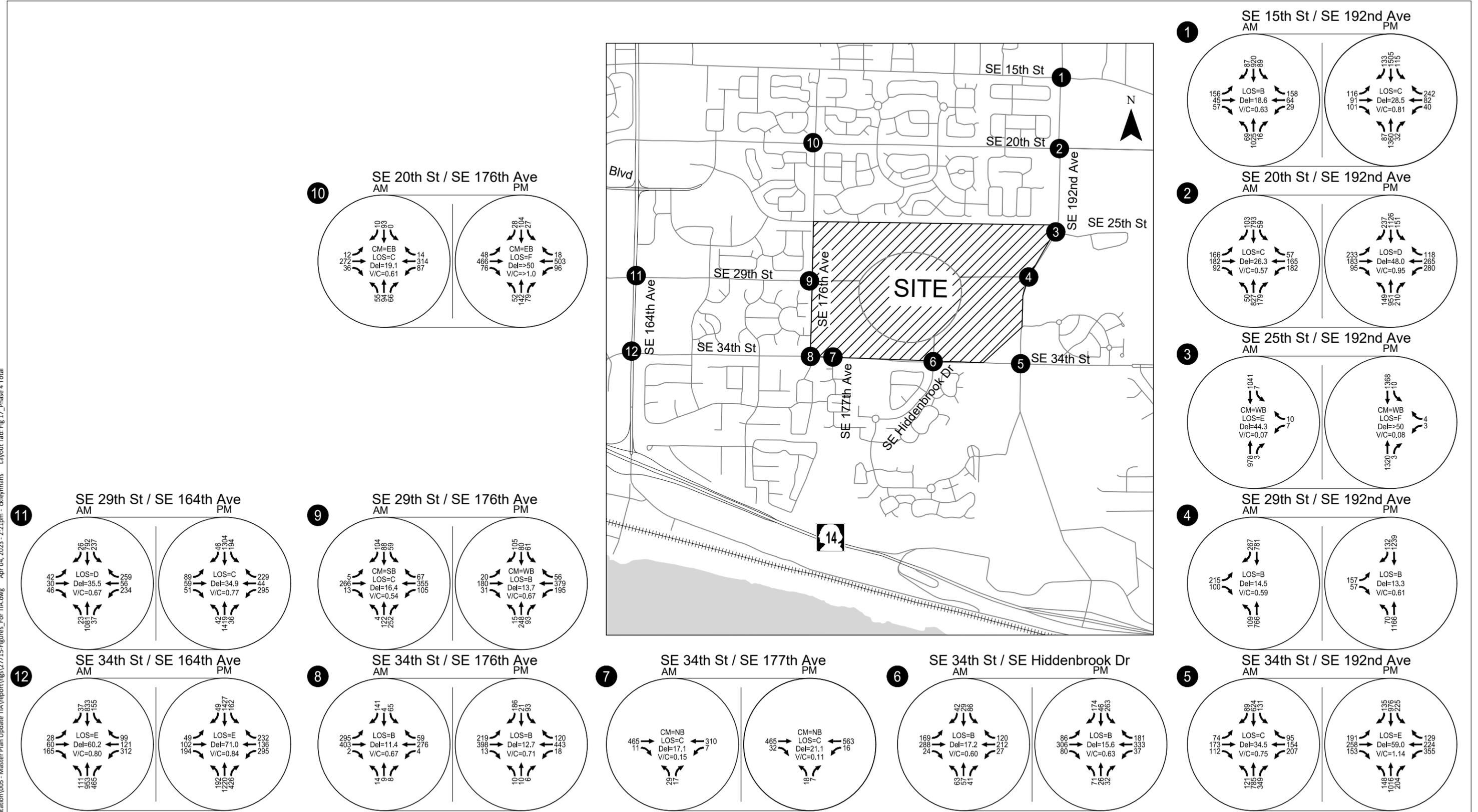
SE 34th Street/SE 192nd Avenue (Study Intersection #5)

The intersection is forecast to continue to operate over capacity during the weekday PM peak hour and proposed development will be required to pay a proportional share contribution for mitigation purposes.

SE 20th Street/SE 176th Avenue (Study Intersection #10)

The intersection is forecast to continue to operate over capacity during the weekday PM peak hour and the proposed development will be required to pay a proportional share contribution for mitigation purposes.

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CM = Critical Movement (Unsignalized)
 LOS = Intersection Level of Service (Signalized) / Critical Movement Level of Service (Unsignalized)
 Del = Intersection Average Control Delay (Signalized) / Critical Movement Control Delay (Unsignalized)
 V/C = Intersection Volume-to-Capacity Ratio (Signalized) / Critical Movement Volume-to-Capacity Ratio (Unsignalized)

Future Year 2038 Phase 4 With-Project Traffic Conditions
 Weekday AM & PM Peak Hour
 Vancouver, WA

Figure
 17

PROPORTIONAL SHARE FEE CONTRIBUTIONS

The City of Vancouver is collecting proportional share fee contributions from all future development adding site-generated trips to multiple intersections in the study area. Intersections impacted by the VIC Master Plan that are projected to experience concurrency failures and for mitigation is being required in the form of the proportional share fee include:

- SE 34th Street/SE 192nd Avenue
- SE 20th Street/SE 176th Avenue
- SE 192nd Avenue/SR-14 Westbound

Information about the current applicable fees and anticipated total project impact is documented for each intersection below based on the current site plan and trip estimates previously presented in Table 4. The fee amount due for each new building at The VIC will be determined at the time of site plan application and payment will be paid prior to building permit issuance.

SE 34th Street/SE 192nd Avenue (Study Intersection #5)

- A fee payment of \$150 is currently required by the City for each weekday PM peak hour site-generated trip traveling through the intersection.
- Full Master Plan buildout is projected to add 556 weekday PM peak hour trips to the intersection, resulting in a projected fee of \$83,400.

SE 20th Street/SE 176th Avenue (Study Intersection #10)

- A fee payment of \$400 is currently required by the City for each weekday PM peak hour site-generated trip traveling through the intersection.
- Full Master Plan buildout is projected to add 84 weekday PM peak hour trips to the intersection, resulting in a projected fee of \$33,600.

SE 192nd Avenue & SR-14 Westbound Ramp Terminal Mitigation

- A fee payment of \$2,000 is currently required by the City for each weekday PM peak hour site-generated trip traveling through the intersection. The fee will be used to fund the installation of a traffic signal and a second westbound right-turn lane at the intersection along with related modifications.
- Full Master Plan buildout is projected to add 215 weekday PM peak hour trips to the intersection, resulting in a projected fee of \$430,000 as follows:
 - Light industrial and office uses: 53 trips (\$106,000);
 - Residential uses: 126 trips (\$252,000);
 - Commercial retail uses: 28 trips (\$56,000); and
 - Middle School: 8 trips (\$16,000).

SITE ACCESS SIGHT DISTANCE CONSIDERATIONS

The final VIC Master Plan site plan design should provide intersection sight clear areas at each on-site intersection and connections to the public roadway network surrounding the campus in accordance with City of Vancouver standards. Further, it is recommended that above-ground utilities, monuments, fencing, and vegetation be appropriately located and maintained on-site to preserve adequate intersection sight lines per City of Vancouver standards.

FINDINGS & RECOMMENDATIONS

Based on the results of this Traffic Impact Analysis, the proposed VIC Master Plan can be developed while maintaining acceptable study intersection operations and/or mitigating site development impacts. The analysis developed the findings and recommendations listed below.

Findings

- Each of the study intersections satisfies City operating standards today.
- By the future baseline year 2038, the following study intersections do not satisfy City performance standards:
 - SE 25th Street/SE 192nd Avenue
 - SE 20th Street/SE 176th Avenue
- The VIC project will provide several new roadways and transportation capacity mitigations including construction of:
 - SE 29th Street as a collector between SE 176th Avenue and SE 192nd Avenue;
 - A new loop road within the VIC campus linking SE 34th Street and SE 29th Street;
 - A new single lane roundabout at the SE 29th Street/SE 176th Avenue intersection;
 - A new single lane roundabout at SE 29th Street/west loop road intersection;
 - A new single lane roundabout at SE 29th Street/east loop road intersection;
 - A new signalized intersection at SE 29th Street/SE 192nd Avenue intersection;
 - Capacity mitigations at the signalized SE 29th Street/SE 164th Avenue intersection including:
 - Convert the existing east-west left-turn permissive signal phasing on SE 29th Street to protected/permissive left-turn phasing;
 - Extend the westbound left-turn lane storage on SE 29th Street; and
 - Extend the existing southbound left-turn lane on SE 162nd Avenue.

- Closure of the existing west campus access connection to SE 34th Street (the site access aligned with SE 177th Avenue); and
 - Modify the existing east campus access connection to SE 34th Street (the site access aligned with SE Hiddenbrook Drive) to have one northbound lane, one southbound left-turn lane and one southbound shared through/right lane at the SE 34th Street traffic signal.
- The VIC Master Plan site-generated trips will impact three intersections where the City of Vancouver is collecting proportional share fee contributions including:
 - SE 34th Street/SE 192nd Avenue
 - SE 20th Street/SE 176th Avenue
 - SE 192nd Avenue/SR-14 Westbound

Recommended Off-site Intersection Mitigations with Master Plan Development

SE 29th Street/SE 164th Avenue (Study Intersection #11) With Phase 2 Site Development

- The existing east-west left-turn signal phasing on SE 29th Street at SE 162nd Avenue should be converted from permissive operations to protected/permissive left-turn phasing;
- The westbound left-turn lane striping should be extended to provide 225 feet of storage; and
- The existing southbound left-turn lane on SE 162nd Avenue at SE 29th Street should be extended to provide 300 feet of left-turn storage (the existing left-turn storage is approximately 135 feet long; the extension will required reconstruction of the existing median area and drainage facilities within the median).

SE 29th Street/SE 192nd Avenue (Study Intersection #4) With Master Plan Phase 3

- Construct a traffic signal along with:
 - separate left and right-turn lanes with at least 250 feet of storage on the eastbound SE 29th Street approach;
 - a separate left-turn lane with at least 200 feet of storage on the northbound approach; and
 - protected northbound left-turn phasing on SE 192nd Avenue at the intersection.

Proportional Share Contributions

The VIC should make a proportionate share contribution toward future capacity improvements at each of these three intersections with each site development application. The fee for individual site plan applications will be determined as part of each application and should be paid prior to building permit issuance.

- SE 34th Street/SE 192nd Avenue (Study Intersection #5)
 - A fee payment of \$150 is currently required by the City for each weekday PM peak hour site-generated trip traveling through the intersection.
- SE 192nd Avenue & SR-14 Westbound Ramp Terminal
 - A fee payment of \$2,000 is currently required by the City for each weekday PM peak hour site-generated trip traveling through the intersection.
- SE 20th Street/SE 176th Avenue (Study Intersection #10)
 - The VIC should make a proportionate share contribution toward future capacity improvements at the unsignalized SE 20th Street/SE 176th Avenue intersection with each site development application. A fee payment of \$400 is currently required by the City for each weekday PM peak hour site-generated trip traveling through the intersection.

Other Recommendations

- Above-ground utilities, monuments, fencing, and vegetation should be appropriately located and maintained on-site and at all site access intersections to provide adequate intersection sight lines per City of Vancouver standards.

We trust this letter adequately addresses the traffic impacts associated with the revised The VIC Master Plan proposal. Please contact us if you have any questions or comments.

Sincerely,
KITTELSON & ASSOCIATES, INC.



Chris Brehmer, PE
Senior Principal Engineer



Julia Kuhn, PE
Senior Principal Engineer



REFERENCES

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- 2) City of Vancouver. Arterial Street System and Classification Map. 2022.
https://www.cityofvancouver.us/sites/default/files/fileattachments/public_works/page/1744/arterial_map_large_2022.pdf
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- 4) Institute of Transportation Engineers. *Trip Generation Manual, 11th Edition*. 2021.

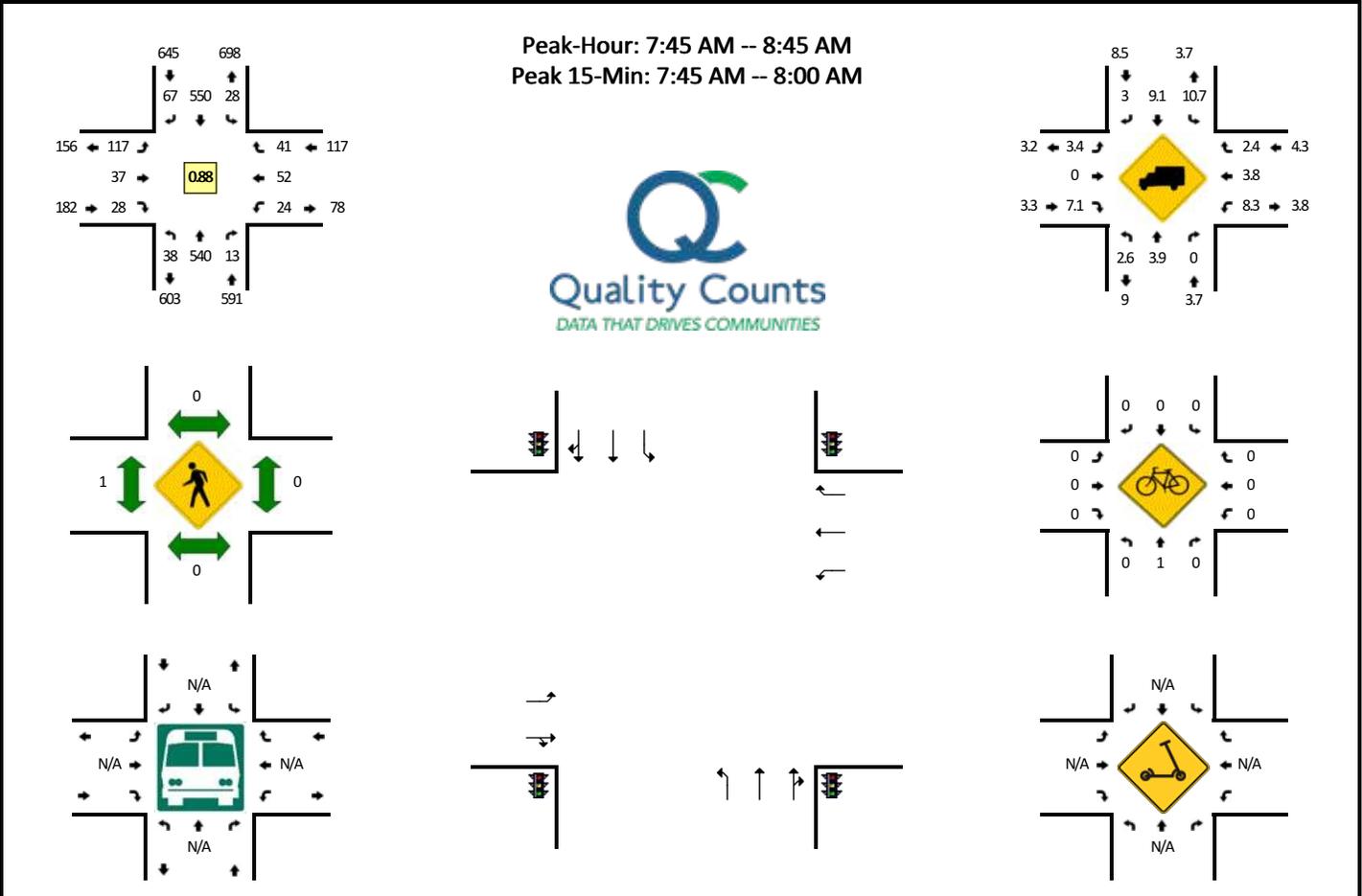
APPENDICES

- Appendix A: Traffic Count Data
- Appendix B: WSDOT Crash Data
- Appendix C: Existing Operations Worksheets
- Appendix D: The VIC Campus Volume Adjustment
- Appendix E: 2038 Baseline Operations Worksheets and Total In-process Trip Assignment
- Appendix F: 2038 With-Project Phase 1 Operations Worksheets
- Appendix G: 2038 With-Project Phase 2 Operations Worksheets and Re-route Trips
- Appendix H: 2038 With-Project Phase 3 Operations Worksheets and Re-route Trips
- Appendix I: 2038 With-Project Phase 4 Operations Worksheets

Appendix A Traffic Count Data

LOCATION: SE 192nd Ave -- SE 15th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050501
DATE: Tue, Jan 10 2023

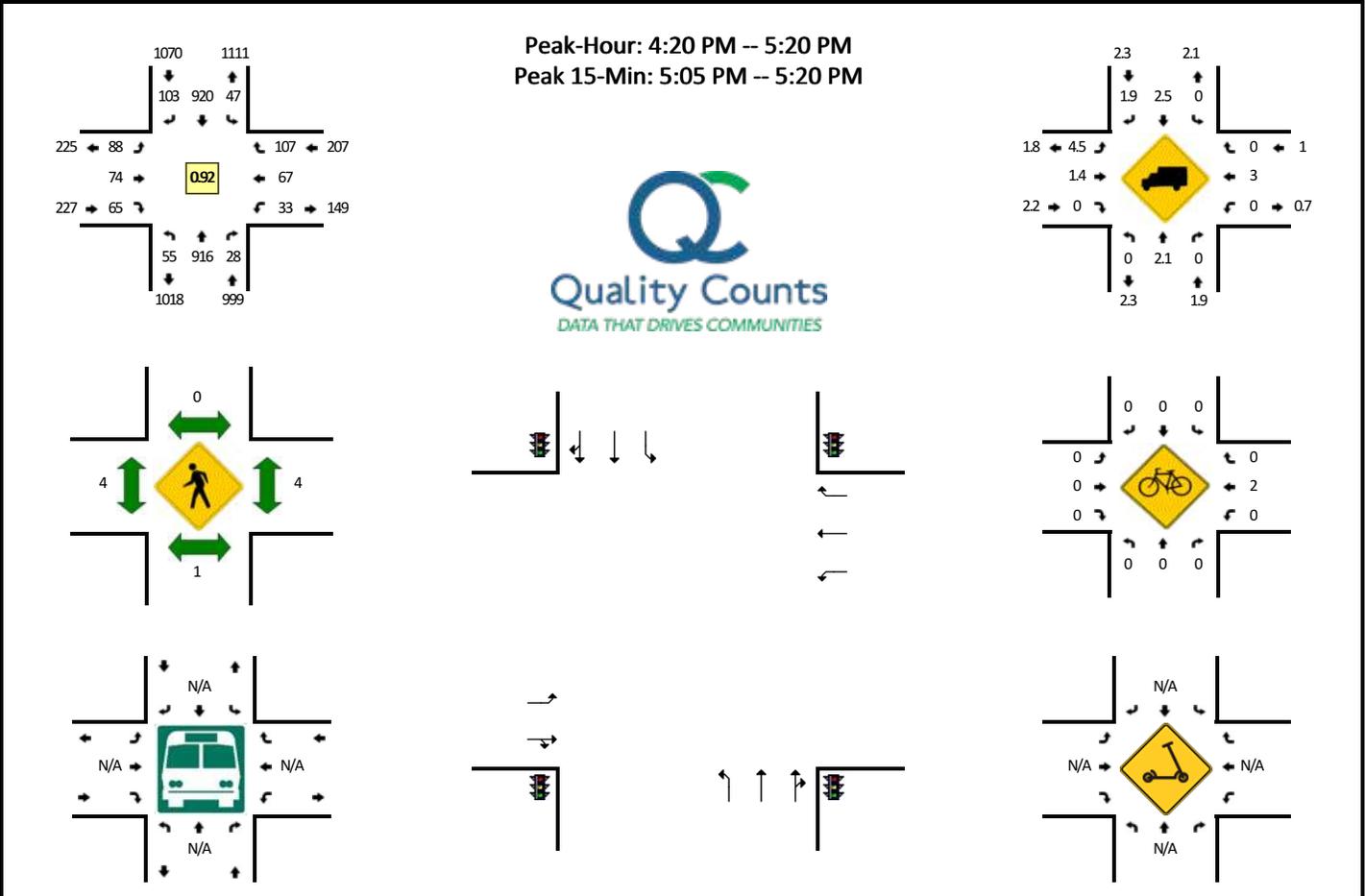


5-Min Count Period Beginning At	SE 192nd Ave (Northbound)				SE 192nd Ave (Southbound)				SE 15th St (Eastbound)				SE 15th St (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	1	31	0	0	1	51	4	0	2	2	1	0	0	1	0	0	0	94	
7:05 AM	0	23	0	0	1	35	4	0	2	1	1	0	0	2	0	2	0	71	
7:10 AM	2	31	0	0	0	36	3	0	6	2	3	0	0	1	1	1	0	86	
7:15 AM	2	39	0	0	6	36	1	0	7	6	3	0	0	1	0	2	0	103	
7:20 AM	4	35	0	0	1	32	3	0	7	2	2	0	0	1	0	6	0	93	
7:25 AM	2	39	0	1	1	39	4	0	1	2	1	0	0	2	6	0	0	98	
7:30 AM	1	43	2	0	0	30	4	0	2	5	2	0	0	2	0	3	0	94	
7:35 AM	3	46	0	0	1	37	2	0	10	1	4	0	0	3	3	2	0	112	
7:40 AM	1	65	3	0	1	42	2	0	11	5	3	0	0	3	4	3	0	143	
7:45 AM	5	56	1	0	1	50	4	0	11	4	1	0	0	2	4	7	0	146	
7:50 AM	2	44	1	1	4	63	4	0	10	5	4	0	0	3	5	5	0	151	
7:55 AM	0	39	3	0	7	59	12	0	6	3	5	0	0	1	2	2	0	139	1330
8:00 AM	1	41	1	0	0	43	13	0	8	3	2	0	0	2	5	1	0	120	1356
8:05 AM	9	39	0	0	1	43	4	0	5	1	6	0	0	0	6	0	0	114	1399
8:10 AM	0	35	2	0	3	38	5	0	6	4	1	0	0	1	8	2	0	105	1418
8:15 AM	1	43	0	0	2	27	3	0	8	2	1	0	0	4	4	5	0	100	1415
8:20 AM	6	43	2	0	1	51	6	0	9	2	0	0	0	1	4	2	0	127	1449
8:25 AM	4	51	2	0	2	42	5	0	17	3	1	0	0	1	3	6	0	137	1488
8:30 AM	1	41	1	0	2	31	1	0	19	6	3	0	0	3	5	6	0	119	1513
8:35 AM	2	57	0	0	3	52	4	0	6	1	1	0	0	1	4	1	0	132	1533
8:40 AM	6	51	0	0	2	51	6	0	12	3	3	0	0	5	2	4	0	145	1535
8:45 AM	6	43	2	0	5	47	7	0	3	1	5	0	0	2	9	3	0	133	1522
8:50 AM	0	62	1	0	0	45	6	0	3	4	2	0	0	3	3	4	0	133	1504
8:55 AM	3	57	0	0	5	45	2	0	2	5	3	0	0	2	5	1	0	130	1495
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	28	556	20	4	48	688	80	0	108	48	40	0	0	24	44	56	0	1744	
Heavy Trucks	0	4	0		8	56	4		0	0	0		0	0	0	0		72	
Buses																			
Pedestrians		0				0				0					0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0	0		0	
Scoters																			

Comments:

LOCATION: SE 192nd Ave -- SE 15th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050502
DATE: Tue, Jan 10 2023

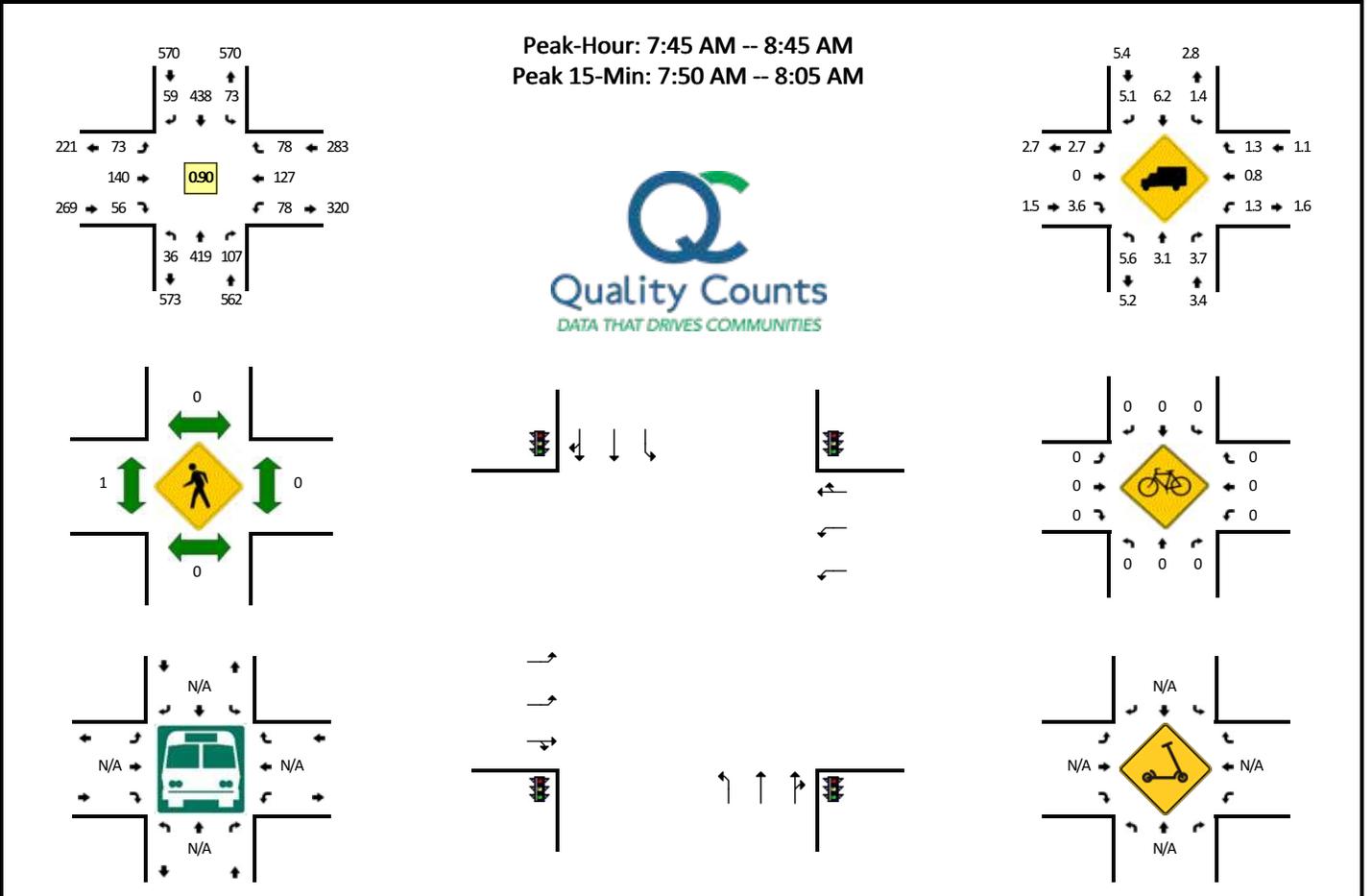


5-Min Count Period Beginning At	SE 192nd Ave (Northbound)				SE 192nd Ave (Southbound)				SE 15th St (Eastbound)				SE 15th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	87	0	0	2	89	14	0	10	3	3	0	4	4	11	0	231	
4:05 PM	8	66	1	0	6	70	15	1	7	6	4	0	4	7	12	0	207	
4:10 PM	13	93	2	0	1	71	9	0	5	3	5	0	1	11	11	0	225	
4:15 PM	7	79	3	0	6	48	8	0	7	8	1	0	1	4	11	0	183	
4:20 PM	1	90	3	0	3	66	9	0	10	6	6	0	5	6	12	0	217	
4:25 PM	6	66	2	0	4	86	7	0	9	3	5	0	2	2	7	0	199	
4:30 PM	7	70	3	0	5	63	8	0	4	7	4	0	2	2	3	0	178	
4:35 PM	5	77	2	0	2	69	8	0	5	6	6	0	5	5	12	0	202	
4:40 PM	4	85	1	0	2	92	9	0	12	4	0	0	2	5	6	0	222	
4:45 PM	4	85	3	0	1	76	13	0	6	9	8	0	1	4	6	0	216	
4:50 PM	10	74	2	0	2	67	4	0	5	7	8	0	3	4	4	0	190	
4:55 PM	3	93	3	0	5	66	13	0	9	5	6	0	2	3	5	0	213	2483
5:00 PM	4	70	1	0	3	74	7	0	8	5	5	0	1	3	8	0	189	2441
5:05 PM	5	47	1	0	3	87	4	0	9	3	8	0	4	9	20	0	200	2434
5:10 PM	4	79	2	0	9	87	11	0	8	9	4	0	3	12	13	0	241	2450
5:15 PM	2	80	5	0	8	87	10	0	3	10	5	0	3	12	11	0	236	2503
5:20 PM	3	78	5	0	5	76	9	0	8	8	7	0	3	4	10	0	216	2502
5:25 PM	4	60	3	0	2	56	7	0	4	10	5	0	3	3	5	0	162	2465
5:30 PM	2	59	0	0	3	68	8	0	6	7	7	0	1	7	7	0	175	2462
5:35 PM	3	72	3	0	5	57	7	0	6	4	5	0	1	3	3	0	169	2429
5:40 PM	5	57	3	0	2	61	8	0	4	4	4	0	2	3	5	0	158	2365
5:45 PM	5	59	4	0	8	66	10	0	8	8	6	0	5	7	9	0	195	2344
5:50 PM	6	72	1	0	7	63	6	0	8	8	1	0	3	9	5	0	189	2343
5:55 PM	2	72	8	0	4	57	7	0	9	6	2	0	4	6	5	0	182	2312
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	824	32	0	80	1044	100	0	80	88	68	0	40	132	176	0	2708	
Heavy Trucks	0	8	0	0	0	32	0	0	4	0	0	0	0	4	0	0	48	
Buses																		
Pedestrians		4				0				4				8			16	
Bicycles	0	0	0		0	0	0		0	0	0		0	8	0		8	
Scoters																		

Comments:

LOCATION: SE 192nd Ave -- SE 20th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050503
DATE: Tue, Jan 10 2023

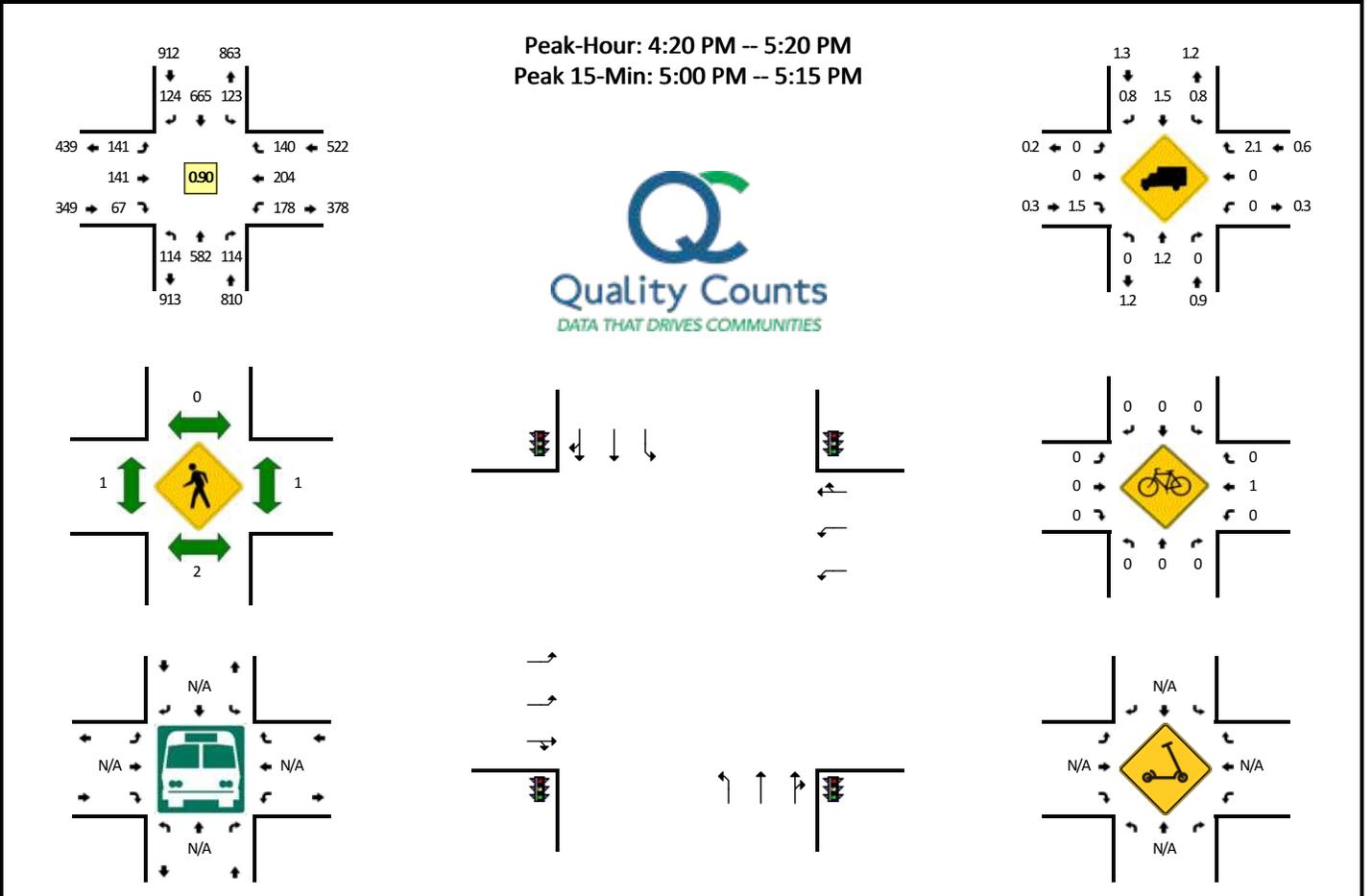


5-Min Count Period Beginning At	SE 192nd Ave (Northbound)				SE 192nd Ave (Southbound)				SE 20th St (Eastbound)				SE 20th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	16	16	0	10	32	9	0	5	9	5	0	8	2	2	0	116	
7:05 AM	2	13	13	0	5	18	5	1	3	10	4	0	8	5	9	0	96	
7:10 AM	3	20	13	0	6	31	2	0	5	6	6	0	8	9	5	0	114	
7:15 AM	1	26	9	0	5	32	4	3	4	15	7	0	6	8	8	0	128	
7:20 AM	2	32	8	0	5	24	4	0	3	11	7	0	8	4	4	0	112	
7:25 AM	3	28	12	0	8	27	2	0	7	13	4	0	8	4	8	0	124	
7:30 AM	3	23	8	0	5	32	4	0	6	13	4	0	5	7	9	0	119	
7:35 AM	0	34	14	0	4	30	1	0	8	11	7	0	6	10	8	0	133	
7:40 AM	1	34	14	0	8	35	6	0	11	13	5	0	5	8	10	0	150	
7:45 AM	3	43	10	1	6	32	8	0	11	12	4	0	7	9	4	0	150	
7:50 AM	3	29	8	0	7	46	10	0	7	20	7	0	6	13	8	0	164	
7:55 AM	5	33	10	0	8	41	7	0	3	14	7	0	8	11	4	0	151	1557
8:00 AM	1	27	18	0	6	42	7	0	2	18	2	0	6	14	10	0	153	1594
8:05 AM	2	31	11	0	6	41	4	0	5	12	7	0	6	13	8	0	146	1644
8:10 AM	2	31	12	0	8	26	2	0	4	9	3	0	7	12	3	0	119	1649
8:15 AM	2	29	5	0	4	24	5	0	6	11	3	0	4	12	9	0	114	1635
8:20 AM	7	39	4	0	10	30	3	0	4	5	4	0	6	6	7	0	125	1648
8:25 AM	1	40	4	0	7	33	4	0	11	9	3	0	6	10	4	0	132	1656
8:30 AM	4	41	10	0	1	39	1	0	8	11	4	0	8	8	5	0	140	1677
8:35 AM	1	30	5	0	5	38	6	0	8	10	4	0	8	10	10	0	135	1679
8:40 AM	4	46	10	0	5	46	2	0	4	9	8	0	6	9	6	0	155	1684
8:45 AM	2	43	4	0	6	35	15	0	4	8	7	0	9	8	5	0	146	1680
8:50 AM	7	43	5	0	3	41	2	0	9	18	3	0	3	15	7	0	156	1672
8:55 AM	4	44	5	0	5	42	6	0	2	5	4	0	11	14	7	0	149	1670
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	356	144	0	84	516	96	0	48	208	64	0	80	152	88	0	1872	
Heavy Trucks	0	12	0		0	20	4		4	0	0		0	0	0		40	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 192nd Ave -- SE 20th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050504
DATE: Tue, Jan 10 2023

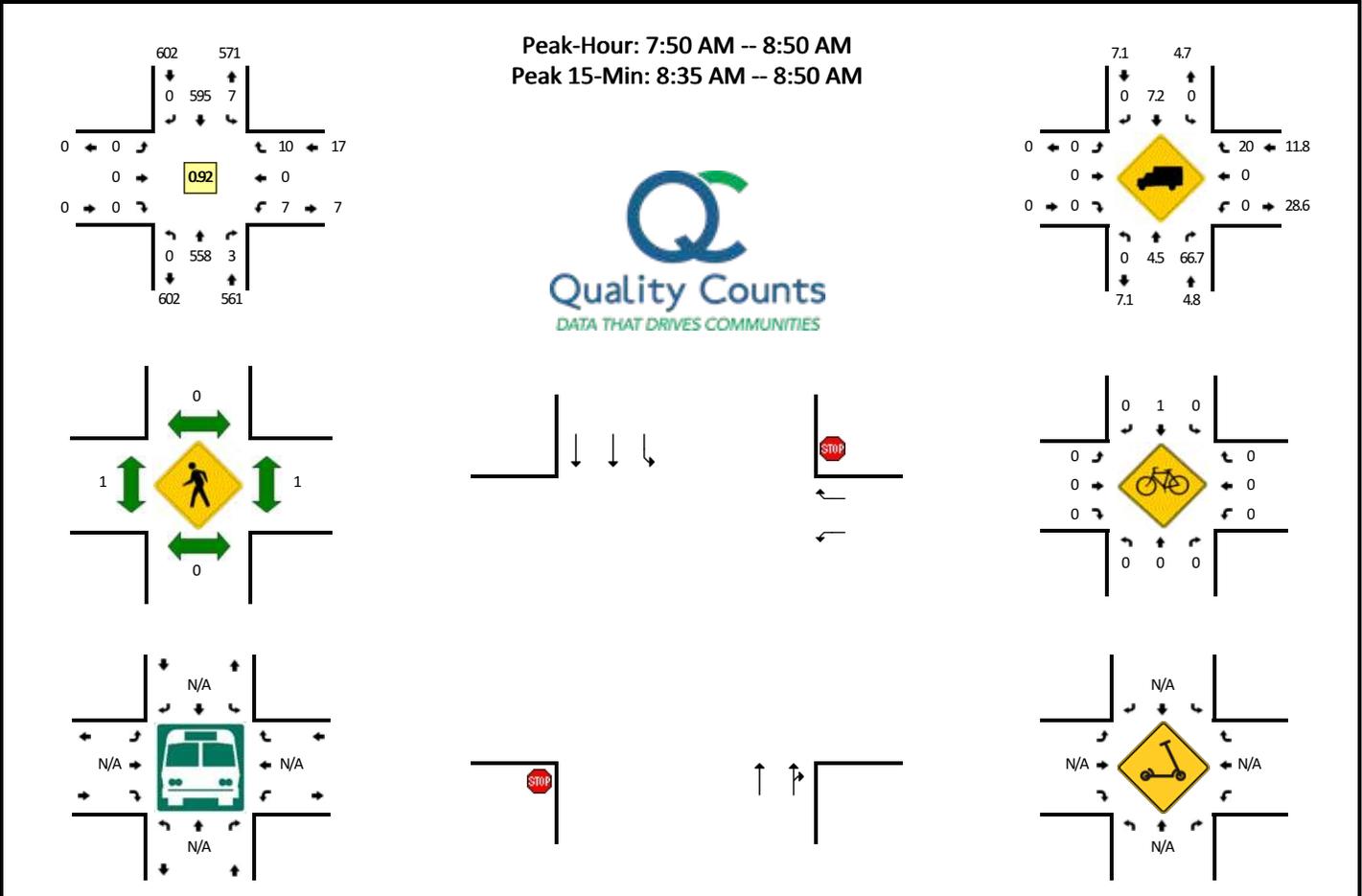


5-Min Count Period Beginning At	SE 192nd Ave (Northbound)				SE 192nd Ave (Southbound)				SE 20th St (Eastbound)				SE 20th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	59	5	0	10	51	18	0	12	16	4	0	18	13	8	0	225	
4:05 PM	14	42	7	0	11	55	12	0	19	12	8	0	31	20	16	0	247	
4:10 PM	8	68	10	0	6	64	11	0	10	17	5	0	9	16	16	0	240	
4:15 PM	8	58	8	0	4	44	11	0	15	7	2	0	17	9	8	0	191	
4:20 PM	10	72	7	0	7	48	7	0	18	9	4	0	15	15	10	0	222	
4:25 PM	14	49	8	0	7	62	14	0	17	13	6	0	13	18	6	0	227	
4:30 PM	12	47	5	0	2	56	10	0	9	10	4	0	7	12	11	0	185	
4:35 PM	9	51	6	0	9	51	12	0	8	7	5	0	19	19	11	0	207	
4:40 PM	6	38	6	0	11	58	9	0	10	9	4	0	7	12	15	0	185	
4:45 PM	8	51	9	0	16	54	11	0	14	11	13	0	11	13	10	0	221	
4:50 PM	7	46	9	1	17	47	11	0	9	7	5	0	18	15	12	0	204	
4:55 PM	9	66	10	0	10	50	7	0	10	11	0	0	16	18	12	0	219	2573
5:00 PM	7	40	17	1	9	56	11	0	14	12	7	0	18	13	8	0	213	2561
5:05 PM	8	45	12	0	13	70	9	0	5	19	3	0	20	29	13	0	246	2560
5:10 PM	9	54	18	0	6	68	9	0	14	14	10	0	17	24	15	0	258	2578
5:15 PM	12	23	7	1	16	45	14	0	13	19	6	0	17	16	17	0	206	2593
5:20 PM	10	49	12	0	11	52	15	0	13	21	5	0	7	12	7	0	214	2585
5:25 PM	11	25	7	0	8	44	14	0	6	14	8	0	4	9	11	0	161	2519
5:30 PM	9	29	4	0	11	37	9	0	10	15	5	0	6	11	11	0	157	2491
5:35 PM	7	47	16	0	5	46	9	0	9	17	4	0	7	13	9	0	189	2473
5:40 PM	12	32	8	0	8	26	10	0	10	11	3	0	7	9	7	0	143	2431
5:45 PM	6	44	8	0	13	50	9	0	8	17	5	0	8	20	8	0	196	2406
5:50 PM	4	48	8	0	11	34	7	0	9	7	8	0	6	15	8	0	165	2367
5:55 PM	8	48	13	0	9	39	8	0	12	9	3	0	4	9	9	0	171	2319
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	96	556	188	4	112	776	116	0	132	180	80	0	220	264	144	0	2868	
Heavy Trucks	0	0	0		0	8	0		0	0	0		0	0	0		8	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: SE 192nd Ave -- SE 25th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050505
DATE: Thu, Jan 12 2023

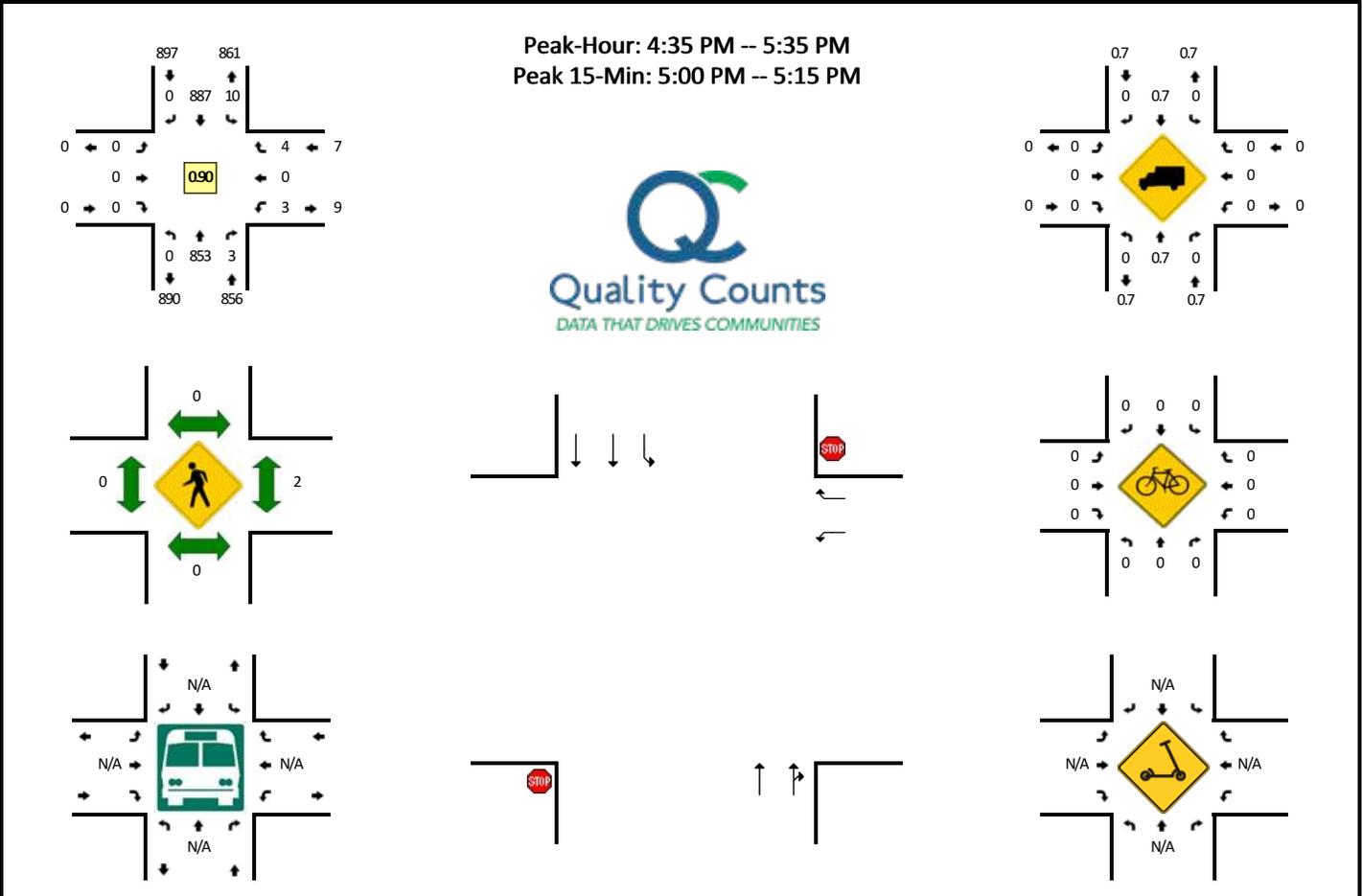


5-Min Count Period Beginning At	SE 192nd Ave (Northbound)				SE 192nd Ave (Southbound)				SE 25th St (Eastbound)				SE 25th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	24	0	0	0	43	0	1	0	0	0	0	1	0	1	0	70	
7:05 AM	0	30	0	0	0	30	0	0	0	0	0	0	0	0	1	0	61	
7:10 AM	0	27	0	0	1	32	0	1	0	0	0	0	0	0	0	0	61	
7:15 AM	0	35	0	0	0	42	0	0	0	0	0	0	0	0	1	0	78	
7:20 AM	0	39	0	0	1	34	0	2	0	0	0	0	0	0	0	0	76	
7:25 AM	0	35	0	0	0	40	0	2	0	0	0	0	1	0	1	0	79	
7:30 AM	0	34	0	0	0	42	0	0	0	0	0	0	0	0	0	0	76	
7:35 AM	0	52	0	0	0	37	0	0	0	0	0	0	0	0	0	0	89	
7:40 AM	0	30	0	0	0	44	0	0	0	0	0	0	0	0	0	0	74	
7:45 AM	0	40	0	0	0	52	0	1	0	0	0	0	0	0	2	0	95	
7:50 AM	0	36	0	0	0	57	0	0	0	0	0	0	1	0	2	0	96	
7:55 AM	0	38	0	0	0	60	0	0	0	0	0	0	0	0	0	0	98	953
8:00 AM	0	51	0	0	1	45	0	1	0	0	0	0	0	0	1	0	99	982
8:05 AM	0	44	1	0	0	48	0	0	0	0	0	0	0	0	1	0	94	1015
8:10 AM	0	45	1	0	0	36	0	0	0	0	0	0	1	0	3	0	86	1040
8:15 AM	0	41	0	0	1	39	0	0	0	0	0	0	0	0	1	0	82	1044
8:20 AM	0	57	0	0	0	46	0	0	0	0	0	0	1	0	0	0	104	1072
8:25 AM	0	39	0	0	1	54	0	0	0	0	0	0	0	0	1	0	95	1088
8:30 AM	0	49	0	0	0	55	0	0	0	0	0	0	1	0	0	0	105	1117
8:35 AM	0	59	1	0	1	50	0	1	0	0	0	0	0	0	1	0	113	1141
8:40 AM	0	38	0	0	0	46	0	0	0	0	0	0	3	0	0	0	87	1154
8:45 AM	0	61	0	0	0	59	0	1	0	0	0	0	0	0	0	0	121	1180
8:50 AM	0	55	1	0	0	33	0	0	0	0	0	0	0	0	0	0	89	1173
8:55 AM	0	37	1	0	1	50	0	0	0	0	0	0	0	0	2	0	91	1166
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	632	4	0	4	620	0	8	0	0	0	0	12	0	4	0	1284	
Heavy Trucks	0	40	0	0	0	48	0	0	0	0	0	0	0	0	0	0	88	
Buses																		
Pedestrians		0				0				4				4			8	
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: SE 192nd Ave -- SE 25th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050506
DATE: Thu, Jan 12 2023

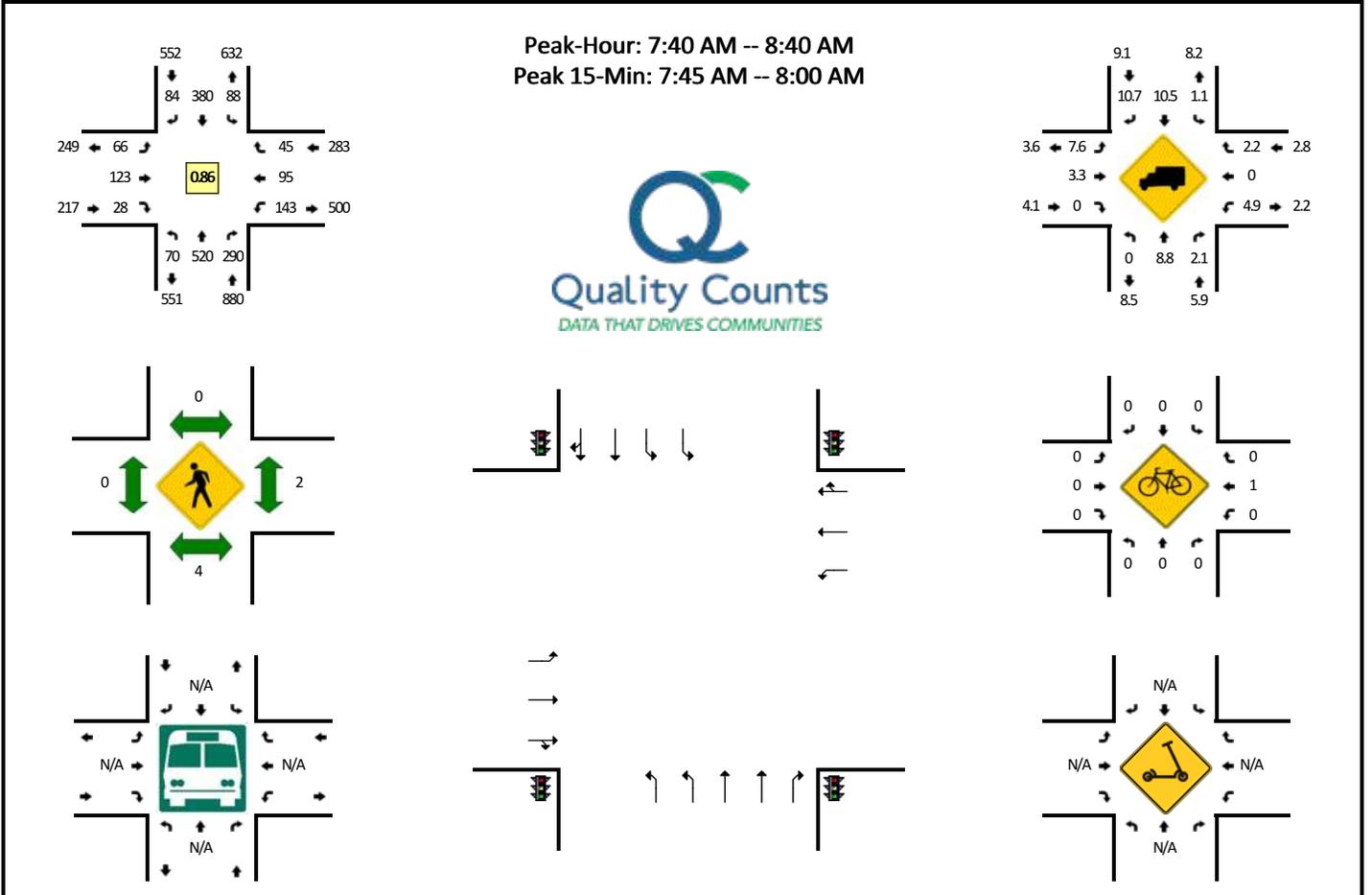


5-Min Count Period Beginning At	SE 192nd Ave (Northbound)				SE 192nd Ave (Southbound)				SE 25th St (Eastbound)				SE 25th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	70	1	0	2	69	0	0	0	0	0	0	0	0	2	0	144	
4:05 PM	0	65	0	0	0	84	0	0	0	0	0	0	0	0	1	0	150	
4:10 PM	0	50	1	0	0	74	0	1	0	0	0	0	0	0	1	0	127	
4:15 PM	0	70	1	0	2	74	0	0	0	0	0	0	0	0	0	0	147	
4:20 PM	0	69	1	0	0	97	0	0	0	0	0	0	1	0	1	0	169	
4:25 PM	0	63	0	0	0	59	0	0	0	0	0	0	2	0	1	0	125	
4:30 PM	0	62	0	0	0	74	0	0	0	0	0	0	0	0	0	0	136	
4:35 PM	0	71	0	0	1	69	0	0	0	0	0	0	0	0	0	0	141	
4:40 PM	0	65	1	0	0	73	0	0	0	0	0	0	0	0	0	0	139	
4:45 PM	0	56	1	0	0	85	0	1	0	0	0	0	0	0	0	0	143	
4:50 PM	0	63	0	0	0	71	0	0	0	0	0	0	1	0	2	0	137	
4:55 PM	0	62	0	0	0	66	0	0	0	0	0	0	0	0	0	0	128	1686
5:00 PM	0	88	0	0	0	70	0	1	0	0	0	0	0	0	0	0	159	1701
5:05 PM	0	84	0	0	1	85	0	0	0	0	0	0	0	0	0	0	170	1721
5:10 PM	0	74	0	0	0	84	0	0	0	0	0	0	0	0	0	0	158	1752
5:15 PM	0	74	1	0	2	75	0	0	0	0	0	0	0	0	1	0	153	1758
5:20 PM	0	69	0	0	0	69	0	2	0	0	0	0	0	0	1	0	141	1730
5:25 PM	0	63	0	0	1	68	0	0	0	0	0	0	0	0	0	0	132	1737
5:30 PM	0	84	0	0	1	72	0	0	0	0	0	0	2	0	0	0	159	1760
5:35 PM	0	52	0	0	1	64	0	0	0	0	0	0	0	0	0	0	117	1736
5:40 PM	0	70	0	0	2	70	0	3	0	0	0	0	0	0	1	0	146	1743
5:45 PM	0	65	0	0	0	45	0	0	0	0	0	0	1	0	0	0	111	1711
5:50 PM	0	68	1	0	2	59	0	0	0	0	0	0	0	0	1	0	131	1705
5:55 PM	0	61	1	0	1	58	0	2	0	0	0	0	0	0	2	0	125	1702
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	984	0	0	4	956	0	4	0	0	0	0	0	0	0	0	1948	
Heavy Trucks	0	20	0	0	0	8	0	0	0	0	0	0	0	0	0	0	28	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 192nd Ave -- SE 34th St
CITY/STATE: Vancouver, WA

QC JOB #: 16019615
DATE: Tue, Dec 6 2022

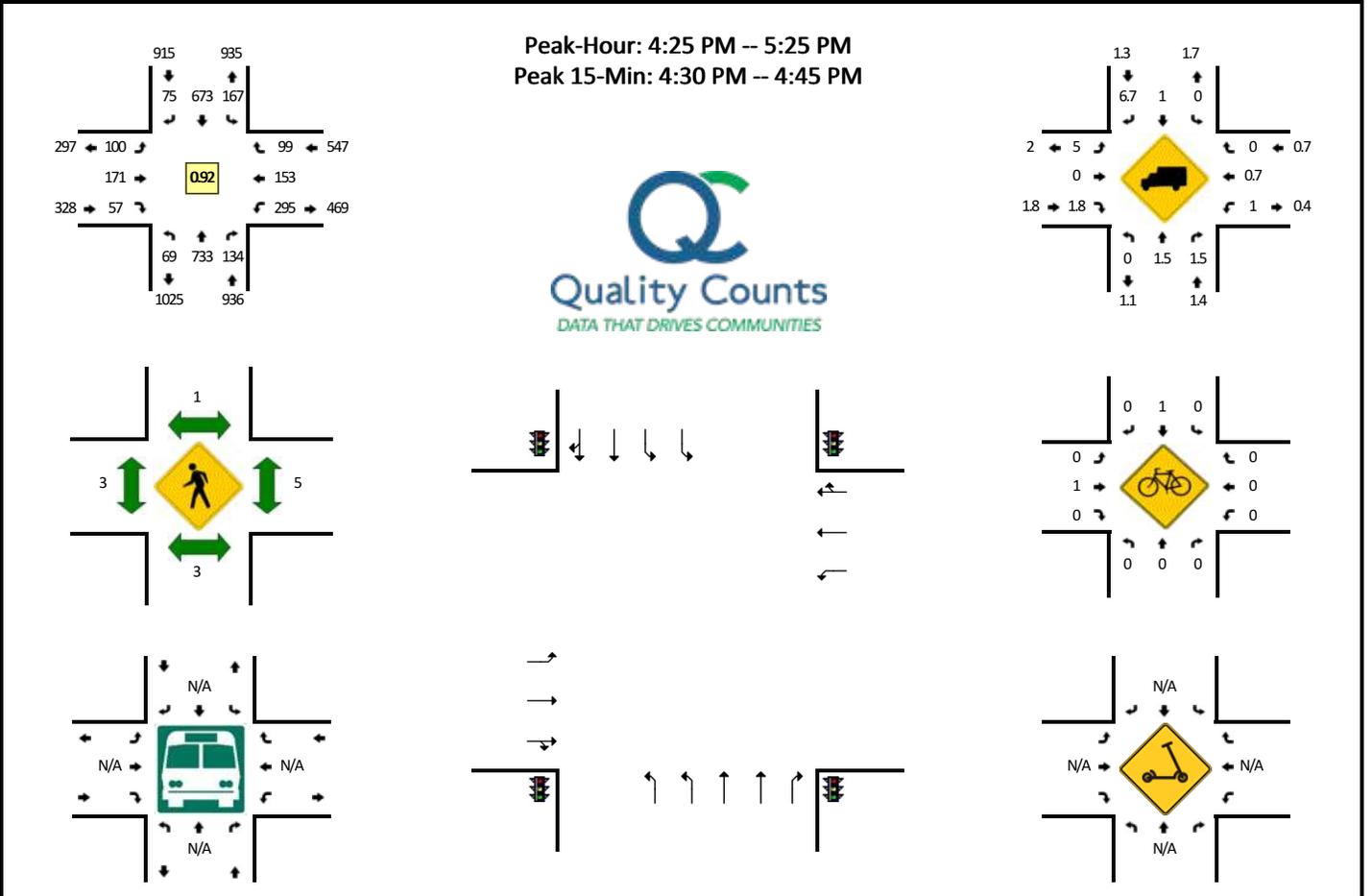


5-Min Count Period Beginning At	SE 192nd Ave (Northbound)				SE 192nd Ave (Southbound)				SE 34th St (Eastbound)				SE 34th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	28	36	0	5	29	2	0	3	6	2	0	11	4	1	0	130	
7:05 AM	2	30	26	0	12	30	6	0	4	15	3	0	12	3	3	0	146	
7:10 AM	0	30	19	0	5	38	7	0	2	10	2	0	14	5	5	0	137	
7:15 AM	1	30	24	0	2	24	4	0	1	3	1	0	8	7	4	0	109	
7:20 AM	1	43	24	0	11	24	6	0	4	7	0	0	14	6	7	0	147	
7:25 AM	7	42	16	0	8	30	5	0	3	8	1	0	11	4	1	0	136	
7:30 AM	8	40	26	1	6	30	6	0	6	9	2	0	14	9	3	0	160	
7:35 AM	4	36	20	1	7	27	1	0	6	10	3	0	16	7	5	0	143	
7:40 AM	4	51	31	0	3	28	14	0	5	8	4	0	7	7	0	0	162	
7:45 AM	8	57	30	0	8	30	5	0	11	17	1	0	18	7	1	0	193	
7:50 AM	9	50	29	0	10	32	7	0	9	17	3	0	8	8	3	0	185	
7:55 AM	11	49	22	0	13	35	11	0	5	11	1	0	10	15	3	0	186	1834
8:00 AM	4	48	31	0	8	29	11	1	4	7	4	0	6	5	5	0	163	1867
8:05 AM	3	35	23	0	8	36	3	0	2	4	2	0	10	11	5	0	142	1863
8:10 AM	7	38	22	0	7	35	7	0	3	10	1	0	21	12	3	0	166	1892
8:15 AM	2	29	17	0	6	29	4	0	6	6	4	0	16	8	6	0	133	1916
8:20 AM	5	46	20	0	7	30	3	0	7	13	5	0	5	10	5	0	156	1925
8:25 AM	5	41	21	0	4	32	5	0	4	14	0	0	10	2	4	0	142	1931
8:30 AM	3	34	22	0	9	29	9	0	5	7	1	0	9	4	5	0	137	1908
8:35 AM	9	42	22	0	4	35	5	0	5	9	2	0	23	6	5	0	167	1932
8:40 AM	3	38	10	0	9	38	4	0	3	13	1	0	18	12	12	0	161	1931
8:45 AM	9	48	14	1	12	38	4	0	3	12	3	0	17	7	11	0	179	1917
8:50 AM	5	43	17	0	8	29	3	0	1	7	7	0	10	15	3	0	148	1880
8:55 AM	3	46	7	0	13	42	5	0	4	6	1	0	4	9	5	0	145	1839
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	112	624	324	0	124	388	92	0	100	180	20	0	144	120	28	0	2256	
Heavy Trucks	0	72	4		4	40	4		4	8	0		4	0	0		140	
Buses																		
Pedestrians		8				0				0				4			12	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

LOCATION: SE 192nd Ave -- SE 34th St
CITY/STATE: Vancouver, WA

QC JOB #: 16019616
DATE: Tue, Dec 6 2022

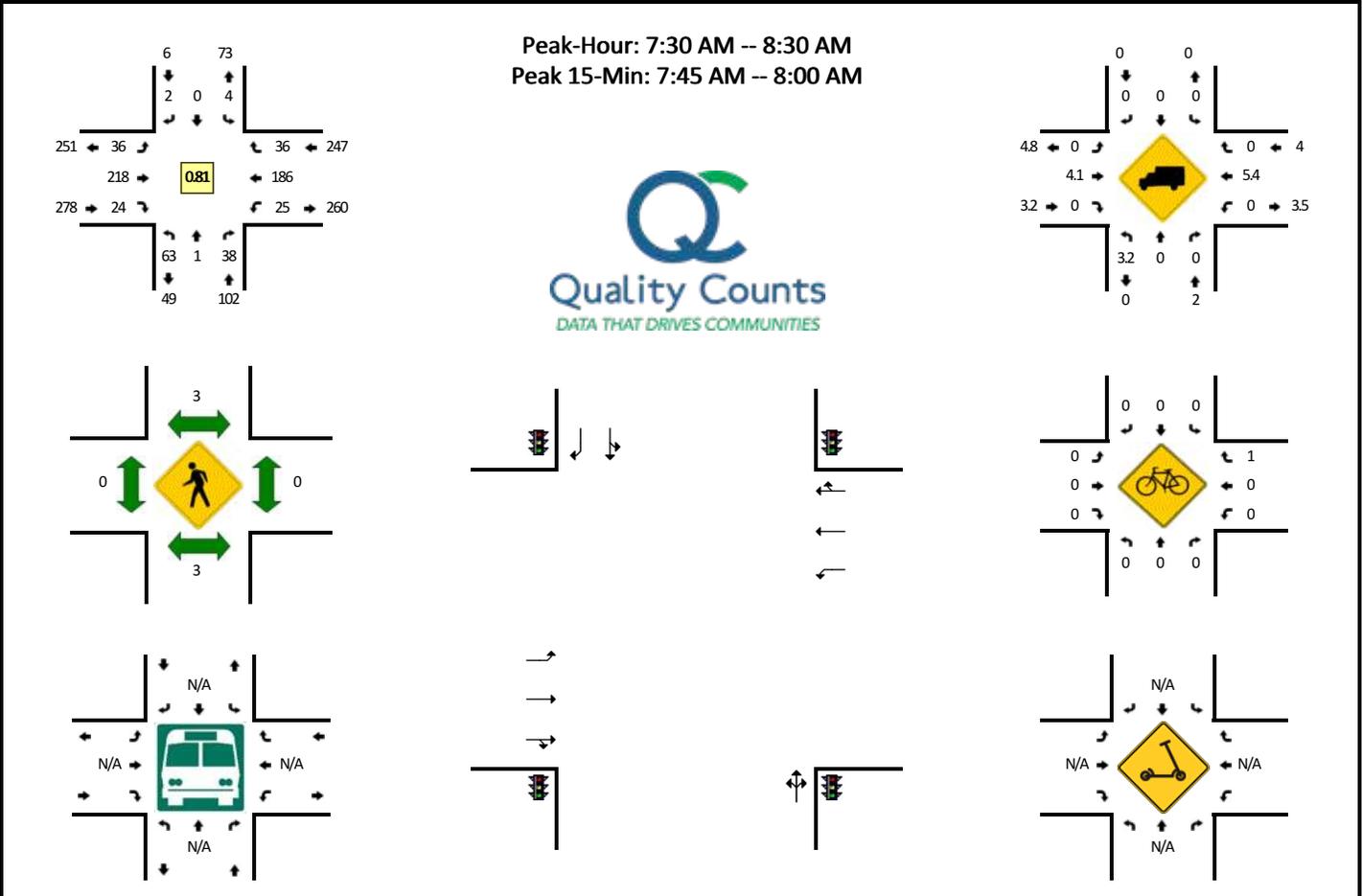


5-Min Count Period Beginning At	SE 192nd Ave (Northbound)				SE 192nd Ave (Southbound)				SE 34th St (Eastbound)				SE 34th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	64	13	0	17	44	9	0	12	18	4	0	28	11	11	0	241	
4:05 PM	11	68	11	0	5	68	11	0	4	9	7	0	26	12	5	0	237	
4:10 PM	12	54	13	0	13	62	9	0	9	16	3	0	26	15	11	0	243	
4:15 PM	6	61	10	0	9	48	4	1	6	18	5	0	26	12	5	0	211	
4:20 PM	4	57	7	0	11	64	5	0	12	8	3	0	22	10	10	0	213	
4:25 PM	6	72	9	0	11	65	3	0	9	13	5	0	29	14	2	0	238	
4:30 PM	8	78	12	0	10	46	7	0	4	11	2	0	22	11	11	0	222	
4:35 PM	6	65	9	0	16	57	5	0	15	15	3	0	18	13	14	0	236	
4:40 PM	5	62	18	0	19	83	6	0	9	15	4	0	33	19	6	0	279	
4:45 PM	6	56	10	0	14	38	15	0	5	15	6	0	24	15	6	0	210	
4:50 PM	8	57	7	0	9	48	6	2	9	20	5	0	16	12	5	0	204	
4:55 PM	3	41	15	0	15	49	7	0	5	11	6	0	21	10	7	0	190	2724
5:00 PM	7	62	10	0	15	50	4	0	9	7	5	0	24	14	10	0	217	2700
5:05 PM	3	59	14	0	10	66	6	0	12	11	7	0	27	9	9	0	233	2696
5:10 PM	6	51	9	0	16	61	4	0	5	18	8	0	27	15	10	0	230	2683
5:15 PM	4	62	10	0	14	69	6	0	13	18	1	0	33	11	8	0	249	2721
5:20 PM	7	68	11	0	15	41	6	1	5	17	5	0	21	10	11	0	218	2726
5:25 PM	7	51	14	0	19	52	5	0	4	18	7	0	21	16	16	0	230	2718
5:30 PM	5	55	16	0	19	31	3	0	3	19	1	0	14	12	12	0	190	2686
5:35 PM	3	46	9	1	6	39	5	0	7	10	2	0	12	7	4	0	151	2601
5:40 PM	3	52	14	0	17	46	5	0	4	17	4	0	15	4	5	0	186	2508
5:45 PM	6	60	13	0	12	43	7	0	12	9	2	0	9	4	5	0	182	2480
5:50 PM	2	42	7	0	10	60	5	0	4	7	3	0	12	9	9	0	170	2446
5:55 PM	9	49	8	0	14	41	4	0	4	9	6	0	16	8	2	0	170	2426
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	76	820	156	0	180	744	72	0	112	164	36	0	292	172	124	0	2948	
Heavy Trucks	0	16	4	0	0	8	4	0	0	0	0	0	4	0	0	0	36	
Buses																		
Pedestrians		0				4				0				12			16	
Bicycles	0	0	0		0	4	0		0	4	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: SE Hiddenbrook Dr -- SE 34th St
CITY/STATE: Vancouver, WA

QC JOB #: 16019613
DATE: Tue, Dec 6 2022

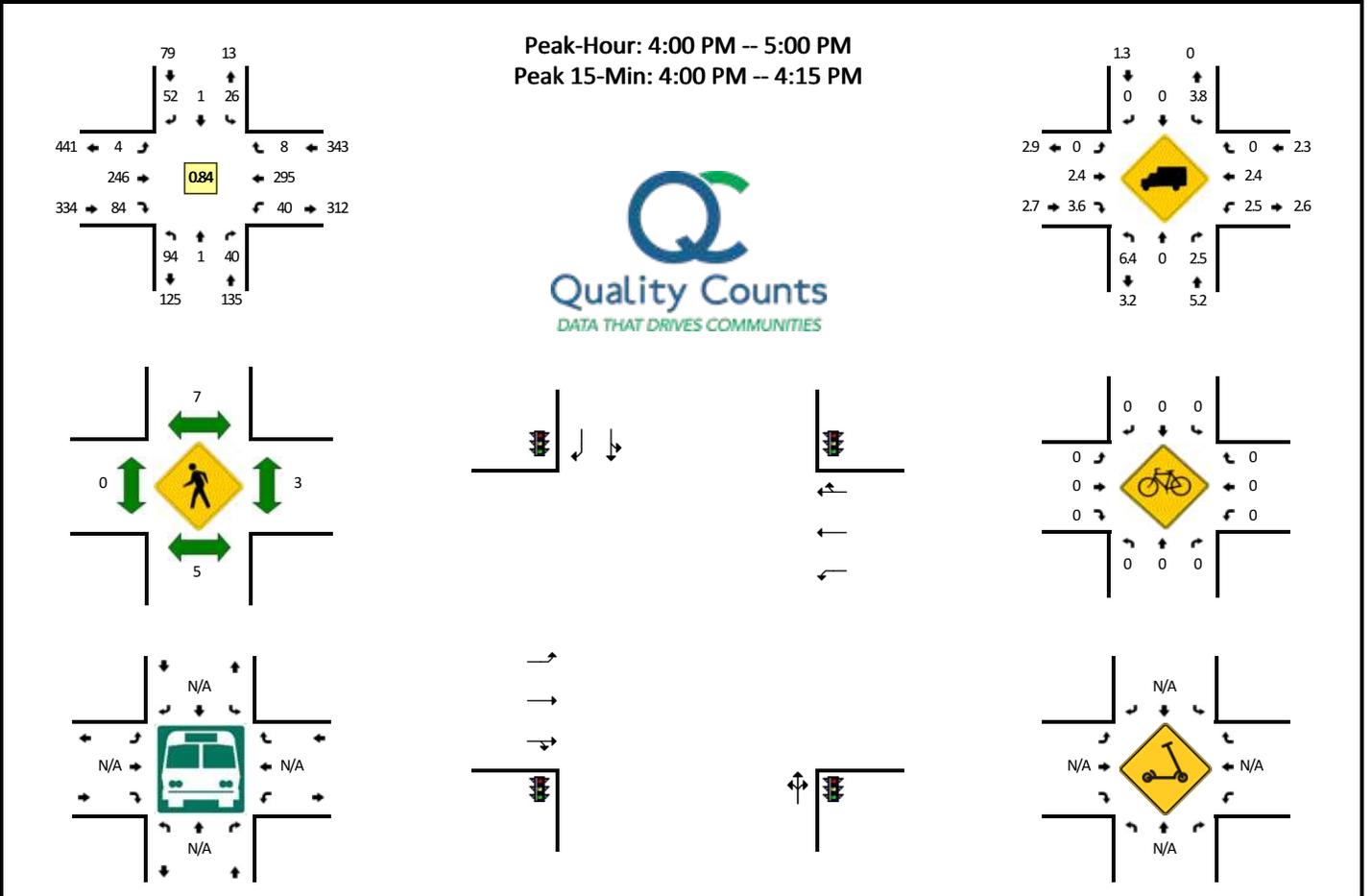


5-Min Count Period Beginning At	SE Hiddenbrook Dr (Northbound)				SE Hiddenbrook Dr (Southbound)				SE 34th St (Eastbound)				SE 34th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	3	0	0	0	0	0	1	12	0	0	0	9	0	0	27	
7:05 AM	5	0	0	0	1	0	0	0	3	16	0	0	0	8	3	0	36	
7:10 AM	1	0	1	0	0	0	0	0	1	12	0	0	0	11	2	0	28	
7:15 AM	4	0	2	0	0	0	0	0	3	9	2	0	0	16	1	0	37	
7:20 AM	5	0	0	0	0	0	0	0	3	10	0	0	2	11	2	0	33	
7:25 AM	3	1	2	0	0	0	0	0	1	13	1	0	1	14	2	0	38	
7:30 AM	4	0	3	0	0	0	0	0	1	17	0	0	0	20	3	0	48	
7:35 AM	5	0	2	0	0	0	0	0	4	18	1	0	2	9	2	0	43	
7:40 AM	3	0	4	0	0	0	0	0	2	21	3	0	1	12	6	0	52	
7:45 AM	7	0	6	0	0	0	0	0	2	26	1	0	4	17	4	0	67	
7:50 AM	1	0	2	0	2	0	1	0	5	21	3	0	3	16	2	0	56	
7:55 AM	2	0	3	0	0	0	0	0	4	28	3	0	6	23	4	0	73	538
8:00 AM	7	0	2	0	0	0	0	0	3	14	1	0	2	16	3	0	48	559
8:05 AM	5	1	2	0	1	0	0	0	3	11	3	0	3	15	2	0	46	569
8:10 AM	12	0	1	0	0	0	0	0	3	8	2	0	1	23	4	0	54	595
8:15 AM	7	0	6	0	1	0	0	0	5	21	2	0	0	14	1	0	57	615
8:20 AM	5	0	5	0	0	0	0	0	2	21	2	0	1	12	2	0	50	632
8:25 AM	5	0	2	0	0	0	1	0	2	12	3	0	2	9	3	0	39	633
8:30 AM	4	1	2	0	0	0	0	0	4	16	3	0	4	13	0	0	47	632
8:35 AM	4	0	1	0	0	0	1	0	1	10	6	0	3	13	4	0	43	632
8:40 AM	9	0	0	0	0	0	1	0	2	19	5	0	2	11	2	0	51	631
8:45 AM	2	0	4	0	0	0	0	0	6	17	1	0	4	18	1	0	53	617
8:50 AM	4	0	3	0	0	0	0	0	4	15	5	0	4	19	2	0	56	617
8:55 AM	4	0	1	0	0	0	0	0	1	16	8	0	2	13	1	0	46	590
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	40	0	44	0	8	0	4	0	44	300	28	0	52	224	40	0	784	
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	8	0		20	
Buses																		
Pedestrians		12				0				0				0			12	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE Hiddenbrook Dr -- SE 34th St
CITY/STATE: Vancouver, WA

QC JOB #: 16019614
DATE: Tue, Dec 6 2022

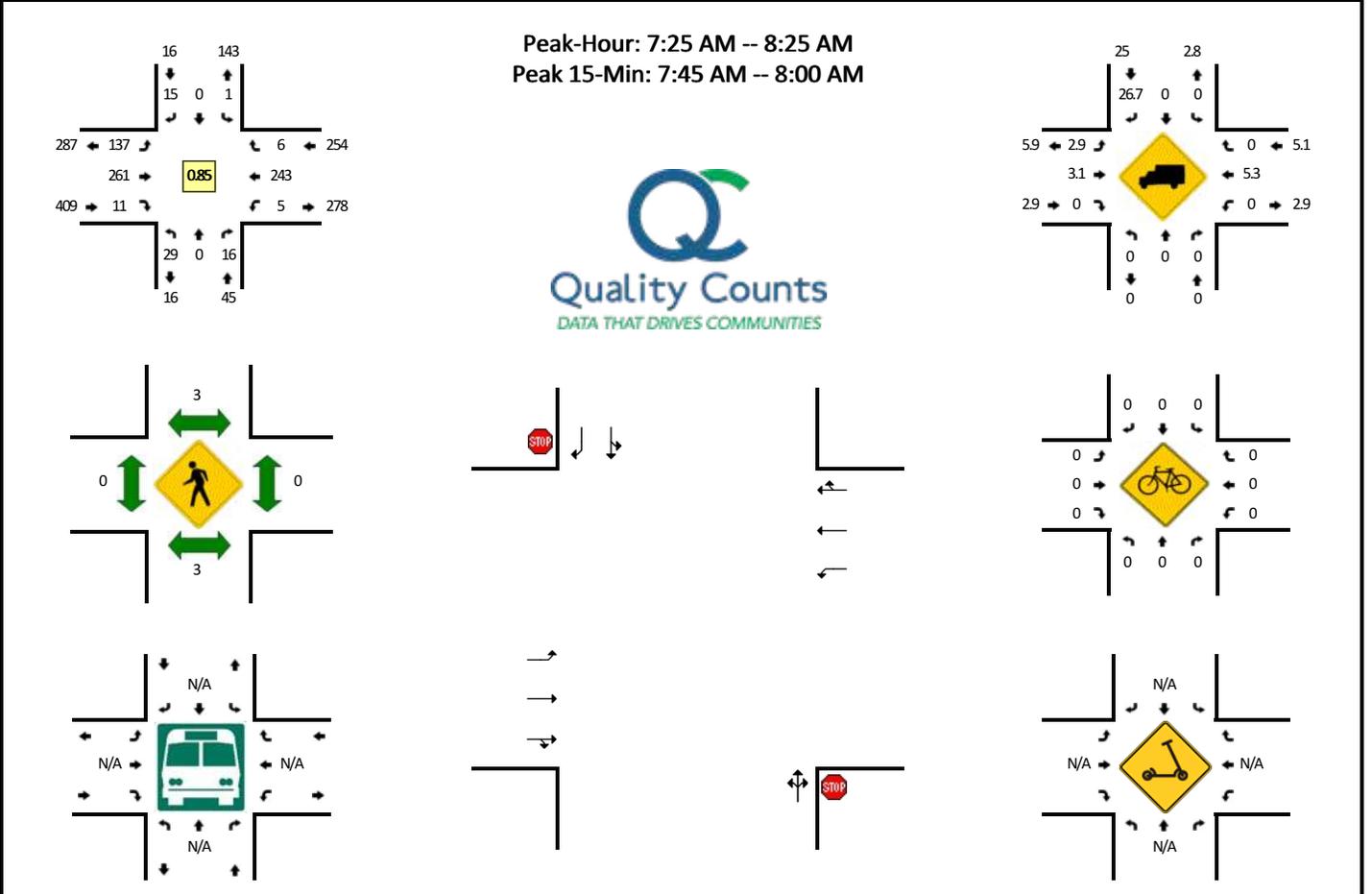


5-Min Count Period Beginning At	SE Hiddenbrook Dr (Northbound)				SE Hiddenbrook Dr (Southbound)				SE 34th St (Eastbound)				SE 34th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	21	0	11	0	0	0	5	0	0	24	9	0	4	26	0	0	100	
4:05 PM	10	0	4	0	4	0	4	0	1	11	6	0	3	28	3	0	74	
4:10 PM	4	0	3	0	1	0	3	0	0	27	10	0	4	39	0	0	91	
4:15 PM	6	0	4	0	1	0	3	0	0	15	7	0	2	18	0	0	56	
4:20 PM	8	0	4	0	4	0	4	0	1	25	8	0	1	15	0	0	70	
4:25 PM	13	1	2	0	1	0	4	0	0	17	8	0	3	20	1	0	70	
4:30 PM	3	0	1	0	3	0	1	0	0	20	6	0	3	22	0	0	59	
4:35 PM	10	0	2	0	5	0	12	0	0	21	5	0	5	25	0	0	85	
4:40 PM	2	0	3	0	1	0	6	0	0	23	6	0	3	29	0	0	73	
4:45 PM	1	0	0	0	1	1	2	0	0	24	7	0	4	25	3	0	68	
4:50 PM	13	0	3	0	4	0	4	0	1	22	6	0	4	23	1	0	81	
4:55 PM	3	0	3	0	1	0	4	0	1	17	6	0	4	25	0	0	64	891
5:00 PM	3	0	5	0	1	0	9	0	0	23	6	0	3	33	1	0	84	875
5:05 PM	4	0	3	0	4	1	4	0	0	16	5	0	2	18	2	0	59	860
5:10 PM	4	0	0	0	3	1	6	0	1	30	12	0	1	30	0	0	88	857
5:15 PM	7	0	4	0	5	0	2	0	0	23	5	0	1	21	0	0	68	869
5:20 PM	5	0	1	0	2	0	3	0	0	20	7	0	2	24	0	0	64	863
5:25 PM	6	0	3	0	2	0	2	0	1	24	4	0	4	23	1	0	70	863
5:30 PM	7	0	1	0	0	0	7	0	0	19	2	0	2	19	0	0	57	861
5:35 PM	1	0	2	0	1	0	7	0	1	19	7	0	2	20	0	0	60	836
5:40 PM	1	0	1	0	2	0	8	0	1	29	3	0	1	12	2	0	60	823
5:45 PM	1	0	0	0	1	0	4	0	0	21	4	0	5	14	0	0	50	805
5:50 PM	3	0	0	0	1	0	2	0	0	15	4	0	0	15	0	0	40	764
5:55 PM	2	0	4	0	1	0	1	0	0	10	5	0	4	22	0	0	49	749
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	140	0	72	0	20	0	48	0	4	248	100	0	44	372	12	0	1060	
Heavy Trucks	16	0	4		4	0	0		0	4	4		0	12	0		44	
Buses																		
Pedestrians		4				4				0				4			12	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 177th Ave -- SE 34th St
CITY/STATE: Vancouver, WA

QC JOB #: 16019611
DATE: Tue, Dec 6 2022

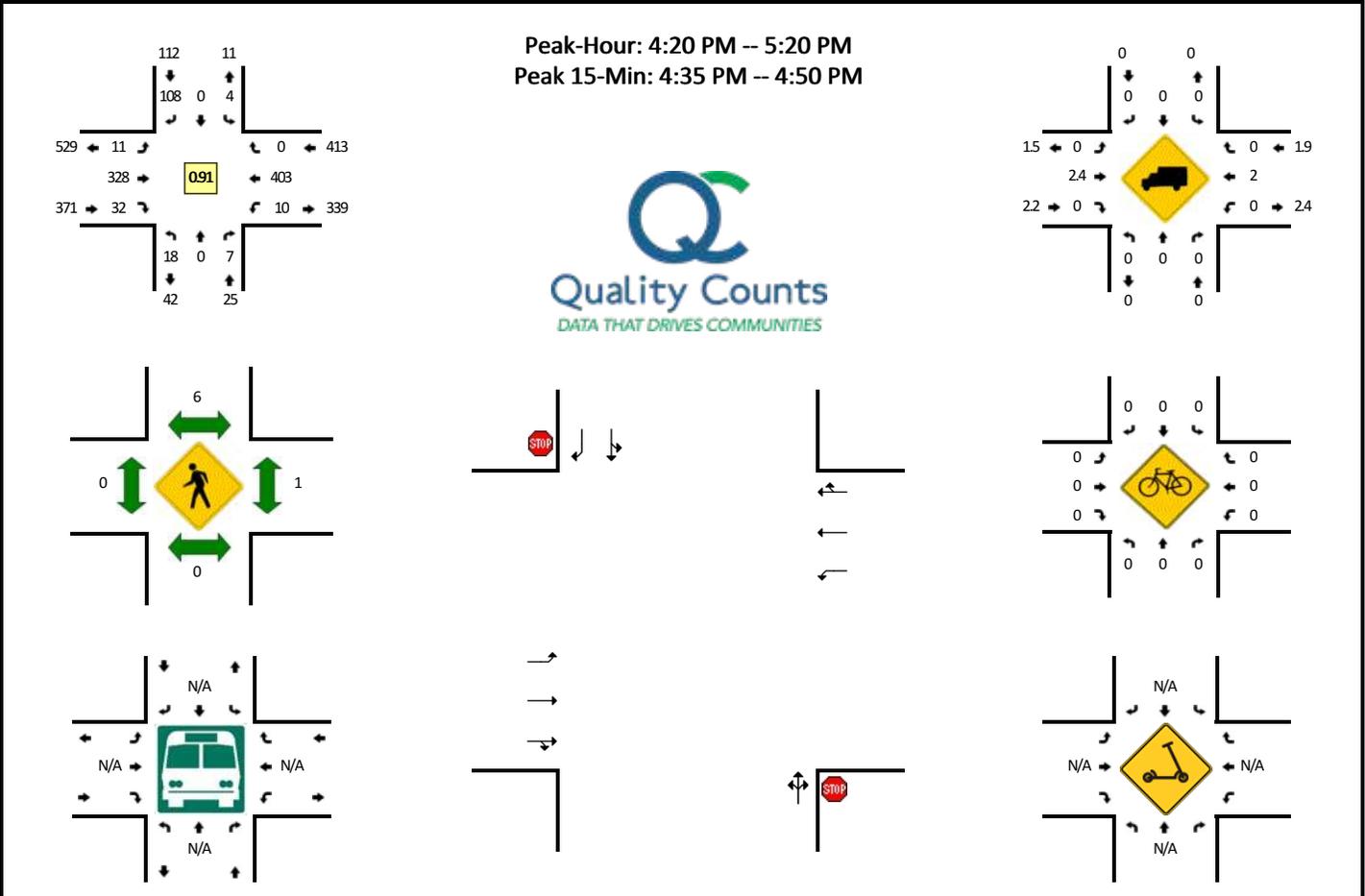


5-Min Count Period Beginning At	SE 177th Ave (Northbound)				SE 177th Ave (Southbound)				SE 34th St (Eastbound)				SE 34th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	1	0	0	0	0	0	6	13	0	0	1	10	1	0	34	
7:05 AM	2	0	1	0	0	0	0	0	5	18	0	0	0	12	1	0	39	
7:10 AM	1	0	1	0	0	0	0	0	4	11	1	0	0	12	0	0	30	
7:15 AM	4	0	2	0	0	0	0	0	6	13	0	0	1	16	0	0	42	
7:20 AM	1	0	0	0	0	0	0	0	4	13	0	0	0	18	0	0	36	
7:25 AM	4	0	0	0	0	0	1	0	10	17	0	0	0	17	0	0	49	
7:30 AM	4	0	2	0	0	0	3	0	7	13	1	0	0	23	0	0	53	
7:35 AM	5	0	1	0	0	0	1	0	6	21	2	0	0	16	0	0	52	
7:40 AM	1	0	0	0	0	0	1	0	16	28	1	0	0	15	0	0	62	
7:45 AM	3	0	1	0	0	0	0	0	11	31	2	0	1	21	1	0	71	
7:50 AM	1	0	3	0	0	0	0	0	13	28	1	0	0	16	0	0	62	
7:55 AM	2	0	2	0	0	0	2	0	19	27	1	0	1	25	1	0	80	610
8:00 AM	1	0	1	0	1	0	1	0	16	16	0	0	1	22	0	0	59	635
8:05 AM	2	0	1	0	0	0	1	0	10	18	0	0	0	16	2	0	50	646
8:10 AM	2	0	0	0	0	0	3	0	12	15	0	0	1	32	1	0	66	682
8:15 AM	2	0	2	0	0	0	0	0	10	25	1	0	0	23	1	0	64	704
8:20 AM	2	0	3	0	0	0	2	0	7	22	2	0	1	17	0	0	56	724
8:25 AM	0	0	0	0	0	0	0	0	11	16	1	0	0	14	1	0	43	718
8:30 AM	0	0	0	0	1	0	3	0	7	23	2	0	1	14	0	0	51	716
8:35 AM	1	0	0	0	0	0	0	0	4	15	0	0	0	18	0	0	38	702
8:40 AM	4	0	3	0	0	0	1	0	9	22	0	0	0	21	0	0	60	700
8:45 AM	2	0	1	0	0	0	0	0	5	22	0	0	0	14	0	0	44	673
8:50 AM	2	0	1	0	0	0	0	0	7	25	1	0	0	27	2	0	65	676
8:55 AM	1	0	0	0	0	0	1	0	8	27	1	0	1	15	0	0	54	650
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	0	24	0	0	0	8	0	172	344	16	0	8	248	8	0	852	
Heavy Trucks	0	0	0		0	0	4		0	12	0		0	8	0		24	
Buses																		
Pedestrians		4				0				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 177th Ave -- SE 34th St
CITY/STATE: Vancouver, WA

QC JOB #: 16019612
DATE: Tue, Dec 6 2022

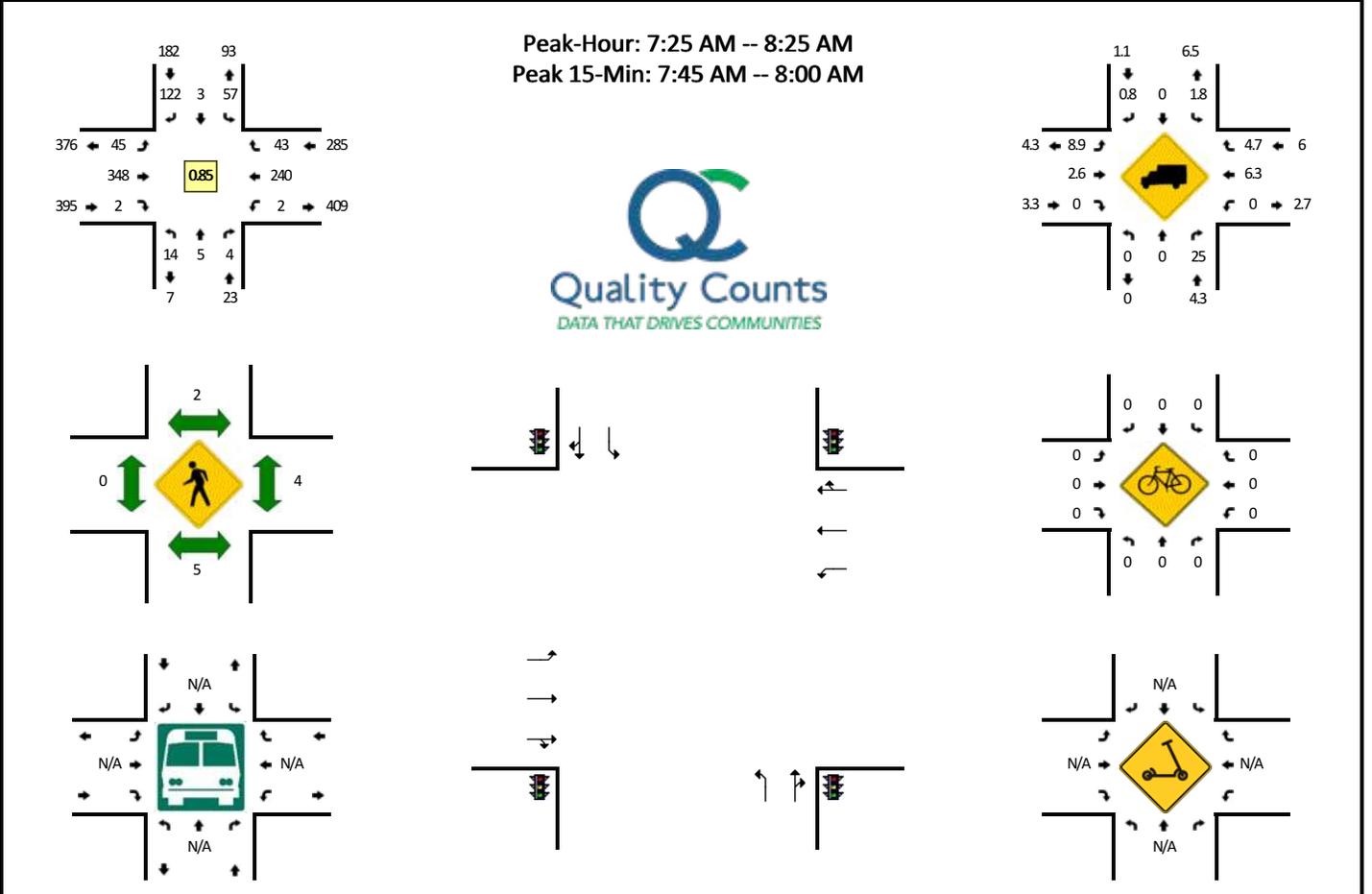


5-Min Count Period Beginning At	SE 177th Ave (Northbound)				SE 177th Ave (Southbound)				SE 34th St (Eastbound)				SE 34th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	0	0	0	0	0	4	0	0	29	2	0	1	49	1	0	88	
4:05 PM	1	0	1	0	0	0	10	0	0	20	1	0	1	39	0	0	73	
4:10 PM	2	0	0	0	0	0	5	0	0	32	1	0	1	47	1	0	89	
4:15 PM	0	0	0	0	1	0	9	0	0	25	1	0	1	28	0	0	65	
4:20 PM	1	0	1	0	1	0	8	0	2	26	4	0	0	27	0	0	70	
4:25 PM	1	0	0	0	0	0	5	0	1	29	1	0	1	35	0	0	73	
4:30 PM	1	0	0	0	0	0	7	0	3	21	4	0	0	24	0	0	60	
4:35 PM	1	0	0	0	0	0	12	0	0	29	4	0	1	44	0	0	91	
4:40 PM	4	0	0	0	1	0	20	0	0	25	1	0	0	41	0	0	92	
4:45 PM	2	0	0	0	0	0	6	0	0	36	2	0	1	23	0	0	70	
4:50 PM	1	0	0	0	0	0	3	0	2	24	3	0	2	38	0	0	73	
4:55 PM	0	0	1	0	1	0	10	0	0	23	2	0	0	38	0	0	75	919
5:00 PM	3	0	1	0	0	0	12	0	0	27	3	0	0	42	0	0	88	919
5:05 PM	3	0	0	0	0	0	11	0	1	28	1	0	0	24	0	0	68	914
5:10 PM	0	0	1	0	1	0	5	0	0	34	5	0	3	40	0	0	89	914
5:15 PM	1	0	3	0	0	0	9	0	2	26	2	0	2	27	0	0	72	921
5:20 PM	0	0	2	0	1	0	5	0	0	23	1	0	1	34	0	0	67	918
5:25 PM	0	0	0	0	0	0	6	0	0	27	3	0	0	32	0	0	68	913
5:30 PM	0	0	1	0	0	0	2	0	0	24	4	0	0	28	0	0	59	912
5:35 PM	2	0	0	0	0	0	4	0	0	24	6	0	0	31	0	0	67	888
5:40 PM	0	0	0	0	0	0	6	0	0	30	2	0	0	22	0	0	60	856
5:45 PM	3	0	1	0	1	0	3	0	2	24	3	0	3	16	0	0	56	842
5:50 PM	1	0	0	0	0	0	7	0	1	17	1	0	0	21	0	0	48	817
5:55 PM	0	0	0	0	0	0	0	0	0	17	4	0	0	24	0	0	45	787
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	0	0	0	4	0	152	0	0	360	28	0	8	432	0	0	1012	
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	0	0	0	4	0	0	12	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 176th Ave -- SE 34th St
CITY/STATE: Vancouver, WA

QC JOB #: 16019609
DATE: Tue, Dec 6 2022

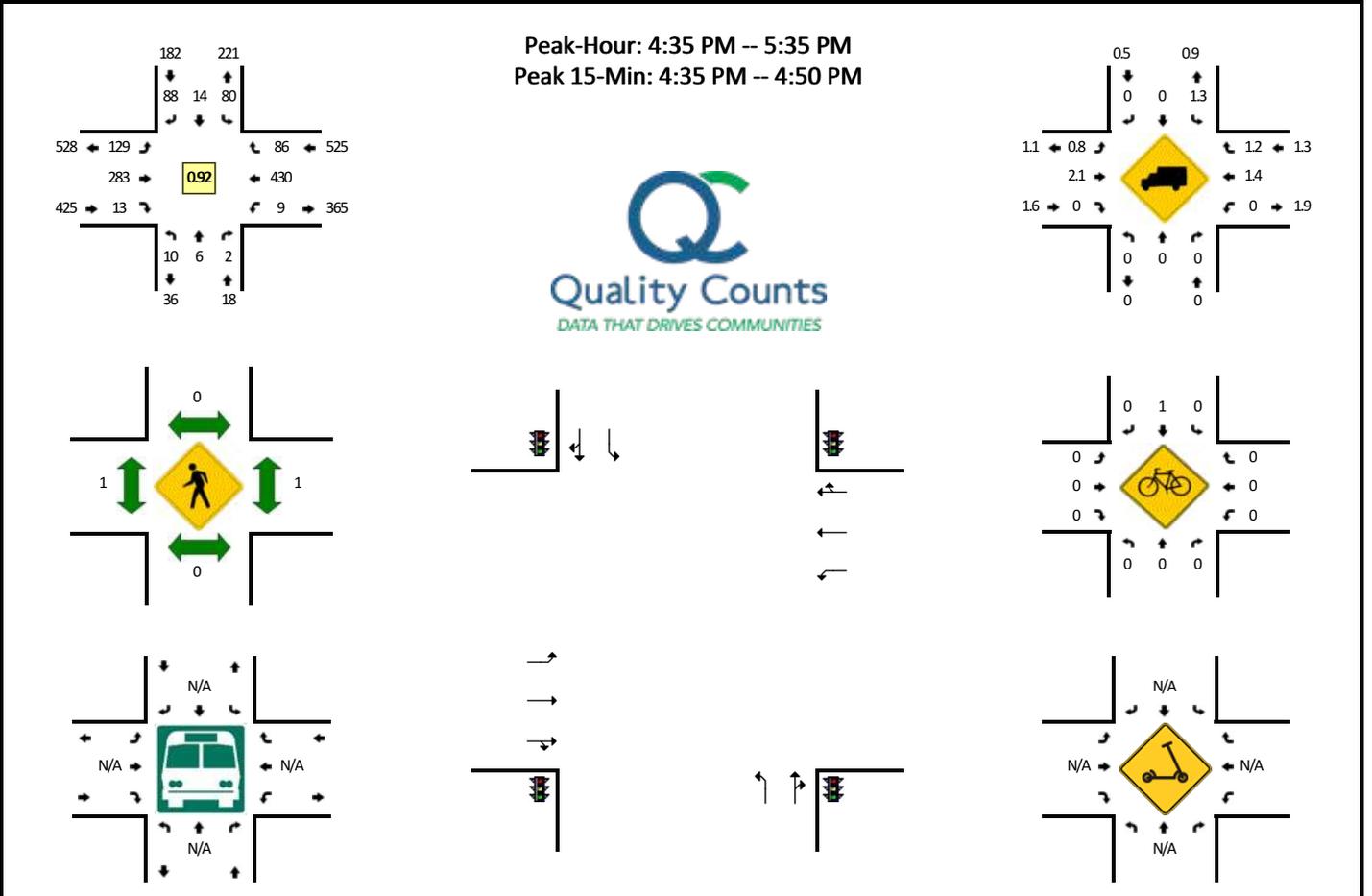


5-Min Count Period Beginning At	SE 176th Ave (Northbound)				SE 176th Ave (Southbound)				SE 34th St (Eastbound)				SE 34th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	1	0	0	3	0	6	0	2	15	0	0	1	10	1	0	40	
7:05 AM	3	2	1	0	2	0	10	0	4	20	0	0	0	12	2	0	56	
7:10 AM	2	2	0	0	1	0	11	0	2	15	0	0	0	11	1	0	45	
7:15 AM	2	2	0	0	1	0	7	0	3	18	0	0	0	18	3	0	54	
7:20 AM	1	1	0	0	0	0	8	0	4	16	1	0	0	16	3	0	50	
7:25 AM	1	0	0	0	2	0	10	0	5	25	0	0	0	20	2	0	65	
7:30 AM	1	0	1	0	3	0	10	0	3	20	0	0	0	24	4	0	66	
7:35 AM	2	1	0	0	4	0	10	0	1	23	0	0	0	19	4	0	64	
7:40 AM	2	0	1	0	3	0	13	0	3	41	0	0	0	14	4	0	81	
7:45 AM	0	0	1	0	7	0	14	0	9	35	0	0	0	20	4	0	90	
7:50 AM	2	1	0	0	6	1	8	0	4	37	1	0	0	14	3	0	77	
7:55 AM	1	1	1	0	5	0	10	0	5	42	0	0	2	24	3	0	94	782
8:00 AM	1	0	0	0	3	1	12	0	6	28	0	0	0	21	2	0	74	816
8:05 AM	1	0	0	0	4	0	8	0	3	23	1	0	0	18	3	0	61	821
8:10 AM	1	1	0	0	2	1	10	0	2	27	0	0	0	30	6	0	80	856
8:15 AM	0	0	0	0	10	0	6	0	2	26	0	0	0	22	3	0	69	871
8:20 AM	2	1	0	0	8	0	11	0	2	21	0	0	0	14	5	0	64	885
8:25 AM	2	1	0	0	1	0	8	0	1	27	0	0	0	13	3	0	56	876
8:30 AM	0	0	0	0	7	0	8	0	2	27	0	0	0	10	6	0	60	870
8:35 AM	3	0	0	0	0	0	10	0	2	20	1	0	1	16	3	0	56	862
8:40 AM	0	0	0	0	8	1	20	0	2	21	2	0	0	20	7	0	81	862
8:45 AM	1	1	0	0	3	0	5	0	3	25	1	0	0	14	2	0	55	827
8:50 AM	3	0	0	0	5	1	8	0	4	35	0	0	0	24	5	0	85	835
8:55 AM	0	2	0	0	6	0	4	0	4	23	0	0	1	12	5	0	57	798
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	8	8	0	72	4	128	0	72	456	4	0	8	232	40	0	1044	
Heavy Trucks	0	0	0	0	4	0	0	0	0	8	0	0	0	8	4	0	24	
Buses																		
Pedestrians		8				4				0				4			16	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 176th Ave -- SE 34th St
CITY/STATE: Vancouver, WA

QC JOB #: 16019610
DATE: Tue, Dec 6 2022

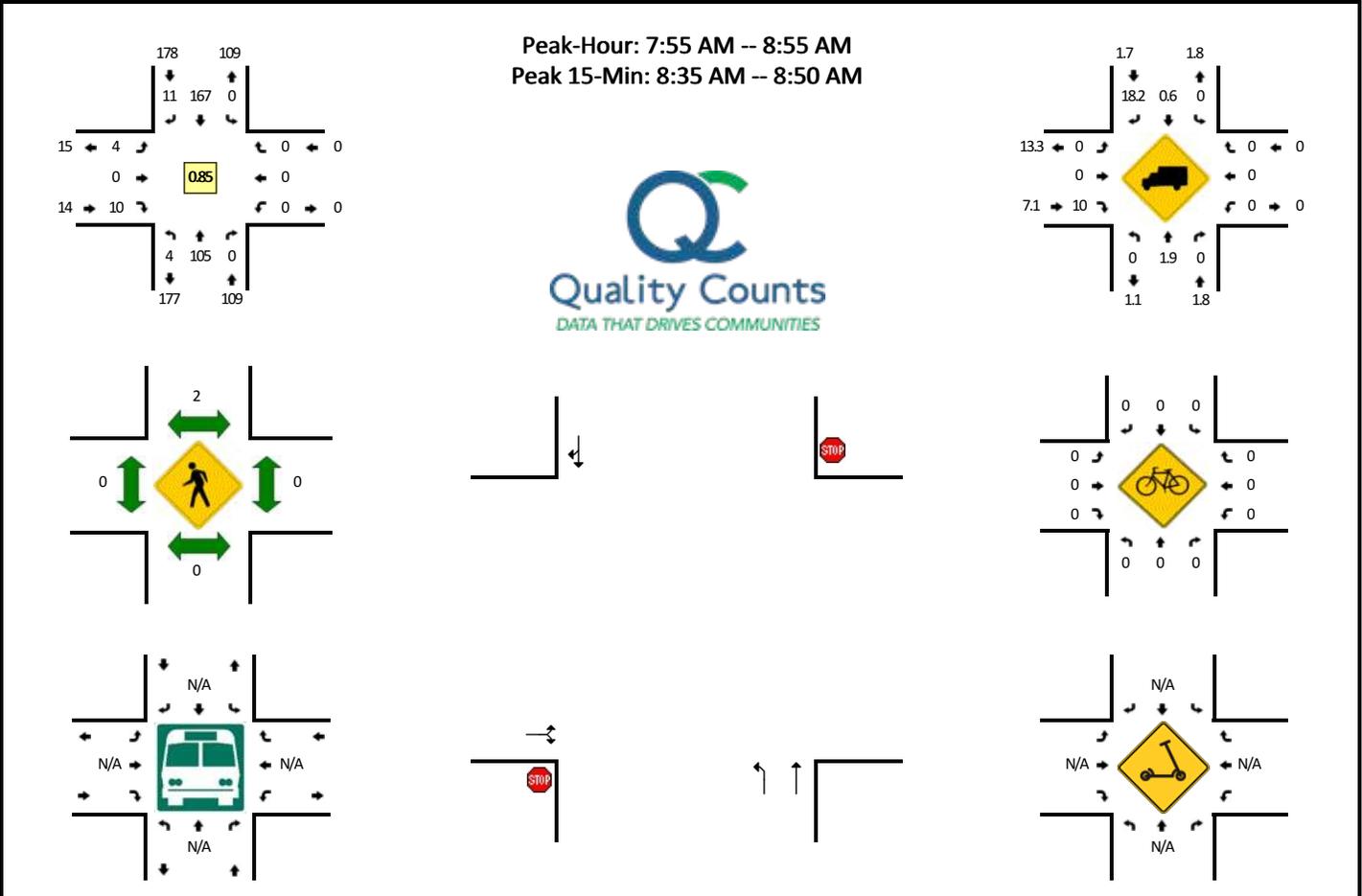


5-Min Count Period Beginning At	SE 176th Ave (Northbound)				SE 176th Ave (Southbound)				SE 34th St (Eastbound)				SE 34th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	0	0	11	1	4	0	12	19	0	0	0	46	9	0	103	
4:05 PM	5	2	0	0	6	2	9	0	6	13	4	0	0	36	11	0	94	
4:10 PM	3	0	0	0	7	2	7	0	5	27	2	0	1	45	11	0	110	
4:15 PM	0	1	0	0	9	0	4	0	6	17	0	0	1	29	8	0	75	
4:20 PM	0	1	0	0	7	0	3	0	13	25	0	0	0	29	7	0	85	
4:25 PM	1	0	0	0	7	0	4	0	10	25	0	0	0	33	7	0	87	
4:30 PM	1	0	0	0	6	2	5	0	11	22	1	0	0	18	11	0	77	
4:35 PM	1	0	0	0	7	0	10	0	6	26	1	0	1	51	9	0	112	
4:40 PM	0	1	0	0	8	1	11	0	11	19	0	0	0	46	10	0	107	
4:45 PM	1	0	0	0	5	2	4	0	9	33	2	0	0	36	3	0	95	
4:50 PM	1	2	0	0	5	2	14	0	11	24	2	0	0	32	9	0	102	
4:55 PM	1	0	2	0	5	1	6	0	8	19	2	0	2	36	9	0	91	1138
5:00 PM	1	0	0	0	7	0	9	0	14	24	1	0	0	51	5	0	112	1147
5:05 PM	0	0	0	0	1	1	5	0	9	26	0	0	1	31	8	0	82	1135
5:10 PM	0	1	0	0	19	3	3	0	7	22	1	0	2	37	5	0	100	1125
5:15 PM	0	0	0	0	5	1	3	0	10	24	1	0	2	29	5	0	80	1130
5:20 PM	3	0	0	0	5	2	5	0	17	19	2	0	1	25	8	0	87	1132
5:25 PM	1	1	0	0	5	0	10	0	13	25	1	0	0	33	8	0	97	1142
5:30 PM	1	1	0	0	8	1	8	0	14	22	0	0	0	23	7	0	85	1150
5:35 PM	2	2	0	0	4	1	13	0	14	24	1	0	0	29	8	0	98	1136
5:40 PM	1	2	1	0	11	1	7	0	9	21	3	0	0	25	2	0	83	1112
5:45 PM	4	0	0	0	4	2	6	0	11	26	4	0	0	21	1	0	79	1096
5:50 PM	1	0	0	0	6	2	3	0	14	12	0	0	0	22	9	0	69	1063
5:55 PM	0	1	0	0	7	2	7	0	5	14	1	0	0	15	7	0	59	1031
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	4	0	0	80	12	100	0	104	312	12	0	4	532	88	0	1256	
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	0	0	0	4	0	0	12	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 176th Ave -- SE 29th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050509
DATE: Tue, Jan 10 2023

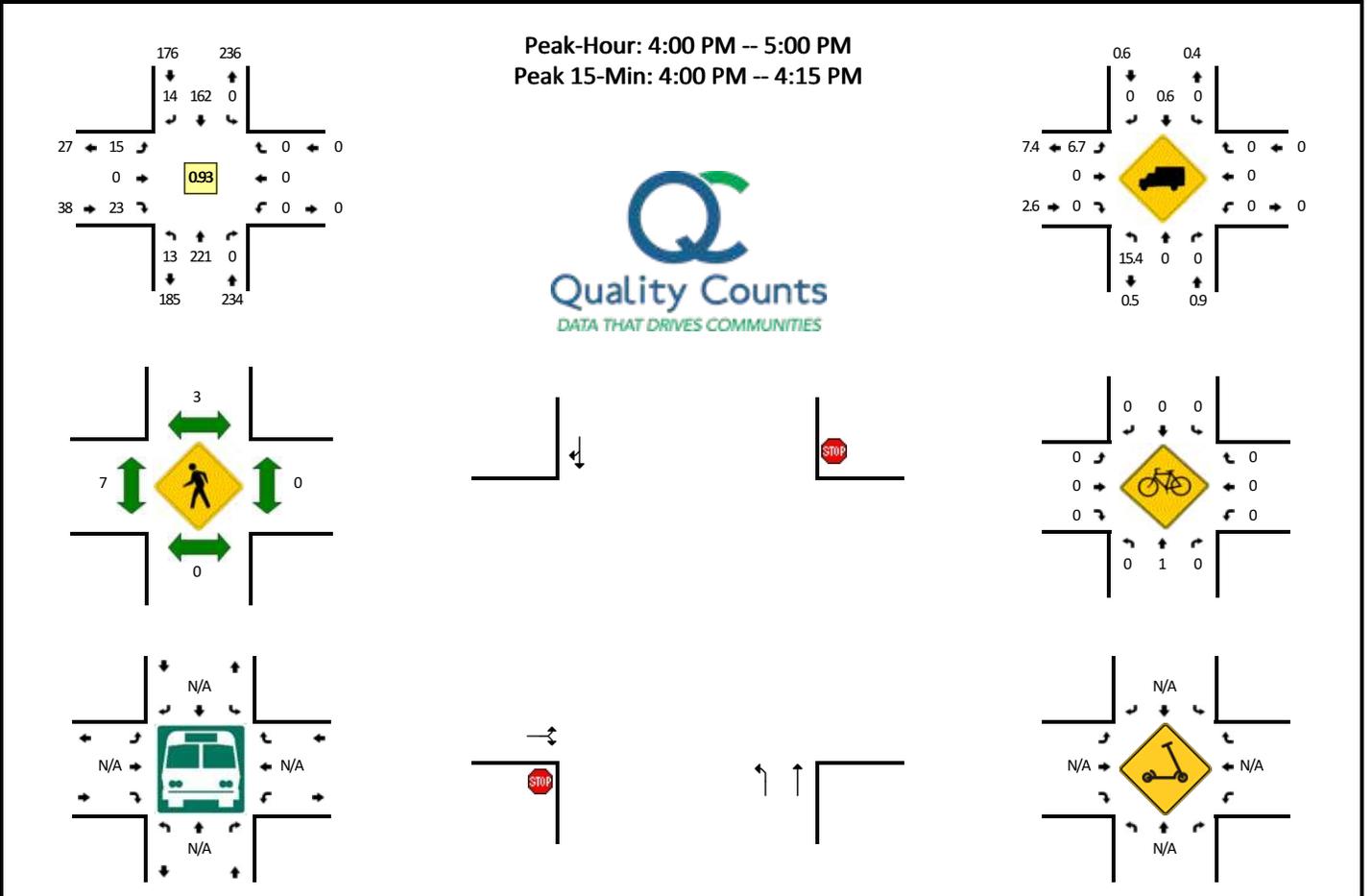


5-Min Count Period Beginning At	SE 176th Ave (Northbound)				SE 176th Ave (Southbound)				SE 29th St (Eastbound)				SE 29th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	6	0	0	0	12	0	0	1	0	0	0	0	0	0	0	20	
7:05 AM	0	3	0	0	0	12	1	0	0	0	0	0	0	0	0	0	16	
7:10 AM	1	9	0	0	0	11	3	0	3	0	1	0	0	0	0	0	28	
7:15 AM	0	7	0	0	0	11	1	0	0	0	0	0	0	0	0	0	19	
7:20 AM	1	7	0	0	0	13	0	0	0	0	0	0	0	0	0	0	21	
7:25 AM	0	8	0	0	0	3	1	0	2	0	0	0	0	0	0	0	14	
7:30 AM	0	4	0	0	0	8	1	0	1	0	0	0	0	0	0	0	14	
7:35 AM	0	7	0	0	0	12	0	0	1	0	0	0	0	0	0	0	20	
7:40 AM	0	6	0	0	0	9	1	0	0	0	2	0	0	0	0	0	18	
7:45 AM	0	4	0	0	0	6	0	0	2	0	1	0	0	0	0	0	13	
7:50 AM	1	7	0	0	0	7	0	0	2	0	0	0	0	0	0	0	17	
7:55 AM	0	7	0	0	0	17	2	0	0	0	1	0	0	0	0	0	27	227
8:00 AM	0	11	0	0	0	13	2	0	0	0	1	0	0	0	0	0	27	234
8:05 AM	0	8	0	0	0	13	1	0	0	0	2	0	0	0	0	0	24	242
8:10 AM	0	6	0	0	0	14	0	0	1	0	0	0	0	0	0	0	21	235
8:15 AM	0	9	0	0	0	14	1	0	0	0	0	0	0	0	0	0	24	240
8:20 AM	0	11	0	0	0	12	0	0	0	0	1	0	0	0	0	0	24	243
8:25 AM	1	7	0	0	0	13	0	0	1	0	0	0	0	0	0	0	22	251
8:30 AM	0	6	0	0	0	12	1	0	0	0	0	0	0	0	0	0	19	256
8:35 AM	0	9	0	0	0	14	0	0	1	0	1	0	0	0	0	0	25	261
8:40 AM	1	13	0	0	0	16	2	0	1	0	2	0	0	0	0	0	35	278
8:45 AM	1	12	0	0	0	12	2	0	0	0	2	0	0	0	0	0	29	294
8:50 AM	1	6	0	0	0	17	0	0	0	0	0	0	0	0	0	0	24	301
8:55 AM	1	6	0	0	0	8	0	0	0	0	3	0	0	0	0	0	18	292
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	136	0	0	0	168	16	0	8	0	20	0	0	0	0	0	356	
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	4	0	0	0	0	0	8	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 176th Ave -- SE 29th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050510
DATE: Tue, Jan 10 2023

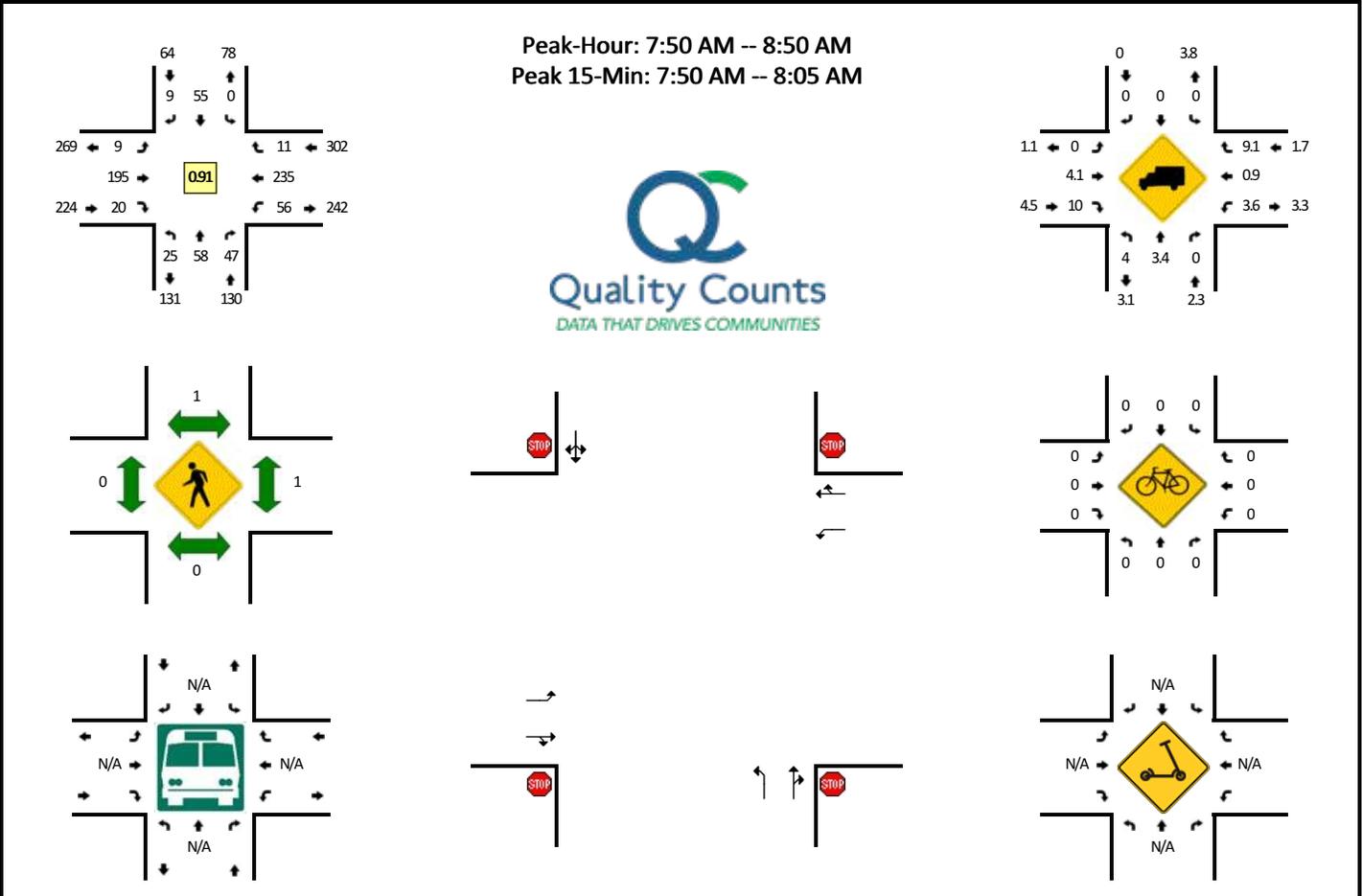


5-Min Count Period Beginning At	SE 176th Ave (Northbound)				SE 176th Ave (Southbound)				SE 29th St (Eastbound)				SE 29th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	21	0	0	0	11	0	0	4	0	2	0	0	0	0	0	40	
4:05 PM	0	21	0	0	0	14	4	0	2	0	2	0	0	0	0	0	43	
4:10 PM	0	19	0	0	0	12	3	0	0	0	3	0	0	0	0	0	37	
4:15 PM	2	18	0	0	0	12	2	0	1	0	1	0	0	0	0	0	36	
4:20 PM	2	18	0	0	0	11	1	0	1	0	1	0	0	0	0	0	34	
4:25 PM	0	18	0	0	0	10	1	0	2	0	0	0	0	0	0	0	31	
4:30 PM	1	24	0	0	0	17	3	0	1	0	3	0	0	0	0	0	49	
4:35 PM	3	15	0	0	0	15	0	0	1	0	4	0	0	0	0	0	38	
4:40 PM	1	11	0	0	0	12	0	0	1	0	3	0	0	0	0	0	28	
4:45 PM	1	22	0	0	0	17	0	0	0	0	4	0	0	0	0	0	44	
4:50 PM	1	14	0	0	0	20	0	0	1	0	0	0	0	0	0	0	36	
4:55 PM	0	20	0	0	0	11	0	0	1	0	0	0	0	0	0	0	32	448
5:00 PM	0	19	0	0	0	13	3	0	2	0	0	0	0	0	0	0	37	445
5:05 PM	0	22	0	0	0	13	1	0	1	0	1	0	0	0	0	0	38	440
5:10 PM	2	12	0	0	0	7	1	0	1	0	1	0	0	0	0	0	24	427
5:15 PM	2	15	0	0	0	10	2	0	2	0	0	0	0	0	0	0	31	422
5:20 PM	1	14	0	0	0	15	2	0	2	0	1	0	0	0	0	0	35	423
5:25 PM	0	18	0	0	0	10	3	0	1	0	1	0	0	0	0	0	33	425
5:30 PM	0	12	0	0	0	12	2	0	3	0	1	0	0	0	0	0	30	406
5:35 PM	0	16	0	0	0	15	1	0	0	0	0	0	0	0	0	0	32	400
5:40 PM	0	15	0	0	0	12	1	0	4	0	2	0	0	0	0	0	34	406
5:45 PM	0	20	0	0	0	10	0	0	1	0	1	0	0	0	0	0	32	394
5:50 PM	0	16	0	0	0	12	1	0	3	0	1	0	0	0	0	0	33	391
5:55 PM	0	19	0	0	0	12	2	0	0	0	0	0	0	0	0	0	33	392
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	244	0	0	0	148	28	0	24	0	28	0	0	0	0	0	480	
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Buses																		
Pedestrians		0				0				4				0			4	
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: SE 176th Ave -- SE 20th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050507
DATE: Tue, Jan 10 2023

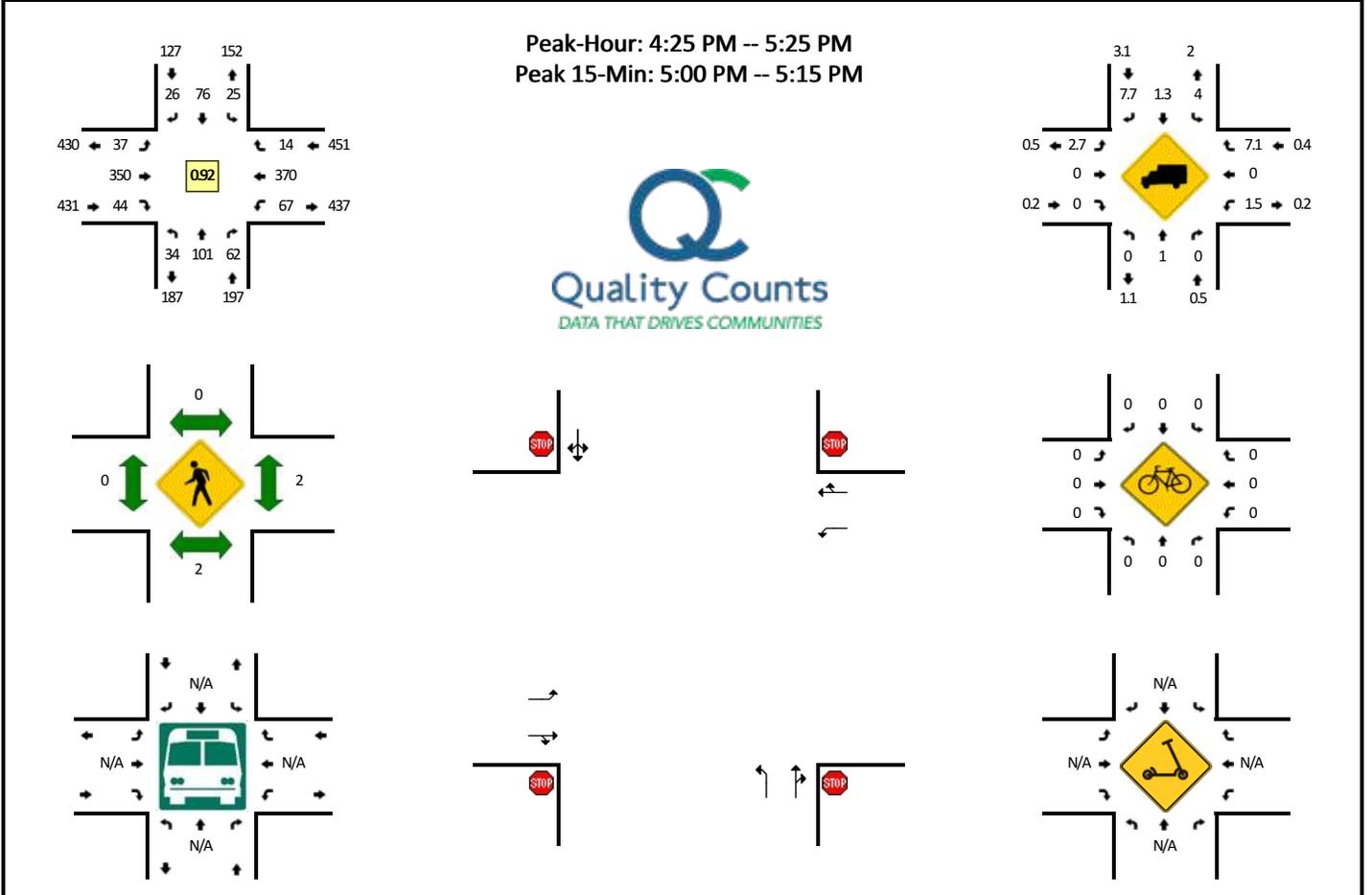


5-Min Count Period Beginning At	SE 176th Ave (Northbound)				SE 176th Ave (Southbound)				SE 20th St (Eastbound)				SE 20th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	2	3	0	0	4	3	0	1	12	1	0	3	8	0	0	38	
7:05 AM	0	0	2	0	1	3	3	0	1	11	2	0	3	10	2	0	38	
7:10 AM	1	2	3	0	0	4	3	0	0	14	1	0	3	14	0	0	45	
7:15 AM	0	2	2	0	0	4	1	0	0	8	1	0	5	12	1	0	36	
7:20 AM	1	2	0	0	0	5	2	0	0	19	1	0	1	18	0	0	49	
7:25 AM	1	4	6	0	0	4	0	0	0	17	2	0	5	10	0	0	49	
7:30 AM	1	2	3	0	0	4	1	0	1	11	1	0	5	18	2	0	49	
7:35 AM	0	6	6	0	0	7	1	0	0	15	0	0	4	8	0	0	47	
7:40 AM	3	3	6	0	1	5	3	0	1	21	1	0	5	22	3	0	74	
7:45 AM	1	1	4	0	1	5	1	0	0	13	0	0	4	15	1	0	46	
7:50 AM	1	7	4	0	0	3	1	0	0	27	3	0	7	19	1	0	73	
7:55 AM	5	5	4	0	0	10	0	0	1	13	1	0	5	18	2	0	64	608
8:00 AM	4	5	1	0	0	6	0	0	0	21	0	0	6	17	1	0	61	631
8:05 AM	1	3	5	0	0	5	2	0	0	13	4	0	1	27	1	0	62	655
8:10 AM	0	1	6	0	0	5	1	0	0	16	1	0	6	18	1	0	55	665
8:15 AM	1	6	2	0	0	2	0	0	1	8	2	0	3	22	1	0	48	677
8:20 AM	3	4	4	0	0	3	2	0	2	13	1	0	6	24	1	0	63	691
8:25 AM	1	7	4	0	0	6	0	0	1	14	2	0	3	20	1	0	59	701
8:30 AM	0	4	5	0	0	4	1	0	2	20	3	0	1	17	1	0	58	710
8:35 AM	2	4	2	0	0	2	1	0	1	18	0	0	3	17	1	0	51	714
8:40 AM	2	6	5	0	0	6	1	0	1	13	2	0	7	15	0	0	58	698
8:45 AM	5	6	5	0	0	3	0	0	0	19	1	0	8	21	0	0	68	720
8:50 AM	3	3	4	0	1	7	2	0	2	12	1	0	3	20	1	0	59	706
8:55 AM	0	2	2	0	1	3	0	0	1	10	4	0	0	22	1	0	46	688
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	40	68	36	0	0	76	4	0	4	244	16	0	72	216	16	0	792	
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	8	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 176th Ave -- SE 20th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050508
DATE: Tue, Jan 10 2023

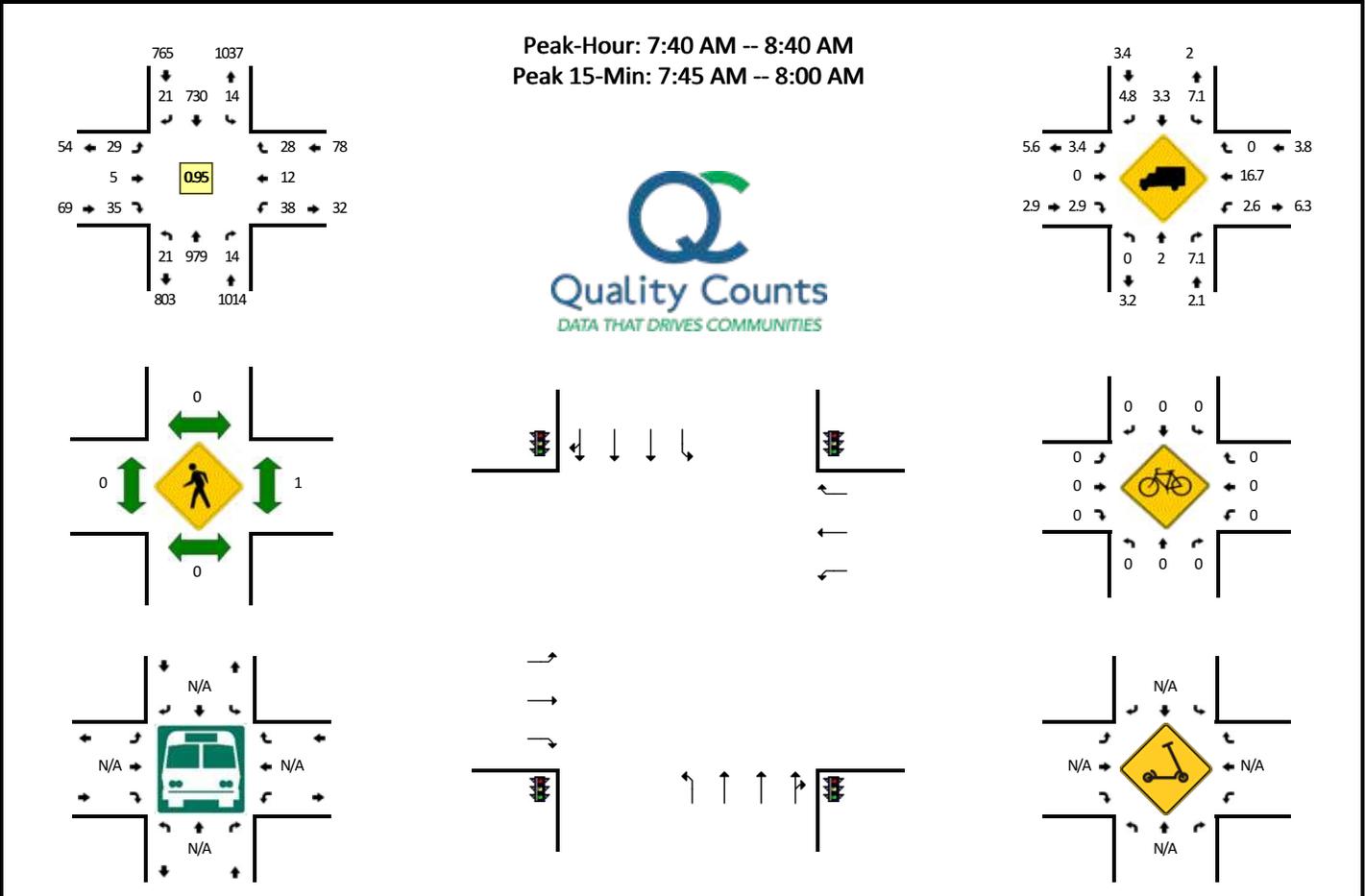


5-Min Count Period Beginning At	SE 176th Ave (Northbound)				SE 176th Ave (Southbound)				SE 20th St (Eastbound)				SE 20th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	6	5	0	3	10	2	0	4	31	0	0	3	32	1	0	99	
4:05 PM	2	9	8	0	1	11	1	0	2	35	1	0	6	37	1	0	114	
4:10 PM	3	3	9	0	4	3	2	0	1	30	2	0	2	33	1	0	93	
4:15 PM	2	5	7	0	0	8	2	0	5	18	2	0	7	23	1	0	80	
4:20 PM	4	3	10	0	0	5	1	0	2	23	2	0	1	27	0	0	78	
4:25 PM	2	3	3	0	1	6	5	0	2	32	5	0	4	36	1	0	100	
4:30 PM	4	12	9	0	2	6	3	0	7	20	2	0	8	30	0	0	103	
4:35 PM	0	9	5	0	2	7	2	0	2	20	3	0	3	35	1	0	89	
4:40 PM	2	10	3	0	3	8	1	0	4	30	2	0	5	24	3	0	95	
4:45 PM	4	8	7	0	2	3	3	0	2	33	6	0	4	21	0	0	93	
4:50 PM	3	10	5	0	1	7	2	0	4	26	4	0	4	38	1	0	105	
4:55 PM	9	12	3	0	3	4	3	0	3	31	2	0	5	29	0	0	104	1153
5:00 PM	3	10	9	0	0	6	0	0	5	23	7	0	7	36	0	0	106	1160
5:05 PM	2	8	5	0	3	13	1	0	1	34	6	0	10	32	2	0	117	1163
5:10 PM	3	6	4	0	2	3	3	0	2	36	3	0	6	35	2	0	105	1175
5:15 PM	2	5	3	0	3	8	1	0	2	34	2	0	5	27	1	0	93	1188
5:20 PM	0	8	6	0	3	5	2	0	3	31	2	0	6	27	3	0	96	1206
5:25 PM	2	11	4	0	1	9	4	0	3	21	2	0	5	29	1	0	92	1198
5:30 PM	2	5	4	0	1	7	1	0	1	26	2	0	5	27	1	0	82	1177
5:35 PM	1	2	5	0	2	8	1	0	1	19	1	0	9	22	2	0	73	1161
5:40 PM	1	7	9	0	2	3	3	0	6	25	2	0	7	21	2	0	88	1154
5:45 PM	2	5	9	0	2	2	2	0	2	28	2	0	4	22	1	0	81	1142
5:50 PM	3	8	8	0	0	4	0	0	2	19	3	0	4	28	1	0	80	1117
5:55 PM	2	6	11	0	1	8	2	0	3	15	2	0	0	22	2	0	74	1087
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	32	96	72	0	20	88	16	0	32	372	64	0	92	412	16	0	1312	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 164th Ave -- SE 29th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050511
DATE: Tue, Jan 10 2023

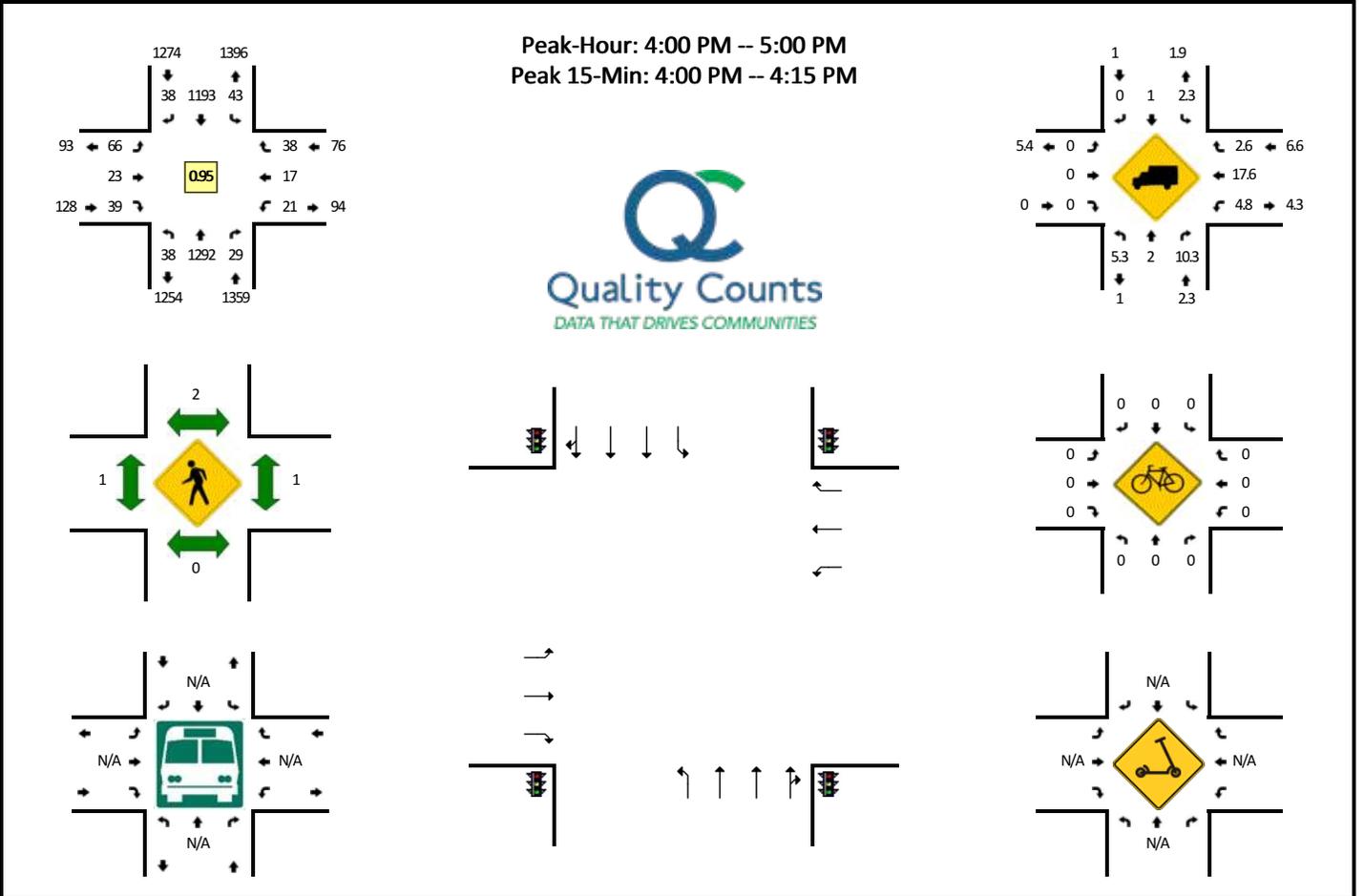


5-Min Count Period Beginning At	SE 164th Ave (Northbound)				SE 164th Ave (Southbound)				SE 29th St (Eastbound)				SE 29th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	25	0	0	0	54	1	0	0	1	0	0	5	1	2	0	92	
7:05 AM	1	26	0	0	1	71	2	0	2	0	1	0	3	0	2	0	109	
7:10 AM	0	39	0	0	0	46	1	1	0	0	4	0	10	0	4	0	105	
7:15 AM	2	50	2	0	1	59	1	0	0	1	1	0	5	1	1	0	124	
7:20 AM	0	41	1	0	2	60	1	1	1	0	1	0	7	0	1	0	116	
7:25 AM	1	60	1	0	3	67	5	0	0	0	0	0	3	2	1	0	143	
7:30 AM	1	67	3	0	1	47	3	0	1	0	3	0	2	2	2	0	132	
7:35 AM	1	55	0	0	0	52	2	0	5	0	3	0	1	0	1	0	120	
7:40 AM	2	77	1	0	1	57	2	0	3	0	7	0	5	1	5	0	161	
7:45 AM	1	89	0	0	2	59	1	0	1	2	2	0	3	1	3	0	164	
7:50 AM	2	95	3	0	1	50	2	0	5	0	4	0	4	0	2	0	168	
7:55 AM	3	94	0	0	1	64	4	0	1	0	2	0	3	2	1	0	175	1609
8:00 AM	3	90	1	0	1	45	1	0	1	1	0	0	2	1	3	0	149	1666
8:05 AM	2	63	2	0	1	78	1	0	5	0	4	0	2	0	2	0	160	1717
8:10 AM	2	98	2	0	1	48	1	1	2	1	4	0	2	1	5	0	168	1780
8:15 AM	1	57	2	0	2	70	0	0	2	1	2	0	1	1	4	0	143	1799
8:20 AM	0	95	1	0	0	62	1	0	3	0	1	0	4	2	1	0	170	1853
8:25 AM	3	82	0	0	2	71	1	0	2	0	3	0	2	2	0	0	168	1878
8:30 AM	1	69	2	0	0	48	3	0	2	0	3	0	7	1	1	0	137	1883
8:35 AM	1	70	0	0	1	78	4	0	2	0	3	0	3	0	1	0	163	1926
8:40 AM	2	71	1	0	0	56	1	0	1	1	2	0	3	2	1	0	141	1906
8:45 AM	4	87	1	0	0	67	3	0	2	1	0	0	3	1	1	0	170	1912
8:50 AM	2	91	0	0	0	46	2	0	2	2	1	0	3	1	3	0	153	1897
8:55 AM	3	73	0	0	0	60	0	0	2	1	1	0	2	0	3	0	145	1867
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	1112	12	0	16	692	28	0	28	8	32	0	40	12	24	0	2028	
Heavy Trucks	0	8	0	0	0	28	0	0	0	0	0	0	0	0	0	0	36	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 164th Ave -- SE 29th St
CITY/STATE: Vancouver, WA

QC JOB #: 16050512
DATE: Tue, Jan 10 2023

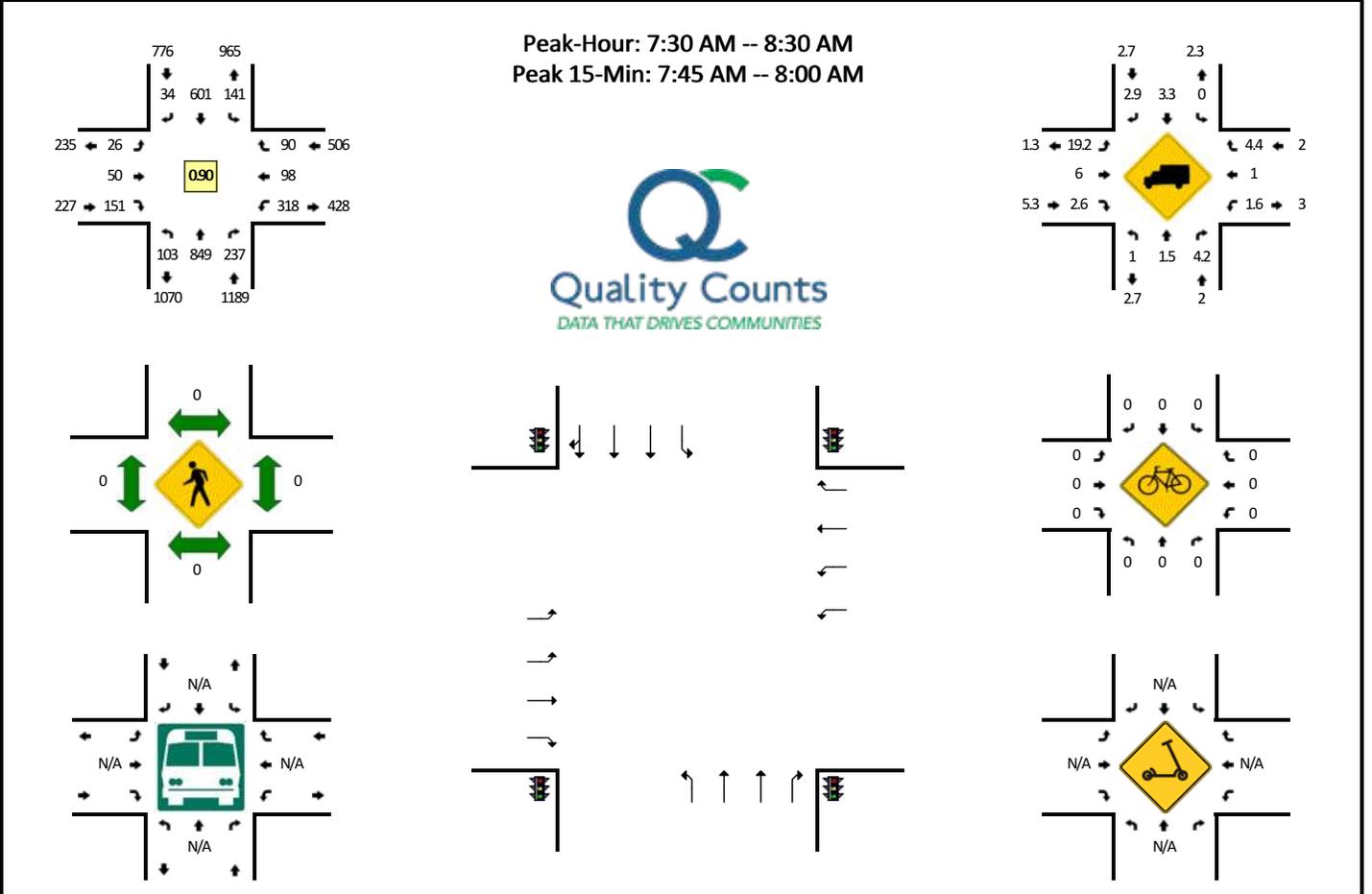


5-Min Count Period Beginning At	SE 164th Ave (Northbound)				SE 164th Ave (Southbound)				SE 29th St (Eastbound)				SE 29th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	108	4	0	3	111	4	0	8	2	1	1	0	3	2	0	249	
4:05 PM	4	114	0	0	7	81	1	0	7	5	3	0	3	3	5	0	233	
4:10 PM	1	112	1	0	5	125	3	1	3	3	2	0	1	1	4	0	262	
4:15 PM	1	118	7	1	3	91	2	0	4	0	4	0	2	4	1	0	238	
4:20 PM	5	83	3	0	6	110	3	0	6	1	0	0	3	1	4	0	225	
4:25 PM	5	110	2	0	5	64	4	0	5	0	5	0	0	3	6	0	209	
4:30 PM	0	86	0	0	2	110	7	0	2	4	7	0	1	0	3	0	222	
4:35 PM	4	112	1	0	3	89	5	0	6	4	3	0	2	2	3	0	234	
4:40 PM	5	115	5	0	3	121	2	0	14	3	2	0	5	0	4	0	279	
4:45 PM	1	130	2	0	1	87	2	0	3	0	1	0	2	0	1	0	230	
4:50 PM	3	96	2	0	2	113	4	0	4	1	6	0	0	0	1	0	232	
4:55 PM	6	108	2	0	2	91	1	0	3	0	5	0	2	0	4	0	224	2837
5:00 PM	2	81	4	0	7	108	1	0	5	2	4	0	0	0	2	0	216	2804
5:05 PM	1	99	6	1	2	99	2	0	5	3	1	0	4	1	5	0	229	2800
5:10 PM	0	87	2	0	6	128	1	0	8	0	6	0	0	1	4	0	243	2781
5:15 PM	2	117	3	0	6	89	1	2	4	2	7	0	2	0	2	0	237	2780
5:20 PM	3	87	2	0	5	125	5	2	7	3	5	0	0	1	8	0	253	2808
5:25 PM	3	70	1	0	1	77	2	0	3	2	4	0	5	4	6	0	178	2777
5:30 PM	1	72	5	0	3	110	1	3	5	1	2	0	1	2	5	0	211	2766
5:35 PM	2	105	6	0	8	72	3	0	9	1	0	0	1	0	1	0	208	2740
5:40 PM	4	94	4	0	3	99	3	0	9	2	2	0	2	3	2	0	227	2688
5:45 PM	4	96	6	0	3	72	1	0	6	4	2	0	0	1	3	0	198	2656
5:50 PM	2	97	6	0	6	105	4	1	2	1	10	0	2	0	2	0	238	2662
5:55 PM	4	70	5	0	4	63	0	1	5	1	3	0	4	0	2	0	162	2600
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	1336	20	0	60	1268	32	4	72	40	24	4	16	28	44	0	2976	
Heavy Trucks	0	32	4	0	4	12	0	0	0	0	0	0	4	4	0	0	60	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 164th Ave -- SE 34th St
CITY/STATE: Vancouver, WA

QC JOB #: 16019601
DATE: Tue, Dec 6 2022

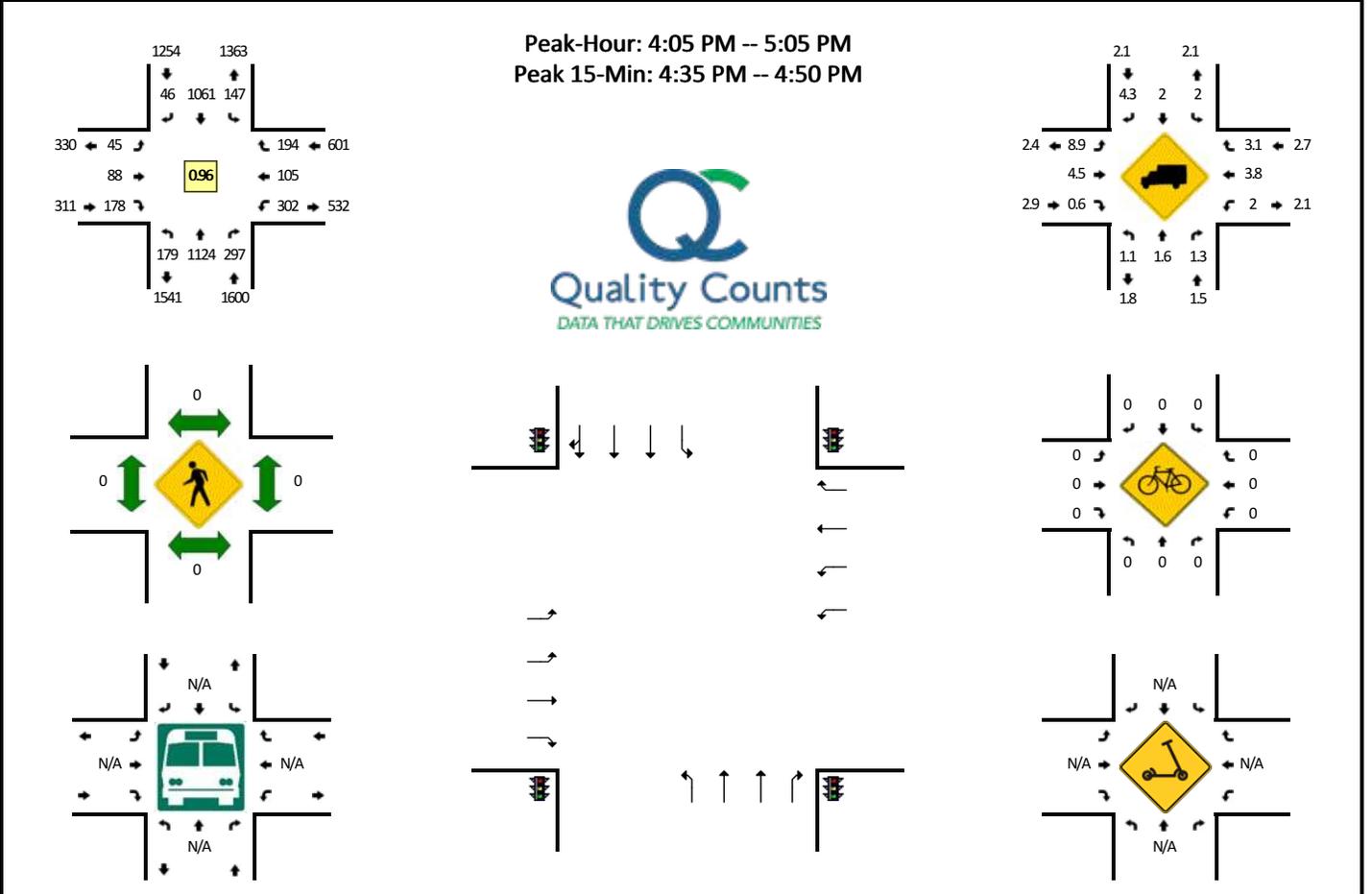


5-Min Count Period Beginning At	SE 164th Ave (Northbound)				SE 164th Ave (Southbound)				SE 34th St (Eastbound)				SE 34th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	6	49	8	0	6	31	1	0	3	2	8	0	20	4	1	0	139	
7:05 AM	7	44	10	0	9	46	3	0	1	3	13	0	16	3	4	0	159	
7:10 AM	5	31	7	0	3	48	3	0	0	3	15	0	23	7	2	0	147	
7:15 AM	4	50	18	0	9	46	2	0	4	2	11	0	27	4	6	0	183	
7:20 AM	9	54	11	0	5	41	1	0	0	4	11	0	22	11	5	0	174	
7:25 AM	2	65	12	0	10	58	2	0	3	5	8	0	26	5	8	0	204	
7:30 AM	10	43	10	0	8	47	1	0	1	4	14	0	33	20	7	0	198	
7:35 AM	5	68	21	0	13	59	4	0	2	2	8	0	22	5	10	0	219	
7:40 AM	9	54	19	0	9	58	3	0	3	5	12	0	32	8	5	0	217	
7:45 AM	12	86	27	0	19	57	6	0	1	4	6	0	24	1	9	0	252	
7:50 AM	8	81	23	0	10	46	3	0	2	8	13	0	31	11	3	0	239	
7:55 AM	7	95	24	0	19	55	4	0	0	6	15	0	24	8	4	0	261	2392
8:00 AM	8	56	22	0	13	32	0	0	4	2	9	0	27	10	13	0	196	2449
8:05 AM	8	73	16	0	14	68	3	0	0	4	5	0	32	11	7	0	241	2531
8:10 AM	11	58	25	0	4	34	1	0	3	6	15	0	25	6	9	0	197	2581
8:15 AM	10	93	17	0	14	50	5	0	2	1	19	0	16	7	12	0	246	2644
8:20 AM	9	62	15	0	8	39	3	0	5	4	24	0	30	6	7	0	212	2682
8:25 AM	6	80	18	0	10	56	1	0	3	4	11	0	22	5	4	0	220	2698
8:30 AM	10	50	9	0	11	46	4	0	4	4	12	0	23	1	9	0	183	2683
8:35 AM	5	63	12	0	14	60	1	0	1	4	10	0	20	4	6	0	200	2664
8:40 AM	8	70	16	0	7	47	2	0	2	7	9	0	29	4	12	0	213	2660
8:45 AM	4	68	18	0	15	67	4	0	2	0	8	0	33	4	6	0	229	2637
8:50 AM	9	69	22	0	11	38	0	0	2	8	16	0	17	14	9	0	215	2613
8:55 AM	8	83	21	0	9	57	2	0	2	4	8	0	26	5	4	0	229	2581
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	108	1048	296	0	192	632	52	0	12	72	136	0	316	80	64	0	3008	
Heavy Trucks	0	8	0	0	0	24	4	0	4	8	0	0	12	0	0	0	60	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SE 164th Ave -- SE 34th St
CITY/STATE: Vancouver, WA

QC JOB #: 16019602
DATE: Tue, Dec 6 2022



5-Min Count Period Beginning At	SE 164th Ave (Northbound)				SE 164th Ave (Southbound)				SE 34th St (Eastbound)				SE 34th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	81	26	0	10	70	7	0	5	3	9	0	31	10	11	0	274	
4:05 PM	18	116	26	0	6	79	3	0	3	6	24	0	24	8	15	0	328	
4:10 PM	14	84	23	0	16	94	3	0	1	8	10	0	40	10	18	0	321	
4:15 PM	19	104	31	0	8	89	4	0	1	3	14	0	13	5	15	0	306	
4:20 PM	10	73	31	0	16	106	2	0	3	7	11	0	24	7	13	0	303	
4:25 PM	17	125	23	0	14	75	6	0	1	1	17	0	19	9	12	0	319	
4:30 PM	12	81	26	0	13	80	3	0	3	7	9	0	28	3	13	0	278	
4:35 PM	18	105	22	0	5	84	5	0	6	10	20	0	24	11	13	0	323	
4:40 PM	11	77	26	0	13	96	4	0	10	10	14	0	36	14	28	0	339	
4:45 PM	22	114	21	0	14	77	5	0	2	9	17	0	21	8	12	0	322	
4:50 PM	11	81	20	0	17	80	3	0	8	13	11	0	20	10	21	0	295	
4:55 PM	17	98	26	0	11	94	6	0	2	4	12	0	22	12	16	0	320	3728
5:00 PM	10	66	22	0	14	107	2	0	5	10	19	0	31	8	18	0	312	3766
5:05 PM	16	106	23	0	12	89	4	0	5	9	17	0	23	4	16	0	324	3762
5:10 PM	8	72	24	0	14	107	5	0	4	6	14	0	27	14	21	0	316	3757
5:15 PM	11	114	29	0	10	74	1	0	4	8	14	0	14	6	9	0	294	3745
5:20 PM	11	59	26	0	18	83	0	0	2	5	10	0	22	6	18	0	260	3702
5:25 PM	19	101	32	0	10	88	3	0	6	7	17	0	12	13	15	0	323	3707
5:30 PM	12	63	24	0	21	77	3	0	1	10	16	0	19	8	15	0	269	3696
5:35 PM	15	113	35	0	10	73	2	0	5	3	14	0	26	3	11	0	310	3684
5:40 PM	6	84	23	0	10	104	1	0	8	6	15	0	27	7	9	0	300	3645
5:45 PM	14	89	35	0	5	74	6	0	3	4	10	0	16	1	9	0	266	3589
5:50 PM	11	75	25	0	7	83	3	0	0	3	13	0	22	4	9	0	255	3549
5:55 PM	17	70	21	0	7	57	2	0	3	4	9	0	12	1	10	0	213	3442

Peak 15-Min Flows	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	204	1184	276	0	128	1028	56	0	72	116	204	0	324	132	212	0	3936
Heavy Trucks	0	28	8		0	12	4		4	8	4		0	12	0		80
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scoters																	

Comments:

Appendix B WSDOT Crash Data

VEHICLE 2 COMPASS DIRECTIO N FROM	VEHICLE 2 COMPASS DIRECTIO N TO	DRIVER CONTRIB CIRCUMS TANCE 1 (UNIT 1)	DRIVER CONTRIB CIRCUMS TANCE 2 (UNIT 2)	DRIVER CONTRIB CIRCUMS TANCE 3 (UNIT 3)	DRIVER CONTRIB CIRCUMS TANCE 4 (UNIT 4)	DRIVER CONTRIB CIRCUMS TANCE 5 (UNIT 5)	DRIVER CONTRIB CIRCUMS TANCE 6 (UNIT 6)	BICYCLIST CONTRIB CIRCUMS TANCE 1 (UNIT 1)	BICYCLIST CONTRIB CIRCUMS TANCE 2 (UNIT 2)	BICYCLIST CONTRIB CIRCUMS TANCE 3 (UNIT 3)	BICYCLIST CONTRIB CIRCUMS TANCE 4 (UNIT 4)	BICYCLIST CONTRIB CIRCUMS TANCE 5 (UNIT 5)	BICYCLIST CONTRIB CIRCUMS TANCE 6 (UNIT 6)	AN CONTRIB CIRCUMS TANCE 1 (UNIT 1)	AN CONTRIB CIRCUMS TANCE 2 (UNIT 2)	AN CONTRIB CIRCUMS TANCE 3 (UNIT 3)	IMPACT LOCATIO N (City, County & Misc Traffic)	WA STATE PLANE 2010 -	WA STATE PLANE 2010 -
West	East	Under Influence of Alcohol	None														Past the O	1134740	107246
West	West	Disregard Traffic Sign and Signals	None														Lane of Pri	1134740	107246
South	North	Disregard Inattention	Driver Not Distracted														Lane of Pri	1127533	103833.3
		Inattention	None														Past the O	1127523	103531.1
Vehicle StoVehicle Stc	Inattention	None	None														Lane of Pri	1127534	103903.5
East	West	Inattention	None														Lane of Pri	1130577	106130.2
		Under Infr/Improper T/Driver Interacting with Passengers, Anim	Improper T/Non Motorist on Wrong Side of Road														Median of	1130488	102486.5
West	East	Did Not Grant RW to Vehicle	None														Past the O	1130538	102488.5
West	North	Unknown Distraction	None														Lane of Pri	1130865	102504.3
Vehicle StoVehicle Stc	Other Contributing Circ Not Listed	None	None														Lane of Pri	1134740	107247.5
East	West	Lost in Thought / Day Dreaming	None														Lane of Pri	1134740	107246
East	West	Disregard Stop and Go Light	None														Lane of Pri	1134777	107244.7
North	East	Inattention	None														Lane of Pri	1134777	107244.7
South	North	Operating Defective Equipment	None														Lane of Pri	1134750	105040.2
West	East	Disregard Traffic Sign and Signals	None														Lane of Pri	1134715	106043.2
South	East	Follow Too Closely	None														Lane of Pri	1134715	106044.3
		Under Influence of Alcohol	None														Past the O	1134715	106044.3
East	West	Inattention	None														Lane of Pri	1134035	102365.8
East	West	Improper Turn/Merge	None														Lane of Pri	1134082	102401.8
North	South	Did Not Grant RW to Vehicle	None														Lane of Pri	1134036	102366.8
South	North	Other Contributing Circ Not Listed	None														Lane of Pri	1134036	102366.8
North	South	Eating or Drinking	Follow Too Closely														Lane of Pri	1134740	107338.6
Vehicle StoVehicle Stc	Inattention	None	None														Lane of Pri	1134772	106925.8
South	North	Follow Too Closely	None														Lane of Pri	1134743	105708.5
South	North	Operating Defective Equipment	None														Lane of Pri	1134709	105793.3
South	North	None	Exceeding Reas. Safe Speed														Lane of Pri	1134749	105002.0
Vehicle StoVehicle Stc	None	None	None														Lane of Pri	1134754	106201.9
Vehicle StoVehicle Stc	Inattention	None	None														Lane of Pri	1134718	106158.5
North	South	None	Follow Too Closely														Lane of Pri	1134724	106336.9
North	South	Inattention	None														Lane of Pri	1134716	106088
Vehicle StoVehicle Stc	Disregard Inattention	None	None														Lane of Pri	1134748	105927
South	North	Did Not Grant RW to Vehicle	None														Lane of Pri	1134708	105753
		Apparently Asleep or Fatigued	None														Past the O	1134640	104752.7
		Exceeding Reas. Safe Speed	None														Median of	1134522	104623.8
		None	None														Lane of Pri	1134352	104179.8
		Unknown Distraction	None														Lane of Pri	1134391	104249.2
		None	None														Past the O	1134710	104844.9
North	South	Distractions Outside Vehicle	None														Lane of Pri	1134749	105872.6
East	Vehicle Stc	Lost in Thought / Day Dreaming	None														Lane of Pri	1134798	99963.43
Vehicle StoVehicle Stc	Operating Handheld Cell Phone	None	None														Lane of Pri	1130576	106107.9
West	North	Unknown Distraction	Unknown Distraction														Lane of Pri	1130650	105128.4
ipped	None	None	None														Lane of Pri	1130577	106130.2
Vehicle StoVehicle Stc	Operating Defective Equipment	None	None														Lane of Pri	1130576	106107.2
Vehicle StoVehicle Stc	Other Contributing Circ Not Listed	None	None														Lane of Pri	1130642	106110.3
East	West	Under Infr/Inattention Did Not Gr	None														Lane of Pri	1130576	106107.9
East	South	Other Contributing Circ Not Listed	None														Lane of Pri	1130577	106130.2
		Other Contributing Circ Not Listed	None														Lane of Pri	1134756	106043.6
East	West	Disregard / Apparently Asleep or I/None	None														Lane of Pri	1134715	106044.3
East	West	Unknown Distraction	None														Lane of Pri	1130509	105131.6
		Exceeding Reas. Safe Speed	None														Lane of Pri	1130643	106128.6
West	East	None	None														Inattention	1130276	106136.1
South	North	Other Contributing Circ Not Listed	None														Past the O	1127533	103863.9
		None	None														Lane of Pri	1127535	103833.4
		Lost in Thought / Day Dreaming	None														Intersectin	1130524	103788.2
East	West	Improper Turn/Merge	None														Lane of Pri	1130524	103788.1
East	West	Did Not Gr Distractions Outside Vehicle	None														Lane of Pri	1130488	102508.7
East	West	Improper Turn/Merge	None														Intersectin	1130488	102509.4
East	West	Disregard Inattention Did Not Gr	None														Lane of Pri	1130488	102508.7
East	West	Inattention	None														Lane of Pri	1130488	102509.4
North	Southeast	Unknown Disregard Traffic Sign	None														Lane of Pri	1130488	102508.7
East	West	Did Not Grant RW to Vehicle	None														Lane of Pri	1130488	102509.4
East	South	Inattention	Inattention														Lane of Pri	1134035	102365.8
West	East	Under Infr/Did Not Grant RW to V	None														Lane of Pri	1134036	102366.8
East	West	Improper Turn/Merge	None														Lane of Pri	1134081	102401.8
East	West	Apparently Ill	None														Lane of Pri	1134036	102402.6
West	East	Operating Other Electronic Devise	None														Lane of Pri	1134035	102365.8
South	South	Disregard / Exceeding / Operating	None														Lane of Pri	1134035	102365.8
West	East	Did Not Grant RW to Vehicle	Exceeding Reas. Safe Speed														Lane of Pri	1134081	102363.0
East	West	Did Not Grant RW to Vehicle	None														Lane of Pri	1134079	102401.8
South	North	Disregard / Distractions Outside V	None														Lane of Pri	1134082	102401.8
East	West	Did Not Grant RW to Vehicle	None														Lane of Pri	1134036	102366.8
		Other Contributing Circ Not Listed	None														Past the O	1134082	102401.8
West	East	None	None														Lane of Pri	1134035	102365.8
East	West	Inattention	None														Lane of Pri	1134035	102365.8
West	East	Did Not Grant RW to Vehicle	None														Lane of Pri	1134036	102366.8
West	East	Disregard Traffic Sign and Signals	None														Lane of Pri	1134036	102366.8
West	South	Exceeding Reas. Safe Speed	None														Lane of Pri	1132562	102384.2
East	East	Other Contributing Circ Not Listed	None														Lane of Pri	1134549	102354.6
North	North	None	Did Not Grant RW to Vehicle														Lane of Pri	1134558	102354.5
		Under Influence of Alcohol	None														Past the O	1134792	102350.2
West	East	Did Not Grant RW to Vehicle	None														Lane of Pri	1134535	102354.9
		Improper Turn/Merge	None														Other Loca	1134561	102354.4
		None	None														Intersectin	1134552	102390.4
		Operating Recklessly or Aggressively	None														Past the O	1134507	102355.5
East	West	Improper T/Did Not Grant RW to V	None														Lane of Pri	1134536	102390.8
		None	None																

Appendix C Existing Operations Worksheets

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Existing AM Peak Hour Conditions

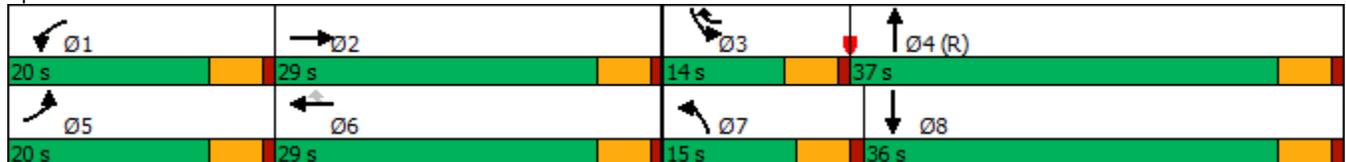
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	117	37	24	52	41	38	540	28	550
Future Volume (vph)	117	37	24	52	41	38	540	28	550
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases					6				
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	20.0	29.0	20.0	29.0	14.0	15.0	37.0	14.0	36.0
Total Split (%)	20.0%	29.0%	20.0%	29.0%	14.0%	15.0%	37.0%	14.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	10.8	16.9	5.7	9.8	18.8	6.3	57.4	6.0	59.1
Actuated g/C Ratio	0.11	0.17	0.06	0.10	0.19	0.06	0.57	0.06	0.59
v/c Ratio	0.71	0.23	0.28	0.33	0.13	0.39	0.32	0.33	0.36
Control Delay	62.4	21.8	52.5	44.1	2.8	59.1	12.5	53.7	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	21.8	52.5	44.1	2.8	59.1	12.5	53.7	15.3
LOS	E	C	D	D	A	E	B	D	B
Approach Delay		47.9		31.2			15.5		17.0
Approach LOS		D		C			B		B

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 9 (9%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 21.2
 Intersection Capacity Utilization 49.0%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 1: SE 192nd & SE 15th St



HCM 6th Signalized Intersection Summary
 1: SE 192nd & SE 15th St

Vancouver Innovation Center
 Existing AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	37	28	24	52	41	38	540	13	28	550	67
Future Volume (veh/h)	117	37	28	24	52	41	38	540	13	28	550	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1796	1781	1841	1870	1856	1841	1900	1737	1767	1856
Adj Flow Rate, veh/h	133	42	1	27	59	0	43	614	14	32	625	69
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	0	7	8	4	2	3	4	0	11	9	3
Cap, veh/h	162	215	5	45	93	127	62	2194	50	49	1898	209
Arrive On Green	0.09	0.12	0.12	0.03	0.05	0.00	0.07	1.00	1.00	0.03	0.62	0.62
Sat Flow, veh/h	1767	1848	44	1697	1841	1585	1767	3493	80	1654	3048	336
Grp Volume(v), veh/h	133	0	43	27	59	0	43	307	321	32	344	350
Grp Sat Flow(s),veh/h/ln	1767	0	1892	1697	1841	1585	1767	1749	1824	1654	1678	1706
Q Serve(g_s), s	7.4	0.0	2.1	1.6	3.1	0.0	2.4	0.0	0.0	1.9	9.7	9.8
Cycle Q Clear(g_c), s	7.4	0.0	2.1	1.6	3.1	0.0	2.4	0.0	0.0	1.9	9.7	9.8
Prop In Lane	1.00		0.02	1.00		1.00	1.00		0.04	1.00		0.20
Lane Grp Cap(c), veh/h	162	0	220	45	93	127	62	1098	1146	49	1045	1062
V/C Ratio(X)	0.82	0.00	0.20	0.60	0.63	0.00	0.70	0.28	0.28	0.66	0.33	0.33
Avail Cap(c_a), veh/h	265	0	454	254	442	427	177	1098	1146	149	1045	1062
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	0.0	40.0	48.2	46.5	0.0	46.0	0.0	0.0	48.0	9.0	9.0
Incr Delay (d2), s/veh	4.0	0.0	0.2	4.8	2.6	0.0	5.0	0.6	0.6	5.5	0.8	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(95%),veh/ln	6.0	0.0	1.7	1.3	2.7	0.0	1.9	0.3	0.3	1.5	6.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	0.0	40.1	52.9	49.2	0.0	51.0	0.6	0.6	53.5	9.8	9.8
LnGrp LOS	D	A	D	D	D	A	D	A	A	D	A	A
Approach Vol, veh/h		176			86			671			726	
Approach Delay, s/veh		46.5			50.3			3.8			11.7	
Approach LOS		D			D			A			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	16.6	7.9	67.8	14.2	10.1	8.5	67.3				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	24.0	9.0	32.0	15.0	24.0	10.0	31.0				
Max Q Clear Time (g_c+I1), s	3.6	4.1	3.9	2.0	9.4	5.1	4.4	11.8				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.1	0.0	0.1	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			14.2									
HCM 6th LOS			B									

Timings
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Existing AM Peak Hour Conditions

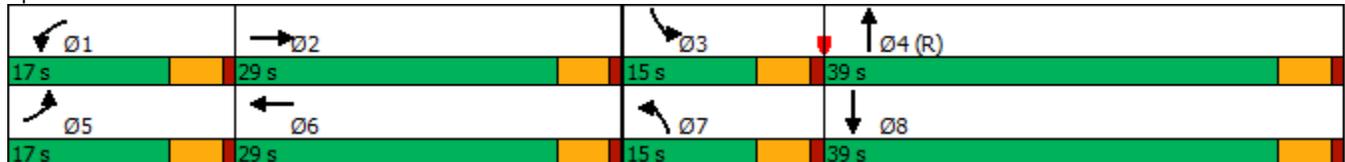


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↖	↖↗	↖	↖	↕↗	↖	↕↗
Traffic Volume (vph)	73	140	78	127	36	419	73	438
Future Volume (vph)	73	140	78	127	36	419	73	438
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	17.0	29.0	17.0	29.0	15.0	39.0	15.0	39.0
Total Split (%)	17.0%	29.0%	17.0%	29.0%	15.0%	39.0%	15.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	6.8	15.6	6.9	15.7	7.0	52.5	8.9	52.4
Actuated g/C Ratio	0.07	0.16	0.07	0.16	0.07	0.52	0.09	0.52
v/c Ratio	0.35	0.73	0.36	0.75	0.34	0.33	0.51	0.31
Control Delay	48.2	50.7	48.2	50.0	68.1	5.9	54.0	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	50.7	48.2	50.0	68.1	5.9	54.0	20.7
LOS	D	D	D	D	E	A	D	C
Approach Delay		50.0		49.5		9.9		25.0
Approach LOS		D		D		A		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 28.1
 Intersection Capacity Utilization 54.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 2: SE 20th St & SE 192nd Ave



HCM 6th Signalized Intersection Summary
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Existing AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↕↔		↔	↕↔	
Traffic Volume (veh/h)	73	140	56	78	127	78	36	419	107	73	438	59
Future Volume (veh/h)	73	140	56	78	127	78	36	419	107	73	438	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1841	1885	1885	1885	1811	1856	1841	1885	1811	1826
Adj Flow Rate, veh/h	81	156	44	87	141	60	40	466	100	81	487	57
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	0	4	1	1	1	6	3	4	1	6	5
Cap, veh/h	153	190	54	159	169	72	86	1628	347	104	1772	207
Arrive On Green	0.04	0.13	0.13	0.05	0.13	0.13	0.05	0.56	0.56	0.06	0.57	0.57
Sat Flow, veh/h	3428	1426	402	3483	1255	534	1725	2890	616	1795	3104	362
Grp Volume(v), veh/h	81	0	200	87	0	201	40	283	283	81	269	275
Grp Sat Flow(s),veh/h/ln	1714	0	1828	1742	0	1789	1725	1763	1744	1795	1721	1746
Q Serve(g_s), s	2.3	0.0	10.6	2.4	0.0	11.0	2.3	8.4	8.5	4.5	8.0	8.0
Cycle Q Clear(g_c), s	2.3	0.0	10.6	2.4	0.0	11.0	2.3	8.4	8.5	4.5	8.0	8.0
Prop In Lane	1.00		0.22	1.00		0.30	1.00		0.35	1.00		0.21
Lane Grp Cap(c), veh/h	153	0	244	159	0	240	86	993	982	104	982	997
V/C Ratio(X)	0.53	0.00	0.82	0.55	0.00	0.84	0.46	0.29	0.29	0.78	0.27	0.28
Avail Cap(c_a), veh/h	411	0	439	418	0	429	172	993	982	180	982	997
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	46.7	0.0	42.2	46.7	0.0	42.2	46.2	11.4	11.4	46.5	10.9	10.9
Incr Delay (d2), s/veh	1.0	0.0	2.6	1.1	0.0	3.0	1.4	0.7	0.7	4.4	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	0.0	8.4	1.9	0.0	8.5	1.8	5.7	5.7	3.7	5.3	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	0.0	44.8	47.8	0.0	45.2	47.6	12.1	12.1	50.9	11.6	11.6
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		281			288			606			625	
Approach Delay, s/veh		45.6			46.0			14.5			16.7	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	18.3	10.8	61.3	9.5	18.4	10.0	62.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	24.0	10.0	34.0	12.0	24.0	10.0	34.0				
Max Q Clear Time (g_c+I1), s	4.4	12.6	6.5	10.5	4.3	13.0	4.3	10.0				
Green Ext Time (p_c), s	0.1	0.5	0.0	2.0	0.1	0.5	0.0	1.9				

Intersection Summary

HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↔		↘	↕↕
Traffic Vol, veh/h	7	10	558	3	7	595
Future Vol, veh/h	7	10	558	3	7	595
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	20	4	67	0	7
Mvmt Flow	8	11	607	3	8	647

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	950	306	0	0	611
Stage 1	610	-	-	-	-
Stage 2	340	-	-	-	-
Critical Hdwy	6.8	7.3	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.5	-	-	2.2
Pot Cap-1 Maneuver	262	639	-	-	978
Stage 1	510	-	-	-	-
Stage 2	698	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	260	638	-	-	977
Mov Cap-2 Maneuver	260	-	-	-	-
Stage 1	509	-	-	-	-
Stage 2	692	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	260	638	977
HCM Lane V/C Ratio	-	-	0.029	0.017	0.008
HCM Control Delay (s)	-	-	19.3	10.7	8.7
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	0

Timings
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Existing AM Peak Hour Conditions

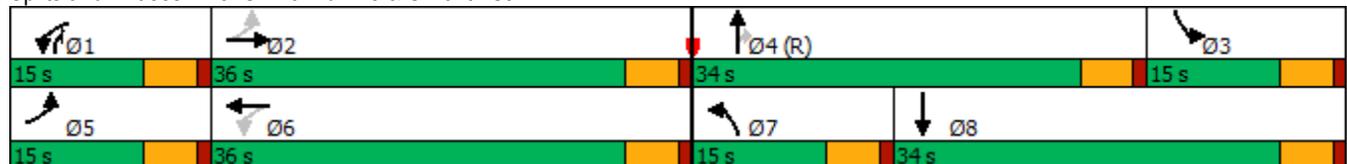
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	66	123	143	95	70	520	290	88	380
Future Volume (vph)	66	123	143	95	70	520	290	88	380
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6	7	4	1	3	8
Permitted Phases	2		6				4		
Detector Phase	5	2	1	6	7	4	1	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	15.0	36.0	15.0	36.0	15.0	34.0	15.0	15.0	34.0
Total Split (%)	15.0%	36.0%	15.0%	36.0%	15.0%	34.0%	15.0%	15.0%	34.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	19.0	11.9	24.1	16.2	6.0	51.8	62.1	9.0	54.8
Actuated g/C Ratio	0.19	0.12	0.24	0.16	0.06	0.52	0.62	0.09	0.55
v/c Ratio	0.31	0.41	0.55	0.27	0.38	0.35	0.30	0.33	0.31
Control Delay	29.0	34.7	35.3	24.8	50.2	18.2	1.8	36.9	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	34.7	35.3	24.8	50.2	18.2	1.8	36.9	11.1
LOS	C	C	D	C	D	B	A	D	B
Approach Delay		33.0		30.1		15.3			15.2
Approach LOS		C		C		B			B

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 40 (40%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 19.4
 Intersection Capacity Utilization 56.4%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 5: SE 192nd Ave & SE 34th St



HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Existing AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	123	28	143	95	45	70	520	290	88	380	84
Future Volume (veh/h)	66	123	28	143	95	45	70	520	290	88	380	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1728	1803	1847	1943	2018	1988	2018	1883	1988	1832	1684	1684
Adj Flow Rate, veh/h	77	143	4	166	110	1	81	605	177	102	442	83
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	8	3	0	5	0	2	0	9	2	1	11	11
Cap, veh/h	266	302	8	315	514	5	167	1037	652	1094	1530	285
Arrive On Green	0.05	0.09	0.09	0.10	0.13	0.13	0.04	0.29	0.29	0.32	0.57	0.57
Sat Flow, veh/h	1646	3402	95	1850	3892	35	3728	3578	1681	3385	2691	502
Grp Volume(v), veh/h	77	72	75	166	54	57	81	605	177	102	262	263
Grp Sat Flow(s),veh/h/ln	1646	1712	1784	1850	1917	2011	1864	1789	1681	1693	1600	1593
Q Serve(g_s), s	4.2	4.0	4.0	7.9	2.5	2.5	2.1	14.5	1.6	2.1	8.4	8.6
Cycle Q Clear(g_c), s	4.2	4.0	4.0	7.9	2.5	2.5	2.1	14.5	1.6	2.1	8.4	8.6
Prop In Lane	1.00		0.05	1.00		0.02	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	266	152	159	315	253	265	167	1037	652	1094	909	906
V/C Ratio(X)	0.29	0.47	0.47	0.53	0.21	0.21	0.49	0.58	0.27	0.09	0.29	0.29
Avail Cap(c_a), veh/h	341	531	553	319	594	623	373	1037	652	1094	909	906
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)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	43.3	43.3	35.3	38.8	38.8	46.6	30.3	8.9	23.6	11.1	11.2
Incr Delay (d2), s/veh	0.2	0.8	0.8	0.7	0.2	0.1	0.8	2.4	1.0	0.0	0.8	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(95%),veh/ln	3.0	3.0	3.2	6.3	2.1	2.2	1.8	10.4	2.8	1.5	5.2	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	44.2	44.1	36.1	38.9	38.9	47.5	32.7	9.9	23.6	11.9	12.0
LnGrp LOS	D	D	D	D	D	D	D	C	A	C	B	B
Approach Vol, veh/h		224			277			863			627	
Approach Delay, s/veh		42.3			37.2			29.4			13.8	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	13.9	37.3	34.0	10.5	18.2	9.5	61.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	31.0	10.0	29.0	10.0	31.0	10.0	29.0				
Max Q Clear Time (g_c+I1), s	9.9	6.0	4.1	16.5	6.2	4.5	4.1	10.6				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.3	0.0	0.2	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			27.0									
HCM 6th LOS			C									

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Existing AM Peak Hour Conditions

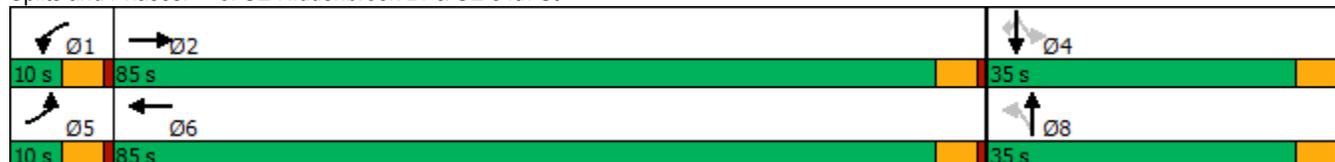


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕	↙	↕		↕	↙
Traffic Volume (vph)	36	218	25	189	63	1	4	0	2
Future Volume (vph)	36	218	25	189	63	1	4	0	2
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		4
Detector Phase	5	2	1	6	8	8	4	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	27.0	10.0	27.0	32.0	32.0	34.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Min	None	Min	None	None	None	None	None
Act Effct Green (s)	5.5	24.3	5.5	22.3	8.8	8.8		8.8	8.8
Actuated g/C Ratio	0.13	0.58	0.13	0.53	0.21	0.21		0.21	0.21
v/c Ratio	0.18	0.15	0.13	0.15	0.27	0.13		0.02	0.01
Control Delay	24.1	8.4	24.0	9.5	16.0	6.1		13.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	24.1	8.4	24.0	9.5	16.0	6.1		13.2	0.0
LOS	C	A	C	A	B	A		B	A
Approach Delay		10.4		10.9		12.2		9.5	
Approach LOS		B		B		B		A	

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 41.8
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.27
 Intersection Signal Delay: 10.9
 Intersection LOS: B
 Intersection Capacity Utilization 39.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Existing AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	218	24	25	189	36	63	1	38	4	0	2
Future Volume (veh/h)	36	218	24	25	189	36	63	1	38	4	0	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1876	1802	1876	1832	1876	1876	1900	1900	1900
Adj Flow Rate, veh/h	44	269	19	31	233	24	78	1	0	5	0	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	0	4	0	0	5	0	3	0	0	0	0	0
Cap, veh/h	90	1493	105	67	1374	140	320	150	0	322	0	129
Arrive On Green	0.05	0.45	0.45	0.04	0.44	0.44	0.08	0.08	0.00	0.08	0.00	0.00
Sat Flow, veh/h	1810	3314	233	1787	3136	320	1388	1876	0	1430	0	1610
Grp Volume(v), veh/h	44	141	147	31	126	131	78	1	0	5	0	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1798	1787	1712	1743	1388	1876	0	1430	0	1610
Q Serve(g_s), s	0.8	1.7	1.7	0.6	1.6	1.6	1.7	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.8	1.7	1.7	0.6	1.6	1.6	1.9	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.18	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	788	810	67	750	764	320	150	0	322	0	129
V/C Ratio(X)	0.49	0.18	0.18	0.47	0.17	0.17	0.24	0.01	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	261	4031	4144	257	3947	4019	1409	1622	0	1450	0	1392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.1	5.7	5.7	16.4	5.9	5.9	15.5	14.7	0.0	14.8	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.0	1.9	0.0	0.0	0.1	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.6	0.6	0.4	0.5	0.5	0.9	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	5.7	5.7	18.2	6.0	6.0	15.7	14.7	0.0	14.8	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	B	A	B	A	A
Approach Vol, veh/h		332			288			79				5
Approach Delay, s/veh		7.3			7.3			15.7				14.8
Approach LOS		A			A			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	20.6		7.8	6.7	20.2		7.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	2.6	3.7		2.1	2.8	3.6		3.9				
Green Ext Time (p_c), s	0.0	0.5		0.0	0.0	0.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				8.3								
HCM 6th LOS				A								

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗			↕			↖	↗
Traffic Vol, veh/h	137	261	11	5	243	6	29	0	16	1	0	15
Future Vol, veh/h	137	261	11	5	243	6	29	0	16	1	0	15
Conflicting Peds, #/hr	3	0	3	3	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	140	-	-	95	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	3	3	0	0	5	0	0	0	0	0	0	27
Mvmt Flow	161	307	13	6	286	7	34	0	19	1	0	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	296	0	0	323	0	0	794	947	163	781	950	150
Stage 1	-	-	-	-	-	-	639	639	-	305	305	-
Stage 2	-	-	-	-	-	-	155	308	-	476	645	-
Critical Hdwy	4.16	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	7.44
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.23	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.57
Pot Cap-1 Maneuver	1255	-	-	1248	-	-	282	263	859	288	262	796
Stage 1	-	-	-	-	-	-	436	474	-	685	666	-
Stage 2	-	-	-	-	-	-	838	664	-	544	471	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1251	-	-	1244	-	-	247	226	857	252	226	794
Mov Cap-2 Maneuver	-	-	-	-	-	-	247	226	-	252	226	-
Stage 1	-	-	-	-	-	-	379	411	-	595	661	-
Stage 2	-	-	-	-	-	-	815	659	-	464	409	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.8			0.2			17.9			10.2		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	331	1251	-	-	1244	-	-	252	794
HCM Lane V/C Ratio	0.16	0.129	-	-	0.005	-	-	0.005	0.022
HCM Control Delay (s)	17.9	8.3	-	-	7.9	-	-	19.4	9.6
HCM Lane LOS	C	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.6	0.4	-	-	0	-	-	0	0.1

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Existing AM Peak Hour Conditions

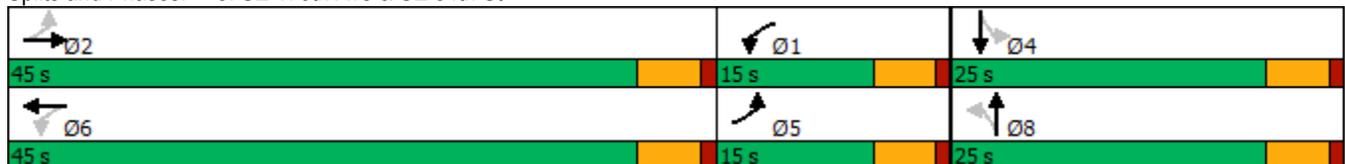


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Traffic Volume (vph)	45	348	2	242	14	5	57	3
Future Volume (vph)	45	348	2	242	14	5	57	3
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	24.9	22.8	24.7	21.3	8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.61	0.56	0.61	0.53	0.21	0.21	0.21	0.21
v/c Ratio	0.08	0.21	0.00	0.19	0.06	0.03	0.22	0.33
Control Delay	6.7	9.5	7.0	9.5	13.4	10.6	15.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	9.5	7.0	9.5	13.4	10.6	15.0	5.5
LOS	A	A	A	A	B	B	B	A
Approach Delay		9.2		9.5		12.2		8.5
Approach LOS		A		A		B		A

Intersection Summary

Cycle Length: 85
 Actuated Cycle Length: 40.5
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.33
 Intersection Signal Delay: 9.2
 Intersection Capacity Utilization 41.3%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Existing AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	348	2	2	242	43	14	5	4	57	3	122
Future Volume (veh/h)	45	348	2	2	242	43	14	5	4	57	3	122
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	1.00		0.99	0.99		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1856	1900	1900	1811	1826	1900	1900	1530	1870	1900	1885
Adj Flow Rate, veh/h	53	409	1	2	285	30	16	6	0	67	4	3
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	9	3	0	0	6	5	0	0	25	2	0	1
Cap, veh/h	657	1510	4	648	1321	138	343	199	0	342	105	79
Arrive On Green	0.06	0.42	0.42	0.06	0.42	0.42	0.10	0.10	0.00	0.10	0.10	0.10
Sat Flow, veh/h	1682	3608	9	1810	3142	328	1415	1900	0	1394	1004	753
Grp Volume(v), veh/h	53	200	210	2	155	160	16	6	0	67	0	7
Grp Sat Flow(s),veh/h/ln	1682	1763	1854	1810	1721	1750	1415	1900	0	1394	0	1757
Q Serve(g_s), s	0.0	2.7	2.7	0.0	2.1	2.1	0.4	0.1	0.0	1.6	0.0	0.1
Cycle Q Clear(g_c), s	0.0	2.7	2.7	0.0	2.1	2.1	0.5	0.1	0.0	1.7	0.0	0.1
Prop In Lane	1.00		0.00	1.00		0.19	1.00		0.00	1.00		0.43
Lane Grp Cap(c), veh/h	657	738	776	648	724	736	343	199	0	342	0	184
V/C Ratio(X)	0.08	0.27	0.27	0.00	0.21	0.22	0.05	0.03	0.00	0.20	0.00	0.04
Avail Cap(c_a), veh/h	1030	1964	2065	1044	1917	1949	984	1058	0	973	0	978
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.4	6.8	6.8	6.4	6.6	6.6	14.7	14.4	0.0	15.2	0.0	14.5
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	0.1	0.1	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	1.0	1.1	0.0	0.8	0.8	0.2	0.1	0.0	0.8	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	6.9	6.9	6.4	6.7	6.7	14.7	14.5	0.0	15.3	0.0	14.5
LnGrp LOS	A	A	A	A	A	A	B	B	A	B	A	B
Approach Vol, veh/h		463			317			22			74	
Approach Delay, s/veh		6.9			6.7			14.6			15.2	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	20.0		8.8	7.1	20.1		8.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	4.7		3.7	2.0	4.1		2.5				
Green Ext Time (p_c), s	0.0	1.4		0.1	0.0	1.1		0.0				

Intersection Summary

HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	4	10	4	105	167	11
Future Vol, veh/h	4	10	4	105	167	11
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	10	0	2	1	18
Mvmt Flow	5	12	5	124	196	13

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	337	205	209	0	-	0
Stage 1	203	-	-	-	-	-
Stage 2	134	-	-	-	-	-
Critical Hdwy	6.4	6.3	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.39	2.2	-	-	-
Pot Cap-1 Maneuver	663	816	1374	-	-	-
Stage 1	836	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	660	814	1374	-	-	-
Mov Cap-2 Maneuver	660	-	-	-	-	-
Stage 1	833	-	-	-	-	-
Stage 2	897	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1374	-	763	-	-
HCM Lane V/C Ratio	0.003	-	0.022	-	-
HCM Control Delay (s)	7.6	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷			↷	
Traffic Vol, veh/h	9	195	20	56	235	11	25	58	47	0	55	9
Future Vol, veh/h	9	195	20	56	235	11	25	58	47	0	55	9
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	4	10	4	1	9	4	3	0	0	0	0
Mvmt Flow	10	214	22	62	258	12	27	64	52	0	60	10
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	11.4	11.5	10	10.1
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	55%	0%	91%	0%	96%	86%
Vol Right, %	0%	45%	0%	9%	0%	4%	14%
Sign Control	Stop						
Traffic Vol by Lane	25	105	9	215	56	246	64
LT Vol	25	0	9	0	56	0	0
Through Vol	0	58	0	195	0	235	55
RT Vol	0	47	0	20	0	11	9
Lane Flow Rate	27	115	10	236	62	270	70
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.051	0.189	0.017	0.366	0.103	0.41	0.122
Departure Headway (Hd)	6.732	5.892	6.086	5.584	6.049	5.461	6.224
Convergence, Y/N	Yes						
Cap	533	609	591	647	595	662	576
Service Time	4.463	3.623	3.794	3.291	3.756	3.168	4.258
HCM Lane V/C Ratio	0.051	0.189	0.017	0.365	0.104	0.408	0.122
HCM Control Delay	9.8	10	8.9	11.5	9.5	11.9	10.1
HCM Lane LOS	A	A	A	B	A	B	B
HCM 95th-tile Q	0.2	0.7	0.1	1.7	0.3	2	0.4

Timings
11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
Existing AM Peak Hour Conditions

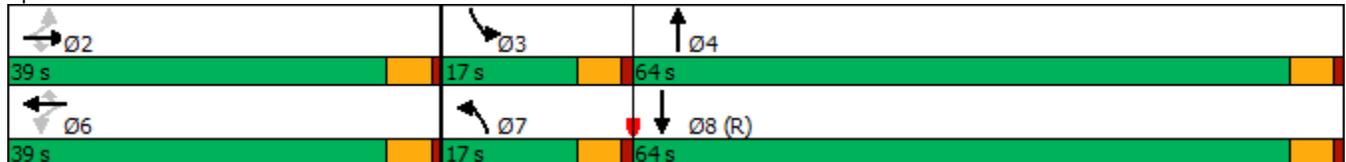
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	29	5	35	38	12	28	21	979	14	730
Future Volume (vph)	29	5	35	38	12	28	21	979	14	730
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		2			6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	2	2	2	6	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	39.0	39.0	39.0	38.0	38.0	38.0	10.0	32.0	10.0	32.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	39.0	17.0	64.0	17.0	64.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	14.2%	53.3%	14.2%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	14.6	14.6	14.6	14.6	14.6	14.6	5.6	95.1	5.3	92.8
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.12	0.12	0.05	0.79	0.04	0.77
v/c Ratio	0.18	0.02	0.15	0.24	0.07	0.12	0.26	0.26	0.20	0.20
Control Delay	46.2	40.2	3.9	47.7	42.3	1.5	39.6	18.0	61.4	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	40.2	3.9	47.7	42.3	1.5	39.6	18.0	61.4	6.3
LOS	D	D	A	D	D	A	D	B	E	A
Approach Delay		24.4			30.5			18.4		7.3
Approach LOS		C			C			B		A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 85 (71%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.26
 Intersection Signal Delay: 14.7
 Intersection Capacity Utilization 51.7%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Existing AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	5	35	38	12	28	21	979	14	14	730	21
Future Volume (veh/h)	29	5	35	38	12	28	21	979	14	14	730	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1856	1856	1648	1900	1900	1870	1796	1796	1856	1826
Adj Flow Rate, veh/h	31	5	2	40	13	2	22	1031	15	15	768	21
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, %	3	0	3	3	17	0	0	2	7	7	3	5
Cap, veh/h	160	151	125	168	131	128	39	2577	37	28	2492	68
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.02	0.50	0.50	0.02	0.49	0.49
Sat Flow, veh/h	1387	1900	1572	1397	1648	1610	1810	5185	75	1711	5069	138
Grp Volume(v), veh/h	31	5	2	40	13	2	22	677	369	15	511	278
Grp Sat Flow(s),veh/h/ln	1387	1900	1572	1397	1648	1610	1810	1702	1857	1711	1689	1830
Q Serve(g_s), s	2.5	0.3	0.1	3.3	0.9	0.1	1.4	15.0	15.0	1.0	10.9	10.9
Cycle Q Clear(g_c), s	3.4	0.3	0.1	3.6	0.9	0.1	1.4	15.0	15.0	1.0	10.9	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		0.08
Lane Grp Cap(c), veh/h	160	151	125	168	131	128	39	1692	923	28	1660	900
V/C Ratio(X)	0.19	0.03	0.02	0.24	0.10	0.02	0.56	0.40	0.40	0.53	0.31	0.31
Avail Cap(c_a), veh/h	443	538	446	453	467	456	181	1692	923	171	1660	900
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	51.0	50.9	52.6	51.2	50.9	58.1	19.0	19.0	58.6	18.3	18.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.1	0.0	3.9	0.6	1.1	5.7	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.3	0.1	2.1	0.7	0.1	1.3	9.5	10.3	0.9	7.6	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	51.0	50.9	52.9	51.4	50.9	62.1	19.6	20.1	64.3	18.8	19.2
LnGrp LOS	D	D	D	D	D	D	E	B	C	E	B	B
Approach Vol, veh/h		38			55			1068			804	
Approach Delay, s/veh		52.7			52.4			20.6			19.7	
Approach LOS		D			D			C			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.5	7.0	64.6		14.5	7.6	64.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		34.0	12.0	59.0		34.0	12.0	59.0				
Max Q Clear Time (g_c+I1), s		5.4	3.0	17.0		5.6	3.4	12.9				
Green Ext Time (p_c), s		0.0	0.0	4.7		0.1	0.0	3.3				
Intersection Summary												
HCM 6th Ctrl Delay			21.8									
HCM 6th LOS			C									

Timings
12: SE 164th Ave/SE164th Ave & SE 34th Street

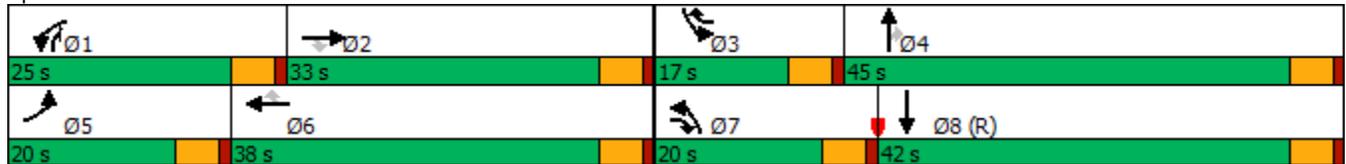
Vancouver Innovation Center
Existing AM Peak Hour Conditions

	↖		→		↘		↙		←		↖		↗		↑		↘		↓	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT									
Lane Configurations	↖↖	↑	↖	↖↖	↑	↖	↖	↑↑	↖	↖	↑↑↑									
Traffic Volume (vph)	26	50	151	318	98	90	103	849	237	141	601									
Future Volume (vph)	26	50	151	318	98	90	103	849	237	141	601									
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA									
Protected Phases	5	2	7	1	6	3	7	4	1	3	8									
Permitted Phases			2			6			4											
Detector Phase	5	2	7	1	6	3	7	4	1	3	8									
Switch Phase																				
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0									
Minimum Split (s)	10.0	33.0	10.0	22.5	32.0	10.0	10.0	31.0	22.5	10.0	28.0									
Total Split (s)	20.0	33.0	20.0	25.0	38.0	17.0	20.0	45.0	25.0	17.0	42.0									
Total Split (%)	16.7%	27.5%	16.7%	20.8%	31.7%	14.2%	16.7%	37.5%	20.8%	14.2%	35.0%									
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0									
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0									
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0									
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0									
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag									
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes		Yes	Yes									
Recall Mode	None	Max	None	None	C-Max															
Act Effct Green (s)	5.3	7.5	21.7	20.0	24.2	45.6	11.2	58.1	83.1	16.4	63.3									
Actuated g/C Ratio	0.04	0.06	0.18	0.17	0.20	0.38	0.09	0.48	0.69	0.14	0.53									
v/c Ratio	0.23	0.51	0.51	1.07	0.29	0.15	0.70	0.56	0.23	0.65	0.27									
Control Delay	59.5	69.5	30.2	116.8	42.9	4.8	74.0	25.2	1.6	55.1	15.7									
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0									
Total Delay	59.5	69.5	30.2	116.8	42.9	4.8	74.0	25.2	1.6	55.1	15.7									
LOS	E	E	C	F	D	A	E	C	A	E	B									
Approach Delay		42.3			82.5			24.7			22.9									
Approach LOS		D			F			C			C									

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 15 (13%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 36.5
 Intersection Capacity Utilization 59.5%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service B

Splits and Phases: 12: SE 164th Ave/SE164th Ave & SE 34th Street



HCM 6th Signalized Intersection Summary
 12: SE 164th Ave/SE164th Ave & SE 34th Street

Vancouver Innovation Center
 Existing AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 	 		 	 	 	 	 	  	
Traffic Volume (veh/h)	26	50	151	318	98	90	103	849	237	141	601	34
Future Volume (veh/h)	26	50	151	318	98	90	103	849	237	141	601	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1565	1758	1803	1870	1885	1841	1791	1776	1746	1806	1761	1761
Adj Flow Rate, veh/h	29	56	108	353	109	22	114	943	157	157	668	35
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	19	6	3	2	1	4	1	2	4	0	3	3
Cap, veh/h	75	143	248	333	419	503	138	1125	740	172	1649	86
Arrive On Green	0.03	0.08	0.08	0.17	0.22	0.22	0.08	0.33	0.33	0.03	0.12	0.12
Sat Flow, veh/h	2892	1758	1528	1995	1885	1560	1706	3375	1480	1720	4679	244
Grp Volume(v), veh/h	29	56	108	353	109	22	114	943	157	157	457	246
Grp Sat Flow(s),veh/h/ln	1446	1758	1528	998	1885	1560	1706	1687	1480	1720	1603	1717
Q Serve(g_s), s	1.2	3.6	7.6	20.0	5.7	1.2	7.9	31.0	7.1	10.9	15.9	16.0
Cycle Q Clear(g_c), s	1.2	3.6	7.6	20.0	5.7	1.2	7.9	31.0	7.1	10.9	15.9	16.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	75	143	248	333	419	503	138	1125	740	172	1130	605
V/C Ratio(X)	0.39	0.39	0.44	1.06	0.26	0.04	0.83	0.84	0.21	0.91	0.40	0.41
Avail Cap(c_a), veh/h	362	410	480	333	518	585	213	1125	740	172	1130	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	57.5	52.3	45.3	50.0	38.5	28.0	54.3	37.0	16.8	57.5	41.3	41.4
Incr Delay (d2), s/veh	1.2	0.6	0.4	66.6	0.1	0.0	8.1	7.5	0.7	43.3	1.1	2.0
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(95%),veh/ln	0.8	2.9	5.2	12.9	4.7	0.8	6.6	19.5	4.4	11.4	11.3	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	52.9	45.8	116.6	38.6	28.0	62.5	44.5	17.4	100.8	42.4	43.4
LnGrp LOS	E	D	D	F	D	C	E	D	B	F	D	D
Approach Vol, veh/h		193			484			1214				860
Approach Delay, s/veh		49.8			95.0			42.7				53.3
Approach LOS		D			F			D				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	14.8	17.0	45.0	8.1	31.7	14.7	47.3				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	28.0	12.0	40.0	15.0	33.0	15.0	37.0				
Max Q Clear Time (g_c+I1), s	22.0	9.6	12.9	33.0	3.2	7.7	9.9	18.0				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.7	0.0	0.2	0.0	2.6				
Intersection Summary												
HCM 6th Ctrl Delay			55.7									
HCM 6th LOS			E									

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Existing PM Peak Hour Conditions



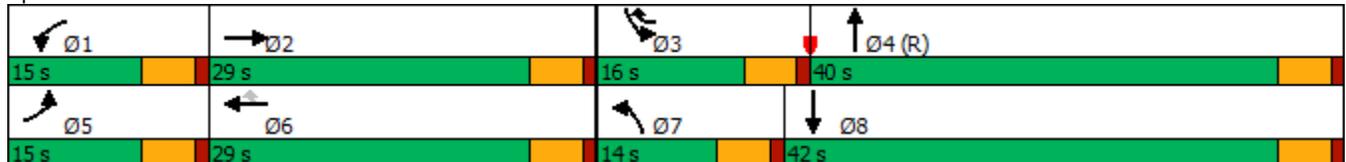
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↕	↖	↕
Traffic Volume (vph)	88	74	33	67	107	55	916	47	920
Future Volume (vph)	88	74	33	67	107	55	916	47	920
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases					6				
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	15.0	29.0	15.0	29.0	16.0	14.0	40.0	16.0	42.0
Total Split (%)	15.0%	29.0%	15.0%	29.0%	16.0%	14.0%	40.0%	16.0%	42.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	8.2	14.5	6.0	10.2	16.9	6.8	56.9	6.6	58.7
Actuated g/C Ratio	0.08	0.14	0.06	0.10	0.17	0.07	0.57	0.07	0.59
v/c Ratio	0.68	0.52	0.33	0.39	0.34	0.49	0.51	0.43	0.54
Control Delay	67.9	33.3	53.1	45.3	11.9	54.2	14.8	55.3	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.9	33.3	53.1	45.3	11.9	54.2	14.8	55.3	17.5
LOS	E	C	D	D	B	D	B	E	B
Approach Delay		46.8		29.3			16.9		19.2
Approach LOS		D		C			B		B

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 21.6
 Intersection Capacity Utilization 61.6%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: SE 192nd & SE 15th St



HCM 6th Signalized Intersection Summary
 1: SE 192nd & SE 15th St

Vancouver Innovation Center
 Existing PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	74	65	33	67	107	55	916	28	47	920	103
Future Volume (veh/h)	88	74	65	33	67	107	55	916	28	47	920	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1885	1900	1900	1856	1900	1900	1870	1900	1900	1870	1870
Adj Flow Rate, veh/h	96	80	32	36	73	13	60	996	29	51	1000	105
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, %	5	1	0	0	3	0	0	2	0	0	2	2
Cap, veh/h	120	131	52	57	119	162	77	2216	65	69	2024	212
Arrive On Green	0.07	0.10	0.10	0.03	0.06	0.06	0.09	1.00	1.00	0.04	0.62	0.62
Sat Flow, veh/h	1739	1279	512	1810	1856	1572	1810	3526	103	1810	3244	341
Grp Volume(v), veh/h	96	0	112	36	73	13	60	502	523	51	548	557
Grp Sat Flow(s),veh/h/ln	1739	0	1791	1810	1856	1572	1810	1777	1851	1810	1777	1808
Q Serve(g_s), s	5.4	0.0	6.0	2.0	3.8	0.7	3.2	0.0	0.0	2.8	16.8	16.8
Cycle Q Clear(g_c), s	5.4	0.0	6.0	2.0	3.8	0.7	3.2	0.0	0.0	2.8	16.8	16.8
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.06	1.00		0.19
Lane Grp Cap(c), veh/h	120	0	183	57	119	162	77	1117	1164	69	1108	1128
V/C Ratio(X)	0.80	0.00	0.61	0.63	0.61	0.08	0.78	0.45	0.45	0.74	0.49	0.49
Avail Cap(c_a), veh/h	174	0	430	181	445	438	163	1117	1164	199	1108	1128
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	0.0	43.0	47.8	45.6	40.6	45.3	0.0	0.0	47.6	10.2	10.2
Incr Delay (d2), s/veh	9.3	0.0	1.2	4.2	1.9	0.1	4.8	1.0	1.0	5.8	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	0.0	4.8	1.7	3.3	0.5	2.7	0.6	0.6	2.4	10.2	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	0.0	44.2	52.0	47.4	40.7	50.1	1.0	1.0	53.4	11.8	11.8
LnGrp LOS	E	A	D	D	D	D	D	A	A	D	B	B
Approach Vol, veh/h		208			122			1085			1156	
Approach Delay, s/veh		49.3			48.1			3.7			13.6	
Approach LOS		D			D			A			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	15.2	8.8	67.9	11.9	11.4	9.3	67.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	24.0	11.0	35.0	10.0	24.0	9.0	37.0				
Max Q Clear Time (g_c+I1), s	4.0	8.0	4.8	2.0	7.4	5.8	5.2	18.8				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.0	0.0	0.1	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay			14.0									
HCM 6th LOS			B									

Timings
2: SE 192nd Ave & SE 20th St

Vancouver Innovation Center
Existing PM Peak Hour Conditions

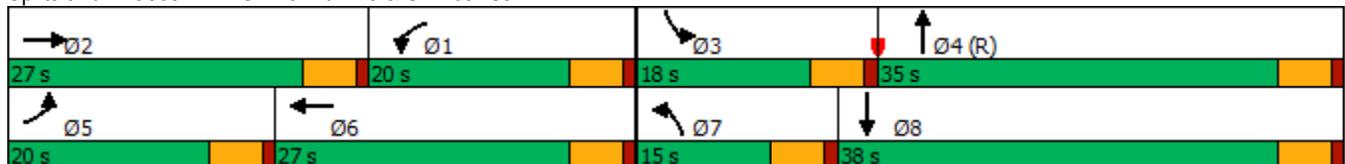


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔↔	↔	↔↔	↔	↔	↕↕	↔	↕↕
Traffic Volume (vph)	141	141	178	204	114	582	123	665
Future Volume (vph)	141	141	178	204	114	582	123	665
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	20.0	27.0	20.0	27.0	15.0	35.0	18.0	38.0
Total Split (%)	20.0%	27.0%	20.0%	27.0%	15.0%	35.0%	18.0%	38.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	8.9	16.0	17.7	24.7	9.6	35.4	11.0	36.8
Actuated g/C Ratio	0.09	0.16	0.18	0.25	0.10	0.35	0.11	0.37
v/c Ratio	0.50	0.75	0.32	0.83	0.74	0.62	0.70	0.68
Control Delay	48.8	51.4	37.8	49.4	84.4	17.2	67.9	28.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	51.4	37.8	49.4	84.4	17.2	67.9	28.7
LOS	D	D	D	D	F	B	E	C
Approach Delay		50.3		45.5		26.7		34.0
Approach LOS		D		D		C		C

Intersection Summary

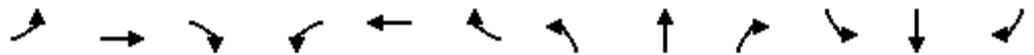
Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 93 (93%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 36.2
 Intersection LOS: D
 Intersection Capacity Utilization 68.9%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 2: SE 192nd Ave & SE 20th St



HCM 6th Signalized Intersection Summary
2: SE 192nd Ave & SE 20th St

Vancouver Innovation Center
Existing PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↕↔		↔	↕↔	
Traffic Volume (veh/h)	141	141	67	178	204	140	114	582	114	123	665	124
Future Volume (veh/h)	141	141	67	178	204	140	114	582	114	123	665	124
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1870	1900	1885	1900	1885	1870	1885
Adj Flow Rate, veh/h	157	157	54	198	227	129	127	647	110	137	739	121
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	1	0	0	2	0	1	0	1	2	1
Cap, veh/h	229	191	66	495	246	140	161	1292	219	171	1309	214
Arrive On Green	0.07	0.14	0.14	0.14	0.22	0.22	0.09	0.42	0.42	0.10	0.43	0.43
Sat Flow, veh/h	3510	1350	464	3510	1130	642	1810	3062	520	1795	3056	500
Grp Volume(v), veh/h	157	0	211	198	0	356	127	378	379	137	430	430
Grp Sat Flow(s),veh/h/ln	1755	0	1814	1755	0	1772	1810	1791	1791	1795	1777	1780
Q Serve(g_s), s	4.4	0.0	11.3	5.1	0.0	19.7	6.9	15.5	15.5	7.5	18.2	18.2
Cycle Q Clear(g_c), s	4.4	0.0	11.3	5.1	0.0	19.7	6.9	15.5	15.5	7.5	18.2	18.2
Prop In Lane	1.00		0.26	1.00		0.36	1.00		0.29	1.00		0.28
Lane Grp Cap(c), veh/h	229	0	257	495	0	385	161	756	756	171	761	762
V/C Ratio(X)	0.68	0.00	0.82	0.40	0.00	0.92	0.79	0.50	0.50	0.80	0.56	0.56
Avail Cap(c_a), veh/h	527	0	399	527	0	390	181	756	756	233	761	762
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	45.7	0.0	41.7	39.1	0.0	38.3	44.6	21.2	21.2	44.3	21.5	21.6
Incr Delay (d2), s/veh	1.4	0.0	4.0	0.2	0.0	26.8	16.2	2.4	2.4	7.8	2.5	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	0.0	8.9	3.9	0.0	16.5	6.7	10.8	10.8	6.4	11.8	11.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	45.7	39.3	0.0	65.1	60.8	23.5	23.6	52.1	24.1	24.1
LnGrp LOS	D	A	D	D	A	E	E	C	C	D	C	C
Approach Vol, veh/h		368			554			884			997	
Approach Delay, s/veh		46.3			55.9			28.9			27.9	
Approach LOS		D			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.1	19.2	14.5	47.2	11.5	26.7	13.9	47.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	22.0	13.0	30.0	15.0	22.0	10.0	33.0				
Max Q Clear Time (g_c+I1), s	7.1	13.3	9.5	17.5	6.4	21.7	8.9	20.2				
Green Ext Time (p_c), s	0.2	0.4	0.1	2.4	0.2	0.1	0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay				36.2								
HCM 6th LOS				D								

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↕		↙	↕
Traffic Vol, veh/h	3	4	853	3	10	887
Future Vol, veh/h	3	4	853	3	10	887
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	3	4	948	3	11	986

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1465	476	0	0	951
Stage 1	950	-	-	-	-
Stage 2	515	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	121	541	-	-	730
Stage 1	341	-	-	-	-
Stage 2	570	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	119	541	-	-	730
Mov Cap-2 Maneuver	119	-	-	-	-
Stage 1	341	-	-	-	-
Stage 2	561	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.2	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	119	541	730
HCM Lane V/C Ratio	-	-	0.028	0.008	0.015
HCM Control Delay (s)	-	-	36.1	11.7	10
HCM Lane LOS	-	-	E	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0	0

Timings
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Existing PM Peak Hour Conditions

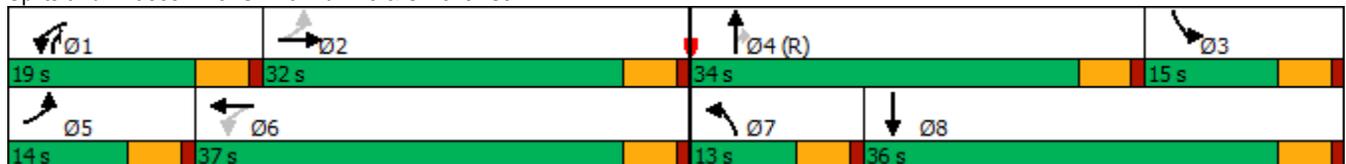
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	100	171	295	153	69	733	134	167	673
Future Volume (vph)	100	171	295	153	69	733	134	167	673
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6	7	4	1	3	8
Permitted Phases	2		6				4		
Detector Phase	5	2	1	6	7	4	1	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	14.0	32.0	19.0	37.0	13.0	34.0	19.0	15.0	36.0
Total Split (%)	14.0%	32.0%	19.0%	37.0%	13.0%	34.0%	19.0%	15.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	20.0	12.3	31.0	18.3	5.8	44.0	57.7	10.0	50.2
Actuated g/C Ratio	0.20	0.12	0.31	0.18	0.06	0.44	0.58	0.10	0.50
v/c Ratio	0.42	0.54	0.87	0.38	0.36	0.50	0.15	0.53	0.47
Control Delay	29.3	36.8	52.7	21.8	50.0	23.3	1.7	36.3	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.3	36.8	52.7	21.8	50.0	23.3	1.7	36.3	13.2
LOS	C	D	D	C	D	C	A	D	B
Approach Delay		34.5		38.4		22.1			17.4
Approach LOS		C		D		C			B

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 36 (36%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 25.3
 Intersection Capacity Utilization 67.7%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 5: SE 192nd Ave & SE 34th St



HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Existing PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	171	57	295	153	99	69	733	134	167	673	75
Future Volume (veh/h)	100	171	57	295	153	99	69	733	134	167	673	75
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	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1773	1847	1817	2003	2003	2018	2018	1988	2003	1847	1832	1743
Adj Flow Rate, veh/h	109	186	20	321	166	12	75	797	78	182	732	75
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, %	5	0	2	1	1	0	0	2	1	0	1	7
Cap, veh/h	305	304	32	387	582	42	163	1095	727	937	1658	170
Arrive On Green	0.07	0.10	0.10	0.14	0.16	0.16	0.04	0.29	0.29	0.27	0.52	0.52
Sat Flow, veh/h	1688	3192	339	1908	3600	258	3728	3777	1689	3413	3182	326
Grp Volume(v), veh/h	109	101	105	321	87	91	75	797	78	182	400	407
Grp Sat Flow(s),veh/h/ln	1688	1755	1776	1908	1903	1955	1864	1889	1689	1706	1741	1768
Q Serve(g_s), s	5.7	5.5	5.7	14.0	4.0	4.1	2.0	19.0	0.7	4.1	14.3	14.3
Cycle Q Clear(g_c), s	5.7	5.5	5.7	14.0	4.0	4.1	2.0	19.0	0.7	4.1	14.3	14.3
Prop In Lane	1.00		0.19	1.00		0.13	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	305	167	169	387	308	316	163	1095	727	937	907	921
V/C Ratio(X)	0.36	0.60	0.62	0.83	0.28	0.29	0.46	0.73	0.11	0.19	0.44	0.44
Avail Cap(c_a), veh/h	332	474	480	387	609	626	298	1095	727	937	907	921
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)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	43.4	43.5	34.3	36.8	36.9	46.7	31.9	6.6	27.8	14.9	14.9
Incr Delay (d2), s/veh	0.3	1.3	1.4	13.1	0.2	0.2	0.7	4.2	0.3	0.0	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	4.3	4.5	12.8	3.3	3.5	1.6	13.8	0.9	2.9	9.4	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.2	44.7	44.8	47.4	37.0	37.0	47.4	36.2	6.9	27.8	16.5	16.4
LnGrp LOS	D	D	D	D	D	D	D	D	A	C	B	B
Approach Vol, veh/h		315			499			950			989	
Approach Delay, s/veh		42.1			43.7			34.7			18.5	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	14.5	32.5	34.0	12.4	21.2	9.4	57.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	27.0	10.0	29.0	9.0	32.0	8.0	31.0				
Max Q Clear Time (g_c+I1), s	16.0	7.7	6.1	21.0	7.7	6.1	4.0	16.3				
Green Ext Time (p_c), s	0.0	0.3	0.0	1.5	0.0	0.3	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay	31.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Existing PM Peak Hour Conditions

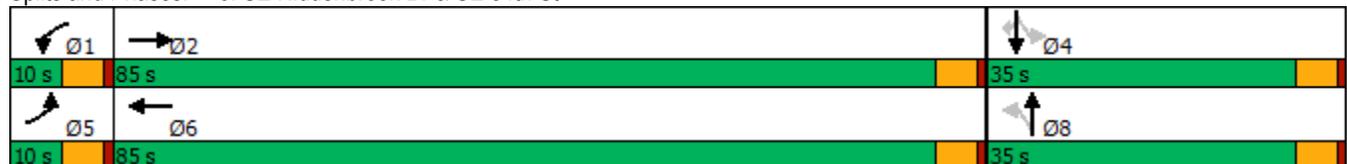


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↙	↑↑	↙	↑		↙	↗
Traffic Volume (vph)	4	261	34	286	71	1	33	3	58
Future Volume (vph)	4	261	34	286	71	1	33	3	58
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		4
Detector Phase	5	2	1	6	8	8	4	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	30.0	10.0	30.0	32.0	32.0	34.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Min	None	Min	None	None	None	None	None
Act Effct Green (s)	5.5	22.0	5.5	24.0	8.6	8.6		8.6	8.6
Actuated g/C Ratio	0.13	0.53	0.13	0.58	0.21	0.21		0.21	0.21
v/c Ratio	0.02	0.20	0.16	0.15	0.28	0.10		0.13	0.16
Control Delay	23.5	8.8	23.6	8.4	16.4	6.8		14.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	23.5	8.8	23.6	8.4	16.4	6.8		14.6	5.8
LOS	C	A	C	A	B	A		B	A
Approach Delay		8.9		10.0		13.5		9.1	
Approach LOS		A		A		B		A	

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 41.2
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.28
 Intersection Signal Delay: 9.9
 Intersection LOS: A
 Intersection Capacity Utilization 41.6%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Existing PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	261	80	34	286	8	71	1	30	33	3	58
Future Volume (veh/h)	4	261	80	34	286	8	71	1	30	33	3	58
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	1.00		0.99	1.00		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1841	1832	1847	1876	1817	1876	1832	1900	1900	1900
Adj Flow Rate, veh/h	4	278	53	36	304	7	76	1	3	35	3	7
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, %	0	2	4	3	2	0	4	0	3	0	0	0
Cap, veh/h	10	1276	240	73	1629	37	324	47	140	338	21	182
Arrive On Green	0.01	0.43	0.43	0.04	0.46	0.46	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1810	2982	560	1745	3506	81	1358	412	1236	1285	189	1603
Grp Volume(v), veh/h	4	164	167	36	152	159	76	0	4	38	0	7
Grp Sat Flow(s),veh/h/ln	1810	1777	1765	1745	1754	1832	1358	0	1648	1474	0	1603
Q Serve(g_s), s	0.1	2.1	2.2	0.7	1.8	1.8	1.9	0.0	0.1	0.6	0.0	0.1
Cycle Q Clear(g_c), s	0.1	2.1	2.2	0.7	1.8	1.8	2.7	0.0	0.1	0.8	0.0	0.1
Prop In Lane	1.00		0.32	1.00		0.04	1.00		0.75	0.92		1.00
Lane Grp Cap(c), veh/h	10	761	756	73	815	851	324	0	187	359	0	182
V/C Ratio(X)	0.41	0.22	0.22	0.49	0.19	0.19	0.23	0.00	0.02	0.11	0.00	0.04
Avail Cap(c_a), veh/h	251	3948	3921	242	3898	4069	1301	0	1373	1407	0	1336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	6.5	6.5	16.9	5.6	5.7	15.8	0.0	14.2	14.5	0.0	14.2
Incr Delay (d2), s/veh	9.6	0.1	0.1	1.9	0.0	0.0	0.1	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.8	0.8	0.5	0.6	0.6	1.0	0.0	0.0	0.4	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	6.5	6.6	18.8	5.7	5.7	15.9	0.0	14.2	14.5	0.0	14.2
LnGrp LOS	C	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		335			347			80			45	
Approach Delay, s/veh		6.8			7.0			15.8			14.5	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	20.4		9.1	5.2	21.7		9.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	2.7	4.2		2.8	2.1	3.8		4.7				
Green Ext Time (p_c), s	0.0	0.6		0.1	0.0	0.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				8.2								
HCM 6th LOS				A								

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗			↔			↖	↗
Traffic Vol, veh/h	11	334	32	10	405	0	18	0	7	4	0	108
Future Vol, veh/h	11	334	32	10	405	0	18	0	7	4	0	108
Conflicting Peds, #/hr	6	0	0	0	0	6	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	140	-	-	95	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	12	367	35	11	445	0	20	0	8	4	0	119

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	451	0	0	402	0	0	654	882	202	682	899	229
Stage 1	-	-	-	-	-	-	409	409	-	473	473	-
Stage 2	-	-	-	-	-	-	245	473	-	209	426	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1120	-	-	1168	-	-	356	287	811	340	281	780
Stage 1	-	-	-	-	-	-	596	600	-	546	562	-
Stage 2	-	-	-	-	-	-	743	562	-	779	589	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1114	-	-	1168	-	-	297	280	810	329	274	776
Mov Cap-2 Maneuver	-	-	-	-	-	-	297	280	-	329	274	-
Stage 1	-	-	-	-	-	-	589	593	-	537	554	-
Stage 2	-	-	-	-	-	-	623	554	-	763	583	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.2			15.8			10.7		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	361	1114	-	-	1168	-	-	329	776
HCM Lane V/C Ratio	0.076	0.011	-	-	0.009	-	-	0.013	0.153
HCM Control Delay (s)	15.8	8.3	-	-	8.1	-	-	16.1	10.5
HCM Lane LOS	C	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0	0.5

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Existing PM Peak Hour Conditions

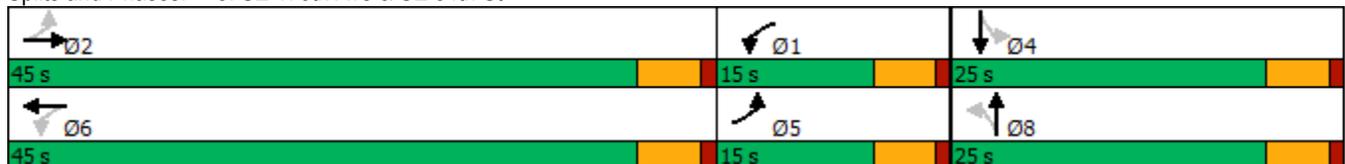


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Traffic Volume (vph)	129	295	9	436	10	6	80	14
Future Volume (vph)	129	295	9	436	10	6	80	14
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	27.0	27.4	24.6	21.4	9.2	9.2	9.2	9.2
Actuated g/C Ratio	0.60	0.61	0.54	0.47	0.20	0.20	0.20	0.20
v/c Ratio	0.24	0.16	0.02	0.34	0.04	0.02	0.30	0.27
Control Delay	9.1	9.2	7.1	12.2	13.9	12.4	17.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	9.2	7.1	12.2	13.9	12.4	17.7	6.7
LOS	A	A	A	B	B	B	B	A
Approach Delay		9.2		12.2		13.2		11.5
Approach LOS		A		B		B		B

Intersection Summary

Cycle Length: 85
 Actuated Cycle Length: 45.2
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.34
 Intersection Signal Delay: 11.0
 Intersection Capacity Utilization 45.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Existing PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	295	13	9	436	86	10	6	2	80	14	88
Future Volume (veh/h)	129	295	13	9	436	86	10	6	2	80	14	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1900	1885	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	140	321	11	10	474	69	11	7	0	87	15	8
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, %	1	2	0	0	1	1	0	0	0	1	0	0
Cap, veh/h	626	1394	48	734	1249	181	319	195	0	331	119	63
Arrive On Green	0.10	0.40	0.40	0.10	0.40	0.40	0.10	0.10	0.00	0.10	0.10	0.10
Sat Flow, veh/h	1795	3506	120	1810	3139	455	1407	1900	0	1416	1159	618
Grp Volume(v), veh/h	140	162	170	10	269	274	11	7	0	87	0	23
Grp Sat Flow(s),veh/h/ln	1795	1777	1849	1810	1791	1803	1407	1900	0	1416	0	1777
Q Serve(g_s), s	0.0	2.3	2.3	0.0	4.0	4.1	0.3	0.1	0.0	2.2	0.0	0.4
Cycle Q Clear(g_c), s	0.0	2.3	2.3	0.0	4.0	4.1	0.7	0.1	0.0	2.3	0.0	0.4
Prop In Lane	1.00		0.06	1.00		0.25	1.00		0.00	1.00		0.35
Lane Grp Cap(c), veh/h	626	707	735	734	712	717	319	195	0	331	0	182
V/C Ratio(X)	0.22	0.23	0.23	0.01	0.38	0.38	0.03	0.04	0.00	0.26	0.00	0.13
Avail Cap(c_a), veh/h	919	1885	1961	1029	1900	1913	920	1008	0	937	0	942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.3	7.5	7.5	6.0	8.0	8.1	15.7	15.2	0.0	16.3	0.0	15.4
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.2	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	1.0	1.0	0.0	1.7	1.8	0.1	0.1	0.0	1.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.4	7.6	7.6	6.0	8.2	8.2	15.7	15.3	0.0	16.5	0.0	15.5
LnGrp LOS	A	A	A	A	A	A	B	B	A	B	A	B
Approach Vol, veh/h		472			553			18			110	
Approach Delay, s/veh		7.8			8.1			15.6			16.3	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	20.0		8.9	8.8	20.0		8.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	4.3		4.3	2.0	6.1		2.7				
Green Ext Time (p_c), s	0.0	1.1		0.1	0.1	2.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	15	23	13	221	162	14
Future Vol, veh/h	15	23	13	221	162	14
Conflicting Peds, #/hr	0	3	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	0	15	0	1	0
Mvmt Flow	16	25	14	238	174	15

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	448	185	189	0	0
Stage 1	182	-	-	-	-
Stage 2	266	-	-	-	-
Critical Hdwy	6.47	6.2	4.25	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.3	2.335	-	-
Pot Cap-1 Maneuver	559	862	1311	-	-
Stage 1	837	-	-	-	-
Stage 2	767	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	553	860	1311	-	-
Mov Cap-2 Maneuver	553	-	-	-	-
Stage 1	828	-	-	-	-
Stage 2	767	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1311	-	705	-	-
HCM Lane V/C Ratio	0.011	-	0.058	-	-
HCM Control Delay (s)	7.8	-	10.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	24.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷			↷	
Traffic Vol, veh/h	37	350	44	67	370	14	34	101	62	25	76	26
Future Vol, veh/h	37	350	44	67	370	14	34	101	62	25	76	26
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
Heavy Vehicles, %	3	0	0	1	0	7	0	1	0	4	1	8
Mvmt Flow	40	380	48	73	402	15	37	110	67	27	83	28
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	29	26.6	14.2	14.7
HCM LOS	D	D	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	20%
Vol Thru, %	0%	62%	0%	89%	0%	96%	60%
Vol Right, %	0%	38%	0%	11%	0%	4%	20%
Sign Control	Stop						
Traffic Vol by Lane	34	163	37	394	67	384	127
LT Vol	34	0	37	0	67	0	25
Through Vol	0	101	0	350	0	370	76
RT Vol	0	62	0	44	0	14	26
Lane Flow Rate	37	177	40	428	73	417	138
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.085	0.37	0.082	0.795	0.147	0.778	0.309
Departure Headway (Hd)	8.289	7.518	7.33	6.686	7.266	6.711	8.057
Convergence, Y/N	Yes						
Cap	432	477	488	540	493	538	444
Service Time	6.053	5.282	5.085	4.441	5.022	4.466	6.133
HCM Lane V/C Ratio	0.086	0.371	0.082	0.793	0.148	0.775	0.311
HCM Control Delay	11.8	14.7	10.7	30.7	11.3	29.3	14.7
HCM Lane LOS	B	B	B	D	B	D	B
HCM 95th-tile Q	0.3	1.7	0.3	7.5	0.5	7.1	1.3

Timings
11: SE 164th Ave & SE 29th St

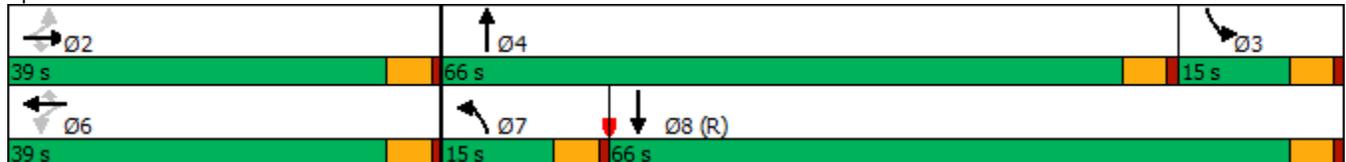
Vancouver Innovation Center
Existing PM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	66	23	39	21	17	38	38	1296	43	1193
Future Volume (vph)	66	23	39	21	17	38	38	1296	43	1193
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		2			6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	2	2	2	6	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	39.0	39.0	39.0	38.0	38.0	38.0	10.0	32.0	19.5	32.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	39.0	15.0	66.0	15.0	66.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	12.5%	55.0%	12.5%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	14.7	14.7	14.7	14.7	14.7	14.7	6.1	87.3	9.0	90.2
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.12	0.12	0.05	0.73	0.08	0.75
v/c Ratio	0.40	0.10	0.14	0.13	0.09	0.14	0.46	0.38	0.34	0.34
Control Delay	52.8	43.6	1.0	44.5	43.1	1.0	52.3	18.3	59.3	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	43.6	1.0	44.5	43.1	1.0	52.3	18.3	59.3	8.0
LOS	D	D	A	D	D	A	D	B	E	A
Approach Delay		35.3			22.4			19.3		9.7
Approach LOS		D			C			B		A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 112 (93%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 15.8
 Intersection Capacity Utilization 54.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Existing PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	23	39	21	17	38	38	1296	29	43	1193	38
Future Volume (veh/h)	66	23	39	21	17	38	38	1296	29	43	1193	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1826	1633	1856	1826	1870	1752	1870	1885	1900
Adj Flow Rate, veh/h	69	24	2	22	18	2	40	1364	30	45	1256	38
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, %	0	0	0	5	18	3	5	2	10	2	1	0
Cap, veh/h	180	182	153	173	156	150	53	2613	57	58	2618	79
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.03	0.51	0.51	0.03	0.51	0.51
Sat Flow, veh/h	1406	1900	1600	1344	1633	1563	1739	5141	113	1781	5133	155
Grp Volume(v), veh/h	69	24	2	22	18	2	40	903	491	45	840	454
Grp Sat Flow(s),veh/h/ln	1406	1900	1600	1344	1633	1563	1739	1702	1850	1781	1716	1857
Q Serve(g_s), s	5.7	1.4	0.1	1.8	1.2	0.1	2.7	21.3	21.3	3.0	19.0	19.0
Cycle Q Clear(g_c), s	6.9	1.4	0.1	3.2	1.2	0.1	2.7	21.3	21.3	3.0	19.0	19.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		0.08
Lane Grp Cap(c), veh/h	180	182	153	173	156	150	53	1730	940	58	1750	947
V/C Ratio(X)	0.38	0.13	0.01	0.13	0.12	0.01	0.75	0.52	0.52	0.78	0.48	0.48
Avail Cap(c_a), veh/h	444	538	453	425	463	443	145	1730	940	148	1750	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	49.7	49.1	51.2	49.6	49.1	57.7	19.7	19.7	57.6	19.1	19.1
Incr Delay (d2), s/veh	0.5	0.1	0.0	0.1	0.1	0.0	6.1	0.9	1.6	8.1	0.9	1.7
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(95%),veh/ln	3.7	1.2	0.1	1.1	0.9	0.1	2.3	12.4	13.5	2.6	11.9	13.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.3	49.8	49.1	51.3	49.7	49.1	63.8	20.6	21.4	65.7	20.0	20.8
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	C	C
Approach Vol, veh/h		95			42			1434			1339	
Approach Delay, s/veh		52.3			50.5			22.1			21.8	
Approach LOS		D			D			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.5	8.9	66.0		16.5	8.7	66.2				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		34.0	10.0	61.0		34.0	10.0	61.0				
Max Q Clear Time (g_c+I1), s		8.9	5.0	23.3		5.2	4.7	21.0				
Green Ext Time (p_c), s		0.0	0.0	1.5		0.0	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay			23.4									
HCM 6th LOS			C									

Timings
12: SE 164th Ave & SE 34th Street

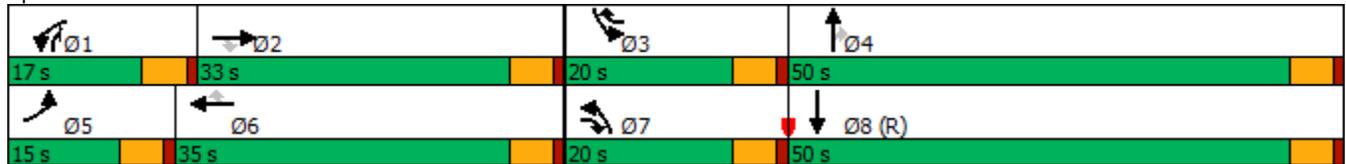
Vancouver Innovation Center
Existing PM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	45	88	178	302	105	194	179	1124	297	147	1061
Future Volume (vph)	45	88	178	302	105	194	179	1124	297	147	1061
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	15.0	33.0	20.0	17.0	35.0	20.0	20.0	50.0	17.0	20.0	50.0
Total Split (%)	12.5%	27.5%	16.7%	14.2%	29.2%	16.7%	16.7%	41.7%	14.2%	16.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes										
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	5.6	9.7	31.9	12.0	18.0	37.3	17.2	64.1	81.1	14.3	61.1
Actuated g/C Ratio	0.05	0.08	0.27	0.10	0.15	0.31	0.14	0.53	0.68	0.12	0.51
v/c Ratio	0.32	0.64	0.40	1.59	0.40	0.36	0.74	0.63	0.27	0.74	0.46
Control Delay	60.7	72.8	24.2	323.8	51.2	15.7	66.6	23.0	2.7	69.4	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	72.8	24.2	323.8	51.2	15.7	66.6	23.0	2.7	69.4	18.7
LOS	E	E	C	F	D	B	E	C	A	E	B
Approach Delay		43.3			176.9			24.1			24.6
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 40 (33%), Referenced to phase 8:SBT, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.59	
Intersection Signal Delay: 50.2	Intersection LOS: D
Intersection Capacity Utilization 67.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 12: SE 164th Ave & SE 34th Street



HCM 6th Signalized Intersection Summary
 12: SE 164th Ave & SE 34th Street

Vancouver Innovation Center
 Existing PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 				 			  	
Traffic Volume (veh/h)	45	88	178	302	105	194	179	1124	297	147	1061	46
Future Volume (veh/h)	45	88	178	302	105	194	179	1124	297	147	1061	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1714	1773	1832	1870	1841	1856	1791	1776	1791	1776	1776	1746
Adj Flow Rate, veh/h	47	92	134	315	109	120	186	1171	210	153	1105	45
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	5	1	2	4	3	1	2	1	2	2	4
Cap, veh/h	104	164	335	200	293	417	211	1325	748	179	1792	73
Arrive On Green	0.03	0.09	0.09	0.10	0.16	0.16	0.12	0.39	0.39	0.04	0.12	0.12
Sat Flow, veh/h	3166	1773	1553	1995	1841	1572	1706	3375	1518	1692	4779	195
Grp Volume(v), veh/h	47	92	134	315	109	120	186	1171	210	153	747	403
Grp Sat Flow(s),veh/h/ln	1583	1773	1553	998	1841	1572	1706	1687	1518	1692	1616	1741
Q Serve(g_s), s	1.7	6.0	8.9	12.0	6.3	7.3	12.9	38.7	9.8	10.8	26.3	26.3
Cycle Q Clear(g_c), s	1.7	6.0	8.9	12.0	6.3	7.3	12.9	38.7	9.8	10.8	26.3	26.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	104	164	335	200	293	417	211	1325	748	179	1212	653
V/C Ratio(X)	0.45	0.56	0.40	1.58	0.37	0.29	0.88	0.88	0.28	0.85	0.62	0.62
Avail Cap(c_a), veh/h	264	414	554	200	460	560	213	1325	748	211	1212	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	57.0	52.1	40.4	54.0	45.1	35.1	51.7	33.9	17.9	57.0	44.4	44.4
Incr Delay (d2), s/veh	1.1	1.1	0.3	283.1	0.3	0.1	30.8	8.8	0.9	20.6	2.2	4.1
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(95%),veh/ln	1.3	4.8	6.1	18.5	5.2	5.0	11.6	23.5	6.3	9.7	17.2	18.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	53.3	40.7	337.1	45.4	35.2	82.5	42.7	18.9	77.6	46.6	48.5
LnGrp LOS	E	D	D	F	D	D	F	D	B	E	D	D
Approach Vol, veh/h		273			544			1567			1303	
Approach Delay, s/veh		47.9			212.1			44.3			50.8	
Approach LOS		D			F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	16.1	17.7	52.1	9.0	24.1	19.8	50.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	28.0	15.0	45.0	10.0	30.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	14.0	10.9	12.8	40.7	3.7	9.3	14.9	28.3				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.6	0.0	0.2	0.0	2.5				
Intersection Summary												
HCM 6th Ctrl Delay				71.6								
HCM 6th LOS				E								

Appendix D VIC Campus Volume
Adjustment

84	0	0%	0%	0%	0%	78	City: Vancouver	
0	0	0	0	0	0	SB	State: WA	
165	0	ES	SE 176th Ave	0	90	0	1033	
0%	0	9	7:50 AM to 8:50 AM	11	0	0%	1%	
4%	0	195	REV:798	10	0.01	235	0	1%
19%	0	20	2023	1	10	56	0	4%
227	0	220	SE 200th St	0	WB	0	254	
0	0	25	58	47	0	0	0	
0	0	NB	0	0	0	0	180	
0	0	13%	4%	3%	0%	0%	13%	

Notes: 5-Min Count Interval

845	0	3%	9%	9%	11%	698	City: Vancouver	
0	0	67	550	28	0	SB	State: WA	
157	0	ES	SE 192nd Ave	0	90	0	117	
3%	0	117	7:45 AM to 8:45 AM	41	0	2%	2%	
0%	0	37	REV:111	1	0.88	52	0	8%
0%	0	28	2023	1	10	24	0	8%
182	0	220	SE 15th St	0	WB	0	28	
0	0	38	540	13	0	0	0	
0	0	NB	0	1	0	0	180	
0	0	60%	1%	3%	4%	0%	0%	

Notes: 5-Min Count Interval

765	0	5%	3%	7%	0%	1035	City: Vancouver	
0	0	21	730	14	0	0	0	
0	0	ES	SE 164th Ave	0	90	0	28	
3%	0	29	7:40 AM to 8:40 AM	28	0	0%	0%	
0%	0	5	REV:106	11	0.95	12	0	17%
3%	0	35	2023	1	10	38	0	3%
0	0	21	979	14	0	0	0	
0	0	NB	0	0	0	0	180	
0	0	10%	0%	2%	7%	0%	10%	

Notes: 5-Min Count Interval

576	0	0%	6%	6%	1%	578	City: Vancouver	
0	0	59	438	73	0	0	0	
0	0	ES	SE 192nd Ave	0	90	0	133	
3%	0	73	7:45 AM to 8:45 AM	78	0	0%	1%	
0%	0	140	REV:106	2	0.90	127	0	1%
4%	0	56	2023	1	10	78	0	1%
207	0	220	SE 200th St	0	WB	0	254	
0	0	36	419	107	0	0	0	
0	0	NB	0	0	0	0	180	
0	0	57%	6%	3%	4%	0%	56%	

Notes: 5-Min Count Interval

178	0	18%	1%	0%	0%	105	City: Vancouver	
0	0	11	167	0	0	0	0	
0	0	ES	SE 176th Ave	0	90	0	0	
0%	0	4	7:55 AM to 8:55 AM	0	0	0%	0%	
0%	0	0	REV:36	9	0.85	0	0	0%
0%	0	10	2023	1	10	0	0	0%
0	0	4	105	0	0	0	0	
0	0	NB	0	0	0	0	180	
0	0	37%	0%	0%	2%	0%	10%	

Notes: 5-Min Count Interval

603	0	0%	2%	0%	0%	568	City: Vancouver	
0	0	595	7	0	0	0	0	
0	0	ES	SE 192nd Ave	0	90	0	17	
0%	0	0	7:50 AM to 8:50 AM	10	0	0%	0%	
0%	0	0	REV:111	2	1.92	0	0	0%
0%	0	2023	1	12	7	0	0	0%
0	0	21	558	7	0	0	0	
0	0	NB	0	0	0	0	180	
0	0	60%	0%	4%	6%	0%	56%	

Notes: 5-Min Count Interval

765	0	5%	3%	7%	0%	1035	City: Vancouver	
0	0	21	730	14	0	0	0	
0	0	ES	SE 164th Ave	0	90	0	28	
3%	0	29	7:40 AM to 8:40 AM	28	0	0%	0%	
0%	0	5	REV:106	11	0.95	12	0	17%
3%	0	35	2023	1	10	38	0	3%
0	0	21	979	14	0	0	0	
0	0	NB	0	0	0	0	180	
0	0	10%	0%	2%	7%	0%	10%	

Notes: 5-Min Count Interval

603	0	0%	2%	0%	0%	568	City: Vancouver
0	0	602	0	0	0	0	0
0	0	ES	north-south street name	0	90	0	0
0	0	0	X:00 to X:00 p.m.	0	0	0	0
0	0	0	pHf	0	0	0	0
0	0	0	Y:Y:Y	mm	66	0	0
0	0	0	east-west street name	0	0	0	0
0	0	0	561	0	0	0	0
0	0	NB	0	0	0	0	180
0	0	60%	0%	4%	6%	0%	56%

Notes: 5-Min Count Interval

balanced

276	0	3%	0%	0%	0%	965	City: Vancouver	
0	0	34	601	141	0	0	0	
0	0	ES	SE 164th Ave	0	90	0	205	
16%	0	26	7:30 AM to 8:30 AM	90	0	4%	4%	
6%	0	50	REV:368	12	0.90	98	0	1%
3%	0	151	2022	12	6	318	0	2%
227	0	220	SE 34th St	0	WB	0	254	
0	0	103	849	237	0	0	0	
0	0	NB	0	0	0	0	180	
0	0	107%	1%	2%	4%	0%	118%	

Notes: 5-Min Count Interval

182	0	1%	0%	2%	0%	91	City: Vancouver	
0	0	122	3	57	0	0	0	
0	0	ES	SE 176th Ave	0	90	0	215	
0%	0	45	7:25 AM to 8:25 AM	43	0	0%	4%	
3%	0	348	REV:88	8	0.85	242	0	6%
0%	0	2	2022	12	6	2	0	0%
0	0	11	114	5	4	0	0	
0	0	NB	0	0	0	0	180	
0	0	16%	0%	0%	25%	0%	23%	

Notes: 5-Min Count Interval

16	0	27%	0%	0%	0%	144	City: Vancouver	
0	0	15	0	1	0	0	0	
0	0	ES	SE 177th Ave	0	90	0	254	
3%	0	137	7:25 AM to 8:25 AM	6	0	0%	4%	
3%	0	261	REV:924	7	0.85	243	0	5%
0%	0	11	2022	12	6	5	0	0%
0	0	29	0	16	0	0	0	
0	0	NB	0	0	0	0	180	
0	0	16%	0%	0%	0%	0%	45%	

Notes: 5-Min Count Interval

1	0	0%	0%	0%	0%	22	City: Vancouver	
0	0	2	0	4	0	0	0	
0	0	ES	SE Hiddenbrook Dr	0	90	0	255	
4%	0	218	REV:638	6	0.81	189	0	5%
0%	0	24	2022	12	6	25	0	0%
0	0	63	1	38	0	0	0	
0	0	NB	0	0	0	0	180	
0	0	49%	3%	0%	0%	0%	102%	

Notes: 5-Min Count Interval

552	0	11%	11%	1%	1%	631	City: Vancouver	
0	0	84	380	88	0	0	0	
0	0	ES	SE 192nd Ave	0	90	0	133	
8%	0	65	7:40 AM to 8:40 AM	45	0	2%	4%	
3%	0	123	REV:933	5	0.86	95	1	0%
0%	0	28	2022	12	6	143	0	5%
0	0	70	520	290	0	0	0	
0	0	NB	0	0	0	0	180	
0	0	55%	0%	5%	2%	0%	88%	

Notes: 5-Min Count Interval

Table 1 summarizes the combined traffic counts at IDP's east and west gates during the time intervals determined by the County in 1996. Table 1 also indicates the specific trip generation rates derived from these counts according to the actual development on IDP's South Campus.

Input of IDP South Campus Development in 1996 - Section
Page 1 of 7

	Traffic Counts	Trip Rate per Thousand Gross Square Feet
AM Peak (7:45 AM - 8:45 AM)		
Entering	261	0.37
Exiting	119	0.17
Total	380	0.53
PM Peak (4:30 PM - 5:30 PM)		
Entering	76	0.11
Exiting	346	0.51
Total	422	0.62

Total for 712,000K
+3,000 K since 1996 count' ### #

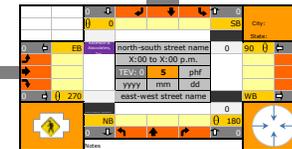
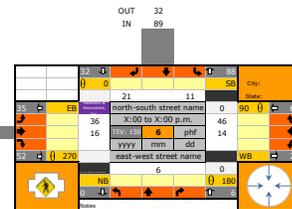
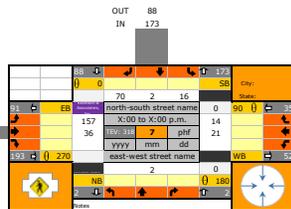
TOTAL	IN	OUT
380	261	119
2	1	1
382	262	120

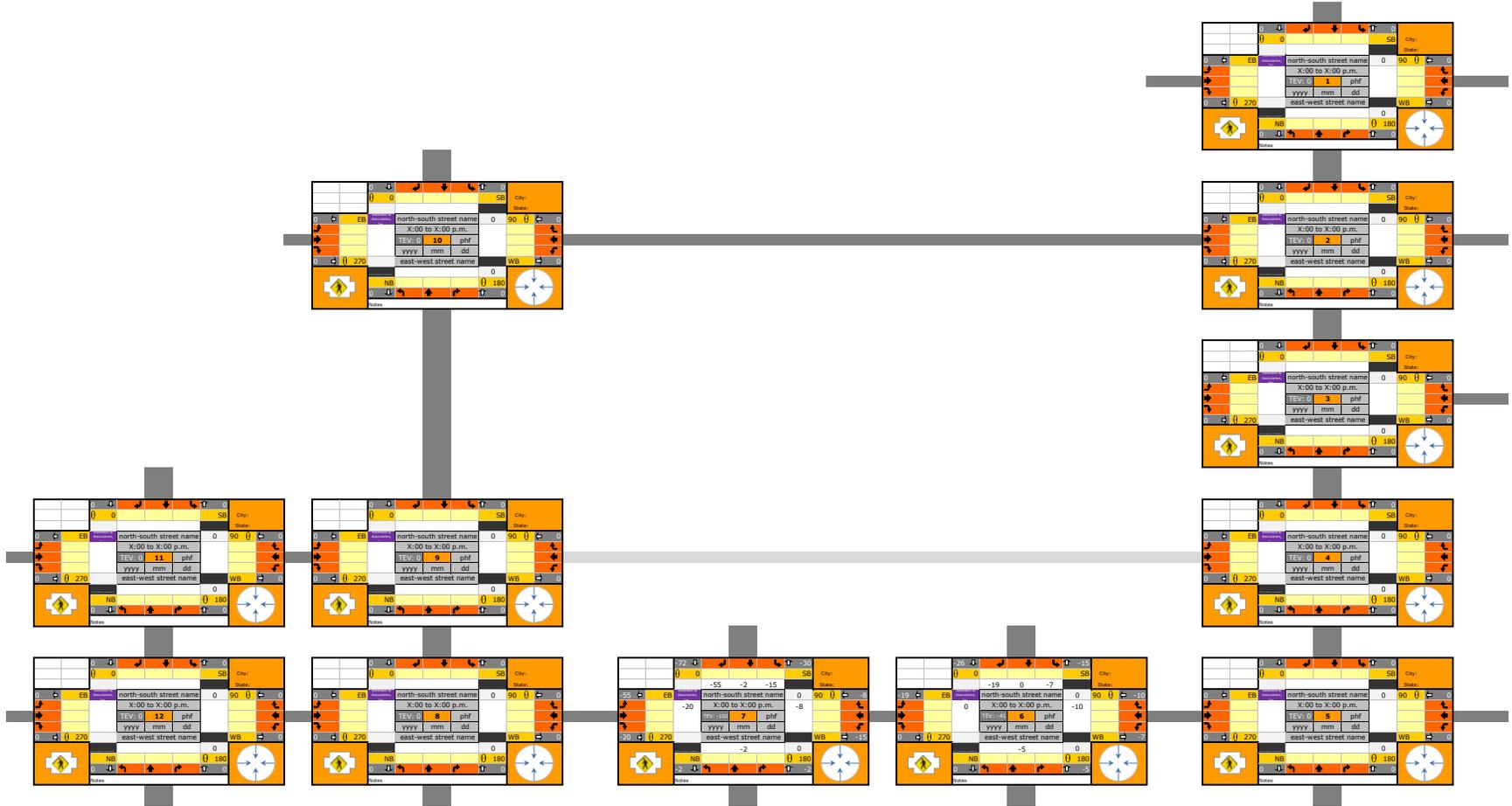


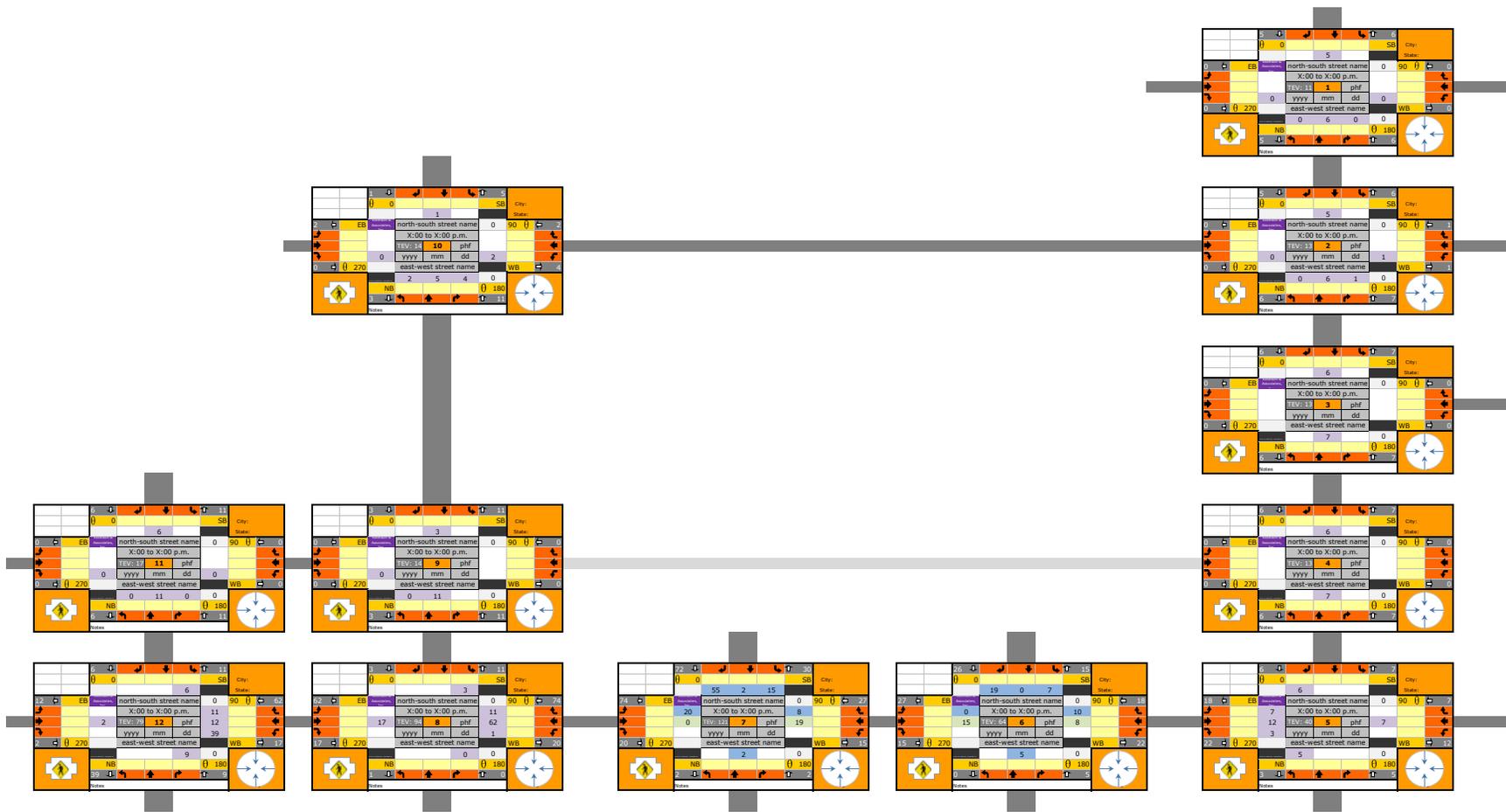
Note: the outward distribution percentages programmed in the spreadsheet for intersection 7 is slightly different to what was calculated above. I kept to what was programmed in the spreadsheet.

TOTAL IN OUT
262 120

2020 Site Driveway Count Distribution - Same Pattern used for Assignment of Historic Trips







■ Calculated as difference of 2023 count trips and historical (1996) site trips
■ Carried through
■ Back distributed to system based on balanced 2022 count patterns

127	0	0%	1%	4%	0	152	City: Vancouver
0	0	0	0	0	0	SB	State: WA
153	0	0%	0%	0%	0	90	City: Vancouver
0	0	0	0	0	0	EB	State: WA
37	4:25 PM to 5:25 PM	14	0	0%	0%	0	City: Vancouver
350	10	0.92	370	0	0%	0	City: Vancouver
44	2023	1	10	67	0	0%	City: Vancouver
34	101	62	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
187	0	0%	1%	0%	0	180	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

107	0	2%	2%	0%	0	111	City: Vancouver
0	0	0	0	0	0	SB	State: WA
103	920	47	0	0	0	0	City: Vancouver
88	4:20 PM to 5:20 PM	107	0	0%	0%	0	City: Vancouver
74	1	0.92	67	2	0%	0	City: Vancouver
65	2023	1	10	33	0	0%	City: Vancouver
55	916	28	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
107	0	2%	2%	0%	0	180	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

912	0	1%	2%	1%	0	863	City: Vancouver
0	0	0	0	0	0	SB	State: WA
124	655	123	0	0	0	0	City: Vancouver
141	4:20 PM to 5:20 PM	140	0	0%	2%	0	City: Vancouver
141	2	0.90	204	1	0%	0	City: Vancouver
67	2023	1	10	178	0	0%	City: Vancouver
114	582	114	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
910	0	0%	1%	0%	0	180	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

887	0	0%	1%	0%	0	859	City: Vancouver
0	0	0	0	0	0	SB	State: WA
0	0	0	0	0	0	0	City: Vancouver
0	4:35 PM to 5:35 PM	4	0	0%	0%	0	City: Vancouver
0	2023	1	12	3	0	0%	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
0	853	3	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
890	0	0%	1%	0%	0	856	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

379	0	0%	1%	2%	0	1600	City: Vancouver
0	0	0	0	0	0	SB	State: WA
38	1193	43	0	0	0	0	City: Vancouver
66	4:00 PM to 5:00 PM	38	0	3%	0%	0	City: Vancouver
23	11	0.95	17	0	18%	0	City: Vancouver
39	2023	1	10	21	0	0%	City: Vancouver
38	1296	29	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
375	0	0%	2%	10%	0	1600	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

176	0	0%	1%	0%	0	235	City: Vancouver
0	0	0	0	0	0	SB	State: WA
14	162	0	0	0	0	0	City: Vancouver
7%	0	15	4:00 PM to 5:00 PM	0	0	0%	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
23	2023	1	10	0	0	0%	City: Vancouver
13	221	0	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
175	0	0%	1%	0%	0	234	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

890	0	0	0	0	0	856	City: Vancouver
0	0	0	0	0	0	SB	State: WA
0	0	0	0	0	0	0	City: Vancouver
0	X:00 to X:00 p.m.	0	0	0	0	0	City: Vancouver
0	4	phf	0	0	0	0	City: Vancouver
0	YYYY	mm	dd	0	0	0	City: Vancouver
0	856	0	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
890	0	0%	1%	0%	0	856	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

326	0	4%	2%	2%	0	1363	City: Vancouver
0	0	0	0	0	0	SB	State: WA
46	1061	147	0	0	0	0	City: Vancouver
45	4:05 PM to 5:05 PM	194	0	3%	0%	0	City: Vancouver
88	12	0.96	105	0	4%	0	City: Vancouver
178	2022	12	6	302	0	2%	City: Vancouver
179	1124	297	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
154	0	1%	2%	1%	0	1600	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

182	0	0%	0%	1%	0	222	City: Vancouver
0	0	0	0	0	0	SB	State: WA
88	14	80	0	0	0	0	City: Vancouver
129	4:35 PM to 5:35 PM	85	0	1%	0%	0	City: Vancouver
295	0	0.92	436	0	1%	0	City: Vancouver
13	2022	12	6	9	0	0%	City: Vancouver
10	6	2	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
180	0	0%	0%	0%	0	18	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

112	0	0%	0%	0%	0	11	City: Vancouver
0	0	0	0	0	0	SB	State: WA
108	0	4	0	0	0	0	City: Vancouver
11	4:20 PM to 5:20 PM	0	0	0%	0%	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
334	7	0.91	405	0	2%	0	City: Vancouver
32	2022	12	6	10	0	0	City: Vancouver
18	0	7	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
117	0	0%	0%	0%	0	25	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

94	0	0%	0%	4%	0	11	City: Vancouver
0	0	0	0	0	0	SB	State: WA
58	3	33	0	0	0	0	City: Vancouver
4	4:20 PM to 5:20 PM	8	0	0%	0%	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
261	6	0.94	286	0	2%	0	City: Vancouver
80	2022	12	6	34	0	3%	City: Vancouver
71	1	30	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
117	0	0%	0%	3%	0	102	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

915	0	0%	1%	0%	0	912	City: Vancouver
0	0	0	0	0	0	SB	State: WA
75	673	167	0	0	0	0	City: Vancouver
100	4:35 PM to 5:35 PM	99	0	0%	0%	0	City: Vancouver
171	5	0.92	153	0	1%	0	City: Vancouver
57	2022	12	6	295	0	1%	City: Vancouver
69	723	134	0	0	0	0	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver
102	0	0%	2%	1%	0	936	City: Vancouver
0	0	0	0	0	0	0	City: Vancouver

balanced

Table 1 summarizes the combined traffic counts at HP's east and west gates during the time intervals determined by the County in 1996. Table 1 also indicates the specific trip generation rates derived from these counts according to the actual development on HP's South Campus.

Impact of HP South Campus Development on 154th Avenue
Page 1 of 8

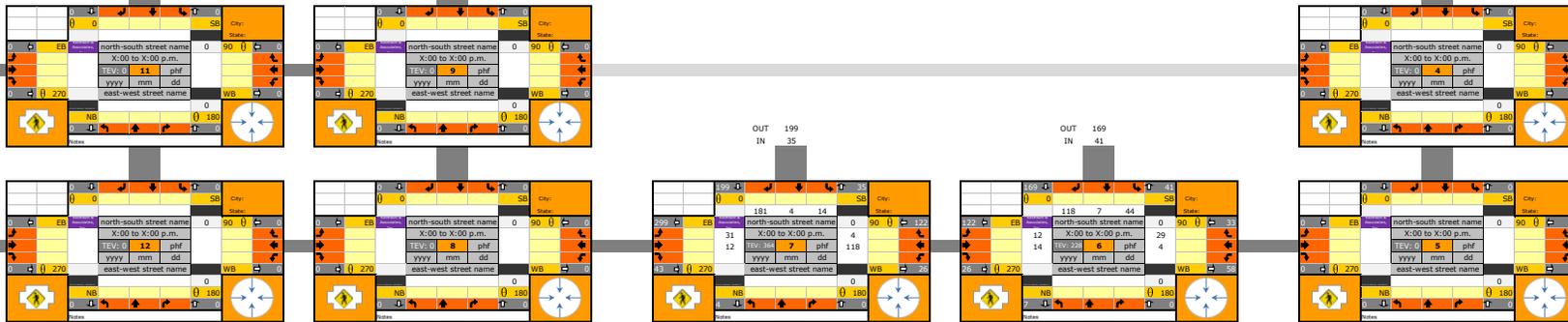


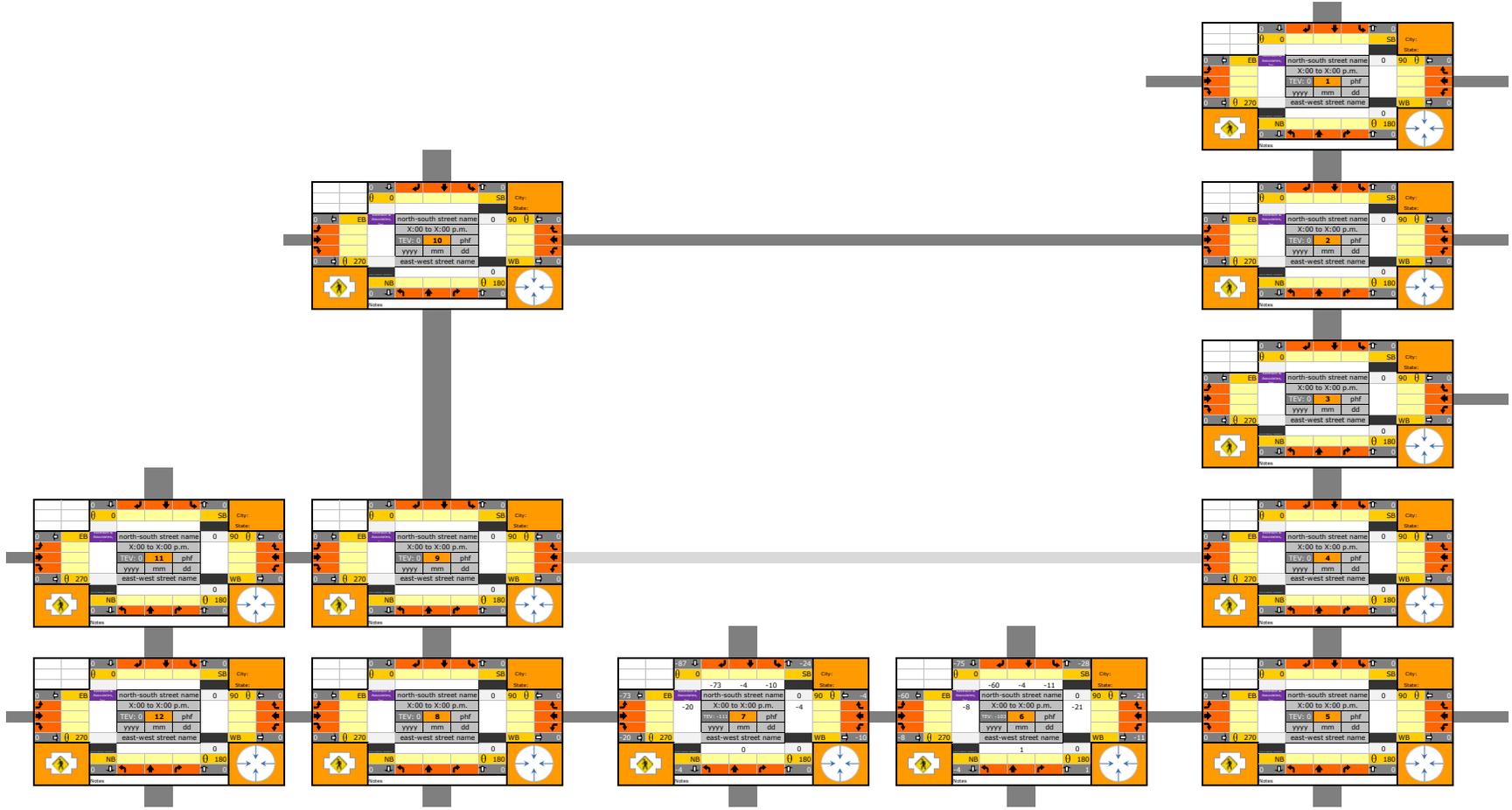
	Traffic Counts	Trip Rate per Thousand Gross Square Feet
AM Peak (7:05 AM - 8:05 AM)		
Entering	261	0.37
Exiting	119	0.17
Total	380	0.53
PM Peak (4:35 PM - 5:35 PM)		
Entering	76	0.11
Exiting	366	0.51
Total	442	0.62

Total for 712,000K
+3,000 K since 1996 count
###

Previous version - use		Latest version - in/out split	
OUT	0.47	OUT	0.53
IN	0.56	IN	0.44
OUT	0.91	OUT	0.70
IN	0.89	IN	0.23
OUT	0.02	OUT	0.04
IN	0.07	IN	0.71
OUT	0.00	OUT	0.36
IN	0.11	IN	0.00
OUT	0.00	OUT	0.62
IN	0.00	IN	0.31
OUT	0.00	OUT	0.03
IN	0.00	IN	0.42
TOTAL	76	TOTAL	368

2020 Site Driveway Count Distribution - Same Pattern used for Assignment of Historic Trips





Appendix E 2038 Baseline Operations
Worksheets & Total In-process
Trip Assignment

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions

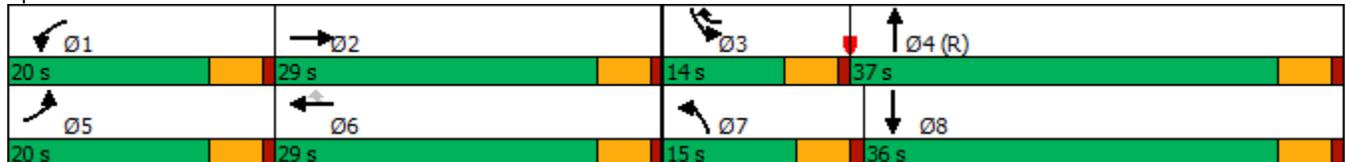


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↕	↖	↕
Traffic Volume (vph)	156	45	29	64	158	46	910	89	793
Future Volume (vph)	156	45	29	64	158	46	910	89	793
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases					6				
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	20.0	29.0	20.0	29.0	14.0	15.0	37.0	14.0	36.0
Total Split (%)	20.0%	29.0%	20.0%	29.0%	14.0%	15.0%	37.0%	14.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	12.4	18.7	5.9	10.2	22.0	6.7	50.6	8.8	54.7
Actuated g/C Ratio	0.12	0.19	0.06	0.10	0.22	0.07	0.51	0.09	0.55
v/c Ratio	0.80	0.25	0.32	0.38	0.42	0.44	0.59	0.69	0.54
Control Delay	67.8	21.5	53.4	45.3	17.3	59.9	18.2	69.1	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	21.5	53.4	45.3	17.3	59.9	18.2	69.1	20.4
LOS	E	C	D	D	B	E	B	E	C
Approach Delay		52.2		28.6			20.1		24.8
Approach LOS		D		C			C		C

Intersection Summary

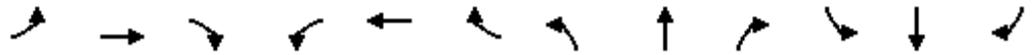
Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 9 (9%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 26.0
 Intersection Capacity Utilization 58.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: SE 192nd & SE 15th St



HCM 6th Signalized Intersection Summary
 1: SE 192nd & SE 15th St

Vancouver Innovation Center
 Baseline 2038 AM Peak Hour Conditions

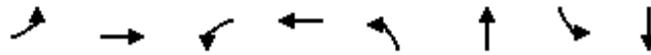


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	45	34	29	64	158	46	910	16	89	793	87
Future Volume (veh/h)	156	45	34	29	64	158	46	910	16	89	793	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1796	1781	1841	1870	1856	1841	1900	1737	1767	1856
Adj Flow Rate, veh/h	173	50	6	32	71	97	51	1011	17	99	881	90
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	0	7	8	4	2	3	4	0	11	9	3
Cap, veh/h	204	271	32	50	141	239	88	1878	32	122	1715	175
Arrive On Green	0.12	0.16	0.16	0.03	0.08	0.08	0.10	1.00	1.00	0.07	0.56	0.56
Sat Flow, veh/h	1767	1664	200	1697	1841	1585	1767	3518	59	1654	3074	314
Grp Volume(v), veh/h	173	0	56	32	71	97	51	503	525	99	481	490
Grp Sat Flow(s),veh/h/ln	1767	0	1864	1697	1841	1585	1767	1749	1829	1654	1678	1710
Q Serve(g_s), s	9.6	0.0	2.6	1.9	3.7	5.5	2.8	0.0	0.0	5.9	17.8	17.8
Cycle Q Clear(g_c), s	9.6	0.0	2.6	1.9	3.7	5.5	2.8	0.0	0.0	5.9	17.8	17.8
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.03	1.00		0.18
Lane Grp Cap(c), veh/h	204	0	303	50	141	239	88	934	976	122	936	954
V/C Ratio(X)	0.85	0.00	0.18	0.64	0.50	0.41	0.58	0.54	0.54	0.81	0.51	0.51
Avail Cap(c_a), veh/h	265	0	447	254	442	498	177	934	976	149	936	954
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	0.0	36.1	48.0	44.3	38.4	44.0	0.0	0.0	45.6	13.7	13.7
Incr Delay (d2), s/veh	14.7	0.0	0.1	5.0	1.0	0.4	1.9	1.9	1.8	19.5	2.0	2.0
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(95%),veh/ln	8.5	0.0	2.1	1.5	3.1	3.8	2.1	0.9	0.9	5.4	10.8	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	0.0	36.2	53.0	45.3	38.8	45.8	1.9	1.8	65.1	15.7	15.7
LnGrp LOS	E	A	D	D	D	D	D	A	A	E	B	B
Approach Vol, veh/h		229			200			1079			1070	
Approach Delay, s/veh		52.8			43.4			3.9			20.3	
Approach LOS		D			D			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	21.3	12.4	58.4	16.5	12.7	10.0	60.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	24.0	9.0	32.0	15.0	24.0	10.0	31.0				
Max Q Clear Time (g_c+I1), s	3.9	4.6	7.9	2.0	11.6	7.5	4.8	19.8				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.0	0.0	0.2	0.0	1.7				

Intersection Summary												
HCM 6th Ctrl Delay				18.1								
HCM 6th LOS				B								

Timings
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions

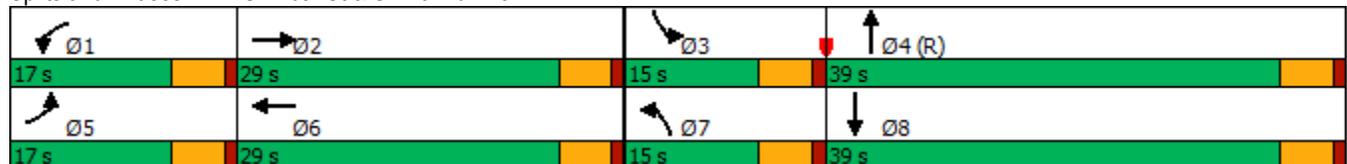


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↖	↖↗	↖	↖	↕↖	↖	↕↖
Traffic Volume (vph)	166	182	106	165	46	689	59	643
Future Volume (vph)	166	182	106	165	46	689	59	643
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	17.0	29.0	17.0	29.0	15.0	39.0	15.0	39.0
Total Split (%)	17.0%	29.0%	17.0%	29.0%	15.0%	39.0%	15.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	9.4	18.6	7.6	16.8	7.4	48.0	7.9	46.4
Actuated g/C Ratio	0.09	0.19	0.08	0.17	0.07	0.48	0.08	0.46
v/c Ratio	0.55	0.79	0.42	0.74	0.38	0.52	0.44	0.50
Control Delay	49.5	51.4	48.6	50.4	68.6	8.1	51.7	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	51.4	48.6	50.4	68.6	8.1	51.7	26.3
LOS	D	D	D	D	E	A	D	C
Approach Delay		50.6		49.8		11.3		28.2
Approach LOS		D		D		B		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 29.0
 Intersection LOS: C
 Intersection Capacity Utilization 62.6%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 2: SE 20th St & SE 192nd Ave



HCM 6th Signalized Intersection Summary
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↕↔		↔	↕↔	
Traffic Volume (veh/h)	166	182	78	106	165	57	46	689	132	59	643	103
Future Volume (veh/h)	166	182	78	106	165	57	46	689	132	59	643	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1841	1885	1885	1885	1811	1856	1841	1885	1811	1826
Adj Flow Rate, veh/h	175	192	65	112	174	46	48	725	125	62	677	97
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, %	3	0	4	1	1	1	6	3	4	1	6	5
Cap, veh/h	242	222	75	174	206	54	86	1629	281	80	1620	232
Arrive On Green	0.07	0.16	0.16	0.05	0.14	0.14	0.05	0.54	0.54	0.06	0.71	0.71
Sat Flow, veh/h	3428	1358	460	3483	1437	380	1725	3006	518	1795	3021	432
Grp Volume(v), veh/h	175	0	257	112	0	220	48	425	425	62	385	389
Grp Sat Flow(s),veh/h/ln	1714	0	1817	1742	0	1817	1725	1763	1762	1795	1721	1733
Q Serve(g_s), s	5.0	0.0	13.8	3.2	0.0	11.8	2.7	14.6	14.6	3.4	9.1	9.2
Cycle Q Clear(g_c), s	5.0	0.0	13.8	3.2	0.0	11.8	2.7	14.6	14.6	3.4	9.1	9.2
Prop In Lane	1.00		0.25	1.00		0.21	1.00		0.29	1.00		0.25
Lane Grp Cap(c), veh/h	242	0	298	174	0	260	86	955	954	80	923	929
V/C Ratio(X)	0.72	0.00	0.86	0.64	0.00	0.85	0.56	0.45	0.45	0.78	0.42	0.42
Avail Cap(c_a), veh/h	411	0	436	418	0	436	172	955	954	180	923	929
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	45.5	0.0	40.7	46.6	0.0	41.8	46.4	13.8	13.8	46.5	8.0	8.0
Incr Delay (d2), s/veh	1.5	0.0	8.3	1.5	0.0	3.2	2.1	1.5	1.5	4.9	1.2	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(95%),veh/ln	3.8	0.0	10.9	2.5	0.0	9.1	2.1	9.6	9.6	2.8	5.3	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	49.0	48.1	0.0	45.0	48.5	15.3	15.3	51.5	9.1	9.1
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	A	A
Approach Vol, veh/h		432			332			898			836	
Approach Delay, s/veh		48.2			46.0			17.1			12.3	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	21.4	9.5	59.2	12.1	19.3	10.0	58.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	24.0	10.0	34.0	12.0	24.0	10.0	34.0				
Max Q Clear Time (g_c+I1), s	5.2	15.8	5.4	16.6	7.0	13.8	4.7	11.2				
Green Ext Time (p_c), s	0.1	0.5	0.0	3.1	0.1	0.5	0.0	2.9				

Intersection Summary

HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↵	↕↕		↵	↕↕
Traffic Vol, veh/h	7	10	789	3	7	801
Future Vol, veh/h	7	10	789	3	7	801
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	20	4	67	0	7
Mvmt Flow	7	11	831	3	7	843

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1270	418	0	0	835
Stage 1	834	-	-	-	-
Stage 2	436	-	-	-	-
Critical Hdwy	6.8	7.3	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.5	-	-	2.2
Pot Cap-1 Maneuver	163	536	-	-	807
Stage 1	392	-	-	-	-
Stage 2	625	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	161	535	-	-	806
Mov Cap-2 Maneuver	161	-	-	-	-
Stage 1	392	-	-	-	-
Stage 2	619	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.7	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	161	535	806
HCM Lane V/C Ratio	-	-	0.046	0.02	0.009
HCM Control Delay (s)	-	-	28.4	11.9	9.5
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	0

Timings
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions

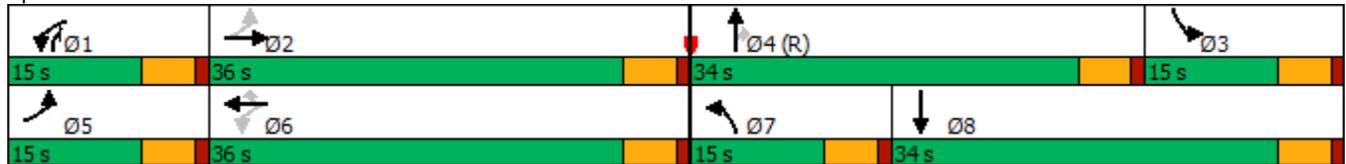


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	100	148	207	117	67	100	704	349	108	547
Future Volume (vph)	100	148	207	117	67	100	704	349	108	547
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6		7	4	1	3	8
Permitted Phases	2		6		6			4		
Detector Phase	5	2	1	6	6	7	4	1	3	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	15.0	36.0	15.0	36.0	36.0	15.0	34.0	15.0	15.0	34.0
Total Split (%)	15.0%	36.0%	15.0%	36.0%	36.0%	15.0%	34.0%	15.0%	15.0%	34.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	25.3	17.2	28.8	19.0	19.0	8.8	43.0	52.8	10.0	44.2
Actuated g/C Ratio	0.25	0.17	0.29	0.19	0.19	0.09	0.43	0.53	0.10	0.44
v/c Ratio	0.33	0.71	0.80	0.36	0.16	0.69	0.54	0.38	0.35	0.53
Control Delay	25.6	46.7	46.5	36.3	0.8	66.1	24.8	2.2	41.1	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	46.7	46.5	36.3	0.8	66.1	24.8	2.2	41.1	21.1
LOS	C	D	D	D	A	E	C	A	D	C
Approach Delay		39.7		35.6			21.6			23.9
Approach LOS		D		D			C			C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 40 (40%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 26.5
 Intersection Capacity Utilization 67.0%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 5: SE 192nd Ave & SE 34th St



HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	148	55	207	117	67	100	704	349	108	547	116
Future Volume (veh/h)	100	148	55	207	117	67	100	704	349	108	547	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1728	1803	1847	1943	2018	1988	2018	1883	1988	1832	1684	1684
Adj Flow Rate, veh/h	111	164	43	230	130	4	111	782	172	120	608	113
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	8	3	0	5	0	2	0	9	2	1	11	11
Cap, veh/h	338	214	56	308	371	303	141	1037	655	860	1267	235
Arrive On Green	0.07	0.16	0.16	0.10	0.18	0.18	0.07	0.29	0.29	0.25	0.47	0.47
Sat Flow, veh/h	1646	1374	360	1850	2018	1652	1922	3578	1679	3385	2694	500
Grp Volume(v), veh/h	111	0	207	230	130	4	111	782	172	120	361	360
Grp Sat Flow(s),veh/h/ln	1646	0	1734	1850	2018	1652	1922	1789	1679	1693	1600	1593
Q Serve(g_s), s	5.6	0.0	11.4	10.0	5.6	0.1	5.7	19.9	2.4	2.7	15.4	15.5
Cycle Q Clear(g_c), s	5.6	0.0	11.4	10.0	5.6	0.1	5.7	19.9	2.4	2.7	15.4	15.5
Prop In Lane	1.00		0.21	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	338	0	271	308	371	303	141	1037	655	860	753	750
V/C Ratio(X)	0.33	0.00	0.76	0.75	0.35	0.01	0.79	0.75	0.26	0.14	0.48	0.48
Avail Cap(c_a), veh/h	384	0	538	308	626	512	192	1037	655	860	753	750
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)	0.92	0.00	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	40.4	33.0	35.6	10.7	45.6	32.3	7.5	28.9	18.1	18.1
Incr Delay (d2), s/veh	0.2	0.0	1.6	8.6	0.2	0.0	9.6	5.1	1.0	0.0	2.2	2.2
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(95%),veh/ln	3.9	0.0	8.3	9.0	4.9	0.1	5.4	13.8	2.1	2.0	9.7	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2	0.0	42.0	41.6	35.8	10.7	55.1	37.3	8.5	28.9	20.3	20.3
LnGrp LOS	C	A	D	D	D	B	E	D	A	C	C	C
Approach Vol, veh/h		318			364			1065			841	
Approach Delay, s/veh		38.6			39.2			34.5			21.5	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	20.6	30.4	34.0	12.2	23.4	12.3	52.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	31.0	10.0	29.0	10.0	31.0	10.0	29.0				
Max Q Clear Time (g_c+I1), s	12.0	13.4	4.7	21.9	7.6	7.6	7.7	17.5				
Green Ext Time (p_c), s	0.0	0.3	0.0	1.4	0.0	0.2	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay			31.5									
HCM 6th LOS			C									

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions

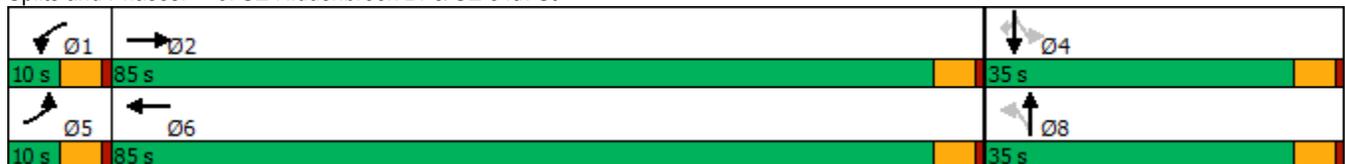


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↙	↘	↙	↘	↙	↘		↕	↗
Traffic Volume (vph)	36	310	27	255	63	6	11	0	21
Future Volume (vph)	36	310	27	255	63	6	11	0	21
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		4
Detector Phase	5	2	1	6	8	8	4	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	27.0	10.0	27.0	32.0	32.0	34.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Min	None	Min	None	None	None	None	None
Act Effct Green (s)	5.5	25.1	5.5	22.9	9.0	9.0		9.0	9.0
Actuated g/C Ratio	0.12	0.56	0.12	0.51	0.20	0.20		0.20	0.20
v/c Ratio	0.20	0.40	0.15	0.41	0.28	0.16		0.05	0.07
Control Delay	26.3	12.8	26.0	13.8	18.0	7.1		15.1	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	26.3	12.8	26.0	13.8	18.0	7.1		15.1	1.5
LOS	C	B	C	B	B	A		B	A
Approach Delay		14.1		14.8		13.4		6.2	
Approach LOS		B		B		B		A	

Intersection Summary

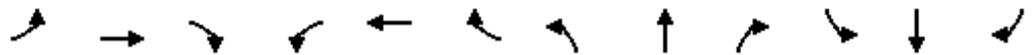
Cycle Length: 130
 Actuated Cycle Length: 44.6
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.41
 Intersection Signal Delay: 14.0
 Intersection LOS: B
 Intersection Capacity Utilization 44.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	310	24	27	255	46	63	6	41	11	0	21
Future Volume (veh/h)	36	310	24	27	255	46	63	6	41	11	0	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1876	1802	1876	1832	1876	1876	1900	1900	1900
Adj Flow Rate, veh/h	44	383	26	33	315	48	78	7	0	14	0	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	0	4	0	0	5	0	3	0	0	0	0	0
Cap, veh/h	90	757	51	70	663	101	332	166	0	327	0	142
Arrive On Green	0.05	0.44	0.44	0.04	0.43	0.43	0.09	0.09	0.00	0.09	0.00	0.00
Sat Flow, veh/h	1810	1704	116	1787	1527	233	1388	1876	0	1376	0	1610
Grp Volume(v), veh/h	44	0	409	33	0	363	78	7	0	14	0	0
Grp Sat Flow(s),veh/h/ln	1810	0	1819	1787	0	1760	1388	1876	0	1376	0	1610
Q Serve(g_s), s	0.8	0.0	5.6	0.6	0.0	5.2	1.3	0.1	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.8	0.0	5.6	0.6	0.0	5.2	1.8	0.1	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.13	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	0	809	70	0	764	332	166	0	327	0	142
V/C Ratio(X)	0.49	0.00	0.51	0.47	0.00	0.48	0.23	0.04	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	258	0	4154	255	0	4017	1399	1607	0	1426	0	1379
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.2	0.0	7.0	16.5	0.0	7.1	15.3	14.6	0.0	14.8	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.2	1.8	0.0	0.2	0.1	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.0	2.0	0.4	0.0	1.8	0.9	0.1	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	7.2	18.3	0.0	7.2	15.5	14.7	0.0	14.8	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	B	A	B	A	A
Approach Vol, veh/h		453			396			85			14	
Approach Delay, s/veh		8.2			8.2			15.4			14.8	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	20.6		8.1	6.7	20.2		8.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	2.6	7.6		2.4	2.8	7.2		3.8				
Green Ext Time (p_c), s	0.0	0.8		0.0	0.0	0.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	157	338	11	5	320	14	29	2	17	16	2	70
Future Vol, veh/h	157	338	11	5	320	14	29	2	17	16	2	70
Conflicting Peds, #/hr	3	0	3	3	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	140	-	-	95	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	3	3	0	0	5	0	0	0	0	0	0	27
Mvmt Flow	185	398	13	6	376	16	34	2	20	19	2	82

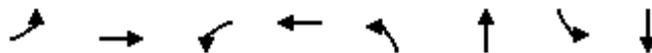
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	395	0	0	414	0	0	1216	1185	408	1177	1175	379
Stage 1	-	-	-	-	-	-	778	778	-	391	391	-
Stage 2	-	-	-	-	-	-	438	407	-	786	784	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.47
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.543
Pot Cap-1 Maneuver	1158	-	-	1156	-	-	159	191	648	169	193	616
Stage 1	-	-	-	-	-	-	392	410	-	637	611	-
Stage 2	-	-	-	-	-	-	601	601	-	388	407	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1155	-	-	1153	-	-	119	159	646	141	160	614
Mov Cap-2 Maneuver	-	-	-	-	-	-	119	159	-	141	160	-
Stage 1	-	-	-	-	-	-	328	343	-	533	606	-
Stage 2	-	-	-	-	-	-	516	596	-	314	341	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.7			0.1			36.4			16.4		
HCM LOS							E			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	170	1155	-	-	1153	-	-	143	614
HCM Lane V/C Ratio	0.332	0.16	-	-	0.005	-	-	0.148	0.134
HCM Control Delay (s)	36.4	8.7	-	-	8.1	-	-	34.5	11.8
HCM Lane LOS	E	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	1.4	0.6	-	-	0	-	-	0.5	0.5

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions

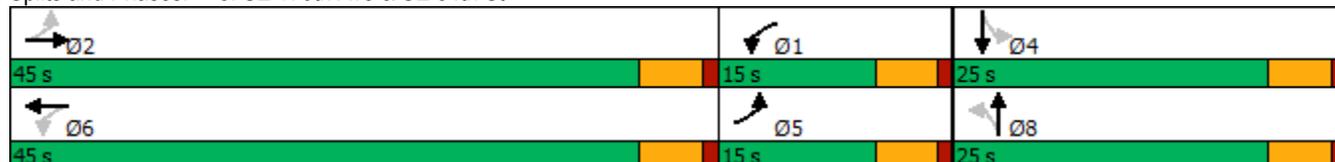


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	49	436	3	357	14	5	66	3
Future Volume (vph)	49	436	3	357	14	5	66	3
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	31.7	34.1	29.6	30.0	9.2	9.2	9.4	9.4
Actuated g/C Ratio	0.68	0.73	0.63	0.64	0.20	0.20	0.20	0.20
v/c Ratio	0.10	0.38	0.01	0.43	0.06	0.04	0.28	0.14
Control Delay	6.3	9.0	6.7	12.5	18.3	14.7	20.5	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	9.0	6.7	12.5	18.3	14.7	20.5	8.3
LOS	A	A	A	B	B	B	C	A
Approach Delay		8.8		12.5		16.8		15.7
Approach LOS		A		B		B		B

Intersection Summary

Cycle Length: 85
 Actuated Cycle Length: 46.7
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.43
 Intersection Signal Delay: 11.2
 Intersection Capacity Utilization 50.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	49	436	2	3	357	59	14	5	4	66	3	39
Future Volume (veh/h)	49	436	2	3	357	59	14	5	4	66	3	39
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	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1856	1900	1900	1811	1826	1900	1900	1530	1870	1900	1885
Adj Flow Rate, veh/h	58	513	2	4	420	62	16	6	0	78	4	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	9	3	0	0	6	5	0	0	25	2	0	1
Cap, veh/h	470	766	3	483	642	95	348	205	0	345	205	0
Arrive On Green	0.06	0.41	0.41	0.06	0.42	0.42	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1682	1847	7	1810	1541	227	1409	1900	0	1384	1900	0
Grp Volume(v), veh/h	58	0	515	4	0	482	16	6	0	78	4	0
Grp Sat Flow(s),veh/h/ln	1682	0	1854	1810	0	1769	1409	1900	0	1384	1900	0
Q Serve(g_s), s	0.0	0.0	8.2	0.0	0.0	7.9	0.4	0.1	0.0	1.9	0.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	8.2	0.0	0.0	7.9	0.4	0.1	0.0	2.0	0.1	0.0
Prop In Lane	1.00		0.00	1.00		0.13	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	470	0	769	483	0	737	348	205	0	345	205	0
V/C Ratio(X)	0.12	0.00	0.67	0.01	0.00	0.65	0.05	0.03	0.00	0.23	0.02	0.00
Avail Cap(c_a), veh/h	832	0	2047	868	0	1952	974	1049	0	959	1049	0
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.7	0.0	8.6	10.2	0.0	8.5	14.6	14.5	0.0	15.4	14.4	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.0	0.0	0.4	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.0	3.4	0.0	0.0	3.1	0.2	0.1	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	0.0	9.0	10.2	0.0	8.8	14.7	14.5	0.0	15.5	14.5	0.0
LnGrp LOS	B	A	A	B	A	A	B	B	A	B	B	A
Approach Vol, veh/h		573			486			22			82	
Approach Delay, s/veh		9.2			8.8			14.6			15.4	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	20.0		8.9	7.2	20.1		8.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	10.2		4.0	2.0	9.9		2.4				
Green Ext Time (p_c), s	0.0	2.0		0.1	0.0	1.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	5	13	4	124	91	104
Future Vol, veh/h	5	13	4	124	91	104
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	10	0	2	1	18
Mvmt Flow	6	15	5	146	107	122

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	326	168	229	0	0
Stage 1	168	-	-	-	-
Stage 2	158	-	-	-	-
Critical Hdwy	6.4	6.3	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.39	2.2	-	-
Pot Cap-1 Maneuver	672	856	1351	-	-
Stage 1	867	-	-	-	-
Stage 2	875	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	669	856	1351	-	-
Mov Cap-2 Maneuver	669	-	-	-	-
Stage 1	864	-	-	-	-
Stage 2	875	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1351	-	794	-	-
HCM Lane V/C Ratio	0.003	-	0.027	-	-
HCM Control Delay (s)	7.7	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	272	26	75	314	14	29	67	55	0	60	10
Future Vol, veh/h	12	272	26	75	314	14	29	67	55	0	60	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	4	10	4	1	9	4	3	0	0	0	0
Mvmt Flow	13	299	29	82	345	15	32	74	60	0	66	11
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	15.2	15.1	11.2	11.2
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	55%	0%	91%	0%	96%	86%
Vol Right, %	0%	45%	0%	9%	0%	4%	14%
Sign Control	Stop						
Traffic Vol by Lane	29	122	12	298	75	328	70
LT Vol	29	0	12	0	75	0	0
Through Vol	0	67	0	272	0	314	60
RT Vol	0	55	0	26	0	14	10
Lane Flow Rate	32	134	13	327	82	360	77
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.065	0.242	0.024	0.539	0.146	0.578	0.148
Departure Headway (Hd)	7.343	6.496	6.42	5.92	6.357	5.768	6.911
Convergence, Y/N	Yes						
Cap	487	551	557	609	564	624	517
Service Time	5.107	4.26	4.168	3.667	4.101	3.513	4.985
HCM Lane V/C Ratio	0.066	0.243	0.023	0.537	0.145	0.577	0.149
HCM Control Delay	10.6	11.3	9.3	15.4	10.2	16.2	11.2
HCM Lane LOS	B	B	A	C	B	C	B
HCM 95th-tile Q	0.2	0.9	0.1	3.2	0.5	3.7	0.5

Timings
11: SE 164th Ave & SE 29th St

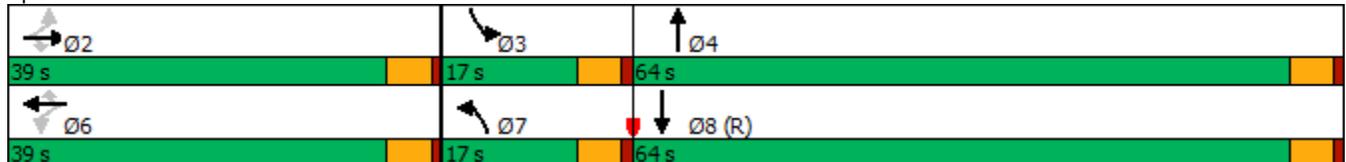
Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	42	7	46	141	16	37	23	1081	16	795
Future Volume (vph)	42	7	46	141	16	37	23	1081	16	795
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		2			6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	2	2	2	6	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	39.0	39.0	39.0	38.0	38.0	38.0	10.0	32.0	10.0	32.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	39.0	17.0	64.0	17.0	64.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	14.2%	53.3%	14.2%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	18.7	18.7	18.7	18.7	18.7	18.7	5.7	86.9	5.4	84.6
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16	0.16	0.05	0.72	0.04	0.70
v/c Ratio	0.21	0.02	0.16	0.69	0.07	0.13	0.28	0.31	0.22	0.24
Control Delay	42.7	37.1	6.3	62.4	38.9	3.9	37.5	22.3	61.9	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	37.1	6.3	62.4	38.9	3.9	37.5	22.3	61.9	8.2
LOS	D	D	A	E	D	A	D	C	E	A
Approach Delay		24.6			49.2			22.6		9.2
Approach LOS		C			D			C		A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 85 (71%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 20.0
 Intersection Capacity Utilization 51.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Baseline 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	7	46	141	16	37	23	1081	15	16	795	26
Future Volume (veh/h)	42	7	46	141	16	37	23	1081	15	16	795	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1856	1856	1648	1900	1900	1870	1796	1796	1856	1826
Adj Flow Rate, veh/h	44	7	5	148	17	4	24	1138	15	17	837	25
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, %	3	0	3	3	17	0	0	2	7	7	3	5
Cap, veh/h	221	239	198	230	207	202	42	2579	34	31	2485	74
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.02	0.50	0.50	0.02	0.49	0.49
Sat Flow, veh/h	1380	1900	1572	1391	1648	1610	1810	5194	68	1711	5055	151
Grp Volume(v), veh/h	44	7	5	148	17	4	24	746	407	17	559	303
Grp Sat Flow(s),veh/h/ln	1380	1900	1572	1391	1648	1610	1810	1702	1858	1711	1689	1828
Q Serve(g_s), s	3.5	0.4	0.3	12.5	1.1	0.3	1.6	16.9	17.0	1.2	12.1	12.1
Cycle Q Clear(g_c), s	4.6	0.4	0.3	12.9	1.1	0.3	1.6	16.9	17.0	1.2	12.1	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		0.08
Lane Grp Cap(c), veh/h	221	239	198	230	207	202	42	1690	923	31	1660	899
V/C Ratio(X)	0.20	0.03	0.03	0.64	0.08	0.02	0.58	0.44	0.44	0.55	0.34	0.34
Avail Cap(c_a), veh/h	438	538	446	450	467	456	181	1690	923	171	1660	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	46.0	46.0	51.7	46.4	46.0	58.0	19.5	19.5	58.4	18.6	18.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	1.1	0.1	0.0	3.6	0.7	1.2	5.6	0.5	1.0
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(95%),veh/ln	2.2	0.3	0.2	7.9	0.8	0.2	1.4	10.3	11.2	1.0	8.2	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.5	46.1	46.0	52.8	46.4	46.0	61.7	20.1	20.7	64.0	19.1	19.6
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	B	B
Approach Vol, veh/h		56			169			1177			879	
Approach Delay, s/veh		48.0			52.0			21.2			20.2	
Approach LOS		D			D			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.1	7.2	64.6		20.1	7.8	64.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		34.0	12.0	59.0		34.0	12.0	59.0				
Max Q Clear Time (g_c+I1), s		6.6	3.2	19.0		14.9	3.6	14.1				
Green Ext Time (p_c), s		0.0	0.0	5.3		0.2	0.0	3.7				
Intersection Summary												
HCM 6th Ctrl Delay			23.7									
HCM 6th LOS			C									

Timings
12: SE 164th Ave/SE164th Ave & SE 34th Street

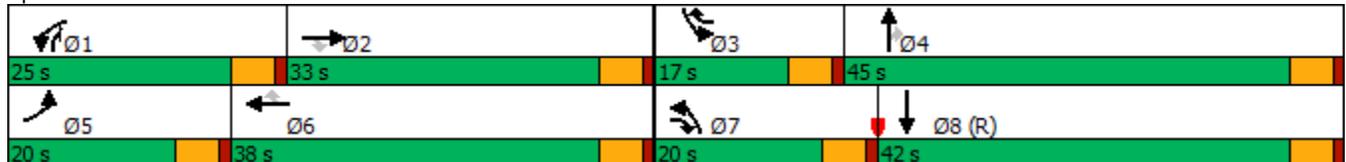
Vancouver Innovation Center
Baseline 2038 AM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	28	60	165	294	121	109	111	931	264	158	742
Future Volume (vph)	28	60	165	294	121	109	111	931	264	158	742
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	20.0	33.0	20.0	25.0	38.0	17.0	20.0	45.0	25.0	17.0	42.0
Total Split (%)	16.7%	27.5%	16.7%	20.8%	31.7%	14.2%	16.7%	37.5%	20.8%	14.2%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	6.4	8.2	23.0	20.0	23.8	47.0	11.8	55.6	80.6	18.2	62.0
Actuated g/C Ratio	0.05	0.07	0.19	0.17	0.20	0.39	0.10	0.46	0.67	0.15	0.52
v/c Ratio	0.39	0.56	0.53	1.11	0.36	0.18	0.72	0.64	0.26	0.66	0.34
Control Delay	68.3	70.9	31.3	130.9	45.0	4.6	74.0	28.4	1.8	52.0	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.3	70.9	31.3	130.9	45.0	4.6	74.0	28.4	1.8	52.0	20.8
LOS	E	E	C	F	D	A	E	C	A	D	C
Approach Delay		44.8			84.9			26.9			26.1
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 15 (13%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 38.2
 Intersection LOS: D
 Intersection Capacity Utilization 70.3%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 12: SE 164th Ave/SE164th Ave & SE 34th Street



HCM 6th Signalized Intersection Summary
 12: SE 164th Ave/SE164th Ave & SE 34th Street

Vancouver Innovation Center
 Baseline 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	60	165	294	121	109	111	931	264	158	742	37
Future Volume (veh/h)	28	60	165	294	121	109	111	931	264	158	742	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1565	1758	1803	1870	1885	1841	1791	1776	1746	1806	1761	1761
Adj Flow Rate, veh/h	31	67	124	327	134	33	123	1034	169	176	824	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	19	6	3	2	1	4	1	2	4	0	3	3
Cap, veh/h	40	159	270	297	434	515	147	1125	740	172	1635	75
Arrive On Green	0.03	0.09	0.09	0.17	0.23	0.23	0.09	0.33	0.33	0.03	0.11	0.11
Sat Flow, veh/h	1491	1758	1528	1781	1885	1560	1706	3375	1480	1720	4711	217
Grp Volume(v), veh/h	31	67	124	327	134	33	123	1034	169	176	560	302
Grp Sat Flow(s),veh/h/ln	1491	1758	1528	1781	1885	1560	1706	1687	1480	1720	1603	1722
Q Serve(g_s), s	2.5	4.3	8.7	20.0	7.1	1.7	8.5	35.3	7.7	12.0	19.7	19.8
Cycle Q Clear(g_c), s	2.5	4.3	8.7	20.0	7.1	1.7	8.5	35.3	7.7	12.0	19.7	19.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	40	159	270	297	434	515	147	1125	740	172	1112	598
V/C Ratio(X)	0.77	0.42	0.46	1.10	0.31	0.06	0.84	0.92	0.23	1.02	0.50	0.51
Avail Cap(c_a), veh/h	186	410	488	297	518	585	213	1125	740	172	1112	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	58.0	51.6	44.2	50.0	38.3	27.5	54.0	38.4	16.9	58.0	43.4	43.5
Incr Delay (d2), s/veh	11.1	0.7	0.5	82.2	0.1	0.0	11.8	13.3	0.7	73.5	1.6	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	3.4	5.9	23.0	5.8	1.2	7.3	22.7	4.8	14.0	13.4	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.2	52.2	44.7	132.2	38.4	27.5	65.8	51.8	17.7	131.5	45.0	46.4
LnGrp LOS	E	D	D	F	D	C	E	D	B	F	D	D
Approach Vol, veh/h		222			494			1326			1038	
Approach Delay, s/veh		50.4			99.8			48.7			60.1	
Approach LOS		D			F			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	15.9	17.0	45.0	8.2	32.7	15.4	46.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	28.0	12.0	40.0	15.0	33.0	15.0	37.0				
Max Q Clear Time (g_c+I1), s	22.0	10.7	14.0	37.3	4.5	9.1	10.5	21.8				
Green Ext Time (p_c), s	0.0	0.1	0.0	1.0	0.0	0.2	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			60.8									
HCM 6th LOS			E									

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions

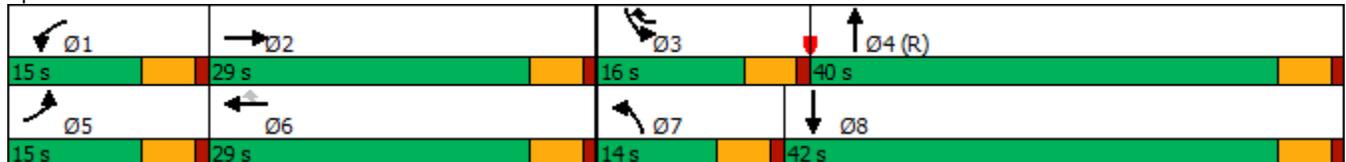


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↕	↖	↗
Traffic Volume (vph)	116	91	40	82	242	63	1246	115	1424
Future Volume (vph)	116	91	40	82	242	63	1246	115	1424
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases					6				
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	15.0	29.0	15.0	29.0	16.0	14.0	40.0	16.0	42.0
Total Split (%)	15.0%	29.0%	15.0%	29.0%	16.0%	14.0%	40.0%	16.0%	42.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	9.0	15.7	6.2	10.9	19.7	7.0	52.3	9.7	57.0
Actuated g/C Ratio	0.09	0.16	0.06	0.11	0.20	0.07	0.52	0.10	0.57
v/c Ratio	0.79	0.58	0.38	0.43	0.68	0.52	0.73	0.69	0.82
Control Delay	78.1	36.7	54.0	45.8	30.8	52.8	23.8	63.7	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	36.7	54.0	45.8	30.8	52.8	23.8	63.7	25.9
LOS	E	D	D	D	C	D	C	E	C
Approach Delay		53.4		36.7			25.2		28.5
Approach LOS		D		D			C		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 30.1
 Intersection Capacity Utilization 78.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 1: SE 192nd & SE 15th St



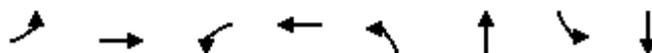
HCM 6th Signalized Intersection Summary
 1: SE 192nd & SE 15th St

Vancouver Innovation Center
 Baseline 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	91	80	40	82	242	63	1246	32	115	1424	133
Future Volume (veh/h)	116	91	80	40	82	242	63	1246	32	115	1424	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1885	1900	1900	1856	1900	1900	1870	1900	1900	1870	1870
Adj Flow Rate, veh/h	122	96	47	42	86	192	66	1312	33	121	1499	135
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, %	5	1	0	0	3	0	0	2	0	0	2	2
Cap, veh/h	150	221	108	62	248	345	100	1762	44	150	1733	155
Arrive On Green	0.09	0.19	0.19	0.03	0.13	0.13	0.11	1.00	1.00	0.08	0.53	0.53
Sat Flow, veh/h	1739	1194	585	1810	1856	1582	1810	3542	89	1810	3298	295
Grp Volume(v), veh/h	122	0	143	42	86	192	66	658	687	121	803	831
Grp Sat Flow(s),veh/h/ln	1739	0	1779	1810	1856	1582	1810	1777	1854	1810	1777	1816
Q Serve(g_s), s	6.9	0.0	7.1	2.3	4.2	10.8	3.5	0.7	0.7	6.6	39.1	40.1
Cycle Q Clear(g_c), s	6.9	0.0	7.1	2.3	4.2	10.8	3.5	0.7	0.7	6.6	39.1	40.1
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.05	1.00		0.16
Lane Grp Cap(c), veh/h	150	0	329	62	248	345	100	884	923	150	934	954
V/C Ratio(X)	0.82	0.00	0.43	0.67	0.35	0.56	0.66	0.74	0.74	0.81	0.86	0.87
Avail Cap(c_a), veh/h	174	0	427	181	445	513	163	884	923	199	934	954
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.48	0.48	0.48	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	0.0	36.1	47.7	39.4	34.9	43.6	0.1	0.1	45.1	20.5	20.8
Incr Delay (d2), s/veh	19.5	0.0	0.3	4.6	0.3	0.5	1.3	2.8	2.7	12.3	10.2	10.8
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(95%),veh/ln	6.7	0.0	5.5	2.0	3.5	7.3	2.7	1.3	1.4	6.1	23.8	24.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.4	0.0	36.4	52.4	39.7	35.5	45.0	2.9	2.8	57.3	30.7	31.5
LnGrp LOS	E	A	D	D	D	D	D	A	A	E	C	C
Approach Vol, veh/h		265			320			1411			1755	
Approach Delay, s/veh		49.3			38.8			4.8			32.9	
Approach LOS		D			D			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	23.5	13.3	54.8	13.6	18.4	10.5	57.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	24.0	11.0	35.0	10.0	24.0	9.0	37.0				
Max Q Clear Time (g_c+I1), s	4.3	9.1	8.6	2.7	8.9	12.8	5.5	42.1				
Green Ext Time (p_c), s	0.0	0.2	0.0	2.9	0.0	0.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			24.0									
HCM 6th LOS			C									

Timings
2: SE 192nd Ave & SE 20th St

Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions

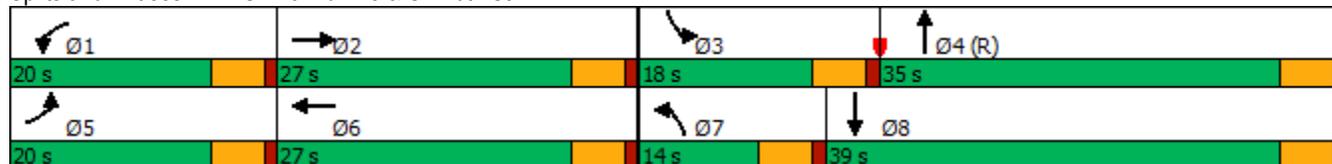


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↖	↖↗	↖	↖	↖↗	↖	↖↗
Traffic Volume (vph)	233	183	236	265	138	813	151	1024
Future Volume (vph)	233	183	236	265	138	813	151	1024
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	20.0	27.0	20.0	27.0	14.0	35.0	18.0	39.0
Total Split (%)	20.0%	27.0%	20.0%	27.0%	14.0%	35.0%	18.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	11.3	24.3	11.4	24.4	9.1	32.6	11.7	35.2
Actuated g/C Ratio	0.11	0.24	0.11	0.24	0.09	0.33	0.12	0.35
v/c Ratio	0.62	0.63	0.62	0.88	0.88	0.86	0.75	1.07
Control Delay	49.0	38.5	48.9	56.7	96.7	22.6	63.9	76.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	38.5	48.9	56.7	96.7	22.6	63.9	76.2
LOS	D	D	D	E	F	C	E	E
Approach Delay		43.3		53.7		32.0		74.9
Approach LOS		D		D		C		E

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 93 (93%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 54.0
 Intersection Capacity Utilization 88.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

Splits and Phases: 2: SE 192nd Ave & SE 20th St



HCM 6th Signalized Intersection Summary
2: SE 192nd Ave & SE 20th St

Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↕↔		↔	↕↔	
Traffic Volume (veh/h)	233	183	92	236	265	118	138	813	137	151	1024	237
Future Volume (veh/h)	233	183	92	236	265	118	138	813	137	151	1024	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1870	1900	1885	1900	1885	1870	1885
Adj Flow Rate, veh/h	243	191	78	246	276	106	144	847	129	157	1067	227
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	1	0	0	2	0	1	0	1	2	1
Cap, veh/h	316	281	115	319	286	110	163	1198	182	189	1167	247
Arrive On Green	0.09	0.22	0.22	0.09	0.22	0.22	0.09	0.38	0.38	0.14	0.53	0.53
Sat Flow, veh/h	3510	1281	523	3510	1301	500	1810	3115	474	1795	2917	618
Grp Volume(v), veh/h	243	0	269	246	0	382	144	487	489	157	648	646
Grp Sat Flow(s),veh/h/ln	1755	0	1804	1755	0	1801	1810	1791	1799	1795	1777	1758
Q Serve(g_s), s	6.8	0.0	13.7	6.9	0.0	21.0	7.9	23.0	23.0	8.5	33.2	33.6
Cycle Q Clear(g_c), s	6.8	0.0	13.7	6.9	0.0	21.0	7.9	23.0	23.0	8.5	33.2	33.6
Prop In Lane	1.00		0.29	1.00		0.28	1.00		0.26	1.00		0.35
Lane Grp Cap(c), veh/h	316	0	396	319	0	396	163	689	692	189	711	703
V/C Ratio(X)	0.77	0.00	0.68	0.77	0.00	0.96	0.88	0.71	0.71	0.83	0.91	0.92
Avail Cap(c_a), veh/h	527	0	397	527	0	396	163	689	692	233	711	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.48	0.48	0.48
Uniform Delay (d), s/veh	44.5	0.0	35.8	44.5	0.0	38.6	45.0	26.0	26.0	42.1	21.8	21.9
Incr Delay (d2), s/veh	1.5	0.0	3.8	1.5	0.0	35.6	38.3	6.0	6.0	7.9	10.1	10.7
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(95%),veh/ln	5.3	0.0	10.3	5.3	0.0	18.7	8.9	15.6	15.7	6.2	16.8	17.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	0.0	39.7	46.0	0.0	74.2	83.3	32.1	32.0	50.1	31.9	32.6
LnGrp LOS	D	A	D	D	A	E	F	C	C	D	C	C
Approach Vol, veh/h		512			628			1120			1451	
Approach Delay, s/veh		42.7			63.2			38.6			34.2	
Approach LOS		D			E			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	26.9	15.6	43.4	14.0	27.0	14.0	45.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	22.0	13.0	30.0	15.0	22.0	9.0	34.0				
Max Q Clear Time (g_c+I1), s	8.9	15.7	10.5	25.0	8.8	23.0	9.9	35.6				
Green Ext Time (p_c), s	0.2	0.5	0.0	1.9	0.2	0.0	0.0	0.0				

Intersection Summary												
HCM 6th Ctrl Delay			41.6									
HCM 6th LOS			D									

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↶↷		↵	↶↷
Traffic Vol, veh/h	3	4	1098	3	10	1219
Future Vol, veh/h	3	4	1098	3	10	1219
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	3	4	1156	3	11	1283

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1824	582	0	0	1161
Stage 1	1160	-	-	-	-
Stage 2	664	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	70	461	-	-	609
Stage 1	265	-	-	-	-
Stage 2	479	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	69	460	-	-	608
Mov Cap-2 Maneuver	69	-	-	-	-
Stage 1	264	-	-	-	-
Stage 2	470	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	69	460	608
HCM Lane V/C Ratio	-	-	0.046	0.009	0.017
HCM Control Delay (s)	-	-	59.7	12.9	11
HCM Lane LOS	-	-	F	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0	0.1

Timings
5: SE 192nd Ave & SE 34th St

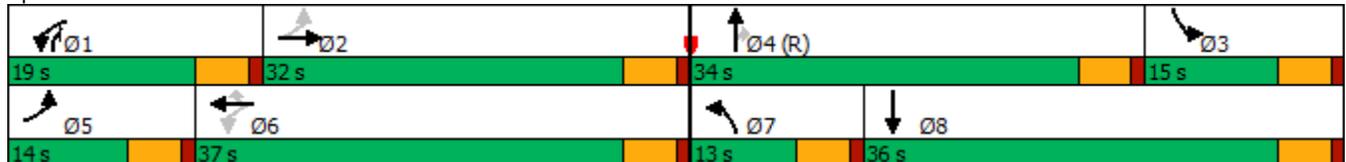
Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	126	204	355	183	120	108	955	204	212	932
Future Volume (vph)	126	204	355	183	120	108	955	204	212	932
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6		7	4	1	3	8
Permitted Phases	2		6		6			4		
Detector Phase	5	2	1	6	6	7	4	1	3	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	14.0	32.0	19.0	37.0	37.0	13.0	34.0	19.0	15.0	36.0
Total Split (%)	14.0%	32.0%	19.0%	37.0%	37.0%	13.0%	34.0%	19.0%	15.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	27.5	19.6	38.6	25.7	25.7	9.1	36.4	50.4	10.0	37.3
Actuated g/C Ratio	0.28	0.20	0.39	0.26	0.26	0.09	0.36	0.50	0.10	0.37
v/c Ratio	0.37	0.83	1.08	0.39	0.23	0.69	0.77	0.24	0.65	0.86
Control Delay	22.9	54.8	98.0	32.3	2.0	65.7	34.3	1.9	40.7	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	54.8	98.0	32.3	2.0	65.7	34.3	1.9	40.7	29.1
LOS	C	D	F	C	A	E	C	A	D	C
Approach Delay		45.0		62.2			31.8			31.0
Approach LOS		D		E			C			C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 36 (36%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 38.6
 Intersection LOS: D
 Intersection Capacity Utilization 88.7%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 5: SE 192nd Ave & SE 34th St



HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	204	83	355	183	120	108	955	204	212	932	118
Future Volume (veh/h)	126	204	83	355	183	120	108	955	204	212	932	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1773	1847	1817	2003	2003	2018	2018	1988	2003	1847	1832	1743
Adj Flow Rate, veh/h	133	215	70	374	193	25	114	1005	98	223	981	115
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, %	5	0	2	1	1	0	0	2	1	0	1	7
Cap, veh/h	392	250	81	375	496	422	144	1095	726	621	1244	146
Arrive On Green	0.08	0.19	0.19	0.14	0.25	0.25	0.08	0.29	0.29	0.18	0.40	0.40
Sat Flow, veh/h	1688	1328	432	1908	2003	1704	1922	3777	1683	3413	3132	367
Grp Volume(v), veh/h	133	0	285	374	193	25	114	1005	98	223	545	551
Grp Sat Flow(s),veh/h/ln	1688	0	1760	1908	2003	1704	1922	1889	1683	1706	1741	1759
Q Serve(g_s), s	6.3	0.0	15.7	14.0	8.0	0.7	5.8	25.7	1.5	5.7	27.5	27.5
Cycle Q Clear(g_c), s	6.3	0.0	15.7	14.0	8.0	0.7	5.8	25.7	1.5	5.7	27.5	27.5
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	392	0	331	375	496	422	144	1095	726	621	691	698
V/C Ratio(X)	0.34	0.00	0.86	1.00	0.39	0.06	0.79	0.92	0.14	0.36	0.79	0.79
Avail Cap(c_a), veh/h	408	0	475	375	641	545	154	1095	726	621	691	698
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)	0.89	0.00	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	0.0	39.3	30.0	31.3	11.2	45.5	34.3	5.9	35.8	26.5	26.5
Incr Delay (d2), s/veh	0.2	0.0	7.1	45.4	0.2	0.0	20.3	13.4	0.4	0.1	8.9	8.8
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(95%),veh/ln	4.4	0.0	11.3	17.2	6.8	0.8	6.3	19.2	1.2	4.2	18.1	18.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	46.5	75.4	31.5	11.3	65.8	47.8	6.3	35.9	35.4	35.3
LnGrp LOS	C	A	D	E	C	B	E	D	A	D	D	D
Approach Vol, veh/h		418			592			1217			1319	
Approach Delay, s/veh		41.0			58.4			46.1			35.4	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	23.8	23.2	34.0	13.1	29.7	12.5	44.7				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	27.0	10.0	29.0	9.0	32.0	8.0	31.0				
Max Q Clear Time (g_c+I1), s	16.0	17.7	7.7	27.7	8.3	10.0	7.8	29.5				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.5	0.0	0.3	0.0	0.5				

Intersection Summary

HCM 6th Ctrl Delay	43.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions

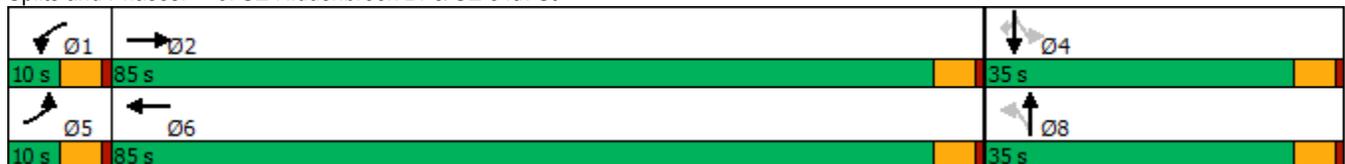


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↙	↘	↙	↘	↙	↘		↙	↘
Traffic Volume (vph)	12	336	37	387	71	1	44	7	118
Future Volume (vph)	12	336	37	387	71	1	44	7	118
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		4
Detector Phase	5	2	1	6	8	8	4	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	30.0	10.0	30.0	32.0	32.0	34.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Min	None	Min	None	None	None	None	None
Act Effct Green (s)	5.6	22.8	5.6	24.8	8.4	8.4		8.4	8.4
Actuated g/C Ratio	0.13	0.54	0.13	0.59	0.20	0.20		0.20	0.20
v/c Ratio	0.05	0.45	0.17	0.41	0.29	0.11		0.20	0.30
Control Delay	24.1	12.7	24.5	10.8	17.6	7.2		16.3	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	24.1	12.7	24.5	10.8	17.6	7.2		16.3	5.8
LOS	C	B	C	B	B	A		B	A
Approach Delay		13.1		11.9		14.3		8.9	
Approach LOS		B		B		B		A	

Intersection Summary

Cycle Length: 130	
Actuated Cycle Length: 41.9	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 12.1	Intersection LOS: B
Intersection Capacity Utilization 50.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	336	80	37	387	29	71	1	32	44	7	118
Future Volume (veh/h)	12	336	80	37	387	29	71	1	32	44	7	118
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	1.00		0.99	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1841	1832	1847	1876	1817	1876	1832	1841	1900	1900
Adj Flow Rate, veh/h	13	357	75	39	412	29	76	1	4	47	7	14
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, %	0	2	4	3	2	0	4	0	3	4	0	0
Cap, veh/h	31	632	133	78	767	54	320	40	160	331	37	196
Arrive On Green	0.02	0.42	0.42	0.04	0.45	0.45	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1810	1497	314	1745	1704	120	1346	326	1304	1195	303	1603
Grp Volume(v), veh/h	13	0	432	39	0	441	76	0	5	54	0	14
Grp Sat Flow(s),veh/h/ln	1810	0	1811	1745	0	1824	1346	0	1630	1498	0	1603
Q Serve(g_s), s	0.3	0.0	6.6	0.8	0.0	6.4	2.0	0.0	0.1	0.8	0.0	0.3
Cycle Q Clear(g_c), s	0.3	0.0	6.6	0.8	0.0	6.4	3.1	0.0	0.1	1.1	0.0	0.3
Prop In Lane	1.00		0.17	1.00		0.07	1.00		0.80	0.87		1.00
Lane Grp Cap(c), veh/h	31	0	765	78	0	821	320	0	200	368	0	196
V/C Ratio(X)	0.42	0.00	0.57	0.50	0.00	0.54	0.24	0.00	0.03	0.15	0.00	0.07
Avail Cap(c_a), veh/h	248	0	3966	239	0	3995	1261	0	1339	1395	0	1317
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	8.0	17.0	0.0	7.3	16.0	0.0	14.1	14.5	0.0	14.2
Incr Delay (d2), s/veh	3.4	0.0	0.2	1.8	0.0	0.2	0.1	0.0	0.0	0.1	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	2.7	0.5	0.0	2.4	1.0	0.0	0.1	0.6	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.2	0.0	8.3	18.9	0.0	7.5	16.1	0.0	14.1	14.6	0.0	14.2
LnGrp LOS	C	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		445			480			81			68	
Approach Delay, s/veh		8.6			8.4			16.0			14.5	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	20.4		9.5	5.6	21.4		9.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	2.8	8.6		3.1	2.3	8.4		5.1				
Green Ext Time (p_c), s	0.0	0.4		0.0	0.0	0.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				9.5								
HCM 6th LOS				A								

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	407	32	12	560	4	18	0	7	14	4	181
Future Vol, veh/h	31	407	32	12	560	4	18	0	7	14	4	181
Conflicting Peds, #/hr	6	0	0	0	0	6	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	140	-	-	95	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	34	447	35	13	615	4	20	0	8	15	4	199

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	625	0	0	482	0	0	1278	1184	466	1185	1197	621
Stage 1	-	-	-	-	-	-	533	533	-	647	647	-
Stage 2	-	-	-	-	-	-	745	651	-	538	550	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	966	-	-	1091	-	-	144	191	601	167	187	491
Stage 1	-	-	-	-	-	-	534	528	-	463	470	-
Stage 2	-	-	-	-	-	-	409	468	-	531	519	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	960	-	-	1091	-	-	81	181	600	158	177	488
Mov Cap-2 Maneuver	-	-	-	-	-	-	81	181	-	158	177	-
Stage 1	-	-	-	-	-	-	515	510	-	444	462	-
Stage 2	-	-	-	-	-	-	237	460	-	505	501	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.2			49.9			18.6		
HCM LOS							E			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	107	960	-	-	1091	-	-	162	488
HCM Lane V/C Ratio	0.257	0.035	-	-	0.012	-	-	0.122	0.408
HCM Control Delay (s)	49.9	8.9	-	-	8.3	-	-	30.3	17.4
HCM Lane LOS	E	A	-	-	A	-	-	D	C
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0	-	-	0.4	2

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions

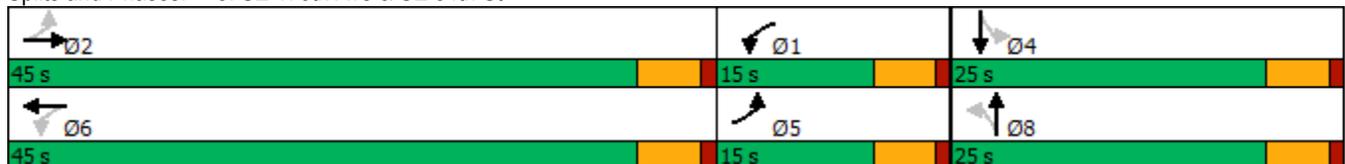


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	141	374	11	628	10	6	94	15
Future Volume (vph)	141	374	11	628	10	6	94	15
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	49.2	49.1	41.1	37.3	11.0	11.0	11.0	11.0
Actuated g/C Ratio	0.71	0.71	0.59	0.54	0.16	0.16	0.16	0.16
v/c Ratio	0.42	0.32	0.02	0.82	0.05	0.03	0.46	0.07
Control Delay	17.6	9.9	7.9	25.0	26.2	23.2	34.6	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	9.9	7.9	25.0	26.2	23.2	34.6	22.6
LOS	B	A	A	C	C	C	C	C
Approach Delay		11.9		24.7		24.9		32.5
Approach LOS		B		C		C		C

Intersection Summary

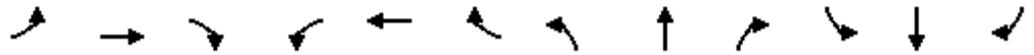
Cycle Length: 85
 Actuated Cycle Length: 69.3
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 20.6
 Intersection Capacity Utilization 72.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	141	374	13	11	628	120	10	6	2	94	15	5
Future Volume (veh/h)	141	374	13	11	628	120	10	6	2	94	15	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1900	1885	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	153	407	13	12	683	122	11	7	0	102	16	1
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, %	1	2	0	0	1	1	0	0	0	1	0	0
Cap, veh/h	307	552	18	724	781	139	281	196	0	288	182	11
Arrive On Green	0.09	0.31	0.31	0.28	0.50	0.50	0.10	0.10	0.00	0.10	0.10	0.10
Sat Flow, veh/h	1795	1802	58	1810	1557	278	1412	1900	0	1413	1766	110
Grp Volume(v), veh/h	153	0	420	12	0	805	11	7	0	102	0	17
Grp Sat Flow(s),veh/h/ln	1795	0	1860	1810	0	1835	1412	1900	0	1413	0	1876
Q Serve(g_s), s	0.0	0.0	9.9	0.0	0.0	19.1	0.3	0.2	0.0	3.4	0.0	0.4
Cycle Q Clear(g_c), s	0.0	0.0	9.9	0.0	0.0	19.1	0.7	0.2	0.0	3.6	0.0	0.4
Prop In Lane	1.00		0.03	1.00		0.15	1.00		0.00	1.00		0.06
Lane Grp Cap(c), veh/h	307	0	569	724	0	920	281	196	0	288	0	194
V/C Ratio(X)	0.50	0.00	0.74	0.02	0.00	0.87	0.04	0.04	0.00	0.35	0.00	0.09
Avail Cap(c_a), veh/h	513	0	1519	724	0	1498	712	776	0	719	0	766
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	15.2	10.6	0.0	10.9	20.2	19.8	0.0	21.4	0.0	19.9
Incr Delay (d2), s/veh	0.5	0.0	0.7	0.0	0.0	2.0	0.0	0.0	0.0	0.3	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	0.0	6.2	0.1	0.0	9.3	0.2	0.1	0.0	1.9	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	0.0	15.9	10.6	0.0	12.8	20.2	19.8	0.0	21.7	0.0	20.0
LnGrp LOS	C	A	B	B	A	B	C	B	A	C	A	B
Approach Vol, veh/h		573			817			18			119	
Approach Delay, s/veh		17.2			12.8			20.1			21.4	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.9	20.0		10.1	9.4	29.6		10.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	11.9		5.6	2.0	21.1		2.7				
Green Ext Time (p_c), s	0.0	1.5		0.1	0.1	3.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	20	31	15	259	89	105
Future Vol, veh/h	20	31	15	259	89	105
Conflicting Peds, #/hr	3	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	0	15	0	1	0
Mvmt Flow	22	33	16	278	96	113

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	473	160	216	0	0
Stage 1	160	-	-	-	-
Stage 2	313	-	-	-	-
Critical Hdwy	6.47	6.2	4.25	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.3	2.335	-	-
Pot Cap-1 Maneuver	541	890	1280	-	-
Stage 1	857	-	-	-	-
Stage 2	730	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	526	884	1271	-	-
Mov Cap-2 Maneuver	526	-	-	-	-
Stage 1	840	-	-	-	-
Stage 2	725	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1271	-	698	-	-
HCM Lane V/C Ratio	0.013	-	0.079	-	-
HCM Control Delay (s)	7.9	-	10.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	79.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷			↷	
Traffic Vol, veh/h	48	466	58	89	503	18	41	120	73	27	84	28
Future Vol, veh/h	48	466	58	89	503	18	41	120	73	27	84	28
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
Heavy Vehicles, %	3	0	0	1	0	7	0	1	0	4	1	8
Mvmt Flow	52	507	63	97	547	20	45	130	79	29	91	30
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	102.9	95.5	18	18.2
HCM LOS	F	F	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	19%
Vol Thru, %	0%	62%	0%	89%	0%	97%	60%
Vol Right, %	0%	38%	0%	11%	0%	3%	20%
Sign Control	Stop						
Traffic Vol by Lane	41	193	48	524	89	521	139
LT Vol	41	0	48	0	89	0	27
Through Vol	0	120	0	466	0	503	84
RT Vol	0	73	0	58	0	18	28
Lane Flow Rate	45	210	52	570	97	566	151
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.11	0.474	0.114	1.139	0.208	1.134	0.373
Departure Headway (Hd)	9.497	8.717	8.213	7.564	8.147	7.588	9.62
Convergence, Y/N	Yes						
Cap	380	415	439	484	443	481	376
Service Time	7.197	6.417	5.913	5.264	5.847	5.288	7.62
HCM Lane V/C Ratio	0.118	0.506	0.118	1.178	0.219	1.177	0.402
HCM Control Delay	13.4	19	12	111.2	13	109.6	18.2
HCM Lane LOS	B	C	B	F	B	F	C
HCM 95th-tile Q	0.4	2.5	0.4	19	0.8	18.7	1.7

Timings
11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions

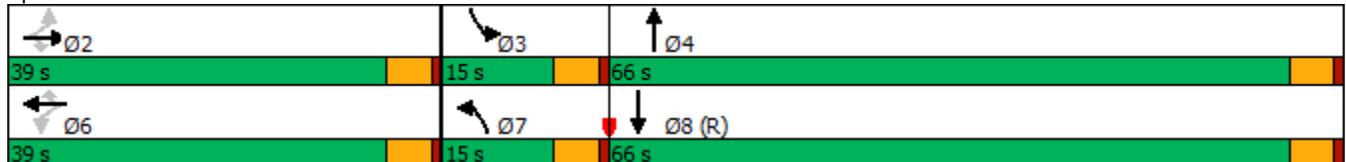
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	89	30	51	117	22	50	42	1434	47	1306
Future Volume (vph)	89	30	51	117	22	50	42	1434	47	1306
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		2			6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	2	2	2	6	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	39.0	39.0	39.0	38.0	38.0	38.0	10.0	32.0	19.5	32.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	39.0	15.0	66.0	15.0	66.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	12.5%	55.0%	12.5%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	16.9	16.9	16.9	16.9	16.9	16.9	6.3	83.5	6.5	83.7
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14	0.14	0.05	0.70	0.05	0.70
v/c Ratio	0.47	0.12	0.19	0.65	0.10	0.19	0.49	0.44	0.51	0.40
Control Delay	53.0	41.8	8.4	63.3	41.2	8.2	51.4	21.4	73.1	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	41.8	8.4	63.3	41.2	8.2	51.4	21.4	73.1	9.7
LOS	D	D	A	E	D	A	D	C	E	A
Approach Delay		37.6			46.1			22.2		11.8
Approach LOS		D			D			C		B

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 112 (93%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 20.0
 Intersection Capacity Utilization 59.2%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Baseline 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	30	51	117	22	50	42	1434	32	47	1306	46
Future Volume (veh/h)	89	30	51	117	22	50	42	1434	32	47	1306	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1826	1633	1856	1826	1870	1752	1870	1885	1900
Adj Flow Rate, veh/h	94	32	6	123	23	5	44	1509	33	49	1375	46
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, %	0	0	0	5	18	3	5	2	10	2	1	0
Cap, veh/h	227	250	211	216	215	206	56	2614	57	63	2616	88
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.03	0.51	0.51	0.04	0.51	0.51
Sat Flow, veh/h	1398	1900	1603	1332	1633	1565	1739	5142	112	1781	5114	171
Grp Volume(v), veh/h	94	32	6	123	23	5	44	999	543	49	922	499
Grp Sat Flow(s),veh/h/ln	1398	1900	1603	1332	1633	1565	1739	1702	1850	1781	1716	1854
Q Serve(g_s), s	7.6	1.8	0.4	10.8	1.5	0.3	3.0	24.5	24.5	3.3	21.6	21.6
Cycle Q Clear(g_c), s	9.1	1.8	0.4	12.6	1.5	0.3	3.0	24.5	24.5	3.3	21.6	21.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		0.09
Lane Grp Cap(c), veh/h	227	250	211	216	215	206	56	1730	940	63	1755	949
V/C Ratio(X)	0.41	0.13	0.03	0.57	0.11	0.02	0.79	0.58	0.58	0.78	0.53	0.53
Avail Cap(c_a), veh/h	439	538	454	418	463	444	145	1730	940	148	1755	949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	46.0	45.4	51.6	45.9	45.4	57.7	20.5	20.5	57.4	19.6	19.6
Incr Delay (d2), s/veh	0.4	0.1	0.0	0.9	0.1	0.0	6.3	1.0	1.8	7.4	1.1	2.1
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(95%),veh/ln	4.9	1.5	0.3	6.6	1.1	0.2	2.5	13.7	15.0	2.8	13.2	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	46.1	45.4	52.4	46.0	45.4	64.0	21.5	22.4	64.8	20.7	21.7
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	C	C
Approach Vol, veh/h		132			151			1586			1470	
Approach Delay, s/veh		49.1			51.2			23.0			22.5	
Approach LOS		D			D			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.8	9.2	66.0		20.8	8.9	66.4				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		34.0	10.0	61.0		34.0	10.0	61.0				
Max Q Clear Time (g_c+I1), s		11.1	5.3	26.5		14.6	5.0	23.6				
Green Ext Time (p_c), s		0.0	0.0	1.7		0.0	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay				25.1								
HCM 6th LOS				C								

Timings
12: SE 164th Ave & SE 34th Street

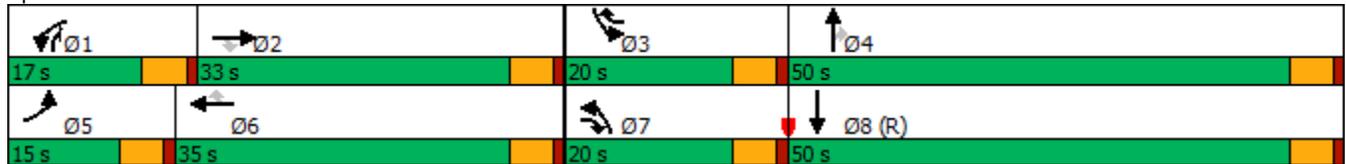
Vancouver Innovation Center
Baseline 2038 PM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	49	102	194	295	136	247	192	1216	331	164	1249
Future Volume (vph)	49	102	194	295	136	247	192	1216	331	164	1249
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	15.0	33.0	20.0	17.0	35.0	20.0	20.0	50.0	17.0	20.0	50.0
Total Split (%)	12.5%	27.5%	16.7%	14.2%	29.2%	16.7%	16.7%	41.7%	14.2%	16.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes										
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	7.3	10.7	34.0	12.0	17.5	38.0	18.3	61.8	78.8	15.5	59.0
Actuated g/C Ratio	0.06	0.09	0.28	0.10	0.15	0.32	0.15	0.52	0.66	0.13	0.49
v/c Ratio	0.51	0.66	0.41	1.73	0.54	0.46	0.74	0.70	0.30	0.75	0.54
Control Delay	71.7	71.0	24.2	385.6	56.2	21.9	64.4	26.2	3.6	64.7	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.7	71.0	24.2	385.6	56.2	21.9	64.4	26.2	3.6	64.7	22.4
LOS	E	E	C	F	E	C	E	C	A	E	C
Approach Delay		44.8			186.9			26.1			27.2
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.73
 Intersection Signal Delay: 53.8
 Intersection Capacity Utilization 81.1%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service D

Splits and Phases: 12: SE 164th Ave & SE 34th Street

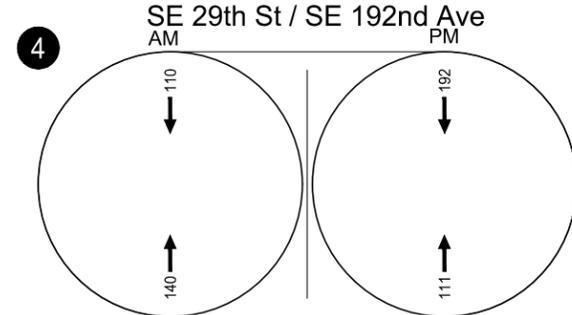
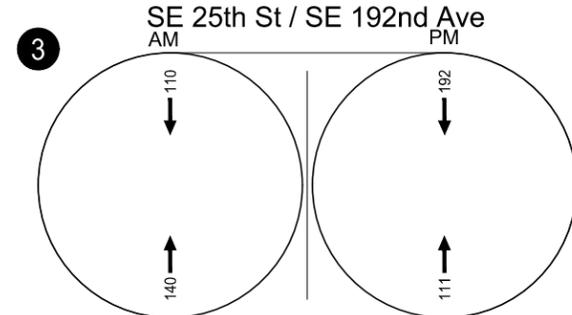
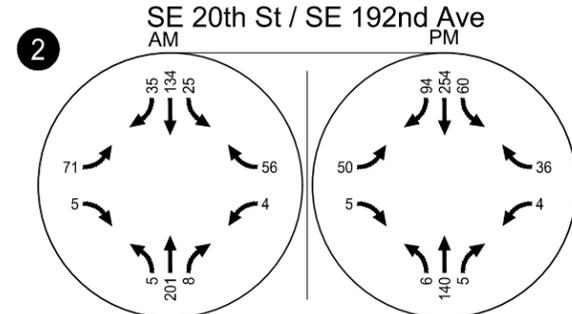
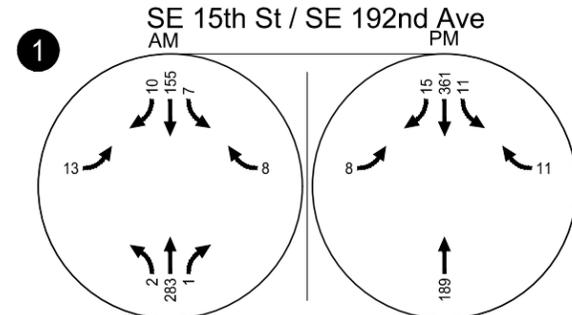
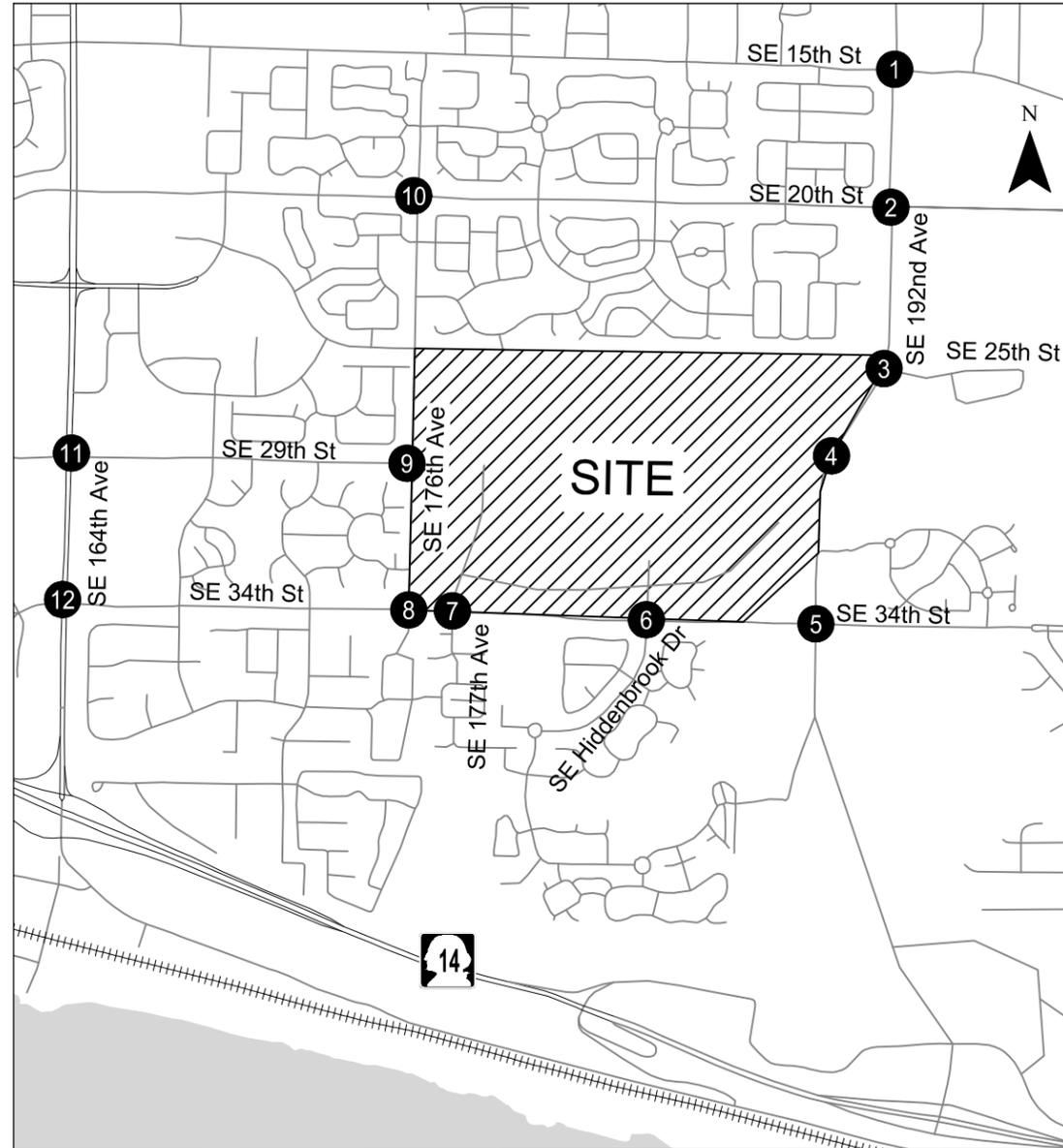
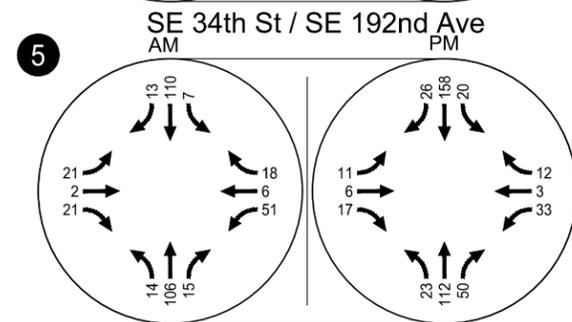
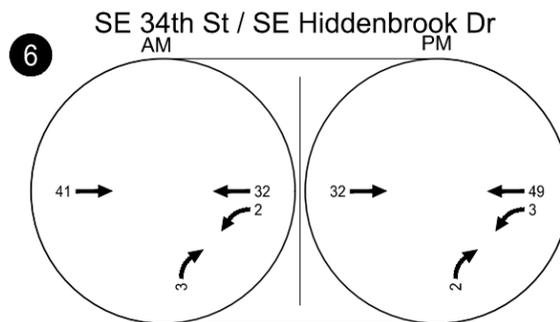
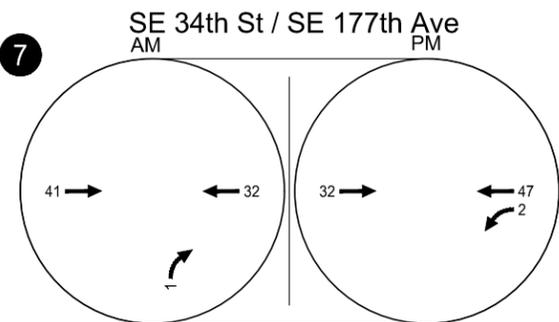
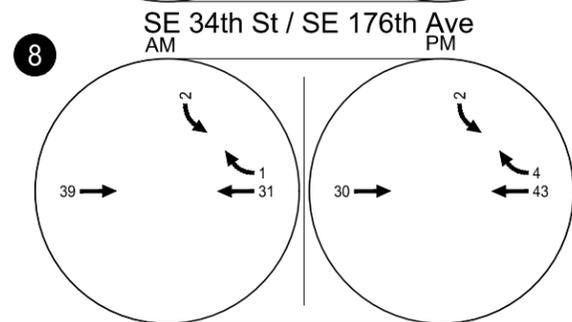
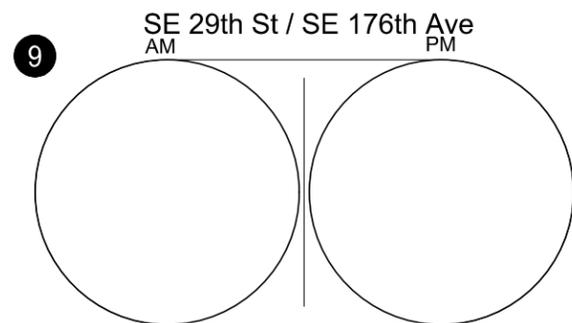
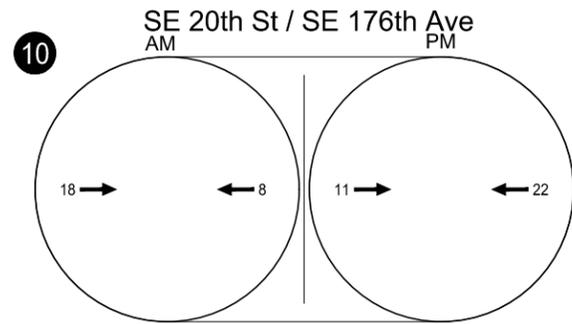


HCM 6th Signalized Intersection Summary
 12: SE 164th Ave & SE 34th Street

Vancouver Innovation Center
 Baseline 2038 PM Peak Hour Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	102	194	295	136	247	192	1216	331	164	1249	49
Future Volume (veh/h)	49	102	194	295	136	247	192	1216	331	164	1249	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1826	1885	1870	1841	1856	1885	1870	1885	1870	1870	1841
Adj Flow Rate, veh/h	51	106	152	307	142	182	200	1267	237	171	1301	48
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	5	1	2	4	3	1	2	1	2	2	4
Cap, veh/h	64	183	359	178	298	430	224	1379	780	199	1895	70
Arrive On Green	0.04	0.10	0.10	0.10	0.16	0.16	0.13	0.39	0.39	0.04	0.12	0.12
Sat Flow, veh/h	1682	1826	1598	1781	1841	1572	1795	3554	1598	1781	5054	186
Grp Volume(v), veh/h	51	106	152	307	142	182	200	1267	237	171	876	473
Grp Sat Flow(s),veh/h/ln	1682	1826	1598	1781	1841	1572	1795	1777	1598	1781	1702	1837
Q Serve(g_s), s	3.6	6.7	9.8	12.0	8.4	11.4	13.2	40.7	10.7	11.5	29.6	29.6
Cycle Q Clear(g_c), s	3.6	6.7	9.8	12.0	8.4	11.4	13.2	40.7	10.7	11.5	29.6	29.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	64	183	359	178	298	430	224	1379	780	199	1277	689
V/C Ratio(X)	0.79	0.58	0.42	1.72	0.48	0.42	0.89	0.92	0.30	0.86	0.69	0.69
Avail Cap(c_a), veh/h	140	426	572	178	460	569	224	1379	780	223	1277	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	57.2	51.6	39.8	54.0	45.7	35.8	51.7	34.9	18.5	56.8	45.8	45.8
Incr Delay (d2), s/veh	7.9	1.1	0.3	348.1	0.4	0.2	31.8	11.3	1.0	21.5	2.8	5.1
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(95%),veh/ln	3.0	5.5	6.9	35.7	6.9	7.7	12.4	26.1	7.3	10.7	19.8	21.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.1	52.7	40.1	402.1	46.1	36.0	83.5	46.2	19.5	78.4	48.6	50.9
LnGrp LOS	E	D	D	F	D	D	F	D	B	E	D	D
Approach Vol, veh/h		309			631			1704			1520	
Approach Delay, s/veh		48.6			216.4			46.8			52.7	
Approach LOS		D			F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	17.0	18.4	51.6	9.6	24.4	20.0	50.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	28.0	15.0	45.0	10.0	30.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	14.0	11.8	13.5	42.7	5.6	13.4	15.2	31.6				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.1	0.0	0.3	0.0	2.9				
Intersection Summary												
HCM 6th Ctrl Delay				74.8								
HCM 6th LOS				E								

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In-Process Trip Assignment
Weekday AM & PM Peak Hour
Vancouver, WA

Figure
E-1

Appendix F 2038 With-Project Phase 1
Buildout Operations
Worksheets

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions

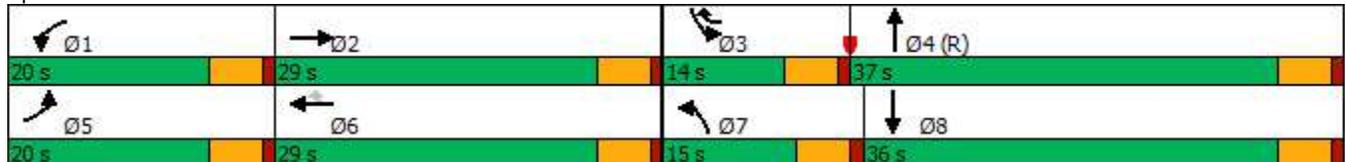


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↕	↖	↕
Traffic Volume (vph)	156	45	29	64	158	49	925	89	814
Future Volume (vph)	156	45	29	64	158	49	925	89	814
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases	6								
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	20.0	29.0	20.0	29.0	14.0	15.0	37.0	14.0	36.0
Total Split (%)	20.0%	29.0%	20.0%	29.0%	14.0%	15.0%	37.0%	14.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	12.4	18.7	5.9	10.2	22.0	6.8	50.6	8.8	54.5
Actuated g/C Ratio	0.12	0.19	0.06	0.10	0.22	0.07	0.51	0.09	0.54
v/c Ratio	0.80	0.26	0.32	0.38	0.42	0.45	0.60	0.69	0.56
Control Delay	67.8	21.0	53.4	45.3	17.3	60.3	18.0	69.1	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	21.0	53.4	45.3	17.3	60.3	18.0	69.1	20.8
LOS	E	C	D	D	B	E	B	E	C
Approach Delay	51.7		28.6		20.1		25.1		
Approach LOS	D		C		C		C		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 9 (9%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 26.0
 Intersection Capacity Utilization 58.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: SE 192nd & SE 15th St



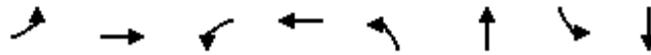
HCM 6th Signalized Intersection Summary
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	45	37	29	64	158	49	925	16	89	814	87
Future Volume (veh/h)	156	45	37	29	64	158	49	925	16	89	814	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1796	1781	1841	1870	1856	1841	1900	1737	1767	1856
Adj Flow Rate, veh/h	173	50	5	32	71	97	54	1028	17	99	904	90
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	0	7	8	4	2	3	4	0	11	9	3
Cap, veh/h	204	276	28	50	141	239	88	1879	31	122	1720	171
Arrive On Green	0.12	0.16	0.16	0.03	0.08	0.08	0.10	1.00	1.00	0.07	0.56	0.56
Sat Flow, veh/h	1767	1699	170	1697	1841	1585	1767	3519	58	1654	3082	307
Grp Volume(v), veh/h	173	0	55	32	71	97	54	511	534	99	492	502
Grp Sat Flow(s),veh/h/ln	1767	0	1869	1697	1841	1585	1767	1749	1829	1654	1678	1711
Q Serve(g_s), s	9.6	0.0	2.5	1.9	3.7	5.5	2.9	0.0	0.0	5.9	18.3	18.3
Cycle Q Clear(g_c), s	9.6	0.0	2.5	1.9	3.7	5.5	2.9	0.0	0.0	5.9	18.3	18.3
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.03	1.00		0.18
Lane Grp Cap(c), veh/h	204	0	304	50	141	239	88	934	976	122	936	955
V/C Ratio(X)	0.85	0.00	0.18	0.64	0.50	0.41	0.61	0.55	0.55	0.81	0.53	0.53
Avail Cap(c_a), veh/h	265	0	449	254	442	498	177	934	976	149	936	955
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	0.0	36.1	48.0	44.3	38.4	44.1	0.0	0.0	45.6	13.8	13.8
Incr Delay (d2), s/veh	14.7	0.0	0.1	5.0	1.0	0.4	2.1	1.9	1.8	19.5	2.1	2.1
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(95%),veh/ln	8.5	0.0	2.0	1.5	3.1	3.8	2.3	0.9	0.9	5.4	11.1	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	0.0	36.2	53.0	45.3	38.8	46.1	1.9	1.8	65.1	15.9	15.9
LnGrp LOS	E	A	D	D	D	D	D	A	A	E	B	B
Approach Vol, veh/h		228			200			1099			1093	
Approach Delay, s/veh		52.8			43.4			4.0			20.4	
Approach LOS		D			D			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	21.3	12.4	58.4	16.5	12.7	10.0	60.8				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	24.0	9.0	32.0	15.0	24.0	10.0	31.0				
Max Q Clear Time (g_c+I1), s	3.9	4.5	7.9	2.0	11.6	7.5	4.9	20.3				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.1	0.0	0.2	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			18.1									
HCM 6th LOS			B									

Timings
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions

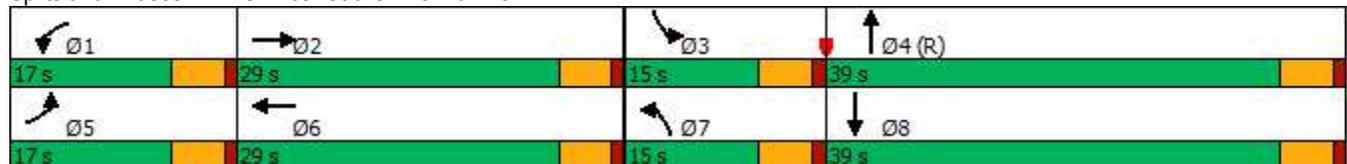


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↖	↖↗	↖	↖	↕↖	↖	↕↖
Traffic Volume (vph)	166	182	119	165	46	707	59	667
Future Volume (vph)	166	182	119	165	46	707	59	667
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	17.0	29.0	17.0	29.0	15.0	39.0	15.0	39.0
Total Split (%)	17.0%	29.0%	17.0%	29.0%	15.0%	39.0%	15.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	9.4	18.7	8.0	17.2	7.3	47.6	7.7	46.0
Actuated g/C Ratio	0.09	0.19	0.08	0.17	0.07	0.48	0.08	0.46
v/c Ratio	0.55	0.79	0.45	0.72	0.39	0.54	0.45	0.52
Control Delay	49.5	51.2	48.7	48.4	67.5	8.7	52.3	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	51.2	48.7	48.4	67.5	8.7	52.3	27.1
LOS	D	D	D	D	E	A	D	C
Approach Delay		50.5		48.5		11.7		28.9
Approach LOS		D		D		B		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 29.2
 Intersection LOS: C
 Intersection Capacity Utilization 63.4%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 2: SE 20th St & SE 192nd Ave



HCM 6th Signalized Intersection Summary
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↕↔		↔	↕↔	
Traffic Volume (veh/h)	166	182	80	119	165	57	46	707	138	59	667	103
Future Volume (veh/h)	166	182	80	119	165	57	46	707	138	59	667	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1841	1885	1885	1885	1811	1856	1841	1885	1811	1826
Adj Flow Rate, veh/h	175	192	66	125	174	46	48	744	131	62	702	97
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, %	3	0	4	1	1	1	6	3	4	1	6	5
Cap, veh/h	242	222	76	189	212	56	86	1609	283	80	1615	223
Arrive On Green	0.07	0.16	0.16	0.05	0.15	0.15	0.05	0.54	0.54	0.04	0.53	0.53
Sat Flow, veh/h	3428	1352	465	3483	1437	380	1725	2996	527	1795	3036	419
Grp Volume(v), veh/h	175	0	258	125	0	220	48	438	437	62	398	401
Grp Sat Flow(s),veh/h/ln	1714	0	1816	1742	0	1817	1725	1763	1760	1795	1721	1735
Q Serve(g_s), s	5.0	0.0	13.8	3.5	0.0	11.7	2.7	15.3	15.3	3.4	14.1	14.1
Cycle Q Clear(g_c), s	5.0	0.0	13.8	3.5	0.0	11.7	2.7	15.3	15.3	3.4	14.1	14.1
Prop In Lane	1.00		0.26	1.00		0.21	1.00		0.30	1.00		0.24
Lane Grp Cap(c), veh/h	242	0	298	189	0	268	86	947	945	80	915	923
V/C Ratio(X)	0.72	0.00	0.87	0.66	0.00	0.82	0.56	0.46	0.46	0.77	0.43	0.44
Avail Cap(c_a), veh/h	411	0	436	418	0	436	172	947	945	180	915	923
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	45.5	0.0	40.7	46.4	0.0	41.3	46.4	14.3	14.3	47.3	14.3	14.3
Incr Delay (d2), s/veh	1.5	0.0	8.6	1.5	0.0	2.6	2.1	1.6	1.6	4.8	1.2	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(95%),veh/ln	3.8	0.0	10.9	2.7	0.0	9.1	2.1	10.0	10.0	2.9	8.7	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	49.3	47.8	0.0	44.0	48.5	15.9	15.9	52.0	15.5	15.5
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		433			345			923				861
Approach Delay, s/veh		48.4			45.4			17.6				18.1
Approach LOS		D			D			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	21.4	9.5	58.7	12.1	19.8	10.0	58.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	24.0	10.0	34.0	12.0	24.0	10.0	34.0				
Max Q Clear Time (g_c+I1), s	5.5	15.8	5.4	17.3	7.0	13.7	4.7	16.1				
Green Ext Time (p_c), s	0.1	0.5	0.0	3.1	0.1	0.5	0.0	2.9				

Intersection Summary

HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↕↔		↘	↕↕
Traffic Vol, veh/h	7	10	813	3	7	840
Future Vol, veh/h	7	10	813	3	7	840
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	20	4	67	0	7
Mvmt Flow	7	11	856	3	7	884

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1315	431	0	0	860
Stage 1	859	-	-	-	-
Stage 2	456	-	-	-	-
Critical Hdwy	6.8	7.3	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.5	-	-	2.2
Pot Cap-1 Maneuver	152	525	-	-	790
Stage 1	380	-	-	-	-
Stage 2	611	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	150	525	-	-	789
Mov Cap-2 Maneuver	150	-	-	-	-
Stage 1	380	-	-	-	-
Stage 2	606	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.5	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	150	525	789
HCM Lane V/C Ratio	-	-	0.049	0.02	0.009
HCM Control Delay (s)	-	-	30.2	12	9.6
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0

Timings
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions

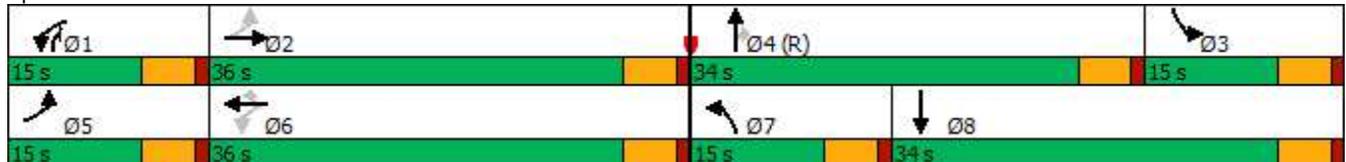
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	124	152	207	127	67	118	704	349	108	547
Future Volume (vph)	124	152	207	127	67	118	704	349	108	547
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6		7	4	1	3	8
Permitted Phases	2		6		6			4		
Detector Phase	5	2	1	6	6	7	4	1	3	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	15.0	36.0	15.0	36.0	36.0	15.0	34.0	15.0	15.0	34.0
Total Split (%)	15.0%	36.0%	15.0%	36.0%	36.0%	15.0%	34.0%	15.0%	15.0%	34.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	27.0	18.3	29.2	19.4	19.4	9.9	41.9	51.7	10.0	42.1
Actuated g/C Ratio	0.27	0.18	0.29	0.19	0.19	0.10	0.42	0.52	0.10	0.42
v/c Ratio	0.40	0.74	0.82	0.38	0.16	0.73	0.55	0.38	0.35	0.59
Control Delay	26.3	47.2	48.4	36.4	0.8	66.8	25.7	2.3	42.0	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	47.2	48.4	36.4	0.8	66.8	25.7	2.3	42.0	23.6
LOS	C	D	D	D	A	E	C	A	D	C
Approach Delay		39.8		36.7			22.8			26.1
Approach LOS		D		D			C			C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 40 (40%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 28.0
 Intersection Capacity Utilization 69.0%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 5: SE 192nd Ave & SE 34th St



HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	152	74	207	127	67	118	704	349	108	547	155
Future Volume (veh/h)	124	152	74	207	127	67	118	704	349	108	547	155
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	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1728	1803	1847	1943	2018	1988	2018	1883	1988	1832	1684	1684
Adj Flow Rate, veh/h	138	169	60	230	141	7	131	782	179	120	608	149
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	8	3	0	5	0	2	0	9	2	1	11	11
Cap, veh/h	352	214	76	305	368	301	163	1037	655	818	1138	278
Arrive On Green	0.09	0.17	0.17	0.10	0.18	0.18	0.08	0.29	0.29	0.24	0.45	0.45
Sat Flow, veh/h	1646	1268	450	1850	2018	1652	1922	3578	1679	3385	2548	623
Grp Volume(v), veh/h	138	0	229	230	141	7	131	782	179	120	381	376
Grp Sat Flow(s),veh/h/ln	1646	0	1718	1850	2018	1652	1922	1789	1679	1693	1600	1571
Q Serve(g_s), s	6.8	0.0	12.8	10.0	6.1	0.2	6.7	19.9	2.6	2.8	17.3	17.4
Cycle Q Clear(g_c), s	6.8	0.0	12.8	10.0	6.1	0.2	6.7	19.9	2.6	2.8	17.3	17.4
Prop In Lane	1.00		0.26	1.00		1.00	1.00		1.00	1.00		0.40
Lane Grp Cap(c), veh/h	352	0	289	305	368	301	163	1037	655	818	715	702
V/C Ratio(X)	0.39	0.00	0.79	0.75	0.38	0.02	0.80	0.75	0.27	0.15	0.53	0.54
Avail Cap(c_a), veh/h	374	0	532	305	626	512	192	1037	655	818	715	702
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)	0.92	0.00	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	39.9	32.0	36.0	11.4	44.9	32.3	7.4	29.8	20.1	20.1
Incr Delay (d2), s/veh	0.2	0.0	1.7	9.1	0.2	0.0	15.9	5.1	1.0	0.0	2.8	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	0.0	9.0	9.0	5.3	0.2	6.9	13.8	2.2	2.0	10.8	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.7	0.0	41.6	41.1	36.2	11.4	60.9	37.3	8.5	29.9	22.9	23.0
LnGrp LOS	C	A	D	D	D	B	E	D	A	C	C	C
Approach Vol, veh/h		367			378			1092			877	
Approach Delay, s/veh		37.5			38.7			35.4			23.9	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	21.8	29.2	34.0	13.6	23.2	13.5	49.7				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	31.0	10.0	29.0	10.0	31.0	10.0	29.0				
Max Q Clear Time (g_c+I1), s	12.0	14.8	4.8	21.9	8.8	8.1	8.7	19.4				
Green Ext Time (p_c), s	0.0	0.4	0.0	1.4	0.0	0.2	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay			32.4									
HCM 6th LOS			C									

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions

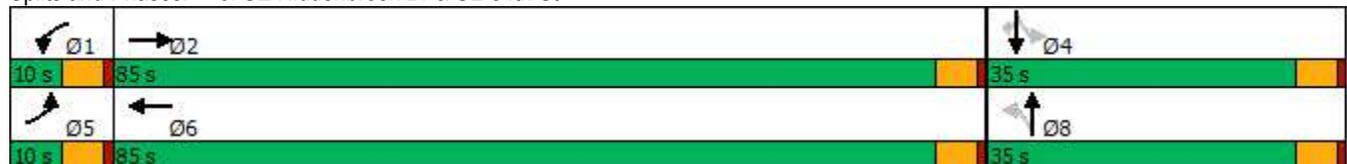


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↙	↘	↙	↘	↙	↘		↕	↗
Traffic Volume (vph)	36	310	27	255	63	11	58	1	21
Future Volume (vph)	36	310	27	255	63	11	58	1	21
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		4
Detector Phase	5	2	1	6	8	8	4	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	27.0	10.0	27.0	32.0	32.0	34.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Min	None	Min	None	None	None	None	None
Act Effct Green (s)	5.6	26.3	5.6	24.1	9.2	9.2		9.2	9.2
Actuated g/C Ratio	0.12	0.57	0.12	0.53	0.20	0.20		0.20	0.20
v/c Ratio	0.20	0.40	0.15	0.50	0.30	0.17		0.28	0.07
Control Delay	27.7	12.3	27.4	14.3	19.5	8.4		19.2	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	27.7	12.3	27.4	14.3	19.5	8.4		19.2	1.5
LOS	C	B	C	B	B	A		B	A
Approach Delay		13.8		15.2		14.4		14.5	
Approach LOS		B		B		B		B	

Intersection Summary

Cycle Length: 130	
Actuated Cycle Length: 45.9	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 14.5	Intersection LOS: B
Intersection Capacity Utilization 47.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	310	24	27	255	113	63	11	41	58	1	21
Future Volume (veh/h)	36	310	24	27	255	113	63	11	41	58	1	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1876	1802	1876	1832	1876	1876	1900	1900	1900
Adj Flow Rate, veh/h	44	383	26	33	315	119	78	14	0	72	1	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	0	4	0	0	5	0	3	0	0	0	0	0
Cap, veh/h	89	737	50	70	526	199	375	210	0	347	3	181
Arrive On Green	0.05	0.43	0.43	0.04	0.42	0.42	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1810	1704	116	1787	1245	470	1387	1876	0	1324	24	1610
Grp Volume(v), veh/h	44	0	409	33	0	434	78	14	0	73	0	0
Grp Sat Flow(s),veh/h/ln	1810	0	1819	1787	0	1716	1387	1876	0	1348	0	1610
Q Serve(g_s), s	0.9	0.0	5.9	0.7	0.0	7.1	0.0	0.2	0.0	1.7	0.0	0.0
Cycle Q Clear(g_c), s	0.9	0.0	5.9	0.7	0.0	7.1	1.5	0.2	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.27	1.00		0.00	0.99		1.00
Lane Grp Cap(c), veh/h	89	0	787	70	0	724	375	210	0	350	0	181
V/C Ratio(X)	0.49	0.00	0.52	0.47	0.00	0.60	0.21	0.07	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	251	0	4039	248	0	3809	1374	1562	0	1377	0	1341
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.7	0.0	7.5	17.0	0.0	8.1	14.9	14.3	0.0	15.2	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.2	1.8	0.0	0.3	0.1	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	0.0	2.3	0.4	0.0	2.7	0.9	0.2	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	0.0	7.7	18.8	0.0	8.4	15.0	14.4	0.0	15.3	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	B	A	B	A	A
Approach Vol, veh/h		453			467			92			73	
Approach Delay, s/veh		8.7			9.1			14.9			15.3	
Approach LOS		A			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	20.6		9.0	6.8	20.2		9.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	2.7	7.9		4.0	2.9	9.1		3.5				
Green Ext Time (p_c), s	0.0	0.8		0.1	0.0	0.9		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				9.8								
HCM 6th LOS				A								

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	234	338	11	5	320	14	29	2	17	16	2	125
Future Vol, veh/h	234	338	11	5	320	14	29	2	17	16	2	125
Conflicting Peds, #/hr	3	0	3	3	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	140	-	-	95	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	3	3	0	0	5	0	0	0	0	0	0	27
Mvmt Flow	275	398	13	6	376	16	34	2	20	19	2	147

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	395	0	0	414	0	0	1429	1365	408	1357	1355	379
Stage 1	-	-	-	-	-	-	958	958	-	391	391	-
Stage 2	-	-	-	-	-	-	471	407	-	966	964	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.47
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.543
Pot Cap-1 Maneuver	1158	-	-	1156	-	-	114	149	648	127	151	616
Stage 1	-	-	-	-	-	-	312	338	-	637	611	-
Stage 2	-	-	-	-	-	-	577	601	-	309	336	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1155	-	-	1153	-	-	69	112	646	98	114	614
Mov Cap-2 Maneuver	-	-	-	-	-	-	69	112	-	98	114	-
Stage 1	-	-	-	-	-	-	237	257	-	484	606	-
Stage 2	-	-	-	-	-	-	435	596	-	226	255	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.6			0.1			76			17.4		
HCM LOS							F			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	103	1155	-	-	1153	-	-	100	614
HCM Lane V/C Ratio	0.548	0.238	-	-	0.005	-	-	0.212	0.24
HCM Control Delay (s)	76	9.1	-	-	8.1	-	-	50.4	12.7
HCM Lane LOS	F	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	2.5	0.9	-	-	0	-	-	0.7	0.9

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions

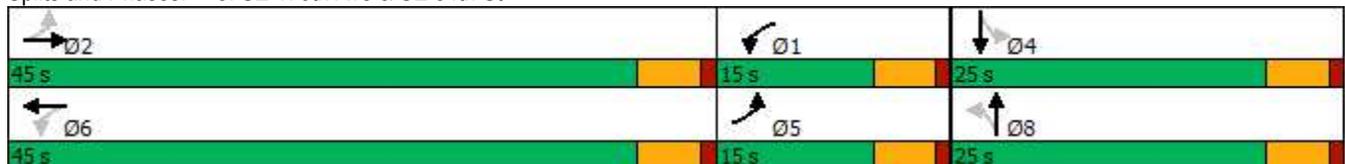


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	49	508	3	404	14	5	70	3
Future Volume (vph)	49	508	3	404	14	5	70	3
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	32.7	32.0	30.7	27.9	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.66	0.64	0.62	0.56	0.19	0.19	0.19	0.19
v/c Ratio	0.11	0.51	0.01	0.56	0.06	0.04	0.31	0.14
Control Delay	6.4	10.8	6.7	14.4	20.1	15.6	22.8	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	10.8	6.7	14.4	20.1	15.6	22.8	9.0
LOS	A	B	A	B	C	B	C	A
Approach Delay		10.4		14.4		18.2		17.6
Approach LOS		B		B		B		B

Intersection Summary

Cycle Length: 85
 Actuated Cycle Length: 49.8
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 12.9
 Intersection Capacity Utilization 54.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	508	2	3	404	67	14	5	5	70	3	39
Future Volume (veh/h)	49	508	2	3	404	67	14	5	5	70	3	39
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	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1856	1900	1900	1811	1826	1900	1900	1530	1870	1900	1885
Adj Flow Rate, veh/h	58	598	2	4	475	71	16	6	0	82	4	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	9	3	0	0	6	5	0	0	25	2	0	1
Cap, veh/h	425	765	3	423	640	96	351	209	0	347	209	0
Arrive On Green	0.06	0.41	0.41	0.06	0.42	0.42	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1682	1848	6	1810	1538	230	1409	1900	0	1385	1900	0
Grp Volume(v), veh/h	58	0	600	4	0	546	16	6	0	82	4	0
Grp Sat Flow(s),veh/h/ln	1682	0	1854	1810	0	1768	1409	1900	0	1385	1900	0
Q Serve(g_s), s	0.0	0.0	10.2	0.0	0.0	9.5	0.4	0.1	0.0	2.0	0.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	10.2	0.0	0.0	9.5	0.4	0.1	0.0	2.1	0.1	0.0
Prop In Lane	1.00		0.00	1.00		0.13	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	425	0	767	423	0	735	351	209	0	347	209	0
V/C Ratio(X)	0.14	0.00	0.78	0.01	0.00	0.74	0.05	0.03	0.00	0.24	0.02	0.00
Avail Cap(c_a), veh/h	786	0	2043	808	0	1948	972	1047	0	957	1047	0
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.1	0.0	9.2	11.8	0.0	9.0	14.6	14.4	0.0	15.4	14.4	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.7	0.0	0.0	0.6	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.0	4.3	0.0	0.0	3.8	0.2	0.1	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	0.0	9.9	11.8	0.0	9.5	14.6	14.4	0.0	15.5	14.4	0.0
LnGrp LOS	B	A	A	B	A	A	B	B	A	B	B	A
Approach Vol, veh/h		658			550			22			86	
Approach Delay, s/veh		10.1			9.5			14.6			15.5	
Approach LOS		B			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	20.0		9.0	7.2	20.1		9.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	12.2		4.1	2.0	11.5		2.4				
Green Ext Time (p_c), s	0.0	2.4		0.1	0.0	2.2		0.0				

Intersection Summary

HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	5	13	4	132	95	104
Future Vol, veh/h	5	13	4	132	95	104
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	10	0	2	1	18
Mvmt Flow	6	15	5	155	112	122

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	340	173	234	0	-	0
Stage 1	173	-	-	-	-	-
Stage 2	167	-	-	-	-	-
Critical Hdwy	6.4	6.3	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.39	2.2	-	-	-
Pot Cap-1 Maneuver	660	850	1345	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	867	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	657	850	1345	-	-	-
Mov Cap-2 Maneuver	657	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	867	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1345	-	786	-	-
HCM Lane V/C Ratio	0.003	-	0.027	-	-
HCM Control Delay (s)	7.7	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	272	28	75	314	14	33	71	55	0	62	10
Future Vol, veh/h	12	272	28	75	314	14	33	71	55	0	62	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	4	10	4	1	9	4	3	0	0	0	0
Mvmt Flow	13	299	31	82	345	15	36	78	60	0	68	11
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	15.5	15.3	11.3	11.3
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	56%	0%	91%	0%	96%	86%
Vol Right, %	0%	44%	0%	9%	0%	4%	14%
Sign Control	Stop						
Traffic Vol by Lane	33	126	12	300	75	328	72
LT Vol	33	0	12	0	75	0	0
Through Vol	0	71	0	272	0	314	62
RT Vol	0	55	0	28	0	14	10
Lane Flow Rate	36	138	13	330	82	360	79
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.074	0.251	0.024	0.546	0.147	0.583	0.153
Departure Headway (Hd)	7.371	6.533	6.47	5.965	6.408	5.819	6.959
Convergence, Y/N	Yes						
Cap	485	548	552	603	559	620	513
Service Time	5.134	4.297	4.22	3.715	4.154	3.565	5.035
HCM Lane V/C Ratio	0.074	0.252	0.024	0.547	0.147	0.581	0.154
HCM Control Delay	10.7	11.5	9.4	15.7	10.3	16.4	11.3
HCM Lane LOS	B	B	A	C	B	C	B
HCM 95th-tile Q	0.2	1	0.1	3.3	0.5	3.8	0.5

Timings
11: SE 164th Ave & SE 29th St

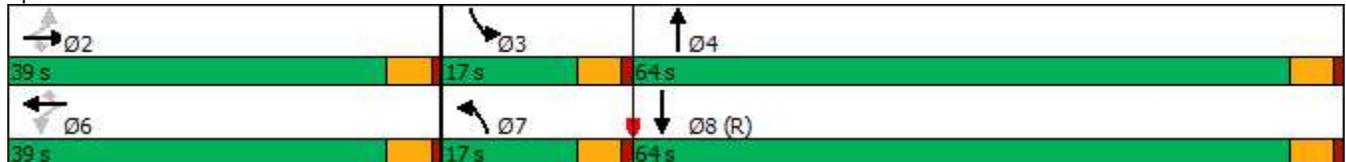
Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	42	7	47	141	16	37	27	1106	16	823
Future Volume (vph)	42	7	47	141	16	37	27	1106	16	823
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		2			6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	2	2	2	6	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	39.0	39.0	39.0	38.0	38.0	38.0	10.0	32.0	10.0	32.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	39.0	17.0	64.0	17.0	64.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	14.2%	53.3%	14.2%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	18.7	18.7	18.7	18.7	18.7	18.7	5.9	86.9	5.4	84.4
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16	0.16	0.05	0.72	0.04	0.70
v/c Ratio	0.21	0.02	0.16	0.69	0.07	0.13	0.32	0.32	0.22	0.25
Control Delay	42.7	37.1	6.5	62.4	38.9	3.9	36.9	23.3	61.9	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	37.1	6.5	62.4	38.9	3.9	36.9	23.3	61.9	8.3
LOS	D	D	A	E	D	A	D	C	E	A
Approach Delay		24.6			49.2			23.6		9.3
Approach LOS		C			D			C		A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 85 (71%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 20.4
 Intersection Capacity Utilization 51.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Baseline 2036 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	7	47	141	16	37	27	1106	15	16	823	26
Future Volume (veh/h)	42	7	47	141	16	37	27	1106	15	16	823	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1856	1856	1648	1900	1900	1870	1796	1796	1856	1826
Adj Flow Rate, veh/h	44	7	6	148	17	4	28	1164	15	17	866	25
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, %	3	0	3	3	17	0	0	2	7	7	3	5
Cap, veh/h	221	239	198	230	207	202	46	2592	33	31	2488	72
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.03	0.50	0.50	0.02	0.49	0.49
Sat Flow, veh/h	1380	1900	1572	1390	1648	1610	1810	5195	67	1711	5060	146
Grp Volume(v), veh/h	44	7	6	148	17	4	28	763	416	17	578	313
Grp Sat Flow(s),veh/h/ln	1380	1900	1572	1390	1648	1610	1810	1702	1858	1711	1689	1829
Q Serve(g_s), s	3.5	0.4	0.4	12.5	1.1	0.3	1.8	17.4	17.4	1.2	12.6	12.6
Cycle Q Clear(g_c), s	4.6	0.4	0.4	12.9	1.1	0.3	1.8	17.4	17.4	1.2	12.6	12.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		0.08
Lane Grp Cap(c), veh/h	221	239	198	230	207	202	46	1698	927	31	1660	899
V/C Ratio(X)	0.20	0.03	0.03	0.64	0.08	0.02	0.61	0.45	0.45	0.55	0.35	0.35
Avail Cap(c_a), veh/h	438	538	446	449	467	456	181	1698	927	171	1660	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.73	0.73	0.73	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	46.0	46.0	51.7	46.3	46.0	57.9	19.4	19.4	58.4	18.7	18.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	1.1	0.1	0.0	3.6	0.6	1.2	5.6	0.6	1.1
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(95%),veh/ln	2.2	0.3	0.3	7.9	0.8	0.2	1.6	10.3	11.3	1.0	8.5	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.5	46.1	46.1	52.8	46.4	46.0	61.5	20.0	20.6	64.0	19.3	19.8
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	B	B
Approach Vol, veh/h		57			169			1207			908	
Approach Delay, s/veh		48.0			52.0			21.2			20.3	
Approach LOS		D			D			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.1	7.2	64.9		20.1	8.0	64.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		34.0	12.0	59.0		34.0	12.0	59.0				
Max Q Clear Time (g_c+I1), s		6.6	3.2	19.4		14.9	3.8	14.6				
Green Ext Time (p_c), s		0.0	0.0	5.5		0.2	0.0	3.8				
Intersection Summary												
HCM 6th Ctrl Delay			23.7									
HCM 6th LOS			C									

Timings
12: SE 164th Ave/SE164th Ave & SE 34th Street

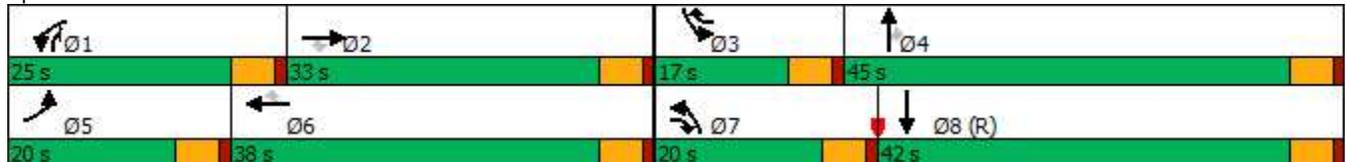
Vancouver Innovation Center
Baseline 2036 AM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	28	60	165	312	121	138	111	931	307	187	742
Future Volume (vph)	28	60	165	312	121	138	111	931	307	187	742
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	20.0	33.0	20.0	25.0	38.0	17.0	20.0	45.0	25.0	17.0	42.0
Total Split (%)	16.7%	27.5%	16.7%	20.8%	31.7%	14.2%	16.7%	37.5%	20.8%	14.2%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	6.4	8.2	23.0	20.0	23.8	52.1	11.8	50.5	75.5	23.3	62.0
Actuated g/C Ratio	0.05	0.07	0.19	0.17	0.20	0.43	0.10	0.42	0.63	0.19	0.52
v/c Ratio	0.39	0.56	0.53	1.18	0.36	0.20	0.72	0.71	0.32	0.61	0.34
Control Delay	68.3	70.9	31.3	152.9	45.0	4.0	74.0	32.9	2.1	45.5	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.3	70.9	31.3	152.9	45.0	4.0	74.0	32.9	2.1	45.5	20.5
LOS	E	E	C	F	D	A	E	C	A	D	C
Approach Delay		44.8			94.1			29.3			25.4
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 15 (13%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 41.1
 Intersection Capacity Utilization 72.5%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C

Splits and Phases: 12: SE 164th Ave/SE164th Ave & SE 34th Street



HCM 6th Signalized Intersection Summary
 12: SE 164th Ave/SE164th Ave & SE 34th Street

Vancouver Innovation Center
 Baseline 2036 AM Peak Hour Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	60	165	312	121	138	111	931	307	187	742	37
Future Volume (veh/h)	28	60	165	312	121	138	111	931	307	187	742	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1565	1758	1803	1870	1885	1841	1791	1776	1746	1806	1761	1761
Adj Flow Rate, veh/h	31	67	124	347	134	50	123	1034	181	208	824	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	19	6	3	2	1	4	1	2	4	0	3	3
Cap, veh/h	40	159	270	297	434	515	147	1125	740	172	1635	75
Arrive On Green	0.03	0.09	0.09	0.17	0.23	0.23	0.09	0.33	0.33	0.03	0.11	0.11
Sat Flow, veh/h	1491	1758	1528	1781	1885	1560	1706	3375	1480	1720	4711	217
Grp Volume(v), veh/h	31	67	124	347	134	50	123	1034	181	208	560	302
Grp Sat Flow(s),veh/h/ln	1491	1758	1528	1781	1885	1560	1706	1687	1480	1720	1603	1722
Q Serve(g_s), s	2.5	4.3	8.7	20.0	7.1	2.7	8.5	35.3	8.4	12.0	19.7	19.8
Cycle Q Clear(g_c), s	2.5	4.3	8.7	20.0	7.1	2.7	8.5	35.3	8.4	12.0	19.7	19.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	40	159	270	297	434	515	147	1125	740	172	1112	598
V/C Ratio(X)	0.77	0.42	0.46	1.17	0.31	0.10	0.84	0.92	0.24	1.21	0.50	0.51
Avail Cap(c_a), veh/h	186	410	488	297	518	585	213	1125	740	172	1112	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	58.0	51.6	44.2	50.0	38.3	27.8	54.0	38.4	17.1	58.0	43.4	43.5
Incr Delay (d2), s/veh	11.1	0.7	0.5	106.0	0.1	0.0	11.8	13.3	0.8	134.8	1.6	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	3.4	5.9	26.2	5.8	1.8	7.3	22.7	5.2	18.8	13.4	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.2	52.2	44.7	156.0	38.4	27.8	65.8	51.8	17.9	192.8	45.0	46.4
LnGrp LOS	E	D	D	F	D	C	E	D	B	F	D	D
Approach Vol, veh/h		222			531			1338			1070	
Approach Delay, s/veh		50.4			114.3			48.5			74.1	
Approach LOS		D			F			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	15.9	17.0	45.0	8.2	32.7	15.4	46.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	28.0	12.0	40.0	15.0	33.0	15.0	37.0				
Max Q Clear Time (g_c+I1), s	22.0	10.7	14.0	37.3	4.5	9.1	10.5	21.8				
Green Ext Time (p_c), s	0.0	0.1	0.0	1.0	0.0	0.2	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			68.3									
HCM 6th LOS			E									

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions



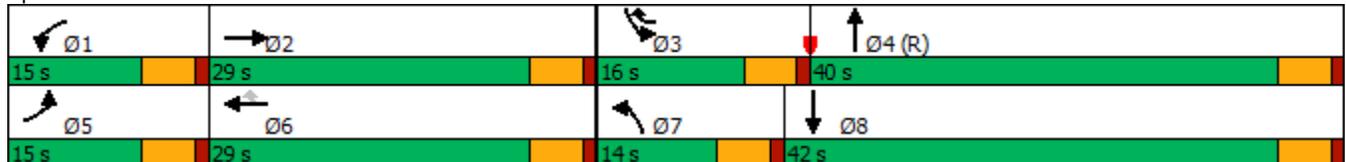
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↕	↖	↕
Traffic Volume (vph)	116	91	40	82	242	66	1268	115	1436
Future Volume (vph)	116	91	40	82	242	66	1268	115	1436
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases					6				
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	15.0	29.0	15.0	29.0	16.0	14.0	40.0	16.0	42.0
Total Split (%)	15.0%	29.0%	15.0%	29.0%	16.0%	14.0%	40.0%	16.0%	42.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	9.0	15.7	6.2	10.9	19.7	7.1	52.3	9.7	56.9
Actuated g/C Ratio	0.09	0.16	0.06	0.11	0.20	0.07	0.52	0.10	0.57
v/c Ratio	0.79	0.59	0.38	0.43	0.68	0.54	0.74	0.69	0.83
Control Delay	78.1	36.7	54.0	45.7	30.8	52.8	24.3	63.7	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	36.7	54.0	45.7	30.8	52.8	24.3	63.7	26.4
LOS	E	D	D	D	C	D	C	E	C
Approach Delay		53.3		36.7			25.7		28.9
Approach LOS		D		D			C		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 30.4
 Intersection Capacity Utilization 79.2%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 1: SE 192nd & SE 15th St



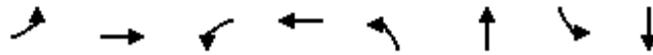
HCM 6th Signalized Intersection Summary
 1: SE 192nd & SE 15th St

Vancouver Innovation Center
 Phase 1 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	91	82	40	82	242	66	1268	32	115	1436	133
Future Volume (veh/h)	116	91	82	40	82	242	66	1268	32	115	1436	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1885	1900	1900	1856	1900	1900	1870	1900	1900	1870	1870
Adj Flow Rate, veh/h	122	96	49	42	86	192	69	1335	33	121	1512	135
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, %	5	1	0	0	3	0	0	2	0	0	2	2
Cap, veh/h	150	218	111	62	248	345	103	1763	44	150	1729	153
Arrive On Green	0.09	0.19	0.19	0.03	0.13	0.13	0.11	1.00	1.00	0.08	0.52	0.52
Sat Flow, veh/h	1739	1176	600	1810	1856	1582	1810	3544	88	1810	3301	293
Grp Volume(v), veh/h	122	0	145	42	86	192	69	669	699	121	809	838
Grp Sat Flow(s),veh/h/ln	1739	0	1776	1810	1856	1582	1810	1777	1854	1810	1777	1816
Q Serve(g_s), s	6.9	0.0	7.2	2.3	4.2	10.8	3.7	0.7	0.7	6.6	39.8	40.8
Cycle Q Clear(g_c), s	6.9	0.0	7.2	2.3	4.2	10.8	3.7	0.7	0.7	6.6	39.8	40.8
Prop In Lane	1.00		0.34	1.00		1.00	1.00		0.05	1.00		0.16
Lane Grp Cap(c), veh/h	150	0	329	62	248	345	103	884	923	150	931	951
V/C Ratio(X)	0.82	0.00	0.44	0.67	0.35	0.56	0.67	0.76	0.76	0.81	0.87	0.88
Avail Cap(c_a), veh/h	174	0	426	181	445	513	163	884	923	199	931	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.43	0.43	0.43	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	0.0	36.2	47.7	39.4	34.9	43.4	0.1	0.1	45.1	20.8	21.1
Incr Delay (d2), s/veh	19.5	0.0	0.3	4.6	0.3	0.5	1.2	2.7	2.6	12.3	10.8	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	0.0	5.5	2.0	3.5	7.3	2.8	1.3	1.3	6.1	24.3	25.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.4	0.0	36.5	52.4	39.7	35.5	44.7	2.8	2.7	57.3	31.6	32.6
LnGrp LOS	E	A	D	D	D	D	D	A	A	E	C	C
Approach Vol, veh/h		267			320			1437			1768	
Approach Delay, s/veh		49.2			38.8			4.7			33.8	
Approach LOS		D			D			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	23.5	13.3	54.8	13.6	18.4	10.7	57.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	24.0	11.0	35.0	10.0	24.0	9.0	37.0				
Max Q Clear Time (g_c+I1), s	4.3	9.2	8.6	2.7	8.9	12.8	5.7	42.8				
Green Ext Time (p_c), s	0.0	0.2	0.0	3.0	0.0	0.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			24.3									
HCM 6th LOS			C									

Timings
2: SE 192nd Ave & SE 20th St

Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions

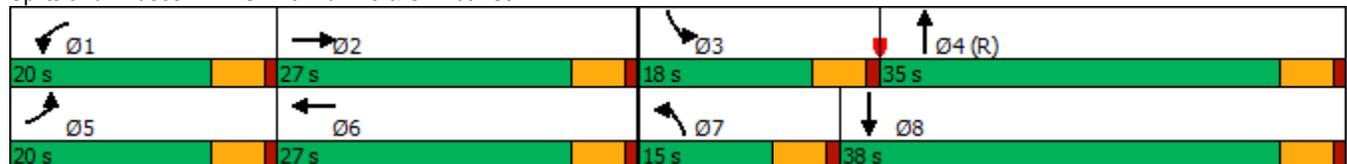


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↖	↖↗	↖	↖	↖↗	↖	↖↗
Traffic Volume (vph)	233	183	242	265	140	838	151	1038
Future Volume (vph)	233	183	242	265	140	838	151	1038
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	20.0	27.0	20.0	27.0	15.0	35.0	18.0	38.0
Total Split (%)	20.0%	27.0%	20.0%	27.0%	15.0%	35.0%	18.0%	38.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	11.3	24.2	11.5	24.4	9.7	32.6	11.7	34.6
Actuated g/C Ratio	0.11	0.24	0.12	0.24	0.10	0.33	0.12	0.35
v/c Ratio	0.62	0.64	0.63	0.88	0.83	0.89	0.75	1.10
Control Delay	49.0	38.8	49.0	56.7	86.6	25.9	63.5	88.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	38.8	49.0	56.7	86.6	25.9	63.5	88.4
LOS	D	D	D	E	F	C	E	F
Approach Delay		43.4		53.7		33.5		85.7
Approach LOS		D		D		C		F

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 93 (93%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 58.5
 Intersection Capacity Utilization 88.5%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service E

Splits and Phases: 2: SE 192nd Ave & SE 20th St



HCM 6th Signalized Intersection Summary
2: SE 192nd Ave & SE 20th St

Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↕↔		↔	↕↔	
Traffic Volume (veh/h)	233	183	92	242	265	118	140	838	150	151	1038	237
Future Volume (veh/h)	233	183	92	242	265	118	140	838	150	151	1038	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1870	1900	1885	1900	1885	1870	1885
Adj Flow Rate, veh/h	243	191	78	252	276	106	146	873	141	157	1081	227
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	1	0	0	2	0	1	0	1	2	1
Cap, veh/h	316	279	114	325	286	110	179	1185	191	191	1143	239
Arrive On Green	0.09	0.22	0.22	0.09	0.22	0.22	0.10	0.38	0.38	0.11	0.39	0.39
Sat Flow, veh/h	3510	1281	523	3510	1301	500	1810	3087	499	1795	2925	612
Grp Volume(v), veh/h	243	0	269	252	0	382	146	506	508	157	655	653
Grp Sat Flow(s),veh/h/ln	1755	0	1804	1755	0	1801	1810	1791	1795	1795	1777	1759
Q Serve(g_s), s	6.8	0.0	13.7	7.0	0.0	21.0	7.9	24.3	24.3	8.6	35.6	36.0
Cycle Q Clear(g_c), s	6.8	0.0	13.7	7.0	0.0	21.0	7.9	24.3	24.3	8.6	35.6	36.0
Prop In Lane	1.00		0.29	1.00		0.28	1.00		0.28	1.00		0.35
Lane Grp Cap(c), veh/h	316	0	392	325	0	396	179	688	689	191	695	688
V/C Ratio(X)	0.77	0.00	0.69	0.78	0.00	0.96	0.81	0.74	0.74	0.82	0.94	0.95
Avail Cap(c_a), veh/h	527	0	397	527	0	396	181	688	689	233	695	688
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.47	0.47	0.47
Uniform Delay (d), s/veh	44.5	0.0	36.0	44.4	0.0	38.6	44.1	26.5	26.5	43.8	29.4	29.5
Incr Delay (d2), s/veh	1.5	0.0	4.0	1.5	0.0	35.6	22.4	6.9	6.9	7.6	13.3	14.2
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(95%),veh/ln	5.3	0.0	10.3	5.5	0.0	18.7	8.1	16.5	16.5	6.4	21.2	21.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	0.0	39.9	45.9	0.0	74.2	66.5	33.4	33.4	51.3	42.6	43.7
LnGrp LOS	D	A	D	D	A	E	E	C	C	D	D	D
Approach Vol, veh/h		512			634			1160			1465	
Approach Delay, s/veh		42.8			63.0			37.5			44.1	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.2	26.8	15.6	43.4	14.0	27.0	14.9	44.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	22.0	13.0	30.0	15.0	22.0	10.0	33.0				
Max Q Clear Time (g_c+I1), s	9.0	15.7	10.6	26.3	8.8	23.0	9.9	38.0				
Green Ext Time (p_c), s	0.2	0.5	0.0	1.6	0.2	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			45.1									
HCM 6th LOS			D									

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↶↷		↵	↶↷
Traffic Vol, veh/h	3	4	1138	3	10	1239
Future Vol, veh/h	3	4	1138	3	10	1239
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	3	4	1198	3	11	1304

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1876	603	0	0	1203
Stage 1	1202	-	-	-	-
Stage 2	674	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	65	447	-	-	587
Stage 1	251	-	-	-	-
Stage 2	473	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	64	446	-	-	586
Mov Cap-2 Maneuver	64	-	-	-	-
Stage 1	250	-	-	-	-
Stage 2	464	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	64	446	586
HCM Lane V/C Ratio	-	-	0.049	0.009	0.018
HCM Control Delay (s)	-	-	64.2	13.1	11.3
HCM Lane LOS	-	-	F	B	B
HCM 95th %tile Q(veh)	-	-	0.2	0	0.1

Timings
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions

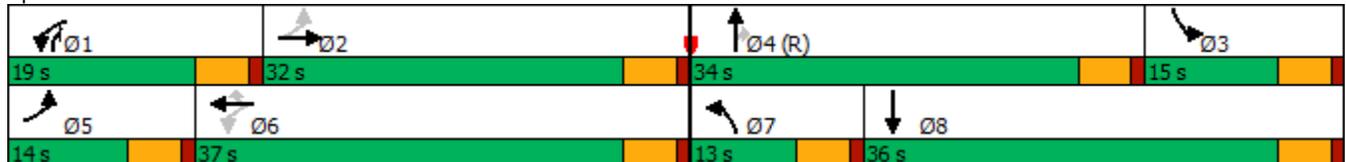
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	166	213	355	187	120	124	955	204	212	932
Future Volume (vph)	166	213	355	187	120	124	955	204	212	932
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6		7	4	1	3	8
Permitted Phases	2		6		6			4		
Detector Phase	5	2	1	6	6	7	4	1	3	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	14.0	32.0	19.0	37.0	37.0	13.0	34.0	19.0	15.0	36.0
Total Split (%)	14.0%	32.0%	19.0%	37.0%	37.0%	13.0%	34.0%	19.0%	15.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	29.3	20.8	39.8	26.3	26.3	9.9	35.2	49.2	10.0	35.3
Actuated g/C Ratio	0.29	0.21	0.40	0.26	0.26	0.10	0.35	0.49	0.10	0.35
v/c Ratio	0.46	0.86	1.11	0.39	0.22	0.73	0.80	0.24	0.65	0.92
Control Delay	24.3	56.6	106.9	31.8	1.9	67.9	36.2	2.0	40.5	32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	56.6	106.9	31.8	1.9	67.9	36.2	2.0	40.5	32.9
LOS	C	E	F	C	A	E	D	A	D	C
Approach Delay		45.4		66.7			33.8			34.1
Approach LOS		D		E			C			C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 36 (36%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 41.3
 Intersection Capacity Utilization 91.8%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service F

Splits and Phases: 5: SE 192nd Ave & SE 34th St



HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	213	103	355	187	120	124	955	204	212	932	138
Future Volume (veh/h)	166	213	103	355	187	120	124	955	204	212	932	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1773	1847	1817	2003	2003	2018	2018	1988	2003	1847	1832	1743
Adj Flow Rate, veh/h	175	224	88	374	197	28	131	1005	100	223	981	133
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, %	5	0	2	1	1	0	0	2	1	0	1	7
Cap, veh/h	411	255	100	373	507	431	154	1095	726	570	1159	157
Arrive On Green	0.09	0.20	0.20	0.14	0.25	0.25	0.08	0.29	0.29	0.17	0.38	0.38
Sat Flow, veh/h	1688	1255	493	1908	2003	1704	1922	3777	1683	3413	3073	416
Grp Volume(v), veh/h	175	0	312	374	197	28	131	1005	100	223	555	559
Grp Sat Flow(s),veh/h/ln	1688	0	1748	1908	2003	1704	1922	1889	1683	1706	1741	1749
Q Serve(g_s), s	8.2	0.0	17.3	14.0	8.1	0.8	6.7	25.7	1.6	5.8	29.2	29.2
Cycle Q Clear(g_c), s	8.2	0.0	17.3	14.0	8.1	0.8	6.7	25.7	1.6	5.8	29.2	29.2
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	411	0	355	373	507	431	154	1095	726	570	656	659
V/C Ratio(X)	0.43	0.00	0.88	1.00	0.39	0.06	0.85	0.92	0.14	0.39	0.85	0.85
Avail Cap(c_a), veh/h	411	0	472	373	641	545	154	1095	726	570	656	659
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)	0.81	0.00	0.81	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	0.0	38.7	28.9	30.9	11.7	45.4	34.3	5.9	37.1	28.5	28.5
Incr Delay (d2), s/veh	0.2	0.0	9.6	47.2	0.2	0.0	32.8	13.4	0.4	0.2	12.8	12.8
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(95%),veh/ln	5.8	0.0	12.3	17.2	6.9	0.9	8.0	19.2	1.3	4.3	19.8	19.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.2	0.0	48.2	76.1	31.1	11.7	78.3	47.8	6.3	37.3	41.3	41.3
LnGrp LOS	C	A	D	F	C	B	E	D	A	D	D	D
Approach Vol, veh/h		487			599			1236			1337	
Approach Delay, s/veh		41.0			58.3			47.6			40.6	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	25.3	21.7	34.0	14.0	30.3	13.0	42.7				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	27.0	10.0	29.0	9.0	32.0	8.0	31.0				
Max Q Clear Time (g_c+I1), s	16.0	19.3	7.8	27.7	10.2	10.1	8.7	31.2				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.5	0.0	0.3	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			45.9									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions

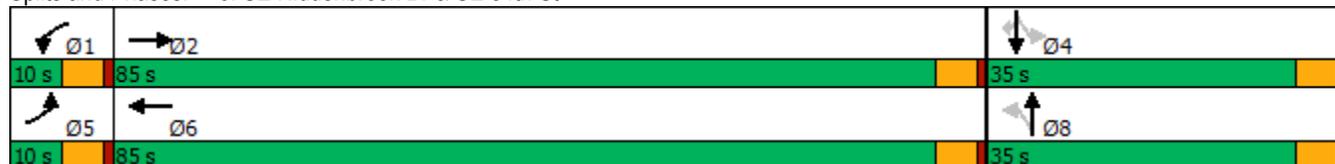


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↙	↘	↙	↘	↙	↘		↙	↘
Traffic Volume (vph)	12	336	37	387	71	2	113	11	118
Future Volume (vph)	12	336	37	387	71	2	113	11	118
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		4
Detector Phase	5	2	1	6	8	8	4	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	30.0	10.0	30.0	32.0	32.0	34.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Min	None	Min	None	None	None	None	None
Act Effct Green (s)	5.7	19.1	5.7	21.0	9.9	9.9		9.9	9.9
Actuated g/C Ratio	0.13	0.44	0.13	0.48	0.23	0.23		0.23	0.23
v/c Ratio	0.06	0.55	0.17	0.55	0.27	0.10		0.44	0.27
Control Delay	26.1	14.6	26.4	13.0	17.8	7.6		20.6	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	26.1	14.6	26.4	13.0	17.8	7.6		20.6	5.6
LOS	C	B	C	B	B	A		C	A
Approach Delay		14.9		14.0		14.5		13.3	
Approach LOS		B		B		B		B	

Intersection Summary

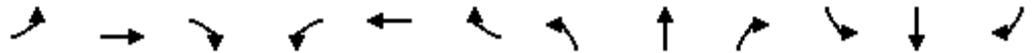
Cycle Length: 130
 Actuated Cycle Length: 43.3
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 14.2
 Intersection LOS: B
 Intersection Capacity Utilization 52.6%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	336	80	37	387	69	71	2	32	113	11	118
Future Volume (veh/h)	12	336	80	37	387	69	71	2	32	113	11	118
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	1.00		0.99	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1841	1832	1847	1876	1817	1876	1832	1841	1900	1900
Adj Flow Rate, veh/h	13	357	74	39	412	66	76	2	5	120	12	21
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, %	0	2	4	3	2	0	4	0	3	4	0	0
Cap, veh/h	30	589	122	77	651	104	320	86	216	410	33	293
Arrive On Green	0.02	0.39	0.39	0.04	0.42	0.42	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1810	1501	311	1745	1551	249	1333	473	1183	1287	182	1605
Grp Volume(v), veh/h	13	0	431	39	0	478	76	0	7	132	0	21
Grp Sat Flow(s),veh/h/ln	1810	0	1812	1745	0	1800	1333	0	1656	1469	0	1605
Q Serve(g_s), s	0.3	0.0	7.5	0.9	0.0	8.3	2.1	0.0	0.1	2.9	0.0	0.4
Cycle Q Clear(g_c), s	0.3	0.0	7.5	0.9	0.0	8.3	5.3	0.0	0.1	3.1	0.0	0.4
Prop In Lane	1.00		0.17	1.00		0.14	1.00		0.71	0.91		1.00
Lane Grp Cap(c), veh/h	30	0	711	77	0	755	320	0	302	443	0	293
V/C Ratio(X)	0.43	0.00	0.61	0.51	0.00	0.63	0.24	0.00	0.02	0.30	0.00	0.07
Avail Cap(c_a), veh/h	230	0	3680	222	0	3657	1092	0	1262	1286	0	1223
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	9.5	18.4	0.0	9.0	16.8	0.0	13.2	14.4	0.0	13.3
Incr Delay (d2), s/veh	3.5	0.0	0.3	1.9	0.0	0.3	0.1	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	3.5	0.6	0.0	3.7	1.1	0.0	0.1	1.7	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.6	0.0	9.8	20.3	0.0	9.4	16.9	0.0	13.2	14.6	0.0	13.4
LnGrp LOS	C	A	A	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		444			517			83				153
Approach Delay, s/veh		10.2			10.2			16.6				14.4
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	20.5		12.2	5.7	21.5		12.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	2.9	9.5		5.1	2.3	10.3		7.3				
Green Ext Time (p_c), s	0.0	0.4		0.1	0.0	0.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	407	32	12	560	4	18	0	7	14	4	258
Future Vol, veh/h	75	407	32	12	560	4	18	0	7	14	4	258
Conflicting Peds, #/hr	6	0	0	0	0	6	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	140	-	-	95	-	0	0	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	82	447	35	13	615	4	20	0	8	15	4	284

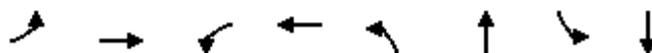
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	625	0	0	482	0	0	1416	1280	466	1281	1293	621
Stage 1	-	-	-	-	-	-	629	629	-	647	647	-
Stage 2	-	-	-	-	-	-	787	651	-	634	646	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	966	-	-	1091	-	-	116	167	601	144	164	491
Stage 1	-	-	-	-	-	-	474	478	-	463	470	-
Stage 2	-	-	-	-	-	-	388	468	-	471	470	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	960	-	-	1091	-	-	44	150	600	131	147	488
Mov Cap-2 Maneuver	-	-	-	-	-	-	44	150	-	131	147	-
Stage 1	-	-	-	-	-	-	434	437	-	421	462	-
Stage 2	-	-	-	-	-	-	159	460	-	425	430	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	1.3		0.2		84.9		23	
HCM LOS					F		C	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	44	88	960	-	-	1091	-	-	134	488
HCM Lane V/C Ratio	0.3	0.162	0.086	-	-	0.012	-	-	0.148	0.581
HCM Control Delay (s)	118.6	53.7	9.1	-	-	8.3	-	-	36.5	22.1
HCM Lane LOS	F	F	A	-	-	A	-	-	E	C
HCM 95th %tile Q(veh)	1	0.5	0.3	-	-	0	-	-	0.5	3.6

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions

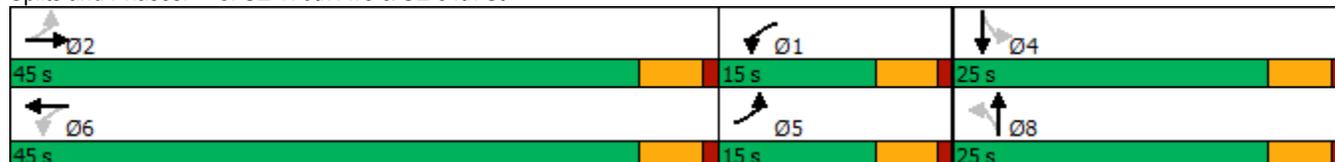


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	141	413	12	700	10	6	99	15
Future Volume (vph)	141	413	12	700	10	6	99	15
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	55.4	54.8	45.4	43.4		11.5	11.6	11.6
Actuated g/C Ratio	0.73	0.72	0.60	0.57		0.15	0.15	0.15
v/c Ratio	0.48	0.35	0.02	0.85		0.08	0.51	0.07
Control Delay	21.9	9.4	8.0	27.2		24.9	37.5	22.4
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	21.9	9.4	8.0	27.2		24.9	37.5	22.4
LOS	C	A	A	C		C	D	C
Approach Delay		12.5		26.9		24.9		35.0
Approach LOS		B		C		C		C

Intersection Summary

Cycle Length: 85
 Actuated Cycle Length: 76
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 22.2
 Intersection LOS: C
 Intersection Capacity Utilization 73.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	413	13	12	700	124	10	6	2	99	15	5
Future Volume (veh/h)	141	413	13	12	700	124	10	6	2	99	15	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1900	1885	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	153	449	13	13	761	127	11	7	0	108	16	1
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, %	1	2	0	0	1	1	0	0	0	1	0	0
Cap, veh/h	282	542	16	743	846	141	185	91	0	281	181	11
Arrive On Green	0.08	0.30	0.30	0.32	0.54	0.54	0.10	0.10	0.00	0.10	0.10	0.10
Sat Flow, veh/h	1795	1809	52	1810	1575	263	755	884	0	1413	1766	110
Grp Volume(v), veh/h	153	0	462	13	0	888	18	0	0	108	0	17
Grp Sat Flow(s),veh/h/ln	1795	0	1861	1810	0	1838	1639	0	0	1413	0	1876
Q Serve(g_s), s	0.2	0.0	12.5	0.0	0.0	23.4	0.0	0.0	0.0	3.4	0.0	0.4
Cycle Q Clear(g_c), s	0.2	0.0	12.5	0.0	0.0	23.4	0.5	0.0	0.0	3.9	0.0	0.4
Prop In Lane	1.00		0.03	1.00		0.14	0.61		0.00	1.00		0.06
Lane Grp Cap(c), veh/h	282	0	557	743	0	988	275	0	0	281	0	192
V/C Ratio(X)	0.54	0.00	0.83	0.02	0.00	0.90	0.07	0.00	0.00	0.38	0.00	0.09
Avail Cap(c_a), veh/h	464	0	1374	743	0	1357	693	0	0	658	0	693
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	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	17.7	11.5	0.0	11.2	22.0	0.0	0.0	23.5	0.0	22.0
Incr Delay (d2), s/veh	0.6	0.0	1.2	0.0	0.0	5.3	0.0	0.0	0.0	0.3	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	0.0	8.1	0.2	0.0	12.2	0.4	0.0	0.0	2.3	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	18.9	11.5	0.0	16.5	22.1	0.0	0.0	23.8	0.0	22.1
LnGrp LOS	C	A	B	B	A	B	C	A	A	C	A	C
Approach Vol, veh/h		615			901			18				125
Approach Delay, s/veh		20.0			16.4			22.1				23.6
Approach LOS		C			B			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.4	21.2		10.6	9.5	34.1		10.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	14.5		5.9	2.2	25.4		2.5				
Green Ext Time (p_c), s	0.0	1.7		0.1	0.1	3.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑	↑	
Traffic Vol, veh/h	20	31	15	263	94	105
Future Vol, veh/h	20	31	15	263	94	105
Conflicting Peds, #/hr	3	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	0	15	0	1	0
Mvmt Flow	22	33	16	283	101	113

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	483	165	221	0	0
Stage 1	165	-	-	-	-
Stage 2	318	-	-	-	-
Critical Hdwy	6.47	6.2	4.25	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.3	2.335	-	-
Pot Cap-1 Maneuver	534	885	1275	-	-
Stage 1	852	-	-	-	-
Stage 2	726	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	520	879	1267	-	-
Mov Cap-2 Maneuver	520	-	-	-	-
Stage 1	835	-	-	-	-
Stage 2	721	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1267	-	692	-	-
HCM Lane V/C Ratio	0.013	-	0.079	-	-
HCM Control Delay (s)	7.9	-	10.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	81.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	466	62	89	503	18	43	122	73	27	85	28
Future Vol, veh/h	48	466	62	89	503	18	43	122	73	27	85	28
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
Heavy Vehicles, %	3	0	0	1	0	7	0	1	0	4	1	8
Mvmt Flow	52	507	67	97	547	20	47	133	79	29	92	30
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	107.3	97.1	18.3	18.4
HCM LOS	F	F	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	19%
Vol Thru, %	0%	63%	0%	88%	0%	97%	61%
Vol Right, %	0%	37%	0%	12%	0%	3%	20%
Sign Control	Stop						
Traffic Vol by Lane	43	195	48	528	89	521	140
LT Vol	43	0	48	0	89	0	27
Through Vol	0	122	0	466	0	503	85
RT Vol	0	73	0	62	0	18	28
Lane Flow Rate	47	212	52	574	97	566	152
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.116	0.48	0.114	1.152	0.209	1.139	0.377
Departure Headway (Hd)	9.531	8.753	8.25	7.596	8.194	7.635	9.678
Convergence, Y/N	Yes						
Cap	379	415	437	482	441	481	374
Service Time	7.231	6.453	5.95	5.296	5.894	5.335	7.678
HCM Lane V/C Ratio	0.124	0.511	0.119	1.191	0.22	1.177	0.406
HCM Control Delay	13.5	19.3	12	116	13	111.5	18.4
HCM Lane LOS	B	C	B	F	B	F	C
HCM 95th-tile Q	0.4	2.5	0.4	19.5	0.8	18.9	1.7

Timings
11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions

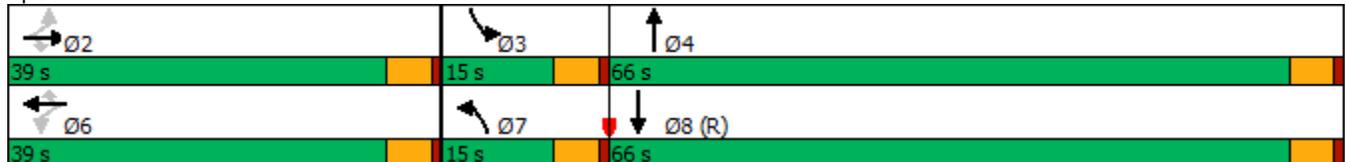
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	89	30	55	152	22	50	44	1463	47	1326
Future Volume (vph)	89	30	55	152	22	50	44	1463	47	1326
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		2			6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	2	2	2	6	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	39.0	39.0	39.0	38.0	38.0	38.0	10.0	32.0	19.5	32.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	39.0	15.0	66.0	15.0	66.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	32.5%	12.5%	55.0%	12.5%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	19.0	19.0	19.0	19.0	19.0	19.0	6.5	81.5	6.5	81.5
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16	0.16	0.05	0.68	0.05	0.68
v/c Ratio	0.42	0.11	0.19	0.76	0.09	0.18	0.50	0.46	0.51	0.42
Control Delay	48.9	39.8	8.9	68.9	39.3	7.7	50.5	23.7	73.1	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	39.8	8.9	68.9	39.3	7.7	50.5	23.7	73.1	10.8
LOS	D	D	A	E	D	A	D	C	E	B
Approach Delay		34.7			52.3			24.5		12.9
Approach LOS		C			D			C		B

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 112 (93%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 21.9
 Intersection Capacity Utilization 61.5%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Phase 1 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	30	55	152	22	50	44	1463	32	47	1326	46
Future Volume (veh/h)	89	30	55	152	22	50	44	1463	32	47	1326	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1826	1633	1856	1826	1870	1752	1870	1885	1900
Adj Flow Rate, veh/h	94	32	5	160	23	5	46	1540	33	49	1396	46
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, %	0	0	0	5	18	3	5	2	10	2	1	0
Cap, veh/h	262	298	251	250	256	245	59	2615	56	63	2610	86
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.03	0.51	0.51	0.04	0.51	0.51
Sat Flow, veh/h	1399	1900	1604	1334	1633	1566	1739	5144	110	1781	5117	169
Grp Volume(v), veh/h	94	32	5	160	23	5	46	1019	554	49	936	506
Grp Sat Flow(s),veh/h/ln	1399	1900	1604	1334	1633	1566	1739	1702	1850	1781	1716	1855
Q Serve(g_s), s	7.4	1.7	0.3	14.0	1.4	0.3	3.2	25.2	25.2	3.3	22.1	22.1
Cycle Q Clear(g_c), s	8.8	1.7	0.3	15.8	1.4	0.3	3.2	25.2	25.2	3.3	22.1	22.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		0.09
Lane Grp Cap(c), veh/h	262	298	251	250	256	245	59	1730	941	63	1750	946
V/C Ratio(X)	0.36	0.11	0.02	0.64	0.09	0.02	0.79	0.59	0.59	0.78	0.53	0.53
Avail Cap(c_a), veh/h	440	538	454	419	463	444	145	1730	941	148	1750	946
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.68	0.68	0.68	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	43.4	42.8	50.2	43.3	42.8	57.5	20.7	20.7	57.4	19.8	19.8
Incr Delay (d2), s/veh	0.3	0.1	0.0	1.0	0.1	0.0	5.8	1.0	1.8	7.4	1.2	2.2
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(95%),veh/ln	4.7	1.5	0.2	8.4	1.1	0.2	2.6	13.9	15.2	2.8	13.5	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	43.5	42.8	51.2	43.3	42.8	63.3	21.7	22.5	64.8	21.0	22.0
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	C	C
Approach Vol, veh/h		131			188			1619			1491	
Approach Delay, s/veh		46.2			50.0			23.2			22.8	
Approach LOS		D			D			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.8	9.2	66.0		23.8	9.0	66.2				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		34.0	10.0	61.0		34.0	10.0	61.0				
Max Q Clear Time (g_c+I1), s		10.8	5.3	27.2		17.8	5.2	24.1				
Green Ext Time (p_c), s		0.0	0.0	1.8		0.0	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			25.3									
HCM 6th LOS			C									

Timings
12: SE 164th Ave & SE 34th Street

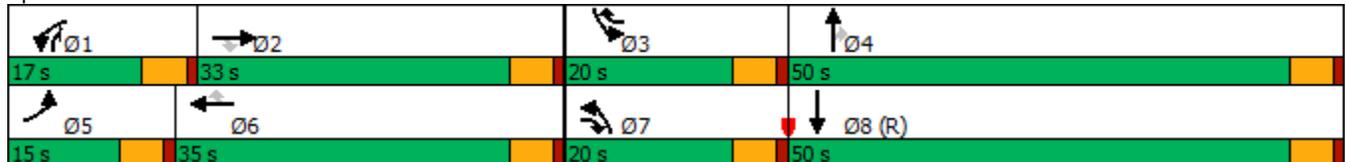
Vancouver Innovation Center
Phase 1 2038 PM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	49	102	194	301	136	278	192	1216	346	188	1284
Future Volume (vph)	49	102	194	301	136	278	192	1216	346	188	1284
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	15.0	33.0	20.0	17.0	35.0	20.0	20.0	50.0	17.0	20.0	50.0
Total Split (%)	12.5%	27.5%	16.7%	14.2%	29.2%	16.7%	16.7%	41.7%	14.2%	16.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes										
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	7.3	10.7	34.0	12.0	17.5	40.5	18.3	59.2	76.2	18.0	59.0
Actuated g/C Ratio	0.06	0.09	0.28	0.10	0.15	0.34	0.15	0.49	0.64	0.15	0.49
v/c Ratio	0.51	0.66	0.41	1.77	0.54	0.49	0.74	0.73	0.32	0.74	0.56
Control Delay	71.7	71.0	24.2	402.1	56.2	22.8	64.4	28.5	3.9	58.4	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.7	71.0	24.2	402.1	56.2	22.8	64.4	28.5	3.9	58.4	22.9
LOS	E	E	C	F	E	C	E	C	A	E	C
Approach Delay		44.8			188.8			27.6			27.3
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.77
 Intersection Signal Delay: 55.5
 Intersection Capacity Utilization 82.7%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service E

Splits and Phases: 12: SE 164th Ave & SE 34th Street



HCM 6th Signalized Intersection Summary
 12: SE 164th Ave & SE 34th Street

Vancouver Innovation Center
 Phase 1 2038 PM Peak Hour Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	102	194	301	136	278	192	1216	346	188	1284	49
Future Volume (veh/h)	49	102	194	301	136	278	192	1216	346	188	1284	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1826	1885	1870	1841	1856	1885	1870	1885	1870	1870	1841
Adj Flow Rate, veh/h	51	106	152	314	142	217	200	1267	241	196	1338	48
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	5	1	2	4	3	1	2	1	2	2	4
Cap, veh/h	64	183	359	178	298	451	224	1333	759	223	1898	68
Arrive On Green	0.04	0.10	0.10	0.10	0.16	0.16	0.13	0.38	0.38	0.04	0.12	0.12
Sat Flow, veh/h	1682	1826	1598	1781	1841	1572	1795	3554	1598	1781	5060	182
Grp Volume(v), veh/h	51	106	152	314	142	217	200	1267	241	196	900	486
Grp Sat Flow(s),veh/h/ln	1682	1826	1598	1781	1841	1572	1795	1777	1598	1781	1702	1838
Q Serve(g_s), s	3.6	6.7	9.8	12.0	8.4	13.7	13.2	41.6	11.2	13.1	30.5	30.5
Cycle Q Clear(g_c), s	3.6	6.7	9.8	12.0	8.4	13.7	13.2	41.6	11.2	13.1	30.5	30.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	64	183	359	178	298	451	224	1333	759	223	1277	689
V/C Ratio(X)	0.79	0.58	0.42	1.76	0.48	0.48	0.89	0.95	0.32	0.88	0.71	0.71
Avail Cap(c_a), veh/h	140	426	572	178	460	590	224	1333	759	223	1277	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	57.2	51.6	39.8	54.0	45.7	35.4	51.7	36.4	19.5	56.6	46.2	46.2
Incr Delay (d2), s/veh	7.9	1.1	0.3	365.2	0.4	0.3	31.8	15.4	1.1	27.6	3.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	5.5	6.9	37.0	6.9	8.9	12.4	27.4	7.6	12.4	20.3	22.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.1	52.7	40.1	419.2	46.1	35.7	83.5	51.8	20.6	84.2	49.2	51.6
LnGrp LOS	E	D	D	F	D	D	F	D	C	F	D	D
Approach Vol, veh/h		309			673			1708			1582	
Approach Delay, s/veh		48.6			216.8			51.1			54.3	
Approach LOS		D			F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	17.0	20.0	50.0	9.6	24.4	20.0	50.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	28.0	15.0	45.0	10.0	30.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	14.0	11.8	15.1	43.6	5.6	15.7	15.2	32.5				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.7	0.0	0.3	0.0	2.9				
Intersection Summary												
HCM 6th Ctrl Delay				78.2								
HCM 6th LOS				E								

Appendix G 2038 With-Project Phase 2
Buildout Operations
Worksheets & Re-routed trips

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions

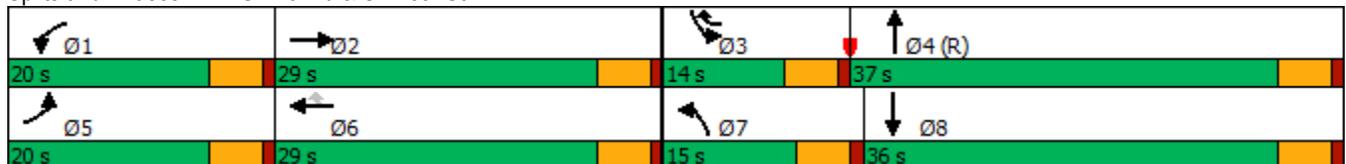


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	156	45	29	64	158	58	973	89	848
Future Volume (vph)	156	45	29	64	158	58	973	89	848
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases	6								
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	20.0	29.0	20.0	29.0	14.0	15.0	37.0	14.0	36.0
Total Split (%)	20.0%	29.0%	20.0%	29.0%	14.0%	15.0%	37.0%	14.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	12.4	18.7	5.9	10.2	22.0	7.3	50.6	8.8	54.1
Actuated g/C Ratio	0.12	0.19	0.06	0.10	0.22	0.07	0.51	0.09	0.54
v/c Ratio	0.80	0.28	0.32	0.38	0.42	0.50	0.63	0.69	0.58
Control Delay	67.8	20.2	53.4	45.3	17.7	61.3	18.5	69.1	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	20.2	53.4	45.3	17.7	61.3	18.5	69.1	21.6
LOS	E	C	D	D	B	E	B	E	C
Approach Delay	50.5		28.8			20.8		25.7	
Approach LOS	D		C			C		C	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 9 (9%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 26.4
 Intersection Capacity Utilization 60.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: SE 192nd & SE 15th St



HCM 6th Signalized Intersection Summary
 1: SE 192nd & SE 15th St

Vancouver Innovation Center
 Phase 2 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	45	44	29	64	158	58	973	16	89	848	87
Future Volume (veh/h)	156	45	44	29	64	158	58	973	16	89	848	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1796	1781	1841	1870	1856	1841	1900	1737	1767	1856
Adj Flow Rate, veh/h	173	50	8	32	71	103	64	1081	17	99	942	91
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	0	7	8	4	2	3	4	0	11	9	3
Cap, veh/h	204	266	42	50	148	244	97	1869	29	122	1699	164
Arrive On Green	0.12	0.17	0.17	0.03	0.08	0.08	0.11	1.00	1.00	0.07	0.55	0.55
Sat Flow, veh/h	1767	1598	256	1697	1841	1585	1767	3523	55	1654	3092	299
Grp Volume(v), veh/h	173	0	58	32	71	103	64	537	561	99	511	522
Grp Sat Flow(s),veh/h/ln	1767	0	1854	1697	1841	1585	1767	1749	1829	1654	1678	1713
Q Serve(g_s), s	9.6	0.0	2.7	1.9	3.7	5.9	3.5	0.0	0.0	5.9	19.7	19.7
Cycle Q Clear(g_c), s	9.6	0.0	2.7	1.9	3.7	5.9	3.5	0.0	0.0	5.9	19.7	19.7
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.03	1.00		0.17
Lane Grp Cap(c), veh/h	204	0	308	50	148	244	97	928	970	122	922	941
V/C Ratio(X)	0.85	0.00	0.19	0.64	0.48	0.42	0.66	0.58	0.58	0.81	0.55	0.55
Avail Cap(c_a), veh/h	265	0	445	254	442	498	177	928	970	149	922	941
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	0.0	35.9	48.0	44.0	38.3	43.6	0.0	0.0	45.6	14.6	14.6
Incr Delay (d2), s/veh	14.7	0.0	0.1	5.0	0.9	0.4	2.2	2.1	2.0	19.5	2.4	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.5	0.0	2.2	1.5	3.1	4.0	2.7	1.0	1.0	5.4	11.8	12.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	0.0	36.0	53.0	44.9	38.7	45.8	2.1	2.0	65.1	17.0	16.9
LnGrp LOS	E	A	D	D	D	D	D	A	A	E	B	B
Approach Vol, veh/h		231			206			1162			1132	
Approach Delay, s/veh		52.6			43.0			4.4			21.2	
Approach LOS		D			D			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	21.6	12.4	58.0	16.5	13.0	10.5	60.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	24.0	9.0	32.0	15.0	24.0	10.0	31.0				
Max Q Clear Time (g_c+I1), s	3.9	4.7	7.9	2.0	11.6	7.9	5.5	21.7				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.2	0.0	0.2	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			18.4									
HCM 6th LOS			B									

Timings
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions

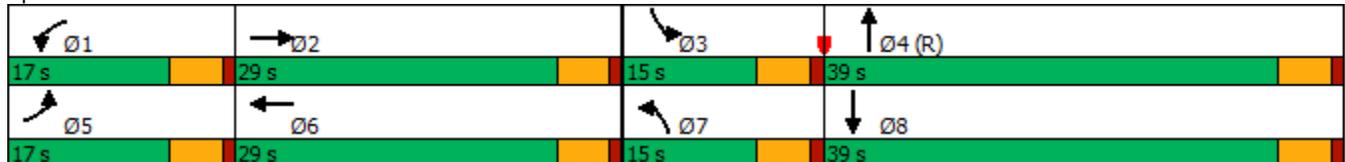


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↖	↖↗	↖	↖	↕↖	↖	↕↖
Traffic Volume (vph)	166	182	140	165	46	764	59	708
Future Volume (vph)	166	182	140	165	46	764	59	708
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	17.0	29.0	17.0	29.0	15.0	39.0	15.0	39.0
Total Split (%)	17.0%	29.0%	17.0%	29.0%	15.0%	39.0%	15.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	9.4	18.6	8.6	17.8	7.3	47.0	7.7	45.4
Actuated g/C Ratio	0.09	0.19	0.09	0.18	0.07	0.47	0.08	0.45
v/c Ratio	0.55	0.80	0.49	0.70	0.39	0.60	0.45	0.56
Control Delay	49.5	52.2	49.0	46.5	63.3	10.5	52.2	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	52.2	49.0	46.5	63.3	10.5	52.2	28.3
LOS	D	D	D	D	E	B	D	C
Approach Delay		51.2		47.4		13.0		30.0
Approach LOS		D		D		B		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 29.6
 Intersection Capacity Utilization 65.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 2: SE 20th St & SE 192nd Ave



HCM 6th Signalized Intersection Summary
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↕↕		↔	↕↕	
Traffic Volume (veh/h)	166	182	84	140	165	57	46	764	156	59	708	103
Future Volume (veh/h)	166	182	84	140	165	57	46	764	156	59	708	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1841	1885	1885	1885	1811	1856	1841	1885	1811	1826
Adj Flow Rate, veh/h	175	192	70	147	174	23	48	804	147	62	745	97
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, %	3	0	4	1	1	1	6	3	4	1	6	5
Cap, veh/h	242	221	81	214	256	34	86	1570	287	80	1599	208
Arrive On Green	0.07	0.17	0.17	0.06	0.16	0.16	0.05	0.53	0.53	0.06	0.69	0.69
Sat Flow, veh/h	3428	1328	484	3483	1631	216	1725	2976	544	1795	3061	398
Grp Volume(v), veh/h	175	0	262	147	0	197	48	476	475	62	419	423
Grp Sat Flow(s),veh/h/ln	1714	0	1813	1742	0	1846	1725	1763	1757	1795	1721	1739
Q Serve(g_s), s	5.0	0.0	14.1	4.1	0.0	10.1	2.7	17.5	17.5	3.4	11.0	11.0
Cycle Q Clear(g_c), s	5.0	0.0	14.1	4.1	0.0	10.1	2.7	17.5	17.5	3.4	11.0	11.0
Prop In Lane	1.00		0.27	1.00		0.12	1.00		0.31	1.00		0.23
Lane Grp Cap(c), veh/h	242	0	301	214	0	290	86	930	927	80	899	908
V/C Ratio(X)	0.72	0.00	0.87	0.69	0.00	0.68	0.56	0.51	0.51	0.78	0.47	0.47
Avail Cap(c_a), veh/h	411	0	435	418	0	443	172	930	927	180	899	908
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79
Uniform Delay (d), s/veh	45.5	0.0	40.6	46.0	0.0	39.8	46.4	15.3	15.3	46.5	9.0	9.0
Incr Delay (d2), s/veh	1.5	0.0	9.2	1.5	0.0	1.0	2.1	2.0	2.0	4.7	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.8	0.0	11.1	3.2	0.0	8.0	2.1	11.2	11.2	2.8	6.2	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	49.8	47.5	0.0	40.8	48.5	17.3	17.3	51.2	10.3	10.3
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		437			344			999			904	
Approach Delay, s/veh		48.7			43.7			18.8			13.1	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	21.6	9.5	57.8	12.1	20.7	10.0	57.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	24.0	10.0	34.0	12.0	24.0	10.0	34.0				
Max Q Clear Time (g_c+I1), s	6.1	16.1	5.4	19.5	7.0	12.1	4.7	13.0				
Green Ext Time (p_c), s	0.1	0.5	0.0	3.3	0.1	0.5	0.0	3.2				

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↕↔		↙	↕↕
Traffic Vol, veh/h	7	10	888	3	7	906
Future Vol, veh/h	7	10	888	3	7	906
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	20	4	67	0	7
Mvmt Flow	7	11	935	3	7	954

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1429	470	0	0	939
Stage 1	938	-	-	-	-
Stage 2	491	-	-	-	-
Critical Hdwy	6.8	7.3	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.5	-	-	2.2
Pot Cap-1 Maneuver	128	494	-	-	738
Stage 1	346	-	-	-	-
Stage 2	586	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	127	494	-	-	737
Mov Cap-2 Maneuver	127	-	-	-	-
Stage 1	346	-	-	-	-
Stage 2	581	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.7	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	127	494	737
HCM Lane V/C Ratio	-	-	0.058	0.021	0.01
HCM Control Delay (s)	-	-	35.1	12.4	9.9
HCM Lane LOS	-	-	E	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0

Timings
5: SE 192nd Ave & SE 34th St

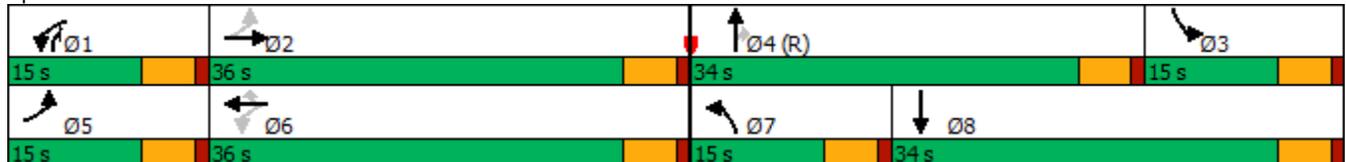
Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	199	170	207	145	67	153	704	349	108	547
Future Volume (vph)	199	170	207	145	67	153	704	349	108	547
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6		7	4	1	3	8
Permitted Phases	2		6		6			4		
Detector Phase	5	2	1	6	6	7	4	1	3	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	15.0	36.0	15.0	36.0	36.0	15.0	34.0	15.0	15.0	34.0
Total Split (%)	15.0%	36.0%	15.0%	36.0%	36.0%	15.0%	34.0%	15.0%	15.0%	34.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	31.5	21.8	31.6	21.8	21.8	12.8	38.5	48.2	10.0	35.7
Actuated g/C Ratio	0.32	0.22	0.32	0.22	0.22	0.13	0.38	0.48	0.10	0.36
v/c Ratio	0.59	0.84	0.89	0.38	0.15	0.73	0.60	0.40	0.35	0.75
Control Delay	29.3	50.7	59.3	34.4	0.7	61.4	28.7	2.4	43.1	30.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.3	50.7	59.3	34.4	0.7	61.4	28.7	2.4	43.1	30.9
LOS	C	D	E	C	A	E	C	A	D	C
Approach Delay		42.3		41.4			25.3			32.4
Approach LOS		D		D			C			C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 40 (40%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 32.4
 Intersection Capacity Utilization 77.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 5: SE 192nd Ave & SE 34th St



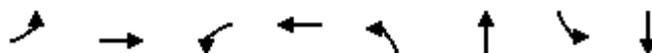
HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	170	136	207	145	67	153	704	349	108	547	221
Future Volume (veh/h)	199	170	136	207	145	67	153	704	349	108	547	221
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	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1728	1803	1847	1943	2018	1988	2018	1883	1988	1832	1684	1684
Adj Flow Rate, veh/h	221	189	114	230	161	7	170	782	154	120	608	202
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	8	3	0	5	0	2	0	9	2	1	11	11
Cap, veh/h	395	221	133	298	424	347	192	1037	655	677	920	305
Arrive On Green	0.10	0.21	0.21	0.10	0.21	0.21	0.10	0.29	0.29	0.20	0.39	0.39
Sat Flow, veh/h	1646	1051	634	1850	2018	1653	1922	3578	1679	3385	2359	782
Grp Volume(v), veh/h	221	0	303	230	161	7	170	782	154	120	412	398
Grp Sat Flow(s),veh/h/ln	1646	0	1684	1850	2018	1653	1922	1789	1679	1693	1600	1542
Q Serve(g_s), s	10.0	0.0	17.3	9.8	6.8	0.2	8.7	19.9	2.6	2.9	21.2	21.2
Cycle Q Clear(g_c), s	10.0	0.0	17.3	9.8	6.8	0.2	8.7	19.9	2.6	2.9	21.2	21.2
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	395	0	354	298	424	347	192	1037	655	677	624	601
V/C Ratio(X)	0.56	0.00	0.86	0.77	0.38	0.02	0.88	0.75	0.23	0.18	0.66	0.66
Avail Cap(c_a), veh/h	395	0	522	298	626	513	192	1037	655	677	624	601
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)	0.81	0.00	0.81	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	0.0	38.1	29.1	33.9	12.1	44.4	32.3	7.2	33.2	25.1	25.1
Incr Delay (d2), s/veh	0.9	0.0	5.2	10.7	0.2	0.0	34.1	5.1	0.8	0.0	5.4	5.7
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(95%),veh/ln	7.1	0.0	11.4	8.7	5.9	0.2	9.8	13.8	2.2	2.1	13.3	12.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	0.0	43.2	39.8	34.1	12.1	78.5	37.3	8.0	33.2	30.5	30.7
LnGrp LOS	C	A	D	D	C	B	E	D	A	C	C	C
Approach Vol, veh/h		524			398			1106			930	
Approach Delay, s/veh		37.3			37.0			39.6			30.9	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	26.0	25.0	34.0	15.0	26.0	15.0	44.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	31.0	10.0	29.0	10.0	31.0	10.0	29.0				
Max Q Clear Time (g_c+I1), s	11.8	19.3	4.9	21.9	12.0	8.8	10.7	23.2				
Green Ext Time (p_c), s	0.0	0.5	0.0	1.4	0.0	0.2	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			36.1									
HCM 6th LOS			D									

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions

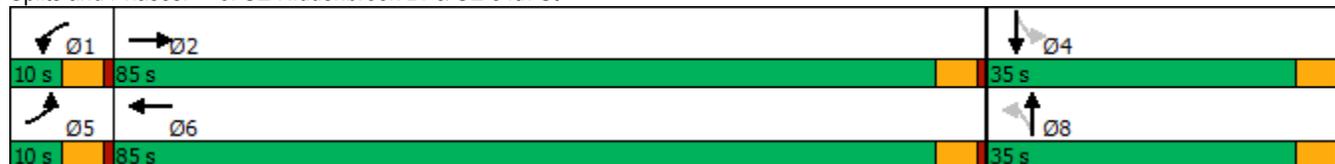


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	115	290	27	238	63	19	231	4
Future Volume (vph)	115	290	27	238	63	19	231	4
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	27.0	10.0	27.0	32.0	32.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	5.2	34.2	5.2	29.1	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.07	0.48	0.07	0.41	0.30	0.30	0.30	0.30
v/c Ratio	1.08	0.45	0.25	0.83	0.20	0.14	0.70	0.11
Control Delay	144.1	16.3	42.8	28.0	22.1	10.2	34.1	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	144.1	16.3	42.8	28.0	22.1	10.2	34.1	7.8
LOS	F	B	D	C	C	B	C	A
Approach Delay		50.5		28.8		16.3		29.4
Approach LOS		D		C		B		C

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 71.7
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 34.7
 Intersection LOS: C
 Intersection Capacity Utilization 66.3%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	290	24	27	238	249	63	19	41	231	4	45
Future Volume (veh/h)	115	290	24	27	238	249	63	19	41	231	4	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1876	1802	1876	1832	1876	1876	1900	1900	1900
Adj Flow Rate, veh/h	142	358	26	33	294	254	78	23	7	285	5	8
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	0	4	0	0	5	0	3	0	0	0	0	0
Cap, veh/h	172	730	53	65	332	286	469	342	104	466	163	261
Arrive On Green	0.09	0.43	0.43	0.04	0.37	0.37	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1810	1695	123	1787	891	769	1372	1381	420	1401	658	1053
Grp Volume(v), veh/h	142	0	384	33	0	548	78	0	30	285	0	13
Grp Sat Flow(s),veh/h/ln	1810	0	1818	1787	0	1660	1372	0	1801	1401	0	1711
Q Serve(g_s), s	4.1	0.0	8.0	1.0	0.0	16.3	2.4	0.0	0.7	10.3	0.0	0.3
Cycle Q Clear(g_c), s	4.1	0.0	8.0	1.0	0.0	16.3	2.7	0.0	0.7	11.0	0.0	0.3
Prop In Lane	1.00		0.07	1.00		0.46	1.00		0.23	1.00		0.62
Lane Grp Cap(c), veh/h	172	0	783	65	0	618	469	0	446	466	0	424
V/C Ratio(X)	0.83	0.00	0.49	0.51	0.00	0.89	0.17	0.00	0.07	0.61	0.00	0.03
Avail Cap(c_a), veh/h	172	0	2762	170	0	2522	911	0	1026	917	0	975
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.4	0.0	10.8	24.9	0.0	15.5	16.0	0.0	15.1	19.3	0.0	15.0
Incr Delay (d2), s/veh	25.6	0.0	0.2	2.3	0.0	1.8	0.1	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.9	0.0	4.4	0.7	0.0	8.8	1.3	0.0	0.5	5.6	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	0.0	11.0	27.2	0.0	17.2	16.1	0.0	15.2	19.8	0.0	15.0
LnGrp LOS	D	A	B	C	A	B	B	A	B	B	A	B
Approach Vol, veh/h		526			581			108			298	
Approach Delay, s/veh		21.2			17.8			15.8			19.6	
Approach LOS		C			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	27.7		18.1	10.0	24.6		18.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	3.0	10.0		13.0	6.1	18.3		4.7				
Green Ext Time (p_c), s	0.0	0.7		0.1	0.0	1.2		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				19.2								
HCM 6th LOS				B								

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	
Traffic Vol, veh/h	413	11	7	339	29	17
Future Vol, veh/h	413	11	7	339	29	17
Conflicting Peds, #/hr	0	3	3	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	95	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	3	0	0	5	0	0
Mvmt Flow	486	13	8	399	34	20

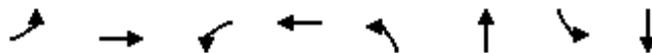
Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	502	0	911 496
Stage 1	-	-	-	-	496 -
Stage 2	-	-	-	-	415 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1073	-	307 578
Stage 1	-	-	-	-	616 -
Stage 2	-	-	-	-	671 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1070	-	304 576
Mov Cap-2 Maneuver	-	-	-	-	304 -
Stage 1	-	-	-	-	614 -
Stage 2	-	-	-	-	666 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	16.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	368	-	-	1070	-
HCM Lane V/C Ratio	0.147	-	-	0.008	-
HCM Control Delay (s)	16.5	-	-	8.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions

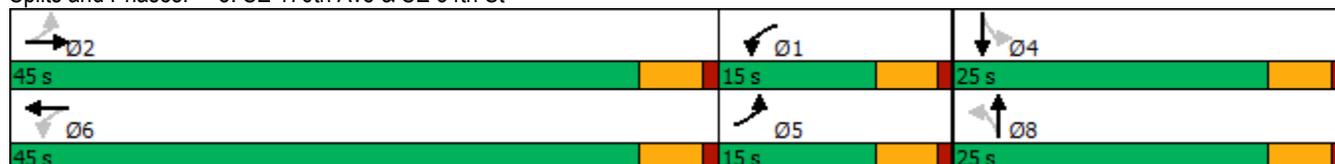


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	236	352	4	305	14	7	66	4
Future Volume (vph)	236	352	4	305	14	7	66	4
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	31.5	31.9	25.7	19.3	9.3	9.3	9.3	9.3
Actuated g/C Ratio	0.64	0.65	0.52	0.39	0.19	0.19	0.19	0.19
v/c Ratio	0.48	0.35	0.01	0.62	0.07	0.05	0.30	0.31
Control Delay	12.9	10.5	7.0	18.7	19.3	15.0	22.3	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	10.5	7.0	18.7	19.3	15.0	22.3	7.4
LOS	B	B	A	B	B	B	C	A
Approach Delay		11.5		18.6		17.2		13.2
Approach LOS		B		B		B		B

Intersection Summary

Cycle Length: 85
 Actuated Cycle Length: 49.4
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.1
 Intersection Capacity Utilization 55.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	236	352	2	4	305	59	14	7	6	66	4	100
Future Volume (veh/h)	236	352	2	4	305	59	14	7	6	66	4	100
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	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1856	1900	1900	1811	1826	1900	1900	1530	1870	1900	1885
Adj Flow Rate, veh/h	278	414	2	5	359	57	16	8	0	78	5	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	9	3	0	0	6	5	0	0	25	2	0	1
Cap, veh/h	569	711	3	613	590	94	331	202	0	326	202	0
Arrive On Green	0.12	0.39	0.39	0.12	0.39	0.39	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1682	1845	9	1810	1524	242	1407	1900	0	1382	1900	0
Grp Volume(v), veh/h	278	0	416	5	0	416	16	8	0	78	5	0
Grp Sat Flow(s),veh/h/ln	1682	0	1854	1810	0	1766	1407	1900	0	1382	1900	0
Q Serve(g_s), s	0.0	0.0	6.9	0.0	0.0	7.4	0.4	0.1	0.0	2.1	0.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	6.9	0.0	0.0	7.4	0.5	0.1	0.0	2.2	0.1	0.0
Prop In Lane	1.00		0.00	1.00		0.14	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	569	0	714	613	0	684	331	202	0	326	202	0
V/C Ratio(X)	0.49	0.00	0.58	0.01	0.00	0.61	0.05	0.04	0.00	0.24	0.02	0.00
Avail Cap(c_a), veh/h	795	0	1901	852	0	1810	903	974	0	888	974	0
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.6	0.0	9.5	8.8	0.0	9.6	15.8	15.6	0.0	16.6	15.6	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.3	0.0	0.0	0.3	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	0.0	3.3	0.0	0.0	3.3	0.2	0.1	0.0	1.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	9.8	8.8	0.0	9.9	15.9	15.7	0.0	16.8	15.6	0.0
LnGrp LOS	B	A	A	A	A	A	B	B	A	B	B	A
Approach Vol, veh/h		694			421			24			83	
Approach Delay, s/veh		11.0			9.9			15.8			16.7	
Approach LOS		B			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	20.0		9.1	9.8	20.1		9.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	8.9		4.2	2.0	9.4		2.5				
Green Ext Time (p_c), s	0.0	1.5		0.1	0.3	1.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

MOVEMENT SUMMARY

Site: 101 [SE 176 Avenue/ SE 29th Street Phase 2 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Phase 2
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: SE 176th Avenue															
3	L2	All MCs	5	0.0	5	0.0	0.315	5.9	LOS A	1.8	44.4	0.37	0.18	0.37	32.8
8	T1	All MCs	144	2.0	144	2.0	0.315	6.0	LOS A	1.8	44.4	0.37	0.18	0.37	33.5
18	R2	All MCs	225	0.0	225	0.0	0.315	5.9	LOS A	1.8	44.4	0.37	0.18	0.37	33.2
Approach			373	0.8	373	0.8	0.315	5.9	LOS A	1.8	44.4	0.37	0.18	0.37	33.3
East: SE 29th Street															
1	L2	All MCs	74	0.0	74	0.0	0.286	5.6	LOS A	1.5	38.6	0.37	0.20	0.37	32.5
6	T1	All MCs	215	0.0	215	0.0	0.286	5.6	LOS A	1.5	38.6	0.37	0.20	0.37	33.1
16	R2	All MCs	46	0.0	46	0.0	0.286	5.6	LOS A	1.5	38.6	0.37	0.20	0.37	32.9
Approach			335	0.0	335	0.0	0.286	5.6	LOS A	1.5	38.6	0.37	0.20	0.37	33.0
North: SE 176th Avenue															
7	L2	All MCs	20	88.0	20	88.0	0.291	16.9	LOS C	1.2	35.0	0.50	0.33	0.50	29.7
4	T1	All MCs	105	1.0	105	1.0	0.291	5.9	LOS A	1.2	35.0	0.50	0.33	0.50	32.8
14	R2	All MCs	122	18.0	122	18.0	0.291	7.5	LOS A	1.2	35.0	0.50	0.33	0.50	32.2
Approach			247	16.5	247	16.5	0.291	7.4	LOS A	1.2	35.0	0.50	0.33	0.50	32.2
West: SE 29th Street															
5	L2	All MCs	6	0.0	6	0.0	0.109	4.1	LOS A	0.5	12.1	0.37	0.22	0.37	33.6
2	T1	All MCs	98	0.0	98	0.0	0.109	4.1	LOS A	0.5	12.1	0.37	0.22	0.37	34.3
12	R2	All MCs	15	10.0	15	10.0	0.109	5.0	LOS A	0.5	12.1	0.37	0.22	0.37	33.8
Approach			119	1.3	119	1.3	0.109	4.2	LOS A	0.5	12.1	0.37	0.22	0.37	34.2
All Vehicles			1074	4.2	1074	4.2	0.315	6.0	LOS A	1.8	44.4	0.40	0.23	0.40	33.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	272	33	76	314	14	47	85	56	0	66	10
Future Vol, veh/h	12	272	33	76	314	14	47	85	56	0	66	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	4	10	4	1	9	4	3	0	0	0	0
Mvmt Flow	13	299	36	84	345	15	52	93	62	0	73	11
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	16.5	16.1	11.9	11.6
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	60%	0%	89%	0%	96%	87%
Vol Right, %	0%	40%	0%	11%	0%	4%	13%
Sign Control	Stop						
Traffic Vol by Lane	47	141	12	305	76	328	76
LT Vol	47	0	12	0	76	0	0
Through Vol	0	85	0	272	0	314	66
RT Vol	0	56	0	33	0	14	10
Lane Flow Rate	52	155	13	335	84	360	84
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.107	0.286	0.024	0.57	0.152	0.599	0.165
Departure Headway (Hd)	7.446	6.637	6.633	6.117	6.573	5.984	7.119
Convergence, Y/N	Yes						
Cap	479	539	538	587	544	602	500
Service Time	5.22	4.409	4.399	3.883	4.336	3.746	5.211
HCM Lane V/C Ratio	0.109	0.288	0.024	0.571	0.154	0.598	0.168
HCM Control Delay	11.1	12.1	9.6	16.8	10.5	17.4	11.6
HCM Lane LOS	B	B	A	C	B	C	B
HCM 95th-tile Q	0.4	1.2	0.1	3.6	0.5	4	0.6

Timings
11: SE 164th Ave & SE 29th St

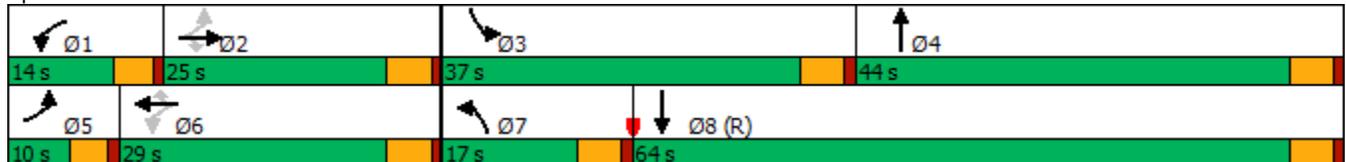
Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	42	14	46	202	35	140	23	1081	92	795
Future Volume (vph)	42	14	46	202	35	140	23	1081	92	795
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2		1	6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	5	2	2	1	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.5	39.0	39.0	9.5	38.0	38.0	10.0	32.0	10.0	32.0
Total Split (s)	10.0	25.0	25.0	14.0	29.0	29.0	17.0	44.0	37.0	64.0
Total Split (%)	8.3%	20.8%	20.8%	11.7%	24.2%	24.2%	14.2%	36.7%	30.8%	53.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	4.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	15.9	12.0	12.0	23.3	15.2	15.2	5.7	71.8	10.0	80.1
Actuated g/C Ratio	0.13	0.10	0.10	0.19	0.13	0.13	0.05	0.60	0.08	0.67
v/c Ratio	0.22	0.08	0.16	0.85	0.16	0.44	0.28	0.38	0.66	0.26
Control Delay	39.2	47.7	1.2	71.7	46.1	10.8	64.1	7.1	72.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	47.7	1.2	71.7	46.1	10.8	64.1	7.1	72.8	9.8
LOS	D	D	A	E	D	B	E	A	E	A
Approach Delay		23.3			46.8			8.3		16.2
Approach LOS		C			D			A		B

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 4 (3%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 17.6
 Intersection Capacity Utilization 58.0%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Phase 2 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	14	46	202	35	140	23	1081	15	92	795	26
Future Volume (veh/h)	42	14	46	202	35	140	23	1081	15	92	795	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1856	1870	1870	1900	1900	1870	1796	1885	1856	1826
Adj Flow Rate, veh/h	44	15	7	213	37	22	24	1138	15	97	837	25
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, %	3	0	3	2	2	0	0	2	7	1	3	5
Cap, veh/h	226	156	129	305	242	208	42	2323	31	121	2485	74
Arrive On Green	0.03	0.08	0.08	0.08	0.13	0.13	0.02	0.45	0.45	0.07	0.49	0.49
Sat Flow, veh/h	1767	1900	1572	1781	1870	1610	1810	5194	68	1795	5055	151
Grp Volume(v), veh/h	44	15	7	213	37	22	24	746	407	97	559	303
Grp Sat Flow(s),veh/h/ln	1767	1900	1572	1781	1870	1610	1810	1702	1858	1795	1689	1828
Q Serve(g_s), s	2.7	0.9	0.5	9.5	2.1	1.4	1.6	18.6	18.6	6.4	12.1	12.1
Cycle Q Clear(g_c), s	2.7	0.9	0.5	9.5	2.1	1.4	1.6	18.6	18.6	6.4	12.1	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		0.08
Lane Grp Cap(c), veh/h	226	156	129	305	242	208	42	1522	831	121	1660	899
V/C Ratio(X)	0.19	0.10	0.05	0.70	0.15	0.11	0.58	0.49	0.49	0.80	0.34	0.34
Avail Cap(c_a), veh/h	250	317	262	305	374	322	181	1522	831	479	1660	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	51.0	50.8	47.1	46.4	46.1	58.0	23.5	23.5	55.2	18.6	18.6
Incr Delay (d2), s/veh	0.4	0.1	0.1	6.9	0.1	0.1	3.6	0.9	1.6	4.6	0.5	1.0
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(95%),veh/ln	2.2	0.8	0.3	3.8	1.8	1.0	1.4	11.3	12.4	5.4	8.2	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.7	51.1	50.8	53.9	46.5	46.2	61.7	24.4	25.1	59.7	19.1	19.6
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	B	B
Approach Vol, veh/h		66			272			1177			959	
Approach Delay, s/veh		49.5			52.3			25.4			23.4	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	14.8	13.1	58.7	8.3	20.5	7.8	64.0				
Change Period (Y+Rc), s	4.5	5.0	5.0	5.0	4.5	5.0	5.0	5.0				
Max Green Setting (Gmax), s	9.5	20.0	32.0	39.0	5.5	24.0	12.0	59.0				
Max Q Clear Time (g_c+I1), s	11.5	2.9	8.4	20.6	4.7	4.1	3.6	14.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.7	0.0	0.1	0.0	3.7				

Intersection Summary

HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Timings
12: SE 164th Ave/SE164th Ave & SE 34th Street

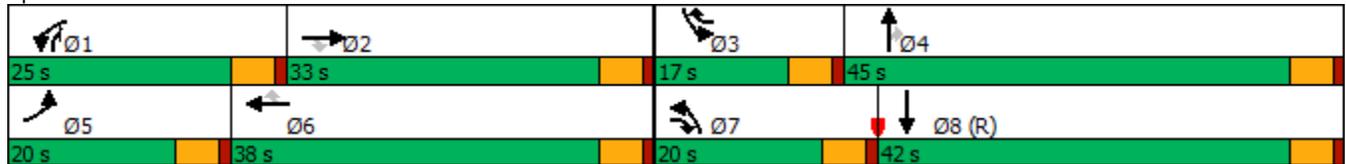
Vancouver Innovation Center
Phase 2 2038 AM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	28	60	165	302	121	109	111	931	366	158	803
Future Volume (vph)	28	60	165	302	121	109	111	931	366	158	803
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	20.0	33.0	20.0	25.0	38.0	17.0	20.0	45.0	25.0	17.0	42.0
Total Split (%)	16.7%	27.5%	16.7%	20.8%	31.7%	14.2%	16.7%	37.5%	20.8%	14.2%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	6.4	8.2	23.0	20.0	23.8	47.0	11.8	55.6	80.6	18.2	62.0
Actuated g/C Ratio	0.05	0.07	0.19	0.17	0.20	0.39	0.10	0.46	0.67	0.15	0.52
v/c Ratio	0.39	0.56	0.53	1.14	0.36	0.18	0.72	0.64	0.35	0.66	0.37
Control Delay	68.3	70.9	31.3	140.5	45.0	4.6	74.0	28.4	1.9	65.2	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.3	70.9	31.3	140.5	45.0	4.6	74.0	28.4	1.9	65.2	14.5
LOS	E	E	C	F	D	A	E	C	A	E	B
Approach Delay		44.8			91.0			25.1			22.6
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 15 (13%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 36.9
 Intersection Capacity Utilization 70.4%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C

Splits and Phases: 12: SE 164th Ave/SE164th Ave & SE 34th Street



HCM 6th Signalized Intersection Summary
 12: SE 164th Ave/SE164th Ave & SE 34th Street

Vancouver Innovation Center
 Phase 2 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	60	165	302	121	109	111	931	366	158	803	37
Future Volume (veh/h)	28	60	165	302	121	109	111	931	366	158	803	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1565	1758	1803	1870	1885	1841	1791	1776	1746	1806	1761	1761
Adj Flow Rate, veh/h	31	67	124	336	134	33	123	1034	235	176	892	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	19	6	3	2	1	4	1	2	4	0	3	3
Cap, veh/h	40	159	270	297	434	515	147	1125	740	172	1641	70
Arrive On Green	0.03	0.09	0.09	0.17	0.23	0.23	0.09	0.33	0.33	0.20	0.69	0.69
Sat Flow, veh/h	1491	1758	1528	1781	1885	1560	1706	3375	1480	1720	4730	201
Grp Volume(v), veh/h	31	67	124	336	134	33	123	1034	235	176	604	326
Grp Sat Flow(s),veh/h/ln	1491	1758	1528	1781	1885	1560	1706	1687	1480	1720	1603	1725
Q Serve(g_s), s	2.5	4.3	8.7	20.0	7.1	1.7	8.5	35.3	11.3	12.0	11.1	11.2
Cycle Q Clear(g_c), s	2.5	4.3	8.7	20.0	7.1	1.7	8.5	35.3	11.3	12.0	11.1	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	40	159	270	297	434	515	147	1125	740	172	1112	599
V/C Ratio(X)	0.77	0.42	0.46	1.13	0.31	0.06	0.84	0.92	0.32	1.02	0.54	0.54
Avail Cap(c_a), veh/h	186	410	488	297	518	585	213	1125	740	172	1112	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	58.0	51.6	44.2	50.0	38.3	27.5	54.0	38.4	17.8	48.0	13.7	13.7
Incr Delay (d2), s/veh	11.1	0.7	0.5	92.6	0.1	0.0	11.8	13.3	1.1	72.8	1.8	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	3.4	5.9	24.4	5.8	1.2	7.3	22.7	7.1	12.5	5.6	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.2	52.2	44.7	142.6	38.4	27.5	65.8	51.8	19.0	120.8	15.5	17.0
LnGrp LOS	E	D	D	F	D	C	E	D	B	F	B	B
Approach Vol, veh/h		222			503			1392			1106	
Approach Delay, s/veh		50.4			107.3			47.5			32.7	
Approach LOS		D			F			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	15.9	17.0	45.0	8.2	32.7	15.4	46.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	28.0	12.0	40.0	15.0	33.0	15.0	37.0				
Max Q Clear Time (g_c+I1), s	22.0	10.7	14.0	37.3	4.5	9.1	10.5	13.2				
Green Ext Time (p_c), s	0.0	0.1	0.0	1.0	0.0	0.2	0.0	2.0				
Intersection Summary												
HCM 6th Ctrl Delay			51.9									
HCM 6th LOS			D									

Timings
1: SE 192nd & SE 15th St

Mitigation

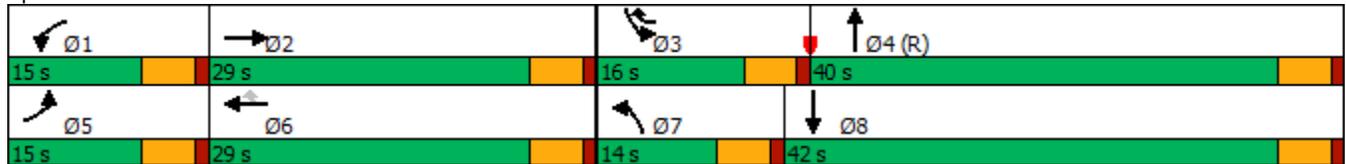


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↕	↖	↕
Traffic Volume (vph)	116	91	40	82	242	78	1310	115	1475
Future Volume (vph)	116	91	40	82	242	78	1310	115	1475
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases					6				
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	15.0	29.0	15.0	29.0	16.0	14.0	40.0	16.0	42.0
Total Split (%)	15.0%	29.0%	15.0%	29.0%	16.0%	14.0%	40.0%	16.0%	42.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	9.0	15.8	6.2	11.1	19.8	7.6	52.2	9.7	56.3
Actuated g/C Ratio	0.09	0.16	0.06	0.11	0.20	0.08	0.52	0.10	0.56
v/c Ratio	0.79	0.62	0.38	0.42	0.67	0.60	0.77	0.69	0.86
Control Delay	78.1	36.9	54.0	45.4	30.5	54.0	25.1	63.7	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	36.9	54.0	45.4	30.5	54.0	25.1	63.7	28.3
LOS	E	D	D	D	C	D	C	E	C
Approach Delay		52.7		36.4			26.7		30.6
Approach LOS		D		D			C		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 31.5
 Intersection Capacity Utilization 81.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 1: SE 192nd & SE 15th St



HCM 6th Signalized Intersection Summary

Mitigation

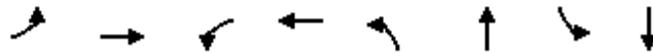
1: SE 192nd & SE 15th St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	91	94	40	82	242	78	1310	32	115	1475	133
Future Volume (veh/h)	116	91	94	40	82	242	78	1310	32	115	1475	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1885	1900	1900	1856	1900	1900	1870	1900	1900	1870	1870
Adj Flow Rate, veh/h	122	96	56	42	86	192	82	1379	32	121	1553	135
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, %	5	1	0	0	3	0	0	2	0	0	2	2
Cap, veh/h	150	207	121	62	248	344	116	1768	41	149	1708	147
Arrive On Green	0.09	0.19	0.19	0.03	0.13	0.13	0.09	0.66	0.66	0.11	0.69	0.69
Sat Flow, veh/h	1739	1116	651	1810	1856	1582	1810	3550	82	1810	3309	285
Grp Volume(v), veh/h	122	0	152	42	86	192	82	690	721	121	828	860
Grp Sat Flow(s),veh/h/ln	1739	0	1767	1810	1856	1582	1810	1777	1855	1810	1777	1818
Q Serve(g_s), s	6.9	0.0	7.7	2.3	4.2	10.8	4.4	27.1	27.2	6.5	38.4	40.0
Cycle Q Clear(g_c), s	6.9	0.0	7.7	2.3	4.2	10.8	4.4	27.1	27.2	6.5	38.4	40.0
Prop In Lane	1.00		0.37	1.00		1.00	1.00		0.04	1.00		0.16
Lane Grp Cap(c), veh/h	150	0	327	62	248	344	116	885	924	149	917	938
V/C Ratio(X)	0.82	0.00	0.46	0.67	0.35	0.56	0.71	0.78	0.78	0.81	0.90	0.92
Avail Cap(c_a), veh/h	174	0	424	181	445	512	163	885	924	199	917	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.30	0.30	0.30	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	0.0	36.3	47.7	39.4	35.0	44.8	13.1	13.1	43.8	13.6	13.8
Incr Delay (d2), s/veh	19.5	0.0	0.4	4.6	0.3	0.5	1.0	2.1	2.0	12.5	13.8	15.0
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(95%),veh/ln	6.7	0.0	5.8	2.0	3.5	7.3	3.2	10.0	10.4	5.9	18.7	19.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.4	0.0	36.7	52.4	39.7	35.5	45.8	15.2	15.1	56.3	27.4	28.9
LnGrp LOS	E	A	D	D	D	D	D	B	B	E	C	C
Approach Vol, veh/h		274			320			1493			1809	
Approach Delay, s/veh		49.0			38.8			16.8			30.0	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	23.5	13.2	54.8	13.6	18.4	11.4	56.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	24.0	11.0	35.0	10.0	24.0	9.0	37.0				
Max Q Clear Time (g_c+I1), s	4.3	9.7	8.5	29.2	8.9	12.8	6.4	42.0				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.9	0.0	0.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				27.0								
HCM 6th LOS				C								

Timings

Mitigation

2: SE 192nd Ave & SE 20th St

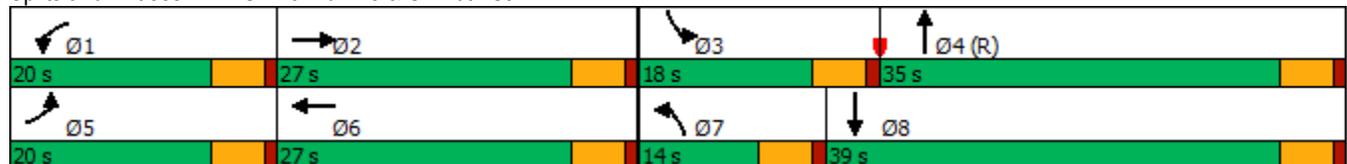


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↗	↖↗	↗	↖	↖↗	↖	↖↗
Traffic Volume (vph)	233	183	266	265	144	892	151	1089
Future Volume (vph)	233	183	266	265	144	892	151	1089
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	20.0	27.0	20.0	27.0	14.0	35.0	18.0	39.0
Total Split (%)	20.0%	27.0%	20.0%	27.0%	14.0%	35.0%	18.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	11.3	23.6	12.1	24.4	9.3	32.6	11.7	35.0
Actuated g/C Ratio	0.11	0.24	0.12	0.24	0.09	0.33	0.12	0.35
v/c Ratio	0.62	0.66	0.66	0.88	0.90	0.97	0.75	1.13
Control Delay	49.0	39.8	49.4	56.7	89.3	35.9	62.2	99.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	39.8	49.4	56.7	89.3	35.9	62.2	99.4
LOS	D	D	D	E	F	D	E	F
Approach Delay		44.0		53.7		42.2		95.6
Approach LOS		D		D		D		F

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 93 (93%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 64.8
 Intersection Capacity Utilization 90.1%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service E

Splits and Phases: 2: SE 192nd Ave & SE 20th St



HCM 6th Signalized Intersection Summary
2: SE 192nd Ave & SE 20th St

Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	183	94	266	265	118	144	892	179	151	1089	237
Future Volume (veh/h)	233	183	94	266	265	118	144	892	179	151	1089	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1870	1900	1885	1900	1885	1870	1885
Adj Flow Rate, veh/h	243	191	79	277	276	106	150	929	168	157	1134	227
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	1	0	0	2	0	1	0	1	2	1
Cap, veh/h	316	268	111	350	286	110	163	1165	211	189	1181	235
Arrive On Green	0.09	0.21	0.21	0.10	0.22	0.22	0.09	0.38	0.38	0.14	0.53	0.53
Sat Flow, veh/h	3510	1276	528	3510	1301	500	1810	3029	548	1795	2953	588
Grp Volume(v), veh/h	243	0	270	277	0	382	150	549	548	157	680	681
Grp Sat Flow(s),veh/h/ln	1755	0	1803	1755	0	1801	1810	1791	1786	1795	1777	1764
Q Serve(g_s), s	6.8	0.0	13.9	7.7	0.0	21.0	8.2	27.2	27.2	8.5	36.5	37.2
Cycle Q Clear(g_c), s	6.8	0.0	13.9	7.7	0.0	21.0	8.2	27.2	27.2	8.5	36.5	37.2
Prop In Lane	1.00		0.29	1.00		0.28	1.00		0.31	1.00		0.33
Lane Grp Cap(c), veh/h	316	0	379	350	0	396	163	689	687	189	711	705
V/C Ratio(X)	0.77	0.00	0.71	0.79	0.00	0.96	0.92	0.80	0.80	0.83	0.96	0.97
Avail Cap(c_a), veh/h	527	0	397	527	0	396	163	689	687	233	711	705
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.42	0.42	0.42
Uniform Delay (d), s/veh	44.5	0.0	36.7	44.0	0.0	38.6	45.1	27.3	27.3	42.1	22.6	22.7
Incr Delay (d2), s/veh	1.5	0.0	4.7	2.5	0.0	35.6	47.3	9.3	9.4	7.0	13.8	15.2
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(95%),veh/ln	5.3	0.0	10.5	6.1	0.0	18.7	9.6	18.5	18.5	6.0	18.6	19.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	0.0	41.3	46.5	0.0	74.2	92.4	36.7	36.7	49.1	36.3	37.9
LnGrp LOS	D	A	D	D	A	E	F	D	D	D	D	D
Approach Vol, veh/h		513			659			1247			1518	
Approach Delay, s/veh		43.5			62.6			43.4			38.4	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	26.0	15.6	43.4	14.0	27.0	14.0	45.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	22.0	13.0	30.0	15.0	22.0	9.0	34.0				
Max Q Clear Time (g_c+I1), s	9.7	15.9	10.5	29.2	8.8	23.0	10.2	39.2				
Green Ext Time (p_c), s	0.2	0.5	0.0	0.4	0.2	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			44.7									
HCM 6th LOS			D									

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↶↷		↵	↶↷
Traffic Vol, veh/h	3	4	1225	3	10	1316
Future Vol, veh/h	3	4	1225	3	10	1316
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	3	4	1289	3	11	1385

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2008	648	0	0	1294
Stage 1	1293	-	-	-	-
Stage 2	715	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	53	418	-	-	542
Stage 1	225	-	-	-	-
Stage 2	451	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	52	417	-	-	541
Mov Cap-2 Maneuver	52	-	-	-	-
Stage 1	225	-	-	-	-
Stage 2	442	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	41.6	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	52	417	541
HCM Lane V/C Ratio	-	-	0.061	0.01	0.019
HCM Control Delay (s)	-	-	78.7	13.7	11.8
HCM Lane LOS	-	-	F	B	B
HCM 95th %tile Q(veh)	-	-	0.2	0	0.1

Timings
5: SE 192nd Ave & SE 34th St

Mitigation

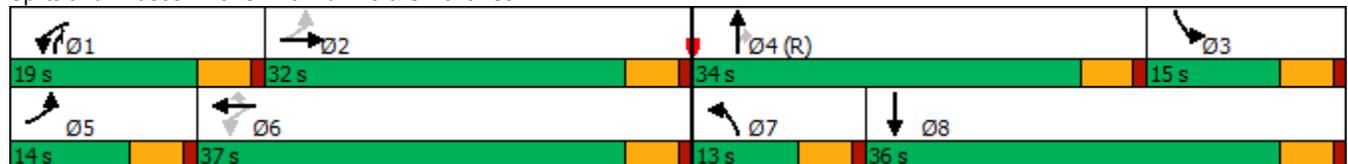


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	253	245	355	216	120	177	955	204	212	932
Future Volume (vph)	253	245	355	216	120	177	955	204	212	932
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6		7	4	1	3	8
Permitted Phases	2		6		6			4		
Detector Phase	5	2	1	6	6	7	4	1	3	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	14.0	32.0	19.0	37.0	37.0	13.0	34.0	19.0	15.0	36.0
Total Split (%)	14.0%	32.0%	19.0%	37.0%	37.0%	13.0%	34.0%	19.0%	15.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	33.6	24.6	43.6	29.6	29.6	10.4	31.4	45.4	10.0	31.0
Actuated g/C Ratio	0.34	0.25	0.44	0.30	0.30	0.10	0.31	0.45	0.10	0.31
v/c Ratio	0.63	0.92	1.13	0.40	0.21	0.98	0.89	0.25	0.65	1.13
Control Delay	28.3	61.7	117.2	29.9	1.8	109.6	45.1	2.1	40.0	91.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	61.7	117.2	29.9	1.8	109.6	45.1	2.1	40.0	91.7
LOS	C	E	F	C	A	F	D	A	D	F
Approach Delay		48.7		69.9			47.0			83.6
Approach LOS		D		E			D			F

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 36 (36%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 63.5
 Intersection Capacity Utilization 101.5%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service G

Splits and Phases: 5: SE 192nd Ave & SE 34th St



HCM 6th Signalized Intersection Summary

5: SE 192nd Ave & SE 34th St

Mitigation



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	245	152	355	216	120	177	955	204	212	932	215
Future Volume (veh/h)	253	245	152	355	216	120	177	955	204	212	932	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1773	1847	1817	2003	2003	2018	2018	1988	2003	1847	1832	1743
Adj Flow Rate, veh/h	266	258	136	374	227	30	186	1005	87	223	981	205
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, %	5	0	2	1	1	0	0	2	1	0	1	7
Cap, veh/h	444	280	147	365	595	507	154	1095	726	419	951	198
Arrive On Green	0.09	0.25	0.25	0.14	0.30	0.30	0.08	0.29	0.29	0.12	0.33	0.33
Sat Flow, veh/h	1688	1131	596	1908	2003	1705	1922	3777	1683	3413	2857	596
Grp Volume(v), veh/h	266	0	394	374	227	30	186	1005	87	223	597	589
Grp Sat Flow(s),veh/h/ln	1688	0	1728	1908	2003	1705	1922	1889	1683	1706	1741	1713
Q Serve(g_s), s	9.0	0.0	22.2	14.0	9.0	0.9	8.0	25.7	1.6	6.1	33.3	33.3
Cycle Q Clear(g_c), s	9.0	0.0	22.2	14.0	9.0	0.9	8.0	25.7	1.6	6.1	33.3	33.3
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	444	0	427	365	595	507	154	1095	726	419	579	570
V/C Ratio(X)	0.60	0.00	0.92	1.02	0.38	0.06	1.21	0.92	0.12	0.53	1.03	1.03
Avail Cap(c_a), veh/h	444	0	467	365	641	546	154	1095	726	419	579	570
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)	0.78	0.00	0.78	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	0.0	36.7	25.3	27.9	11.7	46.0	34.3	6.2	41.2	33.4	33.4
Incr Delay (d2), s/veh	1.2	0.0	18.4	53.4	0.1	0.0	139.9	13.4	0.3	0.7	45.3	46.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	0.0	16.0	17.0	7.5	0.9	15.8	19.2	1.4	4.6	28.5	28.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	0.0	55.1	78.6	28.0	11.7	185.9	47.8	6.6	41.8	78.7	79.9
LnGrp LOS	C	A	E	F	C	B	F	D	A	D	F	F
Approach Vol, veh/h		660			631			1278			1409	
Approach Delay, s/veh		44.4			57.2			65.1			73.3	
Approach LOS		D			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	29.7	17.3	34.0	14.0	34.7	13.0	38.3				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	27.0	10.0	29.0	9.0	32.0	8.0	31.0				
Max Q Clear Time (g_c+I1), s	16.0	24.2	8.1	27.7	11.0	11.0	10.0	35.3				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.5	0.0	0.4	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	63.3
HCM 6th LOS	E

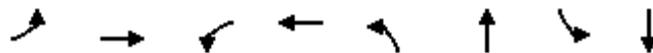
Notes

User approved pedestrian interval to be less than phase max green.

Timings

Mitigation

6: SE Hiddenbrook Dr & SE 34th St

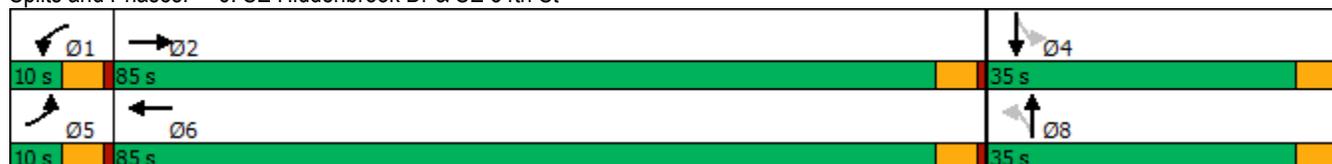


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	69	308	37	366	71	15	309	27
Future Volume (vph)	69	308	37	366	71	15	309	27
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	30.0	10.0	30.0	32.0	32.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	5.1	37.4	5.1	32.9	30.4	30.4	30.4	30.4
Actuated g/C Ratio	0.06	0.45	0.06	0.39	0.36	0.36	0.36	0.36
v/c Ratio	0.67	0.51	0.37	0.93	0.21	0.08	0.69	0.31
Control Delay	72.0	18.7	51.8	42.0	23.7	11.4	34.3	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.0	18.7	51.8	42.0	23.7	11.4	34.3	6.5
LOS	E	B	D	D	C	B	C	A
Approach Delay		26.7		42.6		18.8		23.0
Approach LOS		C		D		B		C

Intersection Summary

Cycle Length: 130	
Actuated Cycle Length: 83.5	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 31.0	Intersection LOS: C
Intersection Capacity Utilization 78.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Mitigation



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	308	80	37	366	249	71	15	32	309	27	184
Future Volume (veh/h)	69	308	80	37	366	249	71	15	32	309	27	184
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	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1841	1832	1847	1876	1817	1876	1832	1841	1900	1900
Adj Flow Rate, veh/h	73	328	73	39	389	234	76	16	11	329	29	62
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, %	0	2	4	3	2	0	4	0	3	4	0	0
Cap, veh/h	109	607	135	70	420	253	437	297	204	500	154	330
Arrive On Green	0.06	0.41	0.41	0.04	0.39	0.39	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1810	1479	329	1745	1077	648	1265	1034	711	1357	538	1150
Grp Volume(v), veh/h	73	0	401	39	0	623	76	0	27	329	0	91
Grp Sat Flow(s),veh/h/ln	1810	0	1808	1745	0	1724	1265	0	1746	1357	0	1688
Q Serve(g_s), s	2.3	0.0	9.6	1.3	0.0	19.7	2.8	0.0	0.6	13.2	0.0	2.3
Cycle Q Clear(g_c), s	2.3	0.0	9.6	1.3	0.0	19.7	5.1	0.0	0.6	13.9	0.0	2.3
Prop In Lane	1.00		0.18	1.00		0.38	1.00		0.41	1.00		0.68
Lane Grp Cap(c), veh/h	109	0	742	70	0	673	437	0	501	500	0	484
V/C Ratio(X)	0.67	0.00	0.54	0.55	0.00	0.93	0.17	0.00	0.05	0.66	0.00	0.19
Avail Cap(c_a), veh/h	158	0	2533	153	0	2415	739	0	917	824	0	887
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	12.8	26.9	0.0	16.6	17.3	0.0	14.8	19.8	0.0	15.4
Incr Delay (d2), s/veh	2.7	0.0	0.2	2.5	0.0	2.5	0.1	0.0	0.0	0.6	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	0.0	5.6	0.9	0.0	10.9	1.4	0.0	0.4	7.0	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	13.0	29.4	0.0	19.1	17.3	0.0	14.8	20.3	0.0	15.4
LnGrp LOS	C	A	B	C	A	B	B	A	B	C	A	B
Approach Vol, veh/h		474			662			103			420	
Approach Delay, s/veh		15.5			19.7			16.7			19.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	28.4		21.4	8.4	27.3		21.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	3.3	11.6		15.9	4.3	21.7		7.1				
Green Ext Time (p_c), s	0.0	0.3		0.1	0.0	0.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				18.2								
HCM 6th LOS				B								

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	450	32	16	606	18	7
Future Vol, veh/h	450	32	16	606	18	7
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	95	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	495	35	18	666	20	8

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	530	0	1215
Stage 1	-	-	-	-	513
Stage 2	-	-	-	-	702
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1048	-	202
Stage 1	-	-	-	-	605
Stage 2	-	-	-	-	495
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1048	-	199
Mov Cap-2 Maneuver	-	-	-	-	199
Stage 1	-	-	-	-	605
Stage 2	-	-	-	-	487

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	21.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	243	-	-	1048	-
HCM Lane V/C Ratio	0.113	-	-	0.017	-
HCM Control Delay (s)	21.7	-	-	8.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Timings
8: SE 176th Ave & SE 34th St

Mitigation

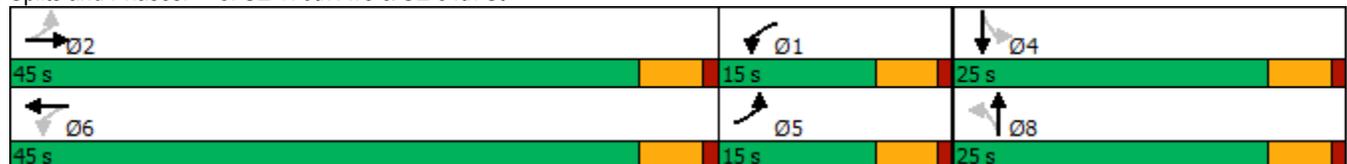


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	→	↙	←	↖	→	↙	↘
Traffic Volume (vph)	197	383	16	488	10	9	94	19
Future Volume (vph)	197	383	16	488	10	9	94	19
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	37.2	35.8	30.0	24.9	10.5	10.5	10.5	10.5
Actuated g/C Ratio	0.62	0.60	0.50	0.42	0.18	0.18	0.18	0.18
v/c Ratio	0.53	0.39	0.03	0.86	0.05	0.05	0.41	0.41
Control Delay	20.5	10.9	8.6	28.7	23.9	19.7	29.4	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	10.9	8.6	28.7	23.9	19.7	29.4	10.0
LOS	C	B	A	C	C	B	C	B
Approach Delay		14.1		28.2		21.5		17.4
Approach LOS		B		C		C		B

Intersection Summary

Cycle Length: 85
 Actuated Cycle Length: 59.7
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 20.6
 Intersection LOS: C
 Intersection Capacity Utilization 68.6%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary

8: SE 176th Ave & SE 34th St

Mitigation



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	383	13	16	488	120	10	9	5	94	19	135
Future Volume (veh/h)	197	383	13	16	488	120	10	9	5	94	19	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1900	1885	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	214	416	13	17	530	117	11	10	1	102	21	13
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, %	1	2	0	0	1	1	0	0	0	1	0	0
Cap, veh/h	396	639	20	652	637	141	301	189	19	320	121	75
Arrive On Green	0.11	0.35	0.35	0.18	0.43	0.43	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1795	1804	56	1810	1496	330	1391	1699	170	1409	1085	672
Grp Volume(v), veh/h	214	0	429	17	0	647	11	0	11	102	0	34
Grp Sat Flow(s),veh/h/ln	1795	0	1860	1810	0	1826	1391	0	1869	1409	0	1757
Q Serve(g_s), s	0.0	0.0	8.2	0.0	0.0	13.3	0.3	0.0	0.2	3.0	0.0	0.7
Cycle Q Clear(g_c), s	0.0	0.0	8.2	0.0	0.0	13.3	1.0	0.0	0.2	3.2	0.0	0.7
Prop In Lane	1.00		0.03	1.00		0.18	1.00		0.09	1.00		0.38
Lane Grp Cap(c), veh/h	396	0	659	652	0	777	301	0	208	320	0	196
V/C Ratio(X)	0.54	0.00	0.65	0.03	0.00	0.83	0.04	0.00	0.05	0.32	0.00	0.17
Avail Cap(c_a), veh/h	625	0	1757	753	0	1724	802	0	882	828	0	830
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	11.5	9.4	0.0	10.8	17.5	0.0	16.8	18.2	0.0	17.0
Incr Delay (d2), s/veh	0.4	0.0	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.2	0.0	0.2
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(95%),veh/ln	2.8	0.0	4.4	0.1	0.0	6.5	0.2	0.0	0.2	1.6	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.1	0.0	11.9	9.4	0.0	11.7	17.5	0.0	16.9	18.4	0.0	17.2
LnGrp LOS	B	A	B	A	A	B	B	A	B	B	A	B
Approach Vol, veh/h		643			664			22				136
Approach Delay, s/veh		13.6			11.7			17.2				18.1
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	20.0		9.7	9.6	23.0		9.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	10.2		5.2	2.0	15.3		3.0				
Green Ext Time (p_c), s	0.0	1.6		0.2	0.2	2.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

MOVEMENT SUMMARY

Site: 101 [SE 176 Avenue/ SE 29th Street Phase 2 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Phase 2
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: SE 176th Avenue															
3	L2	All MCs	16	15.0	16	15.0	0.314	7.4	LOS A	1.7	43.3	0.41	0.22	0.41	32.3
8	T1	All MCs	268	0.0	268	0.0	0.314	6.0	LOS A	1.7	43.3	0.41	0.22	0.41	33.4
18	R2	All MCs	74	0.0	74	0.0	0.314	6.0	LOS A	1.7	43.3	0.41	0.22	0.41	33.1
Approach			358	0.7	358	0.7	0.314	6.1	LOS A	1.7	43.3	0.41	0.22	0.41	33.3
East: SE 29th Street															
1	L2	All MCs	152	0.0	152	0.0	0.438	8.4	LOS A	2.6	64.2	0.59	0.40	0.59	31.0
6	T1	All MCs	247	0.0	247	0.0	0.438	8.4	LOS A	2.6	64.2	0.59	0.40	0.59	31.6
16	R2	All MCs	41	0.0	41	0.0	0.438	8.4	LOS A	2.6	64.2	0.59	0.40	0.59	31.3
Approach			440	0.0	440	0.0	0.438	8.4	LOS A	2.6	64.2	0.59	0.40	0.59	31.3
North: SE 176th Avenue															
7	L2	All MCs	44	0.0	44	0.0	0.249	6.5	LOS A	1.2	29.2	0.55	0.41	0.55	32.1
4	T1	All MCs	67	1.0	67	1.0	0.249	6.6	LOS A	1.2	29.2	0.55	0.41	0.55	32.7
14	R2	All MCs	113	0.0	113	0.0	0.249	6.5	LOS A	1.2	29.2	0.55	0.41	0.55	32.4
Approach			224	0.3	224	0.3	0.249	6.6	LOS A	1.2	29.2	0.55	0.41	0.55	32.4
West: SE 29th Street															
5	L2	All MCs	22	7.0	22	7.0	0.159	5.4	LOS A	0.7	18.1	0.42	0.27	0.42	32.9
2	T1	All MCs	111	0.0	111	0.0	0.159	4.8	LOS A	0.7	18.1	0.42	0.27	0.42	33.8
12	R2	All MCs	33	0.0	33	0.0	0.159	4.8	LOS A	0.7	18.1	0.42	0.27	0.42	33.5
Approach			166	0.9	166	0.9	0.159	4.9	LOS A	0.7	18.1	0.42	0.27	0.42	33.6
All Vehicles			1187	0.4	1187	0.4	0.438	6.9	LOS A	2.6	64.2	0.50	0.33	0.50	32.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: H:\27127715 - VIC Implementation\005 - Master Plan Update TIA\Analysis\176th_29th With Project 2038 PM.sip9

Intersection	
Intersection Delay, s/veh	90.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷			↷	
Traffic Vol, veh/h	48	466	71	93	503	18	49	132	76	27	95	28
Future Vol, veh/h	48	466	71	93	503	18	49	132	76	27	95	28
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
Heavy Vehicles, %	3	0	0	1	0	7	0	1	0	4	1	8
Mvmt Flow	52	507	77	101	547	20	53	143	83	29	103	30
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	124.1	106.1	19.5	19.6
HCM LOS	F	F	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	18%
Vol Thru, %	0%	63%	0%	87%	0%	97%	63%
Vol Right, %	0%	37%	0%	13%	0%	3%	19%
Sign Control	Stop						
Traffic Vol by Lane	49	208	48	537	93	521	150
LT Vol	49	0	48	0	93	0	27
Through Vol	0	132	0	466	0	503	95
RT Vol	0	76	0	71	0	18	28
Lane Flow Rate	53	226	52	584	101	566	163
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.133	0.517	0.117	1.199	0.223	1.167	0.409
Departure Headway (Hd)	9.705	8.932	8.467	7.801	8.438	7.877	9.937
Convergence, Y/N	Yes						
Cap	372	407	426	473	429	464	365
Service Time	7.405	6.632	6.167	5.501	6.138	5.577	7.937
HCM Lane V/C Ratio	0.142	0.555	0.122	1.235	0.235	1.22	0.447
HCM Control Delay	13.9	20.8	12.3	134.1	13.5	122.6	19.6
HCM Lane LOS	B	C	B	F	B	F	C
HCM 95th-tile Q	0.5	2.9	0.4	21.2	0.8	19.7	1.9

Timings
11: SE 164th Ave & SE 29th St

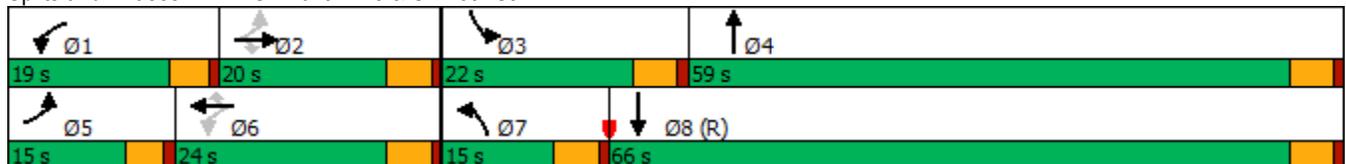
Mitigation

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	89	49	51	240	36	143	42	1434	131	1306
Future Volume (vph)	89	49	51	240	36	143	42	1434	131	1306
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2		1	6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	5	2	2	1	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.5	39.0	39.0	9.5	38.0	38.0	10.0	32.0	19.5	32.0
Total Split (s)	15.0	20.0	20.0	19.0	24.0	24.0	15.0	59.0	22.0	66.0
Total Split (%)	12.5%	16.7%	16.7%	15.8%	20.0%	20.0%	12.5%	49.2%	18.3%	55.0%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	4.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	18.9	11.0	11.0	28.7	14.5	14.5	6.3	64.6	11.8	72.1
Actuated g/C Ratio	0.16	0.09	0.09	0.24	0.12	0.12	0.05	0.54	0.10	0.60
v/c Ratio	0.37	0.30	0.19	0.76	0.17	0.47	0.49	0.57	0.78	0.46
Control Delay	40.7	55.0	1.5	55.9	47.9	12.2	51.3	34.3	80.8	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.7	55.0	1.5	55.9	47.9	12.2	51.3	34.3	80.8	14.9
LOS	D	D	A	E	D	B	D	C	F	B
Approach Delay		33.8			40.3			34.8		20.8
Approach LOS		C			D			C		C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 112 (93%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 29.6
 Intersection Capacity Utilization 68.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Mitigation



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	49	51	240	36	143	42	1434	32	131	1306	46
Future Volume (veh/h)	89	49	51	240	36	143	42	1434	32	131	1306	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1870	1870	1826	1870	1752	1885	1885	1900
Adj Flow Rate, veh/h	94	52	10	253	38	26	44	1509	32	138	1375	46
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, %	0	0	0	2	2	2	5	2	10	1	1	0
Cap, veh/h	287	163	138	356	273	230	56	2315	49	164	2605	87
Arrive On Green	0.06	0.09	0.09	0.12	0.15	0.15	0.03	0.45	0.45	0.09	0.51	0.51
Sat Flow, veh/h	1810	1900	1599	1781	1870	1579	1739	5146	109	1795	5114	171
Grp Volume(v), veh/h	94	52	10	253	38	26	44	998	543	138	922	499
Grp Sat Flow(s),veh/h/ln	1810	1900	1599	1781	1870	1579	1739	1702	1851	1795	1716	1854
Q Serve(g_s), s	5.6	3.1	0.7	14.5	2.1	1.7	3.0	27.4	27.4	9.1	21.7	21.7
Cycle Q Clear(g_c), s	5.6	3.1	0.7	14.5	2.1	1.7	3.0	27.4	27.4	9.1	21.7	21.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		0.09
Lane Grp Cap(c), veh/h	287	163	138	356	273	230	56	1532	833	164	1748	944
V/C Ratio(X)	0.33	0.32	0.07	0.71	0.14	0.11	0.79	0.65	0.65	0.84	0.53	0.53
Avail Cap(c_a), veh/h	334	238	200	356	296	250	145	1532	833	254	1748	944
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	51.5	50.4	42.6	44.7	44.5	57.7	25.7	25.7	53.6	19.8	19.8
Incr Delay (d2), s/veh	0.7	0.4	0.1	6.5	0.1	0.1	6.3	1.5	2.8	8.2	1.1	2.1
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(95%),veh/ln	4.7	2.7	0.5	12.0	1.8	1.2	2.5	15.5	17.0	7.8	13.3	14.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	51.9	50.5	49.1	44.8	44.6	64.0	27.2	28.5	61.8	20.9	21.9
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	C	C
Approach Vol, veh/h		156			317			1585			1559	
Approach Delay, s/veh		48.7			48.2			28.7			24.8	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	15.3	16.0	59.0	11.8	22.5	8.9	66.1				
Change Period (Y+Rc), s	4.5	5.0	5.0	5.0	4.5	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.5	15.0	17.0	54.0	10.5	19.0	10.0	61.0				
Max Q Clear Time (g_c+I1), s	16.5	5.1	11.1	29.4	7.6	4.1	5.0	23.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.7	0.0	0.0	0.0	1.6				

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Timings
12: SE 164th Ave & SE 34th St

Mitigation

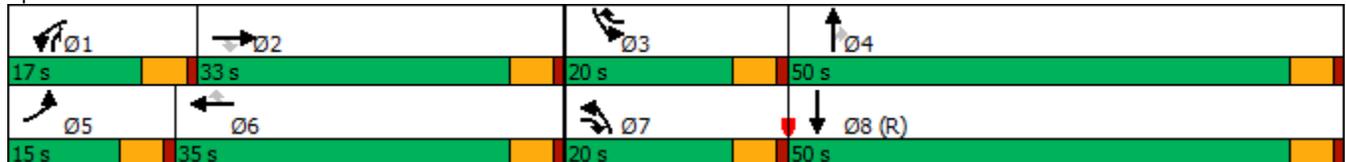
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	49	102	194	279	136	247	192	1216	390	164	1372
Future Volume (vph)	49	102	194	279	136	247	192	1216	390	164	1372
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	15.0	33.0	20.0	17.0	35.0	20.0	20.0	50.0	17.0	20.0	50.0
Total Split (%)	12.5%	27.5%	16.7%	14.2%	29.2%	16.7%	16.7%	41.7%	14.2%	16.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes										
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	7.3	10.7	34.0	12.0	17.5	38.0	18.3	61.8	78.8	15.5	59.0
Actuated g/C Ratio	0.06	0.09	0.28	0.10	0.15	0.32	0.15	0.52	0.66	0.13	0.49
v/c Ratio	0.51	0.66	0.41	1.64	0.54	0.46	0.74	0.70	0.35	0.75	0.59
Control Delay	71.7	71.0	24.2	348.1	56.2	21.9	64.4	26.2	3.7	67.2	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.7	71.0	24.2	348.1	56.2	21.9	64.4	26.2	3.7	67.2	22.3
LOS	E	E	C	F	E	C	E	C	A	E	C
Approach Delay		44.8			166.5			25.4			26.9
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.64
 Intersection Signal Delay: 48.8
 Intersection Capacity Utilization 80.2%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service D

Splits and Phases: 12: SE 164th Ave & SE 34th St

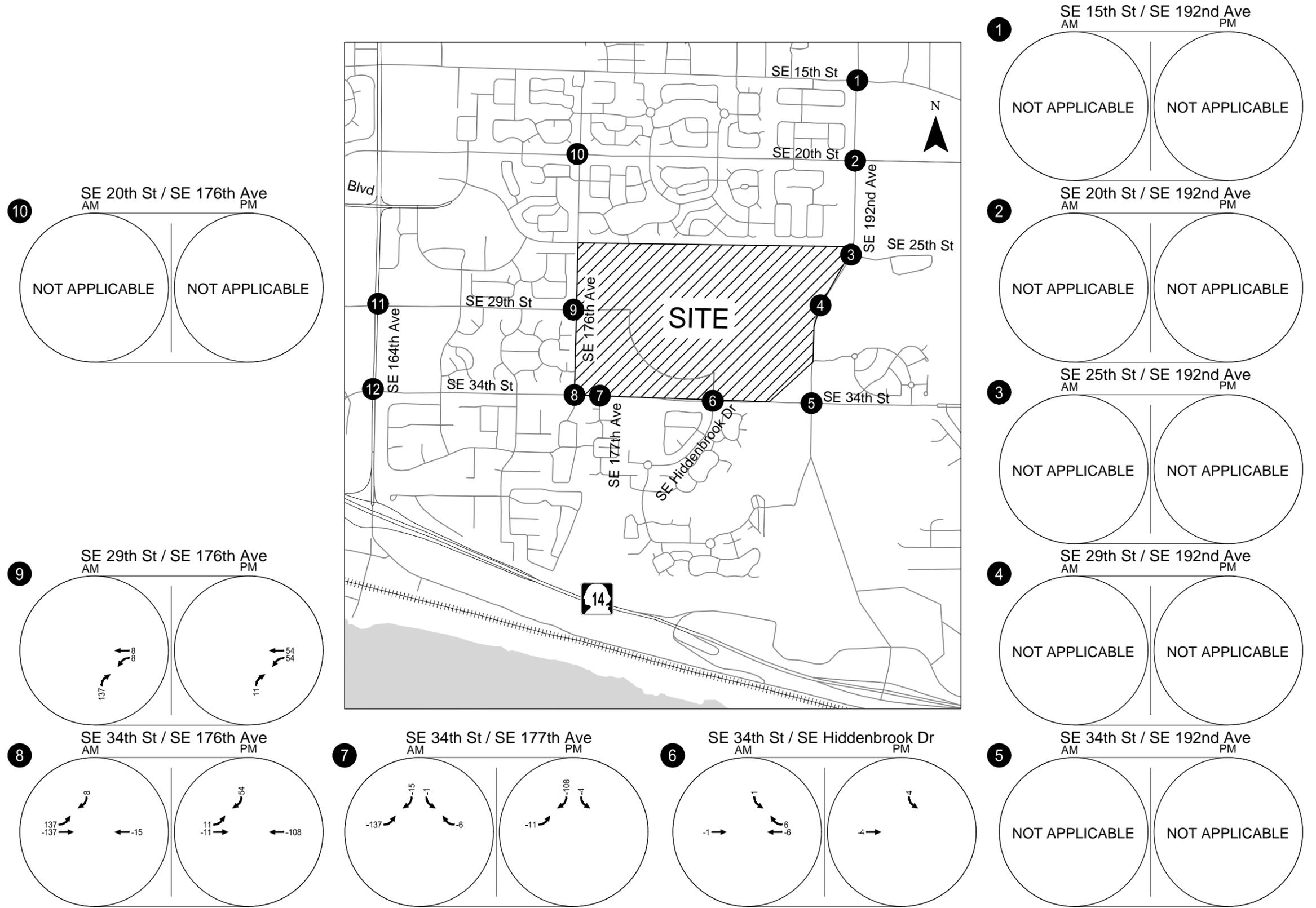


HCM 6th Signalized Intersection Summary
 12: SE 164th Ave & SE 34th St

Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	102	194	279	136	247	192	1216	390	164	1372	49
Future Volume (veh/h)	49	102	194	279	136	247	192	1216	390	164	1372	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1826	1885	1870	1841	1856	1885	1870	1885	1870	1870	1841
Adj Flow Rate, veh/h	51	106	152	291	142	182	200	1267	279	171	1429	48
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	5	1	2	4	3	1	2	1	2	2	4
Cap, veh/h	64	183	359	178	298	430	224	1379	780	199	1902	64
Arrive On Green	0.04	0.10	0.10	0.10	0.16	0.16	0.13	0.39	0.39	0.04	0.12	0.12
Sat Flow, veh/h	1682	1826	1598	1781	1841	1572	1795	3554	1598	1781	5073	170
Grp Volume(v), veh/h	51	106	152	291	142	182	200	1267	279	171	959	518
Grp Sat Flow(s),veh/h/ln	1682	1826	1598	1781	1841	1572	1795	1777	1598	1781	1702	1840
Q Serve(g_s), s	3.6	6.7	9.8	12.0	8.4	11.4	13.2	40.7	13.0	11.5	32.7	32.7
Cycle Q Clear(g_c), s	3.6	6.7	9.8	12.0	8.4	11.4	13.2	40.7	13.0	11.5	32.7	32.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	64	183	359	178	298	430	224	1379	780	199	1277	690
V/C Ratio(X)	0.79	0.58	0.42	1.63	0.48	0.42	0.89	0.92	0.36	0.86	0.75	0.75
Avail Cap(c_a), veh/h	140	426	572	178	460	569	224	1379	780	223	1277	690
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	57.2	51.6	39.8	54.0	45.7	35.8	51.7	34.9	19.0	56.8	47.2	47.2
Incr Delay (d2), s/veh	7.9	1.1	0.3	309.2	0.4	0.2	31.8	11.3	1.3	20.4	3.5	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	5.5	6.9	32.7	6.9	7.7	12.4	26.1	8.5	10.5	21.4	23.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.1	52.7	40.1	363.2	46.1	36.0	83.5	46.2	20.3	77.2	50.7	53.6
LnGrp LOS	E	D	D	F	D	D	F	D	C	E	D	D
Approach Vol, veh/h		309			615			1746			1648	
Approach Delay, s/veh		48.6			193.2			46.3			54.4	
Approach LOS		D			F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	17.0	18.4	51.6	9.6	24.4	20.0	50.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	28.0	15.0	45.0	10.0	30.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	14.0	11.8	13.5	42.7	5.6	13.4	15.2	34.7				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.1	0.0	0.3	0.0	2.9				
Intersection Summary												
HCM 6th Ctrl Delay				70.5								
HCM 6th LOS				E								

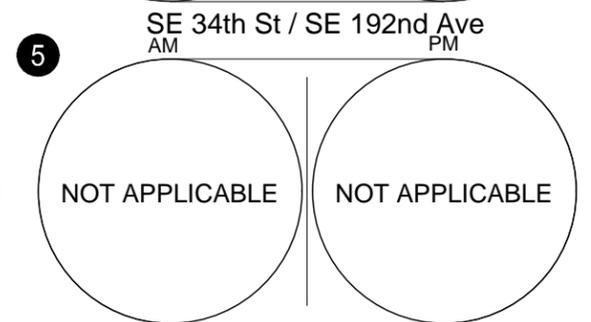
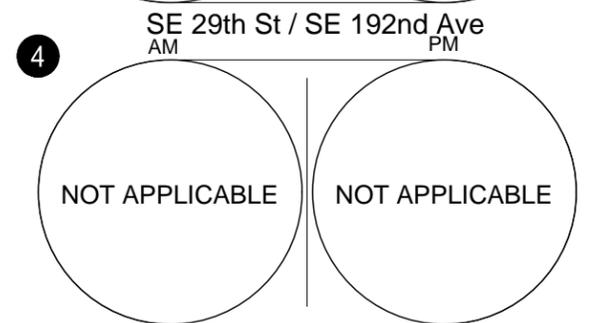
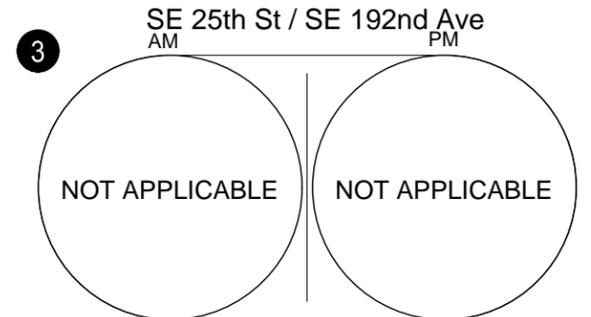
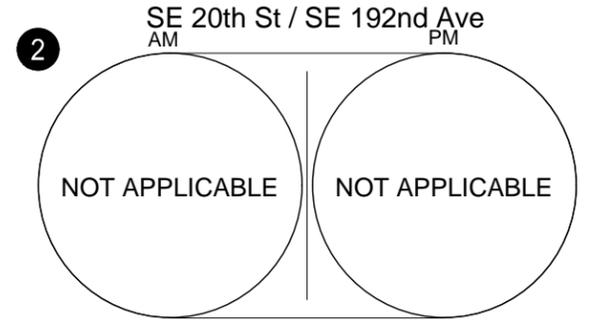
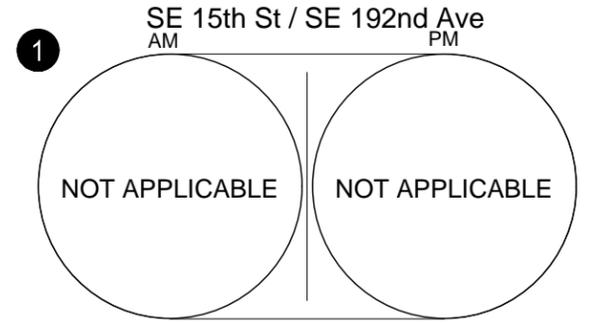
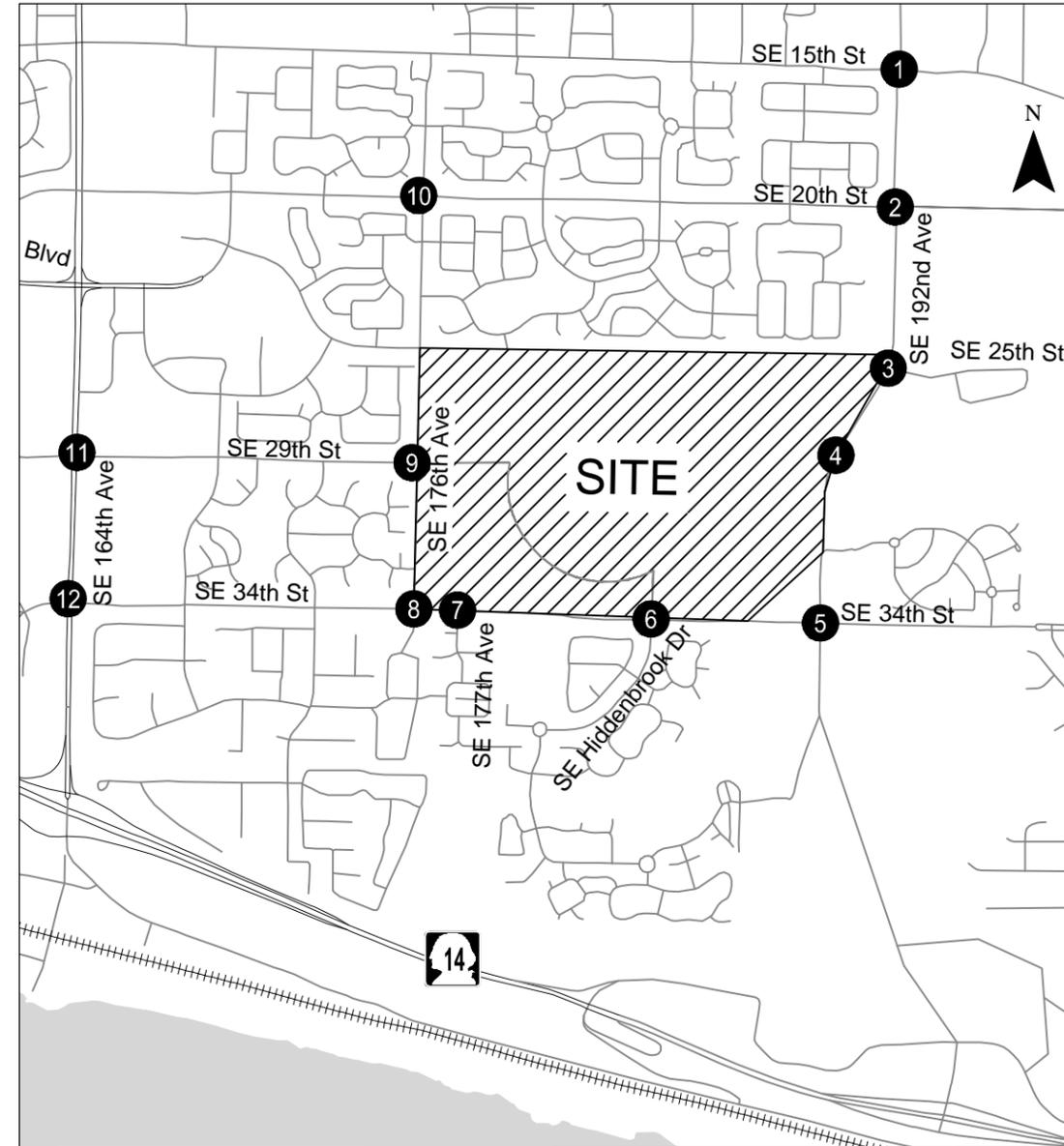
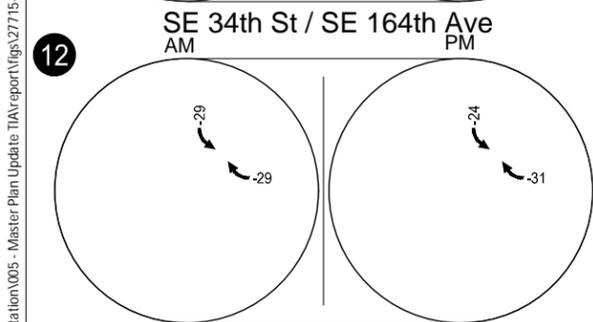
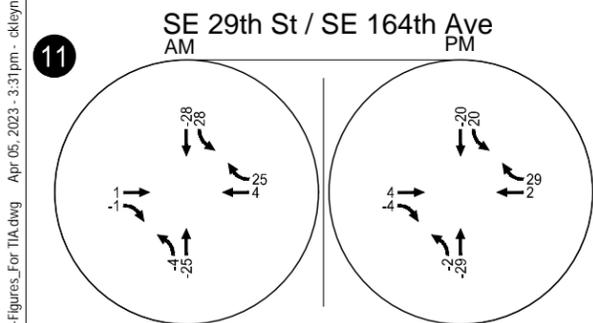
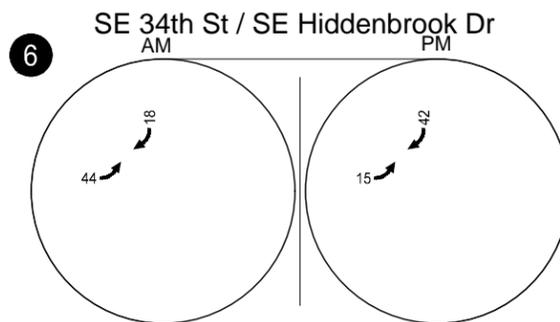
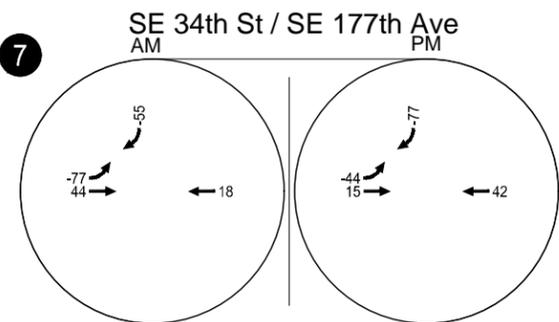
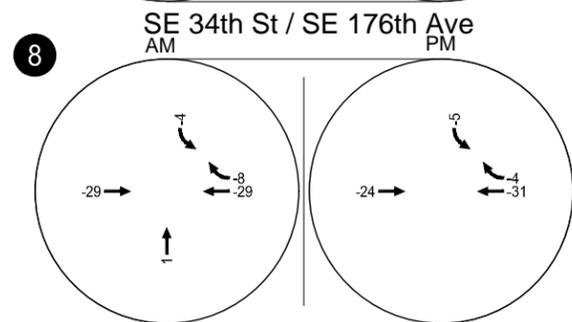
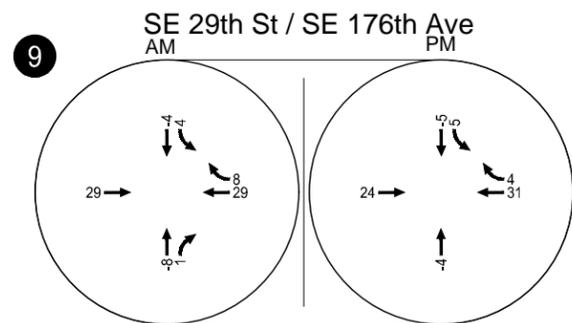
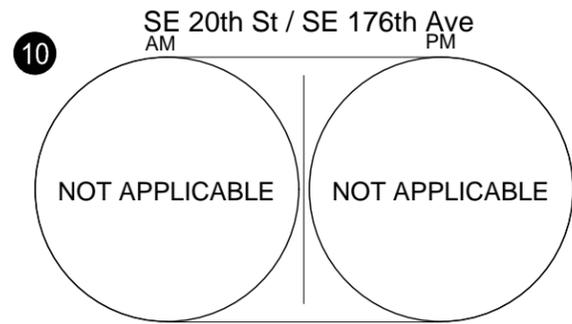
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Redistributed Baseline Traffic Volumes - SE 29th St Western Connection
Weekday AM & PM Peak Hour
Vancouver, WA

Figure
G-1

H:\2715 - VIC Implementation\005 - Master Plan Update\TIA\report\figs\2715-Figures_For_TIA.dwg Apr 05, 2023 - 3:31pm - ckeyhans Layout Tab: Fig G2_Redistributed Ph1 Assignment



Redistributed Phase 1 Trips - SE 29th St Western Connection
Weekday AM & PM Peak Hour
Vancouver, WA

Figure
G-2

Appendix H 2038 With-Project Phase 3
Buildout Operations
Worksheets & Re-routed trips

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions

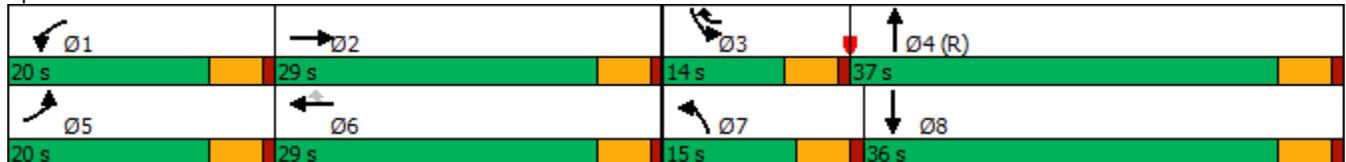


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↕	↖	↕
Traffic Volume (vph)	156	45	29	64	158	61	986	89	888
Future Volume (vph)	156	45	29	64	158	61	986	89	888
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases	6								
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	20.0	29.0	20.0	29.0	14.0	15.0	37.0	14.0	36.0
Total Split (%)	20.0%	29.0%	20.0%	29.0%	14.0%	15.0%	37.0%	14.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	12.4	18.7	5.9	10.2	22.0	7.4	50.6	8.8	54.0
Actuated g/C Ratio	0.12	0.19	0.06	0.10	0.22	0.07	0.51	0.09	0.54
v/c Ratio	0.80	0.30	0.32	0.38	0.43	0.53	0.64	0.69	0.61
Control Delay	67.8	19.2	53.4	45.3	17.8	58.9	23.7	69.1	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	19.2	53.4	45.3	17.8	58.9	23.7	69.1	22.2
LOS	E	B	D	D	B	E	C	E	C
Approach Delay	49.3		28.9		25.7		26.1		
Approach LOS	D		C		C		C		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 9 (9%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 28.4
 Intersection Capacity Utilization 60.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: SE 192nd & SE 15th St



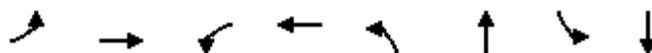
HCM 6th Signalized Intersection Summary
 1: SE 192nd & SE 15th St

Vancouver Innovation Center
 Phase 3 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	45	50	29	64	158	61	986	16	89	888	87
Future Volume (veh/h)	156	45	50	29	64	158	61	986	16	89	888	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1796	1781	1841	1870	1856	1841	1900	1737	1767	1856
Adj Flow Rate, veh/h	173	50	8	32	71	99	68	1096	17	99	987	91
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	0	7	8	4	2	3	4	0	11	9	3
Cap, veh/h	204	262	42	50	144	241	101	1877	29	122	1708	157
Arrive On Green	0.12	0.16	0.16	0.03	0.08	0.08	0.11	1.00	1.00	0.07	0.55	0.55
Sat Flow, veh/h	1767	1598	256	1697	1841	1585	1767	3523	55	1654	3107	286
Grp Volume(v), veh/h	173	0	58	32	71	99	68	544	569	99	533	545
Grp Sat Flow(s),veh/h/ln	1767	0	1854	1697	1841	1585	1767	1749	1829	1654	1678	1715
Q Serve(g_s), s	9.6	0.0	2.7	1.9	3.7	5.6	3.7	0.0	0.0	5.9	21.0	21.0
Cycle Q Clear(g_c), s	9.6	0.0	2.7	1.9	3.7	5.6	3.7	0.0	0.0	5.9	21.0	21.0
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.03	1.00		0.17
Lane Grp Cap(c), veh/h	204	0	304	50	144	241	101	932	975	122	923	943
V/C Ratio(X)	0.85	0.00	0.19	0.64	0.49	0.41	0.68	0.58	0.58	0.81	0.58	0.58
Avail Cap(c_a), veh/h	265	0	445	254	442	498	177	932	975	149	923	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	0.0	36.1	48.0	44.2	38.4	43.4	0.0	0.0	45.6	14.9	14.9
Incr Delay (d2), s/veh	14.7	0.0	0.1	5.0	1.0	0.4	2.2	2.0	1.9	19.5	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.5	0.0	2.2	1.5	3.1	3.9	2.8	0.9	0.9	5.4	12.4	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	0.0	36.2	53.0	45.2	38.8	45.6	2.0	1.9	65.1	17.5	17.4
LnGrp LOS	E	A	D	D	D	D	D	A	A	E	B	B
Approach Vol, veh/h		231			202			1181			1177	
Approach Delay, s/veh		52.6			43.3			4.5			21.5	
Approach LOS		D			D			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	21.4	12.4	58.3	16.5	12.8	10.7	60.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	24.0	9.0	32.0	15.0	24.0	10.0	31.0				
Max Q Clear Time (g_c+I1), s	3.9	4.7	7.9	2.0	11.6	7.6	5.7	23.0				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.2	0.0	0.2	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			18.4									
HCM 6th LOS			B									

Timings
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions

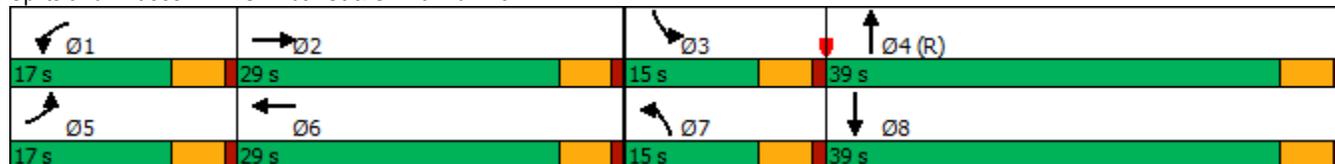


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↖	↗	↖↖	↗	↖	↕↕	↖	↕↕
Traffic Volume (vph)	166	182	166	165	47	780	59	754
Future Volume (vph)	166	182	166	165	47	780	59	754
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	17.0	29.0	17.0	29.0	15.0	39.0	15.0	39.0
Total Split (%)	17.0%	29.0%	17.0%	29.0%	15.0%	39.0%	15.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	9.4	18.7	9.3	18.7	7.4	46.2	7.7	44.6
Actuated g/C Ratio	0.09	0.19	0.09	0.19	0.07	0.46	0.08	0.45
v/c Ratio	0.55	0.81	0.54	0.67	0.39	0.62	0.45	0.60
Control Delay	49.5	53.3	49.3	44.1	64.6	14.2	52.2	29.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	53.3	49.3	44.1	64.6	14.2	52.2	29.7
LOS	D	D	D	D	E	B	D	C
Approach Delay		51.9		46.3		16.6		31.2
Approach LOS		D		D		B		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 31.4
 Intersection Capacity Utilization 67.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 2: SE 20th St & SE 192nd Ave



HCM 6th Signalized Intersection Summary
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↕↔		↔	↕↔	
Traffic Volume (veh/h)	166	182	89	166	165	57	47	780	161	59	754	103
Future Volume (veh/h)	166	182	89	166	165	57	47	780	161	59	754	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1841	1885	1885	1885	1811	1856	1841	1885	1811	1826
Adj Flow Rate, veh/h	175	192	74	175	174	46	49	821	154	62	794	99
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, %	3	0	4	1	1	1	6	3	4	1	6	5
Cap, veh/h	242	220	85	244	241	64	86	1531	287	80	1574	196
Arrive On Green	0.07	0.17	0.17	0.07	0.17	0.17	0.05	0.52	0.52	0.06	0.68	0.68
Sat Flow, veh/h	3428	1306	503	3483	1437	380	1725	2962	556	1795	3078	384
Grp Volume(v), veh/h	175	0	266	175	0	220	49	489	486	62	444	449
Grp Sat Flow(s),veh/h/ln	1714	0	1809	1742	0	1817	1725	1763	1755	1795	1721	1742
Q Serve(g_s), s	5.0	0.0	14.3	4.9	0.0	11.5	2.8	18.5	18.5	3.4	12.6	12.6
Cycle Q Clear(g_c), s	5.0	0.0	14.3	4.9	0.0	11.5	2.8	18.5	18.5	3.4	12.6	12.6
Prop In Lane	1.00		0.28	1.00		0.21	1.00		0.32	1.00		0.22
Lane Grp Cap(c), veh/h	242	0	305	244	0	305	86	911	907	80	880	891
V/C Ratio(X)	0.72	0.00	0.87	0.72	0.00	0.72	0.57	0.54	0.54	0.78	0.50	0.50
Avail Cap(c_a), veh/h	411	0	434	418	0	436	172	911	907	180	880	891
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.77	0.77	0.77
Uniform Delay (d), s/veh	45.5	0.0	40.5	45.5	0.0	39.4	46.4	16.2	16.2	46.5	9.8	9.8
Incr Delay (d2), s/veh	1.5	0.0	9.8	1.5	0.0	1.3	2.2	2.3	2.3	4.6	1.6	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	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.8	0.0	11.3	3.8	0.0	8.8	2.2	11.8	11.8	2.8	6.8	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	50.3	47.0	0.0	40.7	48.6	18.4	18.4	51.1	11.4	11.4
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		441			395			1024				955
Approach Delay, s/veh		49.0			43.5			19.9				14.0
Approach LOS		D			D			B				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	21.9	9.5	56.7	12.1	21.8	10.0	56.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	24.0	10.0	34.0	12.0	24.0	10.0	34.0				
Max Q Clear Time (g_c+I1), s	6.9	16.3	5.4	20.5	7.0	13.5	4.8	14.6				
Green Ext Time (p_c), s	0.1	0.5	0.0	3.3	0.1	0.5	0.0	3.3				

Intersection Summary

HCM 6th Ctrl Delay	25.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↕↶		↵	↕↕
Traffic Vol, veh/h	7	10	910	3	7	983
Future Vol, veh/h	7	10	910	3	7	983
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	20	4	67	0	7
Mvmt Flow	7	11	958	3	7	1035

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1493	482	0	0	962
Stage 1	961	-	-	-	-
Stage 2	532	-	-	-	-
Critical Hdwy	6.8	7.3	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.5	-	-	2.2
Pot Cap-1 Maneuver	116	485	-	-	724
Stage 1	337	-	-	-	-
Stage 2	559	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	115	485	-	-	723
Mov Cap-2 Maneuver	115	-	-	-	-
Stage 1	337	-	-	-	-
Stage 2	553	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.2	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	115	485	723
HCM Lane V/C Ratio	-	-	0.064	0.022	0.01
HCM Control Delay (s)	-	-	38.4	12.6	10
HCM Lane LOS	-	-	E	B	B
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0

Timings
4: SE 192nd Ave & SE 29th St

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions



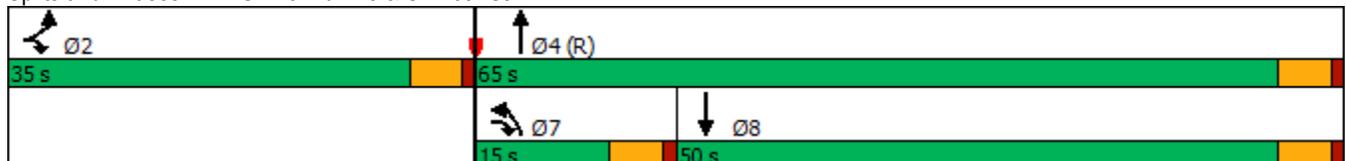
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	147	70	91	766	781
Future Volume (vph)	147	70	91	766	781
Turn Type	Prot	pt+ov	Prot	NA	NA
Protected Phases	2	2 7	7	4	8
Permitted Phases					
Detector Phase	2	2 7	7	4	8
Switch Phase					
Minimum Initial (s)	5.0		5.0	5.0	5.0
Minimum Split (s)	27.0		10.0	26.0	26.0
Total Split (s)	35.0		15.0	65.0	50.0
Total Split (%)	35.0%		15.0%	65.0%	50.0%
Yellow Time (s)	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None		None	C-Max	Max
Act Effct Green (s)	14.8	30.7	10.8	75.2	59.3
Actuated g/C Ratio	0.15	0.31	0.11	0.75	0.59
v/c Ratio	0.62	0.14	0.52	0.31	0.53
Control Delay	49.6	5.3	28.6	11.4	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	5.3	28.6	11.4	23.0
LOS	D	A	C	B	C
Approach Delay	35.3			13.2	23.0
Approach LOS	D			B	C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 85 (85%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 20.3
 Intersection Capacity Utilization 53.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 4: SE 192nd Ave & SE 29th St



HCM 6th Signalized Intersection Summary
4: SE 192nd Ave & SE 29th St

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	147	70	91	766	781	209
Future Volume (veh/h)	147	70	91	766	781	209
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1826	1826	1826	1811	1767
Adj Flow Rate, veh/h	155	20	96	806	822	201
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	5	5	5	6	9
Cap, veh/h	192	279	120	2736	1836	449
Arrive On Green	0.11	0.11	0.14	1.00	0.67	0.67
Sat Flow, veh/h	1725	1547	1739	3561	2831	670
Grp Volume(v), veh/h	155	20	96	806	516	507
Grp Sat Flow(s),veh/h/ln	1725	1547	1739	1735	1721	1690
Q Serve(g_s), s	8.8	1.1	5.4	0.0	14.1	14.1
Cycle Q Clear(g_c), s	8.8	1.1	5.4	0.0	14.1	14.1
Prop In Lane	1.00	1.00	1.00			0.40
Lane Grp Cap(c), veh/h	192	279	120	2736	1153	1132
V/C Ratio(X)	0.81	0.07	0.80	0.29	0.45	0.45
Avail Cap(c_a), veh/h	517	571	174	2736	1153	1132
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.81	0.81	1.00	1.00
Uniform Delay (d), s/veh	43.4	34.0	42.5	0.0	7.8	7.8
Incr Delay (d2), s/veh	7.8	0.1	12.9	0.2	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.4	1.8	4.6	0.2	8.3	8.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.2	34.2	55.3	0.2	9.0	9.1
LnGrp LOS	D	C	E	A	A	A
Approach Vol, veh/h	175			902	1023	
Approach Delay, s/veh	49.2			6.1	9.1	
Approach LOS	D			A	A	
Timer - Assigned Phs		2		4		7 8
Phs Duration (G+Y+Rc), s		16.1		83.9		11.9 72.0
Change Period (Y+Rc), s		5.0		5.0		5.0 5.0
Max Green Setting (Gmax), s		30.0		60.0		10.0 45.0
Max Q Clear Time (g_c+I1), s		10.8		2.0		7.4 16.1
Green Ext Time (p_c), s		0.4		6.3		0.0 7.3
Intersection Summary						
HCM 6th Ctrl Delay			11.1			
HCM 6th LOS			B			

Timings
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions



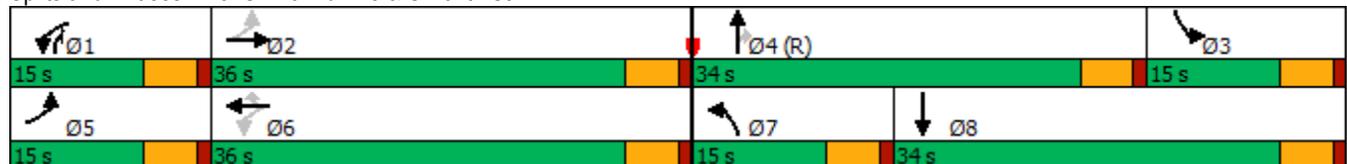
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↑↑	↗	↖↗	↗↖
Traffic Volume (vph)	74	164	207	146	87	111	775	349	121	604
Future Volume (vph)	74	164	207	146	87	111	775	349	121	604
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6		7	4	1	3	8
Permitted Phases	2		6		6			4		
Detector Phase	5	2	1	6	6	7	4	1	3	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	15.0	36.0	15.0	36.0	36.0	15.0	34.0	15.0	15.0	34.0
Total Split (%)	15.0%	36.0%	15.0%	36.0%	36.0%	15.0%	34.0%	15.0%	15.0%	34.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	26.5	19.8	32.8	24.8	24.8	9.4	40.5	50.2	10.0	41.0
Actuated g/C Ratio	0.26	0.20	0.33	0.25	0.25	0.09	0.40	0.50	0.10	0.41
v/c Ratio	0.23	0.79	0.84	0.34	0.18	0.72	0.63	0.39	0.39	0.59
Control Delay	22.1	48.8	50.4	32.4	0.7	66.6	28.3	2.3	44.6	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	48.8	50.4	32.4	0.7	66.6	28.3	2.3	44.6	25.5
LOS	C	D	D	C	A	E	C	A	D	C
Approach Delay		42.9		34.6			24.4			28.3
Approach LOS		D		C			C			C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 40 (40%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 29.3
 Intersection Capacity Utilization 70.0%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 5: SE 192nd Ave & SE 34th St



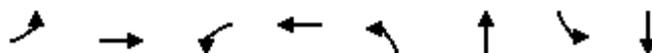
HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	164	96	207	146	87	111	775	349	121	604	89
Future Volume (veh/h)	74	164	96	207	146	87	111	775	349	121	604	89
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	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1817	1803	1847	1943	2018	1988	2018	1883	1988	1832	1684	1817
Adj Flow Rate, veh/h	82	182	79	230	162	16	123	861	169	134	671	88
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	3	0	5	0	2	0	9	2	1	11	2
Cap, veh/h	357	221	96	302	472	387	154	1037	655	758	1233	162
Arrive On Green	0.05	0.19	0.19	0.10	0.23	0.23	0.08	0.29	0.29	0.22	0.43	0.43
Sat Flow, veh/h	1731	1189	516	1850	2018	1654	1922	3578	1679	3385	2844	373
Grp Volume(v), veh/h	82	0	261	230	162	16	123	861	169	134	377	382
Grp Sat Flow(s),veh/h/ln	1731	0	1706	1850	2018	1654	1922	1789	1679	1693	1600	1616
Q Serve(g_s), s	3.8	0.0	14.7	9.9	6.7	0.4	6.3	22.5	2.6	3.2	17.5	17.5
Cycle Q Clear(g_c), s	3.8	0.0	14.7	9.9	6.7	0.4	6.3	22.5	2.6	3.2	17.5	17.5
Prop In Lane	1.00		0.30	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	357	0	317	302	472	387	154	1037	655	758	694	701
V/C Ratio(X)	0.23	0.00	0.82	0.76	0.34	0.04	0.80	0.83	0.26	0.18	0.54	0.54
Avail Cap(c_a), veh/h	440	0	529	302	626	513	192	1037	655	758	694	701
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)	0.96	0.00	0.96	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	30.5	0.0	39.1	29.4	31.9	9.9	45.2	33.2	7.3	31.4	21.0	21.0
Incr Delay (d2), s/veh	0.1	0.0	2.0	9.7	0.2	0.0	13.5	7.7	1.0	0.0	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.8	0.0	10.1	8.7	5.7	0.5	6.3	15.7	2.2	2.3	10.5	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.6	0.0	41.1	39.1	32.1	9.9	58.7	40.9	8.2	31.4	23.6	23.6
LnGrp LOS	C	A	D	D	C	A	E	D	A	C	C	C
Approach Vol, veh/h		343			408			1153			893	
Approach Delay, s/veh		38.6			35.2			38.0			24.7	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	23.6	27.4	34.0	10.2	28.4	13.0	48.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	31.0	10.0	29.0	10.0	31.0	10.0	29.0				
Max Q Clear Time (g_c+I1), s	11.9	16.7	5.2	24.5	5.8	8.7	8.3	19.5				
Green Ext Time (p_c), s	0.0	0.4	0.0	1.2	0.0	0.2	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay			33.4									
HCM 6th LOS			C									

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions

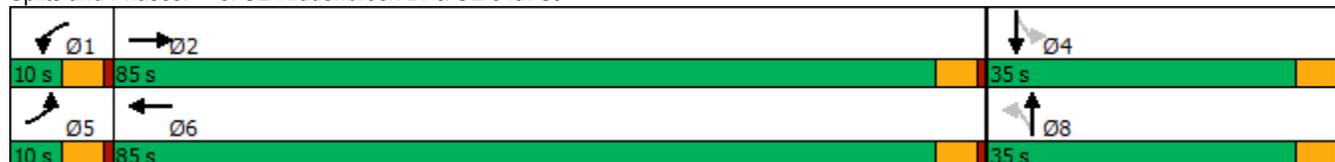


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	153	289	27	212	63	29	61	4
Future Volume (vph)	153	289	27	212	63	29	61	4
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	27.0	10.0	27.0	32.0	32.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	5.4	28.1	5.4	17.1	8.9	8.9	8.9	8.9
Actuated g/C Ratio	0.12	0.63	0.12	0.38	0.20	0.20	0.20	0.20
v/c Ratio	0.78	0.30	0.14	0.52	0.27	0.21	0.26	0.14
Control Delay	52.7	10.2	25.1	15.6	17.6	9.3	17.4	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	10.2	25.1	15.6	17.6	9.3	17.4	6.6
LOS	D	B	C	B	B	A	B	A
Approach Delay		24.2		16.3		13.2		12.8
Approach LOS		C		B		B		B

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 44.6
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 19.1
 Intersection Capacity Utilization 48.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	289	24	27	212	102	63	29	41	61	4	42
Future Volume (veh/h)	153	289	24	27	212	102	63	29	41	61	4	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1876	1802	1876	1832	1876	1876	1900	1900	1900
Adj Flow Rate, veh/h	170	321	24	30	236	92	70	32	3	68	4	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	4	0	0	5	0	3	0	0	0	0	0
Cap, veh/h	217	799	60	64	479	187	330	185	17	312	110	83
Arrive On Green	0.12	0.47	0.47	0.04	0.39	0.39	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1810	1691	126	1787	1233	481	1380	1690	158	1395	1008	756
Grp Volume(v), veh/h	170	0	345	30	0	328	70	0	35	68	0	7
Grp Sat Flow(s),veh/h/ln	1810	0	1817	1787	0	1714	1380	0	1848	1395	0	1764
Q Serve(g_s), s	3.6	0.0	4.8	0.6	0.0	5.7	1.9	0.0	0.7	1.8	0.0	0.1
Cycle Q Clear(g_c), s	3.6	0.0	4.8	0.6	0.0	5.7	2.0	0.0	0.7	2.5	0.0	0.1
Prop In Lane	1.00		0.07	1.00		0.28	1.00		0.09	1.00		0.43
Lane Grp Cap(c), veh/h	217	0	859	64	0	665	330	0	202	312	0	193
V/C Ratio(X)	0.78	0.00	0.40	0.47	0.00	0.49	0.21	0.00	0.17	0.22	0.00	0.04
Avail Cap(c_a), veh/h	231	0	3706	228	0	3494	1234	0	1413	1226	0	1349
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	6.7	18.6	0.0	9.1	16.5	0.0	15.9	17.0	0.0	15.6
Incr Delay (d2), s/veh	13.6	0.0	0.1	2.0	0.0	0.2	0.1	0.0	0.1	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	0.0	1.9	0.5	0.0	2.5	1.0	0.0	0.5	1.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.4	0.0	6.8	20.6	0.0	9.3	16.6	0.0	16.0	17.1	0.0	15.6
LnGrp LOS	C	A	A	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		515			358			105			75	
Approach Delay, s/veh		14.6			10.2			16.4			17.0	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	23.5		9.3	9.7	20.2		9.3				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	2.6	6.8		4.5	5.6	7.7		4.0				
Green Ext Time (p_c), s	0.0	0.6		0.0	0.0	0.6		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				13.5								
HCM 6th LOS				B								

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	450	11	7	310	29	17
Future Vol, veh/h	450	11	7	310	29	17
Conflicting Peds, #/hr	0	3	3	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	95	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	3	0	0	5	0	0
Mvmt Flow	529	13	8	365	34	20

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	545	0	920
Stage 1	-	-	-	-	539
Stage 2	-	-	-	-	381
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1034	-	303
Stage 1	-	-	-	-	589
Stage 2	-	-	-	-	695
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1031	-	300
Mov Cap-2 Maneuver	-	-	-	-	300
Stage 1	-	-	-	-	587
Stage 2	-	-	-	-	689

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	16.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	360	-	-	1031	-
HCM Lane V/C Ratio	0.15	-	-	0.008	-
HCM Control Delay (s)	16.8	-	-	8.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions

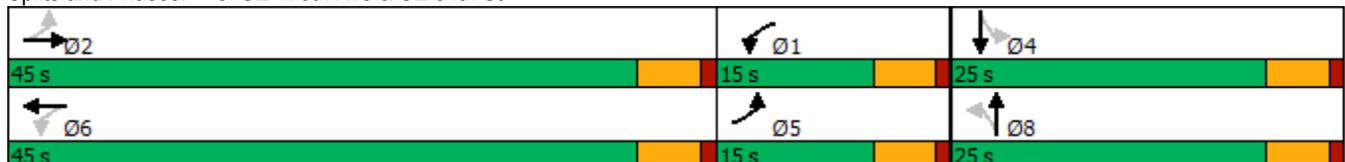


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↗	↘	↗	↘	↗	↘	↗	↘
Traffic Volume (vph)	280	388	4	276	14	9	65	4
Future Volume (vph)	280	388	4	276	14	9	65	4
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	31.4	31.8	24.6	18.7	9.3	9.3	9.3	9.3
Actuated g/C Ratio	0.64	0.65	0.50	0.38	0.19	0.19	0.19	0.19
v/c Ratio	0.54	0.38	0.01	0.58	0.07	0.07	0.29	0.32
Control Delay	13.6	10.2	7.5	18.3	18.7	14.5	21.7	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	10.2	7.5	18.3	18.7	14.5	21.7	7.2
LOS	B	B	A	B	B	B	C	A
Approach Delay		11.7		18.2		16.4		12.4
Approach LOS		B		B		B		B

Intersection Summary

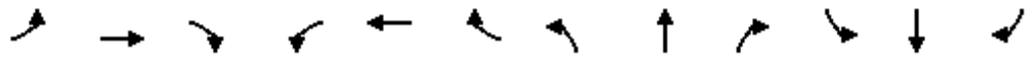
Cycle Length: 85
 Actuated Cycle Length: 48.9
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 13.7
 Intersection LOS: B
 Intersection Capacity Utilization 56.4%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	280	388	2	4	276	59	14	9	8	65	4	109
Future Volume (veh/h)	280	388	2	4	276	59	14	9	8	65	4	109
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	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1856	1900	1900	1811	1826	1900	1900	1530	1870	1900	1885
Adj Flow Rate, veh/h	329	456	2	5	325	56	16	11	0	76	5	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	9	3	0	0	6	5	0	0	25	2	0	1
Cap, veh/h	595	709	3	584	580	100	331	203	0	324	203	0
Arrive On Green	0.12	0.38	0.38	0.13	0.39	0.39	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1682	1846	8	1810	1503	259	1407	1900	0	1378	1900	0
Grp Volume(v), veh/h	329	0	458	5	0	381	16	11	0	76	5	0
Grp Sat Flow(s),veh/h/ln	1682	0	1854	1810	0	1762	1407	1900	0	1378	1900	0
Q Serve(g_s), s	0.0	0.0	7.9	0.0	0.0	6.6	0.4	0.2	0.0	2.1	0.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	7.9	0.0	0.0	6.6	0.5	0.2	0.0	2.3	0.1	0.0
Prop In Lane	1.00		0.00	1.00		0.15	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	595	0	712	584	0	680	331	203	0	324	203	0
V/C Ratio(X)	0.55	0.00	0.64	0.01	0.00	0.56	0.05	0.05	0.00	0.23	0.02	0.00
Avail Cap(c_a), veh/h	816	0	1895	818	0	1801	900	971	0	881	971	0
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.4	0.0	9.9	9.4	0.0	9.4	15.9	15.7	0.0	16.7	15.7	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.0	0.0	0.3	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	0.0	3.8	0.0	0.0	3.0	0.2	0.1	0.0	1.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	10.2	9.4	0.0	9.7	15.9	15.8	0.0	16.9	15.7	0.0
LnGrp LOS	B	A	B	A	A	A	B	B	A	B	B	A
Approach Vol, veh/h		787			386			27			81	
Approach Delay, s/veh		11.3			9.7			15.8			16.8	
Approach LOS		B			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	20.0		9.2	9.9	20.1		9.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	9.9		4.3	2.0	8.6		2.5				
Green Ext Time (p_c), s	0.0	1.7		0.1	0.3	1.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

MOVEMENT SUMMARY

Site: 101 [SE 176 Avenue/ SE 29th Street Phase 3 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Phase 3
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: SE 176th Avenue															
3	L2	All MCs	5	0.0	5	0.0	0.392	7.2	LOS A	2.3	57.6	0.49	0.29	0.49	32.2
8	T1	All MCs	144	2.0	144	2.0	0.392	7.4	LOS A	2.3	57.6	0.49	0.29	0.49	32.8
18	R2	All MCs	279	0.0	279	0.0	0.392	7.2	LOS A	2.3	57.6	0.49	0.29	0.49	32.6
Approach			427	0.7	427	0.7	0.392	7.3	LOS A	2.3	57.6	0.49	0.29	0.49	32.6
East: SE 29th Street															
1	L2	All MCs	85	0.0	85	0.0	0.338	6.2	LOS A	1.9	48.5	0.40	0.21	0.40	32.2
6	T1	All MCs	259	0.0	259	0.0	0.338	6.2	LOS A	1.9	48.5	0.40	0.21	0.40	32.9
16	R2	All MCs	53	0.0	53	0.0	0.338	6.2	LOS A	1.9	48.5	0.40	0.21	0.40	32.6
Approach			396	0.0	396	0.0	0.338	6.2	LOS A	1.9	48.5	0.40	0.21	0.40	32.7
North: SE 176th Avenue															
7	L2	All MCs	26	88.0	26	88.0	0.322	18.6	LOS C	1.3	38.3	0.55	0.39	0.55	29.3
4	T1	All MCs	104	1.0	104	1.0	0.322	6.5	LOS A	1.3	38.3	0.55	0.39	0.55	32.3
14	R2	All MCs	122	18.0	122	18.0	0.322	8.3	LOS A	1.3	38.3	0.55	0.39	0.55	31.7
Approach			252	18.2	252	18.2	0.322	8.3	LOS A	1.3	38.3	0.55	0.39	0.55	31.7
West: SE 29th Street															
5	L2	All MCs	6	0.0	6	0.0	0.176	4.9	LOS A	0.8	20.5	0.41	0.25	0.41	33.3
2	T1	All MCs	167	0.0	167	0.0	0.176	4.9	LOS A	0.8	20.5	0.41	0.25	0.41	34.0
12	R2	All MCs	15	10.0	15	10.0	0.176	5.8	LOS A	0.8	20.5	0.41	0.25	0.41	33.5
Approach			188	0.8	188	0.8	0.176	4.9	LOS A	0.8	20.5	0.41	0.25	0.41	34.0
All Vehicles			1264	4.0	1264	4.0	0.392	6.9	LOS A	2.3	57.6	0.46	0.28	0.46	32.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: H:\27127715 - VIC Implementation\005 - Master Plan Update TIA\Analysis\176th_29th With Project 2038 AM.sip9

Intersection	
Intersection Delay, s/veh	15.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	272	34	76	314	14	50	88	56	0	69	10
Future Vol, veh/h	12	272	34	76	314	14	50	88	56	0	69	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	4	10	4	1	9	4	3	0	0	0	0
Mvmt Flow	13	299	37	84	345	15	55	97	62	0	76	11
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	16.7	16.4	11.9	11.8
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	61%	0%	89%	0%	96%	87%
Vol Right, %	0%	39%	0%	11%	0%	4%	13%
Sign Control	Stop						
Traffic Vol by Lane	50	144	12	306	76	328	79
LT Vol	50	0	12	0	76	0	0
Through Vol	0	88	0	272	0	314	69
RT Vol	0	56	0	34	0	14	10
Lane Flow Rate	55	158	13	336	84	360	87
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.114	0.293	0.024	0.575	0.154	0.604	0.173
Departure Headway (Hd)	7.47	6.666	6.679	6.161	6.62	6.03	7.157
Convergence, Y/N	Yes						
Cap	477	536	534	582	540	595	497
Service Time	5.249	4.445	4.45	3.931	4.386	3.795	5.253
HCM Lane V/C Ratio	0.115	0.295	0.024	0.577	0.156	0.605	0.175
HCM Control Delay	11.2	12.2	9.6	17	10.6	17.7	11.8
HCM Lane LOS	B	B	A	C	B	C	B
HCM 95th-tile Q	0.4	1.2	0.1	3.6	0.5	4	0.6

Timings
11: SE 164th Ave & SE 29th St

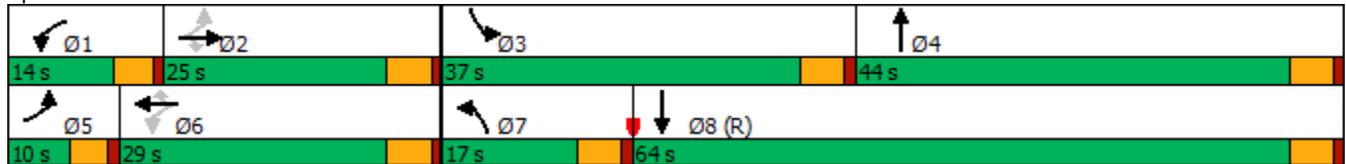
Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	42	15	46	214	38	162	23	1081	145	792
Future Volume (vph)	42	15	46	214	38	162	23	1081	145	792
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2		1	6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	5	2	2	1	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.5	39.0	39.0	9.5	38.0	38.0	10.0	32.0	10.0	32.0
Total Split (s)	10.0	25.0	25.0	14.0	29.0	29.0	17.0	44.0	37.0	64.0
Total Split (%)	8.3%	20.8%	20.8%	11.7%	24.2%	24.2%	14.2%	36.7%	30.8%	53.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	4.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	15.9	12.0	12.0	23.3	15.2	15.2	5.7	68.0	13.8	80.1
Actuated g/C Ratio	0.13	0.10	0.10	0.19	0.13	0.13	0.05	0.57	0.12	0.67
v/c Ratio	0.22	0.08	0.16	0.90	0.17	0.48	0.28	0.40	0.75	0.26
Control Delay	39.2	47.9	1.2	79.3	46.3	11.2	64.3	7.8	72.3	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	47.9	1.2	79.3	46.3	11.2	64.3	7.8	72.3	9.8
LOS	D	D	A	E	D	B	E	A	E	A
Approach Delay		23.6			49.6			8.9		19.2
Approach LOS		C			D			A		B

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 4 (3%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 19.8
 Intersection Capacity Utilization 61.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Phase 3 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	15	46	214	38	162	23	1081	20	145	792	26
Future Volume (veh/h)	42	15	46	214	38	162	23	1081	20	145	792	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1856	1870	1870	1900	1900	1870	1796	1885	1856	1826
Adj Flow Rate, veh/h	44	16	2	225	40	14	24	1138	20	153	834	25
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, %	3	0	3	2	2	0	0	2	7	1	3	5
Cap, veh/h	226	155	128	304	241	207	42	2141	38	180	2485	74
Arrive On Green	0.03	0.08	0.08	0.08	0.13	0.13	0.02	0.41	0.41	0.10	0.49	0.49
Sat Flow, veh/h	1767	1900	1572	1781	1870	1610	1810	5167	91	1795	5054	151
Grp Volume(v), veh/h	44	16	2	225	40	14	24	750	408	153	557	302
Grp Sat Flow(s),veh/h/ln	1767	1900	1572	1781	1870	1610	1810	1702	1854	1795	1689	1828
Q Serve(g_s), s	2.7	0.9	0.1	9.5	2.3	0.9	1.6	19.8	19.9	10.1	12.0	12.1
Cycle Q Clear(g_c), s	2.7	0.9	0.1	9.5	2.3	0.9	1.6	19.8	19.9	10.1	12.0	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		0.08
Lane Grp Cap(c), veh/h	226	155	128	304	241	207	42	1410	768	180	1660	899
V/C Ratio(X)	0.19	0.10	0.02	0.74	0.17	0.07	0.58	0.53	0.53	0.85	0.34	0.34
Avail Cap(c_a), veh/h	250	317	262	304	374	322	181	1410	768	479	1660	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	51.0	50.7	47.7	46.5	45.9	58.0	26.4	26.4	53.1	18.6	18.6
Incr Delay (d2), s/veh	0.4	0.1	0.0	9.3	0.1	0.1	3.6	1.1	2.1	4.3	0.5	1.0
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(95%),veh/ln	2.2	0.8	0.1	4.9	2.0	0.7	1.4	12.1	13.2	8.2	8.2	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.8	51.1	50.7	57.0	46.7	46.0	61.7	27.5	28.5	57.3	19.1	19.6
LnGrp LOS	D	D	D	E	D	D	E	C	C	E	B	B
Approach Vol, veh/h		62			279			1182			1012	
Approach Delay, s/veh		49.4			54.9			28.5			25.0	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	14.8	17.0	54.7	8.3	20.4	7.8	64.0				
Change Period (Y+Rc), s	4.5	5.0	5.0	5.0	4.5	5.0	5.0	5.0				
Max Green Setting (Gmax), s	9.5	20.0	32.0	39.0	5.5	24.0	12.0	59.0				
Max Q Clear Time (g_c+I1), s	11.5	2.9	12.1	21.9	4.7	4.3	3.6	14.1				
Green Ext Time (p_c), s	0.0	0.0	0.1	4.6	0.0	0.1	0.0	3.7				

Intersection Summary

HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Timings
12: SE 164th Ave/SE164th Ave & SE 34th Street

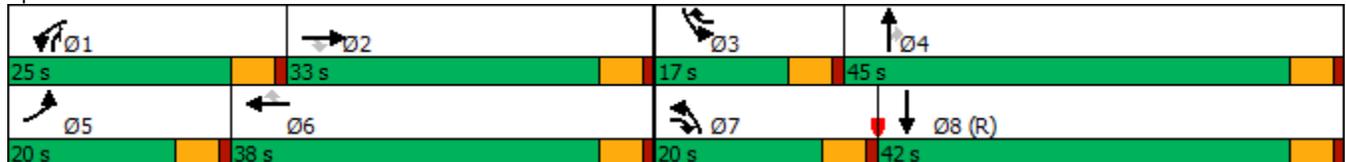
Vancouver Innovation Center
Phase 3 2038 AM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	28	60	165	293	121	99	111	936	449	155	813
Future Volume (vph)	28	60	165	293	121	99	111	936	449	155	813
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	20.0	33.0	20.0	25.0	38.0	17.0	20.0	45.0	25.0	17.0	42.0
Total Split (%)	16.7%	27.5%	16.7%	20.8%	31.7%	14.2%	16.7%	37.5%	20.8%	14.2%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	6.4	8.2	23.0	20.0	23.8	46.4	11.8	56.2	81.2	17.6	62.0
Actuated g/C Ratio	0.05	0.07	0.19	0.17	0.20	0.39	0.10	0.47	0.68	0.15	0.52
v/c Ratio	0.39	0.56	0.53	1.11	0.36	0.16	0.72	0.64	0.42	0.66	0.53
Control Delay	68.3	70.9	31.3	129.9	45.0	4.8	74.0	28.0	2.1	66.0	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.3	70.9	31.3	129.9	45.0	4.8	74.0	28.0	2.1	66.0	16.8
LOS	E	E	C	F	D	A	E	C	A	E	B
Approach Delay		44.8			85.8			23.7			24.4
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 15 (13%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 35.3
 Intersection Capacity Utilization 70.2%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C

Splits and Phases: 12: SE 164th Ave/SE164th Ave & SE 34th Street



HCM 6th Signalized Intersection Summary
 12: SE 164th Ave/SE164th Ave & SE 34th Street

Vancouver Innovation Center
 Phase 3 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	60	165	293	121	99	111	936	449	155	813	37
Future Volume (veh/h)	28	60	165	293	121	99	111	936	449	155	813	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1565	1758	1803	1870	1885	1841	1791	1776	1746	1806	1761	1761
Adj Flow Rate, veh/h	31	67	124	326	134	30	123	1040	291	172	903	39
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	19	6	3	2	1	4	1	2	4	0	3	3
Cap, veh/h	40	159	270	297	434	515	147	1125	740	172	1326	57
Arrive On Green	0.03	0.09	0.09	0.17	0.23	0.23	0.09	0.33	0.33	0.10	0.35	0.35
Sat Flow, veh/h	1491	1758	1528	1781	1885	1560	1706	3375	1480	1720	3821	165
Grp Volume(v), veh/h	31	67	124	326	134	30	123	1040	291	172	532	410
Grp Sat Flow(s),veh/h/ln	1491	1758	1528	1781	1885	1560	1706	1687	1480	1720	1127	1732
Q Serve(g_s), s	2.5	4.3	8.7	20.0	7.1	1.6	8.5	35.6	14.7	12.0	24.2	24.3
Cycle Q Clear(g_c), s	2.5	4.3	8.7	20.0	7.1	1.6	8.5	35.6	14.7	12.0	24.2	24.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	40	159	270	297	434	515	147	1125	740	172	782	601
V/C Ratio(X)	0.77	0.42	0.46	1.10	0.31	0.06	0.84	0.92	0.39	1.00	0.68	0.68
Avail Cap(c_a), veh/h	186	410	488	297	518	585	213	1125	740	172	782	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	58.0	51.6	44.2	50.0	38.3	27.4	54.0	38.5	18.7	54.0	33.5	33.5
Incr Delay (d2), s/veh	11.1	0.7	0.5	81.1	0.1	0.0	11.8	13.9	1.6	66.2	4.4	5.7
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(95%),veh/ln	1.9	3.4	5.9	22.8	5.8	1.0	7.3	23.0	8.9	12.8	11.1	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.2	52.2	44.7	131.1	38.4	27.4	65.8	52.5	20.2	120.2	37.9	39.3
LnGrp LOS	E	D	D	F	D	C	E	D	C	F	D	D
Approach Vol, veh/h		222			490			1454			1114	
Approach Delay, s/veh		50.4			99.4			47.1			51.1	
Approach LOS		D			F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	15.9	17.0	45.0	8.2	32.7	15.4	46.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	28.0	12.0	40.0	15.0	33.0	15.0	37.0				
Max Q Clear Time (g_c+I1), s	22.0	10.7	14.0	37.6	4.5	9.1	10.5	26.3				
Green Ext Time (p_c), s	0.0	0.1	0.0	0.9	0.0	0.2	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			56.5									
HCM 6th LOS			E									

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions

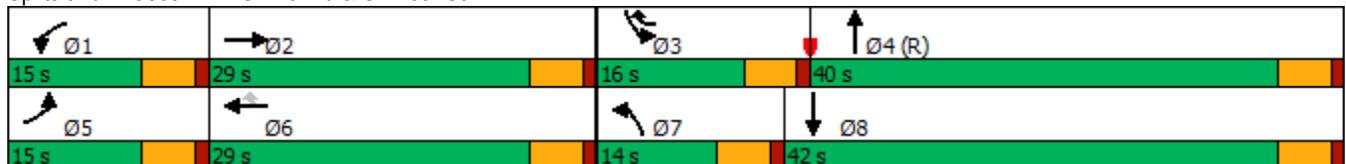


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↕	↖	↕
Traffic Volume (vph)	116	91	40	82	242	84	1345	115	1486
Future Volume (vph)	116	91	40	82	242	84	1345	115	1486
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases					6				
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	15.0	29.0	15.0	29.0	16.0	14.0	40.0	16.0	42.0
Total Split (%)	15.0%	29.0%	15.0%	29.0%	16.0%	14.0%	40.0%	16.0%	42.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	9.0	15.9	6.2	11.1	19.8	7.8	52.2	9.7	56.1
Actuated g/C Ratio	0.09	0.16	0.06	0.11	0.20	0.08	0.52	0.10	0.56
v/c Ratio	0.79	0.62	0.38	0.42	0.67	0.63	0.79	0.69	0.87
Control Delay	78.1	37.0	54.0	45.3	30.4	53.9	25.4	63.7	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	37.0	54.0	45.3	30.4	53.9	25.4	63.7	28.9
LOS	E	D	D	D	C	D	C	E	C
Approach Delay		52.7		36.4			27.0		31.2
Approach LOS		D		D			C		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 31.8
 Intersection Capacity Utilization 81.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 1: SE 192nd & SE 15th St



HCM 6th Signalized Intersection Summary
 1: SE 192nd & SE 15th St

Vancouver Innovation Center
 Phase 3 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	91	97	40	82	242	84	1345	32	115	1486	133
Future Volume (veh/h)	116	91	97	40	82	242	84	1345	32	115	1486	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1885	1900	1900	1856	1900	1900	1870	1900	1900	1870	1870
Adj Flow Rate, veh/h	122	96	58	42	86	192	88	1416	32	121	1564	135
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, %	5	1	0	0	3	0	0	2	0	0	2	2
Cap, veh/h	150	204	123	62	248	344	122	1769	40	149	1699	145
Arrive On Green	0.09	0.19	0.19	0.03	0.13	0.13	0.09	0.66	0.66	0.11	0.68	0.68
Sat Flow, veh/h	1739	1100	664	1810	1856	1582	1810	3552	80	1810	3311	283
Grp Volume(v), veh/h	122	0	154	42	86	192	88	708	740	121	833	866
Grp Sat Flow(s),veh/h/ln	1739	0	1764	1810	1856	1582	1810	1777	1856	1810	1777	1818
Q Serve(g_s), s	6.9	0.0	7.8	2.3	4.2	10.8	4.7	28.6	28.7	6.5	39.6	41.3
Cycle Q Clear(g_c), s	6.9	0.0	7.8	2.3	4.2	10.8	4.7	28.6	28.7	6.5	39.6	41.3
Prop In Lane	1.00		0.38	1.00		1.00	1.00		0.04	1.00		0.16
Lane Grp Cap(c), veh/h	150	0	327	62	248	344	122	885	924	149	912	933
V/C Ratio(X)	0.82	0.00	0.47	0.67	0.35	0.56	0.72	0.80	0.80	0.81	0.91	0.93
Avail Cap(c_a), veh/h	174	0	423	181	445	512	163	885	924	199	912	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.19	0.19	0.19	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	0.0	36.4	47.7	39.4	35.0	44.6	13.3	13.3	43.8	14.0	14.3
Incr Delay (d2), s/veh	19.5	0.0	0.4	4.6	0.3	0.5	1.1	1.5	1.5	12.5	15.1	16.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	0.0	5.9	2.0	3.5	7.3	3.1	9.8	10.2	5.9	19.5	20.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.4	0.0	36.8	52.4	39.7	35.5	45.7	14.8	14.8	56.3	29.1	30.8
LnGrp LOS	E	A	D	D	D	D	D	B	B	E	C	C
Approach Vol, veh/h		276			320			1536			1820	
Approach Delay, s/veh		49.0			38.8			16.6			31.7	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	23.5	13.2	54.8	13.6	18.4	11.7	56.3				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	24.0	11.0	35.0	10.0	24.0	9.0	37.0				
Max Q Clear Time (g_c+I1), s	4.3	9.8	8.5	30.7	8.9	12.8	6.7	43.3				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.6	0.0	0.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			27.6									
HCM 6th LOS			C									

Timings
2: SE 192nd Ave & SE 20th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions

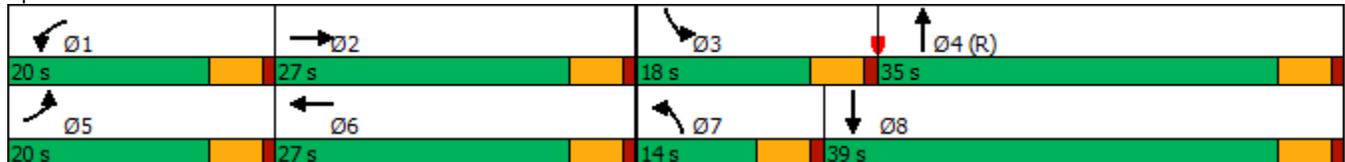


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔↔	↔	↔↔	↔	↔	↕↕	↔	↕↕
Traffic Volume (vph)	233	183	272	265	148	933	151	1103
Future Volume (vph)	233	183	272	265	148	933	151	1103
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	20.0	27.0	20.0	27.0	14.0	35.0	18.0	39.0
Total Split (%)	20.0%	27.0%	20.0%	27.0%	14.0%	35.0%	18.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	11.3	23.5	12.2	24.4	9.5	32.6	11.7	34.8
Actuated g/C Ratio	0.11	0.24	0.12	0.24	0.10	0.33	0.12	0.35
v/c Ratio	0.62	0.66	0.66	0.88	0.91	1.03	0.75	1.15
Control Delay	49.0	40.2	49.5	56.7	105.2	54.2	61.7	106.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	40.2	49.5	56.7	105.2	54.2	61.7	106.8
LOS	D	D	D	E	F	D	E	F
Approach Delay		44.2		53.7		60.1		102.3
Approach LOS		D		D		E		F

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 93 (93%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.15
 Intersection Signal Delay: 72.9
 Intersection Capacity Utilization 90.7%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service E

Splits and Phases: 2: SE 192nd Ave & SE 20th St



HCM 6th Signalized Intersection Summary
2: SE 192nd Ave & SE 20th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↑↔		↔	↑↔	
Traffic Volume (veh/h)	233	183	95	272	265	118	148	933	203	151	1103	237
Future Volume (veh/h)	233	183	95	272	265	118	148	933	203	151	1103	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1870	1900	1885	1900	1885	1870	1885
Adj Flow Rate, veh/h	243	191	80	283	276	106	154	972	192	157	1149	228
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	1	0	0	2	0	1	0	1	2	1
Cap, veh/h	316	265	111	355	286	110	163	1146	226	189	1183	233
Arrive On Green	0.09	0.21	0.21	0.10	0.22	0.22	0.09	0.38	0.38	0.14	0.53	0.53
Sat Flow, veh/h	3510	1270	532	3510	1301	500	1810	2981	588	1795	2958	583
Grp Volume(v), veh/h	243	0	271	283	0	382	154	583	581	157	688	689
Grp Sat Flow(s),veh/h/ln	1755	0	1802	1755	0	1801	1810	1791	1778	1795	1777	1764
Q Serve(g_s), s	6.8	0.0	14.0	7.9	0.0	21.0	8.5	29.7	29.8	8.5	37.3	38.1
Cycle Q Clear(g_c), s	6.8	0.0	14.0	7.9	0.0	21.0	8.5	29.7	29.8	8.5	37.3	38.1
Prop In Lane	1.00		0.30	1.00		0.28	1.00		0.33	1.00		0.33
Lane Grp Cap(c), veh/h	316	0	376	355	0	396	163	689	684	189	711	706
V/C Ratio(X)	0.77	0.00	0.72	0.80	0.00	0.96	0.95	0.85	0.85	0.83	0.97	0.98
Avail Cap(c_a), veh/h	527	0	397	527	0	396	163	689	684	233	711	706
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.40	0.40	0.40
Uniform Delay (d), s/veh	44.5	0.0	36.8	43.9	0.0	38.6	45.3	28.1	28.1	42.1	22.8	22.9
Incr Delay (d2), s/veh	1.5	0.0	5.0	2.9	0.0	35.6	54.0	12.3	12.5	6.7	14.9	16.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.3	0.0	10.6	6.2	0.0	18.7	10.2	20.5	20.4	5.9	19.1	19.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	0.0	41.8	46.8	0.0	74.2	99.2	40.4	40.6	48.8	37.7	39.6
LnGrp LOS	D	A	D	D	A	E	F	D	D	D	D	D
Approach Vol, veh/h		514			665			1318			1534	
Approach Delay, s/veh		43.8			62.6			47.4			39.7	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.1	25.9	15.6	43.4	14.0	27.0	14.0	45.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	22.0	13.0	30.0	15.0	22.0	9.0	34.0				
Max Q Clear Time (g_c+I1), s	9.9	16.0	10.5	31.8	8.8	23.0	10.5	40.1				
Green Ext Time (p_c), s	0.3	0.5	0.0	0.0	0.2	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	46.5
HCM 6th LOS	D

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↶↷		↵	↶↷
Traffic Vol, veh/h	3	4	1294	3	10	1337
Future Vol, veh/h	3	4	1294	3	10	1337
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	3	4	1362	3	11	1407

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2092	685	0	0	1367
Stage 1	1366	-	-	-	-
Stage 2	726	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	46	395	-	-	509
Stage 1	206	-	-	-	-
Stage 2	445	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	45	394	-	-	508
Mov Cap-2 Maneuver	45	-	-	-	-
Stage 1	206	-	-	-	-
Stage 2	435	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	47.1	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	45	394	508
HCM Lane V/C Ratio	-	-	0.07	0.011	0.021
HCM Control Delay (s)	-	-	91	14.2	12.2
HCM Lane LOS	-	-	F	B	B
HCM 95th %tile Q(veh)	-	-	0.2	0	0.1

Timings
4: SE 192nd Ave & SE 29th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions

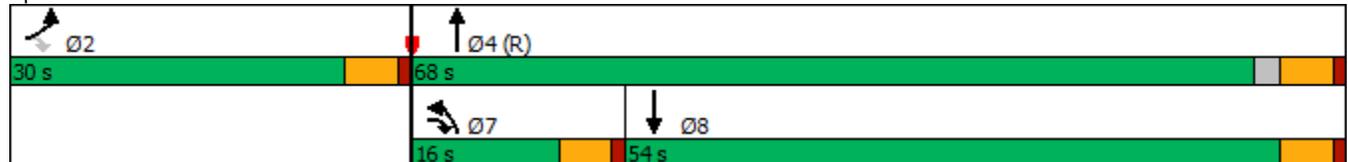


Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations	↶	↷	↶	↕	↕
Traffic Volume (vph)	131	45	55	1166	1239
Future Volume (vph)	131	45	55	1166	1239
Turn Type	Prot	pm+ov	Prot	NA	NA
Protected Phases	2	7	7	4	8
Permitted Phases		2			
Detector Phase	2	7	7	4	8
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.0	10.0	10.0	26.0	26.0
Total Split (s)	30.0	16.0	16.0	68.0	54.0
Total Split (%)	30.0%	16.0%	16.0%	68.0%	54.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag
Lead-Lag Optimize?		Yes	Yes		Yes
Recall Mode	Max	None	None	C-Max	None
Act Effct Green (s)	25.0	38.5	8.5	65.0	53.6
Actuated g/C Ratio	0.25	0.38	0.08	0.65	0.54
v/c Ratio	0.32	0.08	0.40	0.53	0.75
Control Delay	33.0	9.9	68.8	4.6	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	9.9	68.8	4.6	23.2
LOS	C	A	E	A	C
Approach Delay	27.1			7.5	23.2
Approach LOS	C			A	C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 45 (45%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 16.4
 Intersection Capacity Utilization 61.3%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 4: SE 192nd Ave & SE 29th St



HCM 6th Signalized Intersection Summary
4: SE 192nd Ave & SE 29th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	131	45	55	1166	1239	101
Future Volume (veh/h)	131	45	55	1166	1239	101
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1826	1826	1885	1885	1826
Adj Flow Rate, veh/h	138	47	58	1227	1304	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	5	5	1	1	5
Cap, veh/h	442	453	74	2328	1880	144
Arrive On Green	0.25	0.25	0.08	1.00	0.56	0.56
Sat Flow, veh/h	1767	1547	1739	3676	3466	258
Grp Volume(v), veh/h	138	47	58	1227	691	713
Grp Sat Flow(s),veh/h/ln	1767	1547	1739	1791	1791	1839
Q Serve(g_s), s	6.4	2.2	3.3	0.0	27.8	28.0
Cycle Q Clear(g_c), s	6.4	2.2	3.3	0.0	27.8	28.0
Prop In Lane	1.00	1.00	1.00			0.14
Lane Grp Cap(c), veh/h	442	453	74	2328	998	1025
V/C Ratio(X)	0.31	0.10	0.78	0.53	0.69	0.70
Avail Cap(c_a), veh/h	442	453	191	2328	998	1025
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.49	0.49	1.00	1.00
Uniform Delay (d), s/veh	30.5	25.8	45.3	0.0	15.9	16.0
Incr Delay (d2), s/veh	1.8	0.5	8.6	0.4	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.2	4.1	2.7	0.2	16.0	16.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.3	26.3	53.9	0.4	18.0	18.1
LnGrp LOS	C	C	D	A	B	B
Approach Vol, veh/h	185			1285	1404	
Approach Delay, s/veh	30.8			2.8	18.0	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4		7 8
Phs Duration (G+Y+Rc), s		30.0		70.0		9.2 60.8
Change Period (Y+Rc), s		5.0		5.0		5.0 5.0
Max Green Setting (Gmax), s		25.0		63.0		11.0 49.0
Max Q Clear Time (g_c+I1), s		8.4		2.0		5.3 30.0
Green Ext Time (p_c), s		0.5		11.8		0.0 9.2
Intersection Summary						
HCM 6th Ctrl Delay			12.1			
HCM 6th LOS			B			

Timings
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions

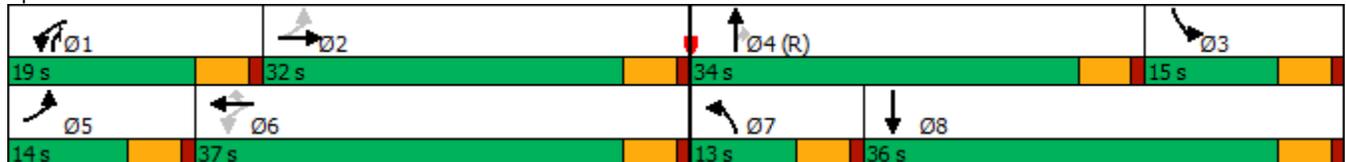


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	191	254	355	220	124	139	1006	204	221	968
Future Volume (vph)	191	254	355	220	124	139	1006	204	221	968
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6		7	4	1	3	8
Permitted Phases	2		6		6			4		
Detector Phase	5	2	1	6	6	7	4	1	3	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	14.0	32.0	19.0	37.0	37.0	13.0	34.0	19.0	15.0	36.0
Total Split (%)	14.0%	32.0%	19.0%	37.0%	37.0%	13.0%	34.0%	19.0%	15.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	33.3	24.8	43.8	30.2	30.2	9.3	31.2	45.2	10.0	32.0
Actuated g/C Ratio	0.33	0.25	0.44	0.30	0.30	0.09	0.31	0.45	0.10	0.32
v/c Ratio	0.47	0.93	1.14	0.40	0.21	0.86	0.94	0.26	0.68	1.05
Control Delay	22.4	62.2	118.0	29.7	2.0	88.2	51.5	2.1	73.0	87.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	62.2	118.0	29.7	2.0	88.2	51.5	2.1	73.0	87.9
LOS	C	E	F	C	A	F	D	A	E	F
Approach Delay		49.4		69.6			47.8			85.4
Approach LOS		D		E			D			F

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 36 (36%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 64.4
 Intersection Capacity Utilization 97.8%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

Splits and Phases: 5: SE 192nd Ave & SE 34th St



HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	254	145	355	220	124	139	1006	204	221	968	135
Future Volume (veh/h)	191	254	145	355	220	124	139	1006	204	221	968	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1817	1847	1817	2003	2003	2018	2018	1988	2003	1847	1832	1817
Adj Flow Rate, veh/h	201	267	131	374	232	32	146	1059	90	233	1019	130
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	0	2	1	1	0	0	2	1	0	1	2
Cap, veh/h	451	289	142	365	598	509	154	1095	726	415	1027	131
Arrive On Green	0.09	0.25	0.25	0.14	0.30	0.30	0.08	0.29	0.29	0.12	0.33	0.33
Sat Flow, veh/h	1731	1163	570	1908	2003	1705	1922	3777	1683	3413	3099	395
Grp Volume(v), veh/h	201	0	398	374	232	32	146	1059	90	233	572	577
Grp Sat Flow(s),veh/h/ln	1731	0	1733	1908	2003	1705	1922	1889	1683	1706	1741	1753
Q Serve(g_s), s	8.7	0.0	22.4	14.0	9.2	0.9	7.6	27.7	1.7	6.4	32.7	32.8
Cycle Q Clear(g_c), s	8.7	0.0	22.4	14.0	9.2	0.9	7.6	27.7	1.7	6.4	32.7	32.8
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	451	0	431	365	598	509	154	1095	726	415	577	581
V/C Ratio(X)	0.45	0.00	0.92	1.02	0.39	0.06	0.95	0.97	0.12	0.56	0.99	0.99
Avail Cap(c_a), veh/h	451	0	468	365	641	546	154	1095	726	415	577	581
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)	0.79	0.00	0.79	1.00	1.00	1.00	1.00	1.00	1.00	0.62	0.62	0.62
Uniform Delay (d), s/veh	24.9	0.0	36.7	25.2	27.8	11.7	45.8	35.0	6.3	41.4	33.3	33.3
Incr Delay (d2), s/veh	0.2	0.0	18.8	53.7	0.2	0.0	57.0	20.3	0.4	0.7	27.5	27.7
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(95%),veh/ln	6.1	0.0	16.2	17.1	7.7	0.9	9.9	21.5	1.4	4.8	22.8	23.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	0.0	55.5	78.8	28.0	11.8	102.8	55.3	6.6	42.1	60.8	61.0
LnGrp LOS	C	A	E	F	C	B	F	E	A	D	E	E
Approach Vol, veh/h		599			638			1295			1382	
Approach Delay, s/veh		45.3			57.0			57.3			57.7	
Approach LOS		D			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	29.8	17.2	34.0	14.0	34.8	13.0	38.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	27.0	10.0	29.0	9.0	32.0	8.0	31.0				
Max Q Clear Time (g_c+I1), s	16.0	24.4	8.4	29.7	10.7	11.2	9.6	34.8				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.0	0.0	0.4	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	55.6
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions

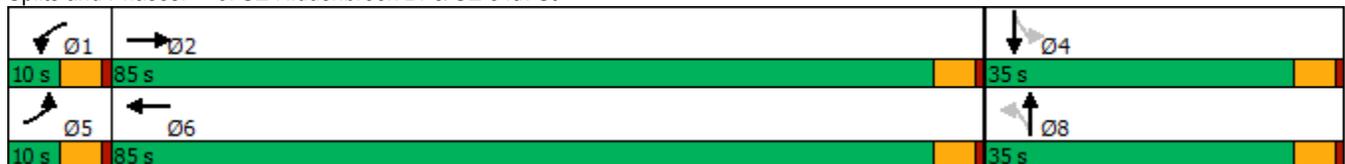


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	74	307	37	334	71	17	250	37
Future Volume (vph)	74	307	37	334	71	17	250	37
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	30.0	10.0	30.0	32.0	32.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	5.2	29.0	5.2	24.0	17.8	17.8	17.8	17.8
Actuated g/C Ratio	0.08	0.46	0.08	0.38	0.28	0.28	0.28	0.28
v/c Ratio	0.53	0.49	0.27	0.77	0.26	0.11	0.71	0.38
Control Delay	47.8	15.9	37.5	24.9	21.5	10.3	32.9	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	15.9	37.5	24.9	21.5	10.3	32.9	8.1
LOS	D	B	D	C	C	B	C	A
Approach Delay		21.0		25.7		16.9		21.6
Approach LOS		C		C		B		C

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 62.6
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 22.5
 Intersection LOS: C
 Intersection Capacity Utilization 68.0%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	307	80	37	334	167	71	17	32	250	37	173
Future Volume (veh/h)	74	307	80	37	334	167	71	17	32	250	37	173
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	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1841	1832	1847	1876	1817	1876	1832	1841	1900	1900
Adj Flow Rate, veh/h	79	327	74	39	355	156	76	18	7	266	39	53
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, %	0	2	4	3	2	0	4	0	3	4	0	0
Cap, veh/h	126	548	124	75	419	184	424	323	126	487	183	249
Arrive On Green	0.07	0.37	0.37	0.04	0.35	0.35	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1810	1474	333	1745	1213	533	1263	1285	500	1359	728	989
Grp Volume(v), veh/h	79	0	401	39	0	511	76	0	25	266	0	92
Grp Sat Flow(s),veh/h/ln	1810	0	1807	1745	0	1745	1263	0	1784	1359	0	1717
Q Serve(g_s), s	1.9	0.0	8.0	1.0	0.0	12.2	2.3	0.0	0.5	8.3	0.0	1.9
Cycle Q Clear(g_c), s	1.9	0.0	8.0	1.0	0.0	12.2	4.2	0.0	0.5	8.8	0.0	1.9
Prop In Lane	1.00		0.18	1.00		0.31	1.00		0.28	1.00		0.58
Lane Grp Cap(c), veh/h	126	0	672	75	0	603	424	0	448	487	0	432
V/C Ratio(X)	0.63	0.00	0.60	0.52	0.00	0.85	0.18	0.00	0.06	0.55	0.00	0.21
Avail Cap(c_a), veh/h	201	0	3217	194	0	3107	950	0	1191	1053	0	1146
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	11.4	21.1	0.0	13.6	15.0	0.0	12.8	16.1	0.0	13.3
Incr Delay (d2), s/veh	1.9	0.0	0.3	2.1	0.0	1.3	0.1	0.0	0.0	0.4	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	0.0	4.3	0.7	0.0	6.7	1.1	0.0	0.3	4.1	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	0.0	11.7	23.1	0.0	14.9	15.0	0.0	12.8	16.5	0.0	13.4
LnGrp LOS	C	A	B	C	A	B	B	A	B	B	A	B
Approach Vol, veh/h		480			550			101			358	
Approach Delay, s/veh		13.4			15.5			14.5			15.7	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	21.7		16.3	8.1	20.5		16.3				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	3.0	10.0		10.8	3.9	14.2		6.2				
Green Ext Time (p_c), s	0.0	0.3		0.1	0.0	0.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↑	↻	
Traffic Vol, veh/h	454	32	16	563	18	7
Future Vol, veh/h	454	32	16	563	18	7
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	95	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	499	35	18	619	20	8

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	534	0	1172 518
Stage 1	-	-	-	-	517 -
Stage 2	-	-	-	-	655 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1044	-	215 562
Stage 1	-	-	-	-	603 -
Stage 2	-	-	-	-	521 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1044	-	211 561
Mov Cap-2 Maneuver	-	-	-	-	211 -
Stage 1	-	-	-	-	603 -
Stage 2	-	-	-	-	512 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	256	-	-	1044	-
HCM Lane V/C Ratio	0.107	-	-	0.017	-
HCM Control Delay (s)	20.7	-	-	8.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions

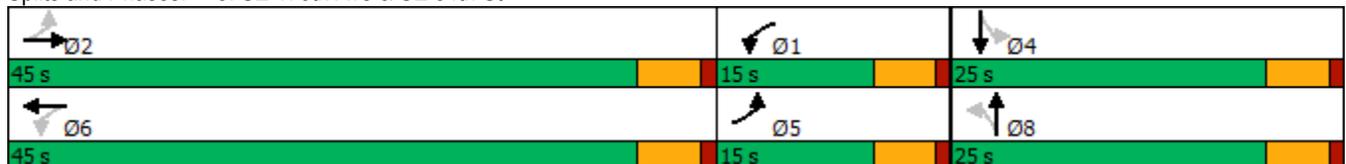


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	207	387	18	443	10	10	93	21
Future Volume (vph)	207	387	18	443	10	10	93	21
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	35.3	34.1	29.8	23.4	10.2	10.2	10.2	10.2
Actuated g/C Ratio	0.61	0.59	0.52	0.41	0.18	0.18	0.18	0.18
v/c Ratio	0.52	0.40	0.04	0.81	0.06	0.06	0.41	0.48
Control Delay	18.1	11.0	7.5	25.4	23.4	18.4	28.2	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	11.0	7.5	25.4	23.4	18.4	28.2	9.7
LOS	B	B	A	C	C	B	C	A
Approach Delay		13.4		24.9		20.3		15.7
Approach LOS		B		C		C		B

Intersection Summary

Cycle Length: 85
 Actuated Cycle Length: 57.6
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 18.4
 Intersection Capacity Utilization 66.8%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	387	13	18	443	120	10	10	6	93	21	174
Future Volume (veh/h)	207	387	13	18	443	120	10	10	6	93	21	174
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1900	1885	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	225	421	13	20	482	115	11	11	0	101	23	18
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, %	1	2	0	0	1	1	0	0	0	1	0	0
Cap, veh/h	449	671	21	614	591	141	305	215	0	330	110	86
Arrive On Green	0.11	0.37	0.37	0.14	0.40	0.40	0.11	0.11	0.00	0.11	0.11	0.11
Sat Flow, veh/h	1795	1805	56	1810	1471	351	1382	1900	0	1409	975	763
Grp Volume(v), veh/h	225	0	434	20	0	597	11	11	0	101	0	41
Grp Sat Flow(s),veh/h/ln	1795	0	1860	1810	0	1822	1382	1900	0	1409	0	1738
Q Serve(g_s), s	0.0	0.0	7.7	0.0	0.0	11.8	0.3	0.2	0.0	2.8	0.0	0.9
Cycle Q Clear(g_c), s	0.0	0.0	7.7	0.0	0.0	11.8	1.2	0.2	0.0	3.0	0.0	0.9
Prop In Lane	1.00		0.03	1.00		0.19	1.00		0.00	1.00		0.44
Lane Grp Cap(c), veh/h	449	0	691	614	0	732	305	215	0	330	0	196
V/C Ratio(X)	0.50	0.00	0.63	0.03	0.00	0.82	0.04	0.05	0.00	0.31	0.00	0.21
Avail Cap(c_a), veh/h	689	0	1843	802	0	1806	834	941	0	869	0	861
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.4	0.0	10.4	9.4	0.0	10.8	16.8	16.0	0.0	17.3	0.0	16.3
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.2	0.0	0.2
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(95%),veh/ln	2.7	0.0	3.9	0.2	0.0	5.7	0.2	0.1	0.0	1.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	0.0	10.7	9.4	0.0	11.6	16.8	16.0	0.0	17.5	0.0	16.5
LnGrp LOS	B	A	B	A	A	B	B	B	A	B	A	B
Approach Vol, veh/h		659			617			22				142
Approach Delay, s/veh		12.4			11.5			16.4				17.2
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	20.0		9.6	9.6	21.2		9.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	9.7		5.0	2.0	13.8		3.2				
Green Ext Time (p_c), s	0.0	1.6		0.2	0.2	2.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

MOVEMENT SUMMARY

Site: 101 [SE 176 Avenue/ SE 29th Street Phase 3 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Phase 3
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh.]	Dist [ft]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
			veh/h	%	veh/h	%	v/c	sec							
South: SE 176th Avenue															
3	L2	All MCs	16	15.0	16	15.0	0.336	7.9	LOS A	1.9	46.6	0.45	0.27	0.45	32.1
8	T1	All MCs	267	0.0	267	0.0	0.336	6.5	LOS A	1.9	46.6	0.45	0.27	0.45	33.2
18	R2	All MCs	87	0.0	87	0.0	0.336	6.5	LOS A	1.9	46.6	0.45	0.27	0.45	32.9
Approach			370	0.7	370	0.7	0.336	6.5	LOS A	1.9	46.6	0.45	0.27	0.45	33.1
East: SE 29th Street															
1	L2	All MCs	197	0.0	197	0.0	0.594	11.4	LOS B	6.0	151.1	0.71	0.58	0.94	29.8
6	T1	All MCs	354	0.0	354	0.0	0.594	11.4	LOS B	6.0	151.1	0.71	0.58	0.94	30.3
16	R2	All MCs	47	0.0	47	0.0	0.594	11.4	LOS B	6.0	151.1	0.71	0.58	0.94	30.1
Approach			598	0.0	598	0.0	0.594	11.4	LOS B	6.0	151.1	0.71	0.58	0.94	30.1
North: SE 176th Avenue															
7	L2	All MCs	51	0.0	51	0.0	0.325	8.5	LOS A	1.5	38.0	0.65	0.54	0.65	31.2
4	T1	All MCs	86	1.0	86	1.0	0.325	8.6	LOS A	1.5	38.0	0.65	0.54	0.65	31.8
14	R2	All MCs	113	0.0	113	0.0	0.325	8.5	LOS A	1.5	38.0	0.65	0.54	0.65	31.6
Approach			249	0.3	249	0.3	0.325	8.5	LOS A	1.5	38.0	0.65	0.54	0.65	31.6
West: SE 29th Street															
5	L2	All MCs	22	7.0	22	7.0	0.199	6.3	LOS A	0.9	23.1	0.48	0.34	0.48	32.6
2	T1	All MCs	139	0.0	139	0.0	0.199	5.5	LOS A	0.9	23.1	0.48	0.34	0.48	33.5
12	R2	All MCs	33	0.0	33	0.0	0.199	5.5	LOS A	0.9	23.1	0.48	0.34	0.48	33.2
Approach			194	0.8	194	0.8	0.199	5.6	LOS A	0.9	23.1	0.48	0.34	0.48	33.3
All Vehicles			1411	0.3	1411	0.3	0.594	8.8	LOS A	6.0	151.1	0.60	0.46	0.70	31.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: H:\27127715 - VIC Implementation\005 - Master Plan Update TIA\Analysis\176th_29th With Project 2038 PM.sip9

Intersection	
Intersection Delay, s/veh	92.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↵			↕	
Traffic Vol, veh/h	48	466	73	93	503	18	50	135	76	27	96	28
Future Vol, veh/h	48	466	73	93	503	18	50	135	76	27	96	28
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
Heavy Vehicles, %	3	0	0	1	0	7	0	1	0	4	1	8
Mvmt Flow	52	507	79	101	547	20	54	147	83	29	104	30
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	127.4	107.5	19.7	19.8
HCM LOS	F	F	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	18%
Vol Thru, %	0%	64%	0%	86%	0%	97%	64%
Vol Right, %	0%	36%	0%	14%	0%	3%	19%
Sign Control	Stop						
Traffic Vol by Lane	50	211	48	539	93	521	151
LT Vol	50	0	48	0	93	0	27
Through Vol	0	135	0	466	0	503	96
RT Vol	0	76	0	73	0	18	28
Lane Flow Rate	54	229	52	586	101	566	164
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.136	0.525	0.117	1.208	0.224	1.171	0.413
Departure Headway (Hd)	9.732	8.962	8.503	7.834	8.481	7.92	9.988
Convergence, Y/N	Yes						
Cap	371	406	424	469	426	464	363
Service Time	7.432	6.662	6.203	5.534	6.181	5.62	7.988
HCM Lane V/C Ratio	0.146	0.564	0.123	1.249	0.237	1.22	0.452
HCM Control Delay	14	21.1	12.3	137.6	13.6	124.3	19.8
HCM Lane LOS	B	C	B	F	B	F	C
HCM 95th-tile Q	0.5	3	0.4	21.6	0.8	19.8	2

Timings
11: SE 164th Ave & SE 29th St

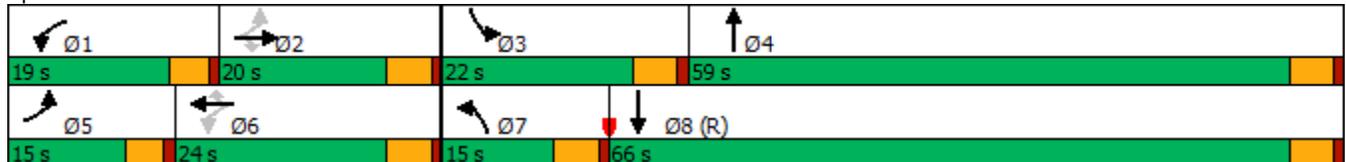
Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	89	51	51	287	38	193	42	1419	151	1304
Future Volume (vph)	89	51	51	287	38	193	42	1419	151	1304
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2		1	6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	5	2	2	1	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.5	39.0	39.0	9.5	38.0	38.0	10.0	32.0	19.5	32.0
Total Split (s)	15.0	20.0	20.0	19.0	24.0	24.0	15.0	59.0	22.0	66.0
Total Split (%)	12.5%	16.7%	16.7%	15.8%	20.0%	20.0%	12.5%	49.2%	18.3%	55.0%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	4.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	18.9	11.0	11.0	28.7	14.5	14.5	6.3	63.6	12.9	72.1
Actuated g/C Ratio	0.16	0.09	0.09	0.24	0.12	0.12	0.05	0.53	0.11	0.60
v/c Ratio	0.37	0.31	0.19	0.91	0.18	0.55	0.49	0.57	0.83	0.94
Control Delay	40.8	55.3	1.5	74.3	48.1	12.4	51.0	35.3	84.5	36.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	55.3	1.5	74.3	48.1	12.4	51.0	35.3	84.5	36.2
LOS	D	E	A	E	D	B	D	D	F	D
Approach Delay		34.1			49.3			35.7		41.1
Approach LOS		C			D			D		D

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 112 (93%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 39.7
 Intersection LOS: D
 Intersection Capacity Utilization 72.0%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Phase 3 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	51	51	287	38	193	42	1419	36	151	1304	46
Future Volume (veh/h)	89	51	51	287	38	193	42	1419	36	151	1304	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1870	1870	1826	1870	1752	1885	1885	1900
Adj Flow Rate, veh/h	94	54	1	302	40	17	44	1494	36	159	1373	47
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, %	0	0	0	2	2	2	5	2	10	1	1	0
Cap, veh/h	287	163	137	355	273	230	56	2308	56	186	1794	61
Arrive On Green	0.06	0.09	0.09	0.12	0.15	0.15	0.03	0.45	0.45	0.10	0.52	0.52
Sat Flow, veh/h	1810	1900	1599	1781	1870	1579	1739	5128	124	1795	3443	118
Grp Volume(v), veh/h	94	54	1	302	40	17	44	992	538	159	677	743
Grp Sat Flow(s),veh/h/ln	1810	1900	1599	1781	1870	1579	1739	1702	1848	1795	848	1864
Q Serve(g_s), s	5.6	3.2	0.1	14.5	2.2	1.1	3.0	27.1	27.1	10.5	38.1	38.1
Cycle Q Clear(g_c), s	5.6	3.2	0.1	14.5	2.2	1.1	3.0	27.1	27.1	10.5	38.1	38.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		0.06
Lane Grp Cap(c), veh/h	287	163	137	355	273	230	56	1532	832	186	884	972
V/C Ratio(X)	0.33	0.33	0.01	0.85	0.15	0.07	0.79	0.65	0.65	0.86	0.77	0.77
Avail Cap(c_a), veh/h	335	238	200	355	296	250	145	1532	832	254	884	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	51.6	50.2	45.1	44.7	44.3	57.7	25.6	25.6	52.9	22.9	22.9
Incr Delay (d2), s/veh	0.7	0.4	0.0	17.6	0.1	0.0	6.3	1.5	2.8	14.6	6.3	5.7
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(95%),veh/ln	4.7	2.8	0.0	6.6	1.9	0.8	2.5	15.3	16.8	9.2	12.5	23.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	52.0	50.2	62.7	44.8	44.3	64.0	27.1	28.4	67.5	29.1	28.6
LnGrp LOS	D	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		149			359			1574			1579	
Approach Delay, s/veh		48.7			59.9			28.6			32.8	
Approach LOS		D			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	15.3	17.4	59.0	11.8	22.5	8.9	67.5				
Change Period (Y+Rc), s	4.5	5.0	5.0	5.0	4.5	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.5	15.0	17.0	54.0	10.5	19.0	10.0	61.0				
Max Q Clear Time (g_c+I1), s	16.5	5.2	12.5	29.1	7.6	4.2	5.0	40.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.7	0.0	0.0	0.0	1.5				

Intersection Summary												
HCM 6th Ctrl Delay				34.3								
HCM 6th LOS				C								

Notes

User approved pedestrian interval to be less than phase max green.

Timings
12: SE 164th Ave & SE 34th St

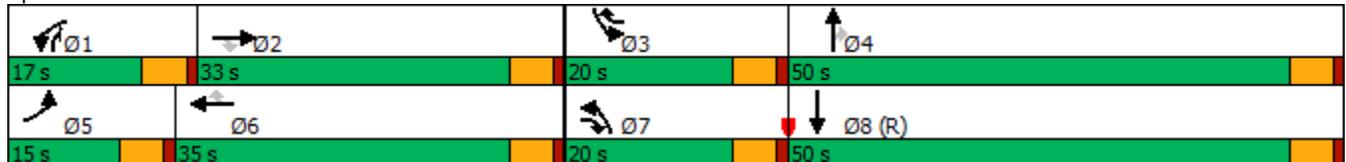
Vancouver Innovation Center
Phase 3 2038 PM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	49	102	194	287	136	232	192	1220	405	162	1419
Future Volume (vph)	49	102	194	287	136	232	192	1220	405	162	1419
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	15.0	33.0	20.0	17.0	35.0	20.0	20.0	50.0	17.0	20.0	50.0
Total Split (%)	12.5%	27.5%	16.7%	14.2%	29.2%	16.7%	16.7%	41.7%	14.2%	16.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes										
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	7.3	10.7	34.0	12.0	17.5	37.8	18.3	62.0	79.0	15.3	59.0
Actuated g/C Ratio	0.06	0.09	0.28	0.10	0.15	0.32	0.15	0.52	0.66	0.13	0.49
v/c Ratio	0.51	0.66	0.41	1.69	0.54	0.43	0.74	0.70	0.36	0.75	0.86
Control Delay	71.7	71.0	24.2	366.8	56.2	20.7	64.4	26.0	3.7	67.8	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.7	71.0	24.2	366.8	56.2	20.7	64.4	26.0	3.7	67.8	25.4
LOS	E	E	C	F	E	C	E	C	A	E	C
Approach Delay		44.8			179.6			25.1			29.6
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 40 (33%), Referenced to phase 8:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.69	
Intersection Signal Delay: 51.1	Intersection LOS: D
Intersection Capacity Utilization 80.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 12: SE 164th Ave & SE 34th St

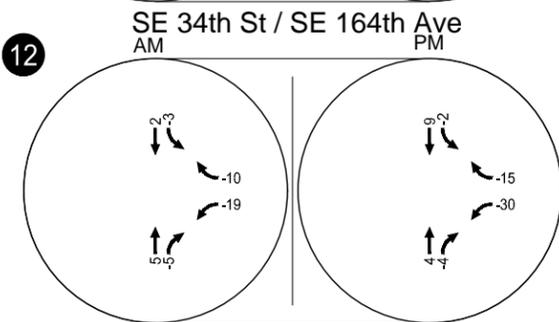
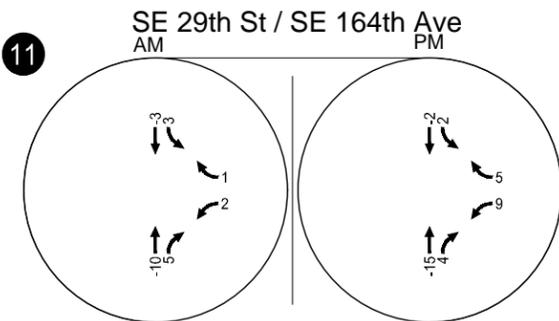
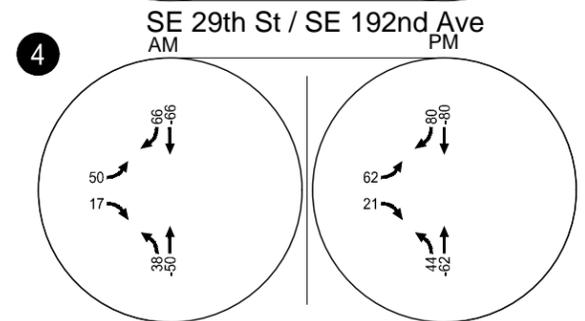
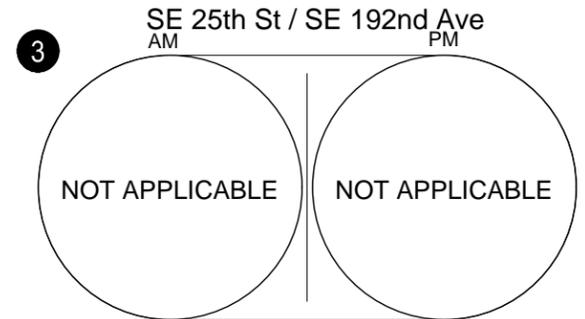
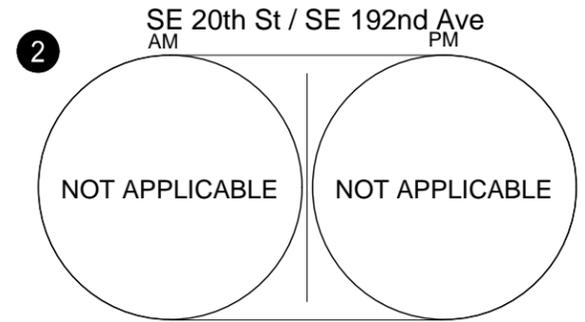
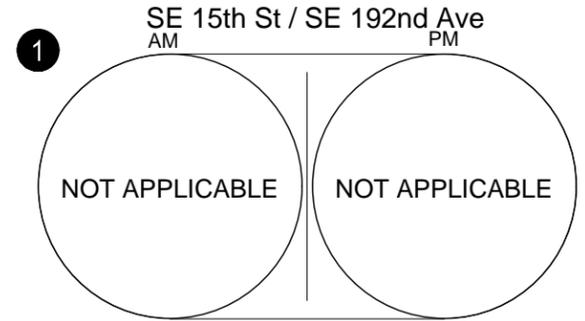
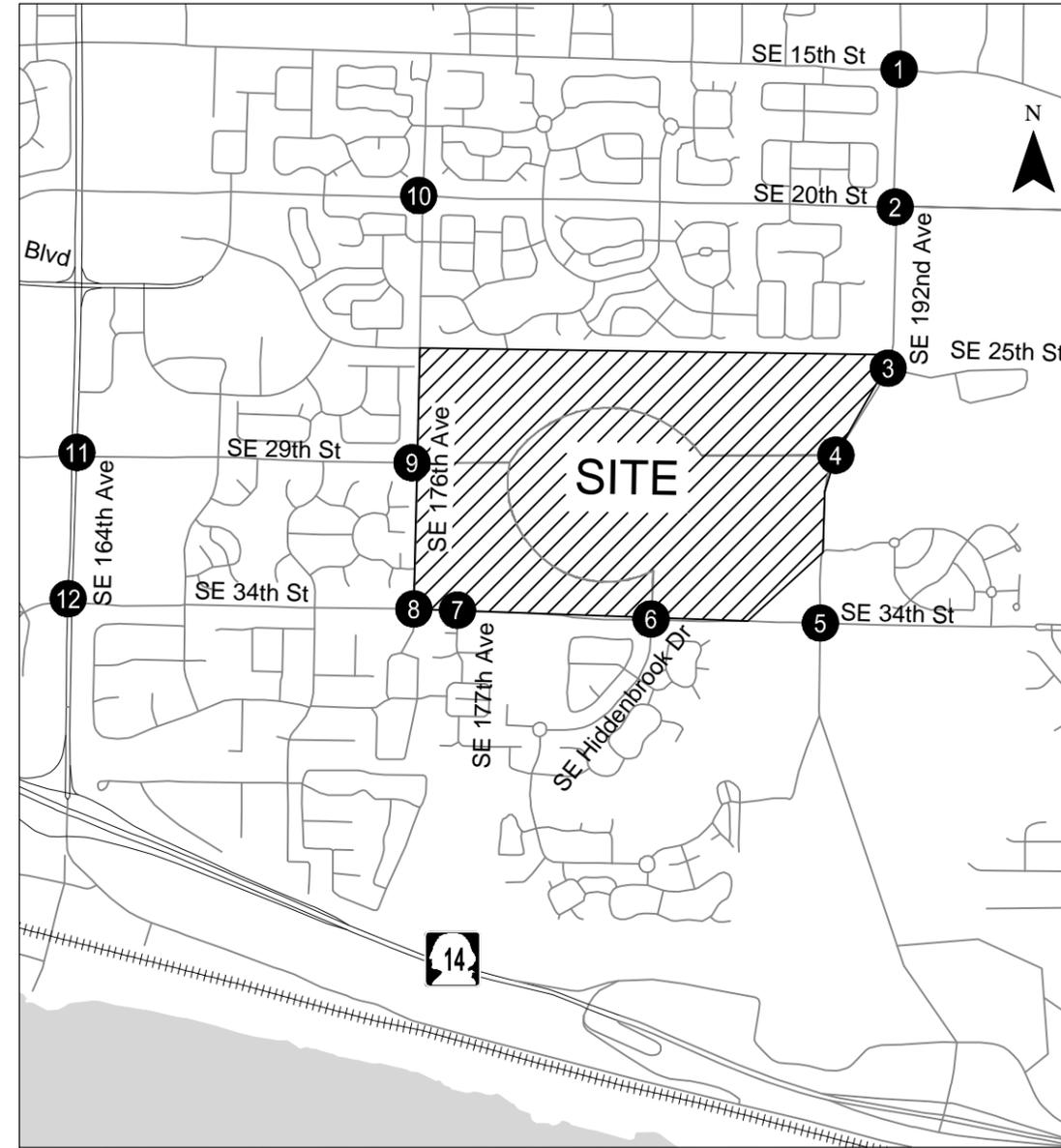
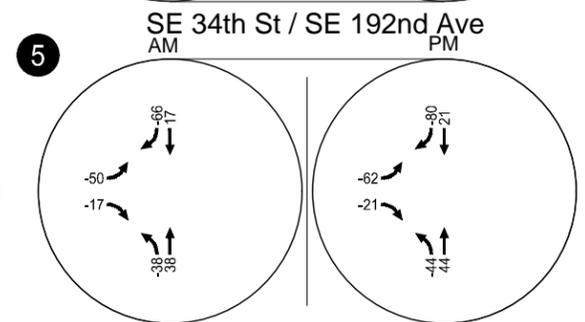
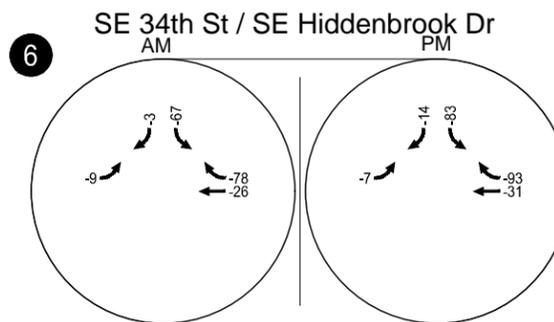
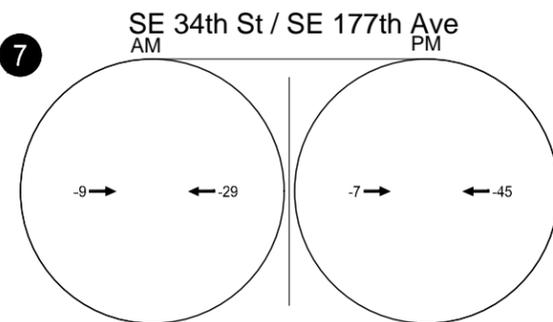
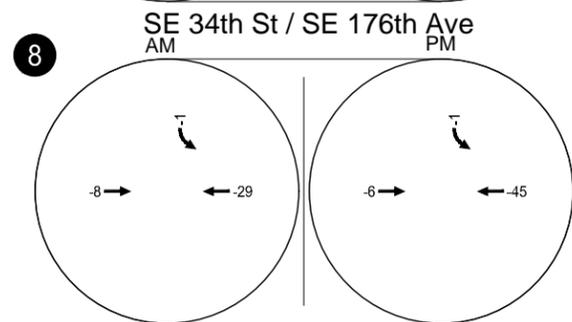
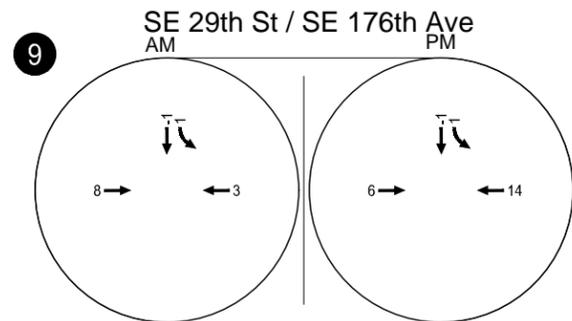
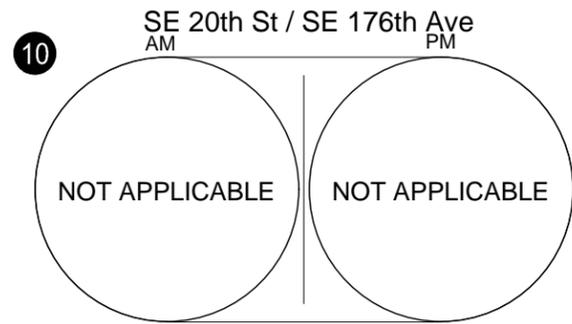


HCM 6th Signalized Intersection Summary
 12: SE 164th Ave & SE 34th St

Vancouver Innovation Center
 Phase 3 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	102	194	287	136	232	192	1220	405	162	1419	49
Future Volume (veh/h)	49	102	194	287	136	232	192	1220	405	162	1419	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1826	1885	1870	1841	1856	1885	1870	1885	1870	1870	1841
Adj Flow Rate, veh/h	51	106	152	299	142	167	200	1271	291	169	1478	49
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	5	1	2	4	3	1	2	1	2	2	4
Cap, veh/h	64	183	359	178	298	427	224	1387	783	195	1552	51
Arrive On Green	0.04	0.10	0.10	0.10	0.16	0.16	0.13	0.39	0.39	0.11	0.38	0.38
Sat Flow, veh/h	1682	1826	1598	1781	1841	1572	1795	3554	1598	1781	4140	137
Grp Volume(v), veh/h	51	106	152	299	142	167	200	1271	291	169	868	659
Grp Sat Flow(s),veh/h/ln	1682	1826	1598	1781	1841	1572	1795	1777	1598	1781	1216	1846
Q Serve(g_s), s	3.6	6.7	9.8	12.0	8.4	10.4	13.2	40.7	13.6	11.2	41.6	41.6
Cycle Q Clear(g_c), s	3.6	6.7	9.8	12.0	8.4	10.4	13.2	40.7	13.6	11.2	41.6	41.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	64	183	359	178	298	427	224	1387	783	195	912	692
V/C Ratio(X)	0.79	0.58	0.42	1.68	0.48	0.39	0.89	0.92	0.37	0.86	0.95	0.95
Avail Cap(c_a), veh/h	140	426	572	178	460	566	224	1387	783	223	912	692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.30	0.30	0.30
Uniform Delay (d), s/veh	57.2	51.6	39.8	54.0	45.7	35.6	51.7	34.7	19.1	52.5	36.5	36.5
Incr Delay (d2), s/veh	7.9	1.1	0.3	328.6	0.4	0.2	31.8	11.0	1.4	8.6	8.4	10.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	5.5	6.9	34.2	6.9	7.1	12.4	26.0	8.9	7.5	16.1	23.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.1	52.7	40.1	382.6	46.1	35.8	83.5	45.7	20.4	61.2	44.9	46.9
LnGrp LOS	E	D	D	F	D	D	F	D	C	E	D	D
Approach Vol, veh/h		309			608			1762			1696	
Approach Delay, s/veh		48.6			208.8			45.8			47.3	
Approach LOS		D			F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	17.0	18.2	51.8	9.6	24.4	20.0	50.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	28.0	15.0	45.0	10.0	30.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	14.0	11.8	13.2	42.7	5.6	12.4	15.2	43.6				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.1	0.0	0.3	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay				69.2								
HCM 6th LOS				E								

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Redistributed Baseline Traffic Volumes - SE 29th St Eastern Connection
Weekday AM & PM Peak Hour
Vancouver, WA

Figure
H-1

Appendix I 2038 With-Project Phase 4
Buildout Operations
Worksheets

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions



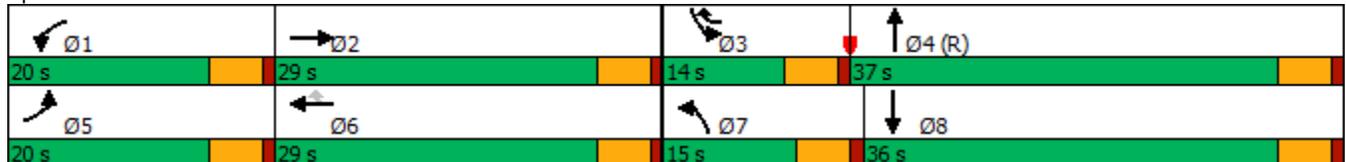
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	156	45	29	64	158	69	1025	89	920
Future Volume (vph)	156	45	29	64	158	69	1025	89	920
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases						6			
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	20.0	29.0	20.0	29.0	14.0	15.0	37.0	14.0	36.0
Total Split (%)	20.0%	29.0%	20.0%	29.0%	14.0%	15.0%	37.0%	14.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	12.4	18.7	5.9	10.2	22.0	7.7	50.6	8.8	53.7
Actuated g/C Ratio	0.12	0.19	0.06	0.10	0.22	0.08	0.51	0.09	0.54
v/c Ratio	0.80	0.31	0.32	0.38	0.43	0.57	0.66	0.69	0.63
Control Delay	67.8	18.5	53.4	45.3	18.0	60.6	24.5	69.1	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	18.5	53.4	45.3	18.0	60.6	24.5	69.1	22.9
LOS	E	B	D	D	B	E	C	E	C
Approach Delay	48.3		29.0		26.8			26.7	
Approach LOS	D		C		C			C	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 9 (9%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 29.0
 Intersection Capacity Utilization 61.6%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: SE 192nd & SE 15th St



HCM 6th Signalized Intersection Summary
 1: SE 192nd & SE 15th St

Vancouver Innovation Center
 Phase 4 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	45	57	29	64	158	69	1025	16	89	920	87
Future Volume (veh/h)	156	45	57	29	64	158	69	1025	16	89	920	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1796	1781	1841	1870	1856	1841	1900	1737	1767	1856
Adj Flow Rate, veh/h	173	50	9	32	71	100	77	1139	17	99	1022	91
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	0	7	8	4	2	3	4	0	11	9	3
Cap, veh/h	204	258	46	50	145	242	109	1877	28	122	1697	151
Arrive On Green	0.12	0.16	0.16	0.03	0.08	0.08	0.12	1.00	1.00	0.07	0.54	0.54
Sat Flow, veh/h	1767	1567	282	1697	1841	1585	1767	3526	53	1654	3117	277
Grp Volume(v), veh/h	173	0	59	32	71	100	77	565	591	99	550	563
Grp Sat Flow(s),veh/h/ln	1767	0	1849	1697	1841	1585	1767	1749	1830	1654	1678	1716
Q Serve(g_s), s	9.6	0.0	2.8	1.9	3.7	5.7	4.2	0.0	0.0	5.9	22.2	22.2
Cycle Q Clear(g_c), s	9.6	0.0	2.8	1.9	3.7	5.7	4.2	0.0	0.0	5.9	22.2	22.2
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.03	1.00		0.16
Lane Grp Cap(c), veh/h	204	0	304	50	145	242	109	931	974	122	913	934
V/C Ratio(X)	0.85	0.00	0.19	0.64	0.49	0.41	0.70	0.61	0.61	0.81	0.60	0.60
Avail Cap(c_a), veh/h	265	0	444	254	442	498	177	931	974	149	913	934
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	0.0	36.1	48.0	44.2	38.3	42.9	0.0	0.0	45.6	15.4	15.5
Incr Delay (d2), s/veh	14.7	0.0	0.1	5.0	1.0	0.4	2.2	2.1	2.0	19.5	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.5	0.0	2.2	1.5	3.1	3.9	3.2	1.0	1.0	5.4	13.1	13.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	0.0	36.2	53.0	45.1	38.8	45.1	2.1	2.0	65.1	18.4	18.3
LnGrp LOS	E	A	D	D	D	D	D	A	A	E	B	B
Approach Vol, veh/h		232			203			1233			1212	
Approach Delay, s/veh		52.5			43.2			4.7			22.2	
Approach LOS		D			D			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	21.4	12.4	58.2	16.5	12.9	11.2	59.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	24.0	9.0	32.0	15.0	24.0	10.0	31.0				
Max Q Clear Time (g_c+I1), s	3.9	4.8	7.9	2.0	11.6	7.7	6.2	24.2				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.3	0.0	0.2	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay				18.6								
HCM 6th LOS				B								

Timings
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions

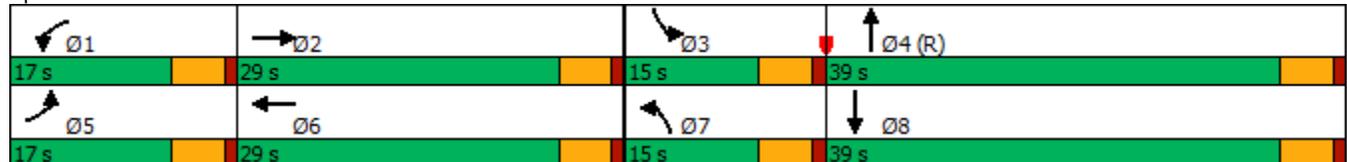


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↖	↖↗	↖	↖	↕↔	↖	↕↔
Traffic Volume (vph)	166	182	182	165	50	827	59	793
Future Volume (vph)	166	182	182	165	50	827	59	793
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	17.0	29.0	17.0	29.0	15.0	39.0	15.0	39.0
Total Split (%)	17.0%	29.0%	17.0%	29.0%	15.0%	39.0%	15.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	9.4	18.8	9.7	19.1	7.5	45.8	7.7	44.0
Actuated g/C Ratio	0.09	0.19	0.10	0.19	0.08	0.46	0.08	0.44
v/c Ratio	0.55	0.82	0.57	0.65	0.42	0.67	0.45	0.64
Control Delay	49.5	53.5	49.7	43.0	64.3	19.0	51.9	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	53.5	49.7	43.0	64.3	19.0	51.9	31.1
LOS	D	D	D	D	E	B	D	C
Approach Delay		52.0		46.0		21.2		32.4
Approach LOS		D		D		C		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 33.2
 Intersection Capacity Utilization 69.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 2: SE 20th St & SE 192nd Ave



HCM 6th Signalized Intersection Summary
2: SE 20th St & SE 192nd Ave

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↕↔		↔	↕↔	
Traffic Volume (veh/h)	166	182	92	182	165	57	50	827	179	59	793	103
Future Volume (veh/h)	166	182	92	182	165	57	50	827	179	59	793	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1841	1885	1885	1885	1811	1856	1841	1885	1811	1826
Adj Flow Rate, veh/h	175	192	77	192	174	46	53	871	172	62	835	100
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, %	3	0	4	1	1	1	6	3	4	1	6	5
Cap, veh/h	242	220	88	261	251	66	87	1496	295	80	1560	187
Arrive On Green	0.07	0.17	0.17	0.07	0.17	0.17	0.05	0.51	0.51	0.06	0.67	0.67
Sat Flow, veh/h	3428	1290	517	3483	1437	380	1725	2934	579	1795	3094	371
Grp Volume(v), veh/h	175	0	269	192	0	220	53	523	520	62	464	471
Grp Sat Flow(s),veh/h/ln	1714	0	1807	1742	0	1817	1725	1763	1751	1795	1721	1744
Q Serve(g_s), s	5.0	0.0	14.5	5.4	0.0	11.4	3.0	20.7	20.7	3.4	13.9	13.9
Cycle Q Clear(g_c), s	5.0	0.0	14.5	5.4	0.0	11.4	3.0	20.7	20.7	3.4	13.9	13.9
Prop In Lane	1.00		0.29	1.00		0.21	1.00		0.33	1.00		0.21
Lane Grp Cap(c), veh/h	242	0	308	261	0	318	87	899	893	80	868	879
V/C Ratio(X)	0.72	0.00	0.87	0.74	0.00	0.69	0.61	0.58	0.58	0.78	0.54	0.54
Avail Cap(c_a), veh/h	411	0	434	418	0	436	172	899	893	180	868	879
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	45.5	0.0	40.4	45.3	0.0	38.7	46.5	17.1	17.1	46.5	10.4	10.4
Incr Delay (d2), s/veh	1.5	0.0	10.3	1.5	0.0	1.1	2.6	2.7	2.8	4.4	1.8	1.7
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(95%),veh/ln	3.8	0.0	11.5	4.2	0.0	8.7	2.4	13.1	13.0	2.8	7.3	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	50.7	46.8	0.0	39.9	49.1	19.8	19.8	51.0	12.2	12.2
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		444			412			1096				997
Approach Delay, s/veh		49.2			43.1			21.3				14.6
Approach LOS		D			D			C				B
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	22.1	9.5	56.0	12.1	22.5	10.0	55.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	24.0	10.0	34.0	12.0	24.0	10.0	34.0				
Max Q Clear Time (g_c+I1), s	7.4	16.5	5.4	22.7	7.0	13.4	5.0	15.9				
Green Ext Time (p_c), s	0.1	0.5	0.0	3.4	0.1	0.5	0.0	3.5				

Intersection Summary

HCM 6th Ctrl Delay	26.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↵	↕↕		↵	↕↕
Traffic Vol, veh/h	7	10	978	3	7	1041
Future Vol, veh/h	7	10	978	3	7	1041
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	20	4	67	0	7
Mvmt Flow	7	11	1029	3	7	1096

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1594	517	0	0	1033
Stage 1	1032	-	-	-	-
Stage 2	562	-	-	-	-
Critical Hdwy	6.8	7.3	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.5	-	-	2.2
Pot Cap-1 Maneuver	100	459	-	-	681
Stage 1	309	-	-	-	-
Stage 2	540	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	99	459	-	-	680
Mov Cap-2 Maneuver	99	-	-	-	-
Stage 1	309	-	-	-	-
Stage 2	535	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.9	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	99	459	680
HCM Lane V/C Ratio	-	-	0.074	0.023	0.011
HCM Control Delay (s)	-	-	44.3	13	10.4
HCM Lane LOS	-	-	E	B	B
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0

Timings
4: SE 192nd Ave & SE 29th St

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions



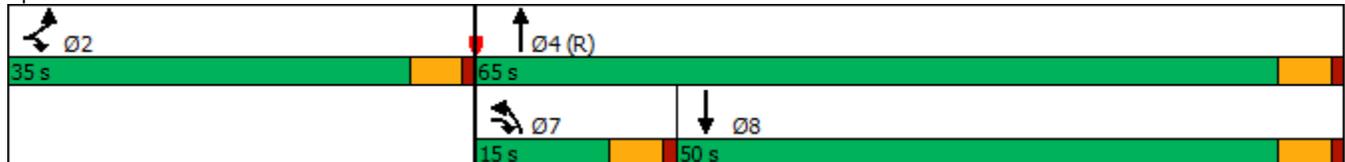
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	215	100	109	766	781
Future Volume (vph)	215	100	109	766	781
Turn Type	Prot	pt+ov	Prot	NA	NA
Protected Phases	2	2 7	7	4	8
Permitted Phases					
Detector Phase	2	2 7	7	4	8
Switch Phase					
Minimum Initial (s)	5.0		5.0	5.0	5.0
Minimum Split (s)	27.0		10.0	26.0	26.0
Total Split (s)	35.0		15.0	65.0	50.0
Total Split (%)	35.0%		15.0%	65.0%	50.0%
Yellow Time (s)	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None		None	C-Max	Max
Act Effct Green (s)	18.6	35.4	11.9	71.4	54.6
Actuated g/C Ratio	0.19	0.35	0.12	0.71	0.55
v/c Ratio	0.72	0.17	0.57	0.33	0.61
Control Delay	50.5	5.0	28.9	14.1	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	5.0	28.9	14.1	27.0
LOS	D	A	C	B	C
Approach Delay	36.1			15.9	27.0
Approach LOS	D			B	C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 85 (85%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 23.9
 Intersection Capacity Utilization 60.6%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 4: SE 192nd Ave & SE 29th St



HCM 6th Signalized Intersection Summary
4: SE 192nd Ave & SE 29th St

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	215	100	109	766	781	267
Future Volume (veh/h)	215	100	109	766	781	267
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1826	1826	1826	1811	1767
Adj Flow Rate, veh/h	226	39	115	806	822	252
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	5	5	5	6	9
Cap, veh/h	266	364	141	2587	1595	489
Arrive On Green	0.15	0.15	0.16	1.00	0.61	0.61
Sat Flow, veh/h	1725	1547	1739	3561	2684	795
Grp Volume(v), veh/h	226	39	115	806	545	529
Grp Sat Flow(s),veh/h/ln	1725	1547	1739	1735	1721	1668
Q Serve(g_s), s	12.8	2.0	6.4	0.0	17.9	17.9
Cycle Q Clear(g_c), s	12.8	2.0	6.4	0.0	17.9	17.9
Prop In Lane	1.00	1.00	1.00			0.48
Lane Grp Cap(c), veh/h	266	364	141	2587	1058	1026
V/C Ratio(X)	0.85	0.11	0.82	0.31	0.52	0.52
Avail Cap(c_a), veh/h	517	589	174	2587	1058	1026
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.79	0.79	1.00	1.00
Uniform Delay (d), s/veh	41.2	30.0	41.2	0.0	10.8	10.9
Incr Delay (d2), s/veh	7.4	0.1	17.6	0.2	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.9	3.5	5.7	0.2	10.6	10.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.6	30.1	58.8	0.2	12.6	12.7
LnGrp LOS	D	C	E	A	B	B
Approach Vol, veh/h				921	1074	
Approach Delay, s/veh				7.6	12.7	
Approach LOS				A	B	
Timer - Assigned Phs		2		4		7 8
Phs Duration (G+Y+Rc), s		20.4		79.6		13.1 66.5
Change Period (Y+Rc), s		5.0		5.0		5.0 5.0
Max Green Setting (Gmax), s		30.0		60.0		10.0 45.0
Max Q Clear Time (g_c+I1), s		14.8		2.0		8.4 19.9
Green Ext Time (p_c), s		0.7		6.3		0.0 7.5
Intersection Summary						
HCM 6th Ctrl Delay			14.5			
HCM 6th LOS			B			

Timings
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions

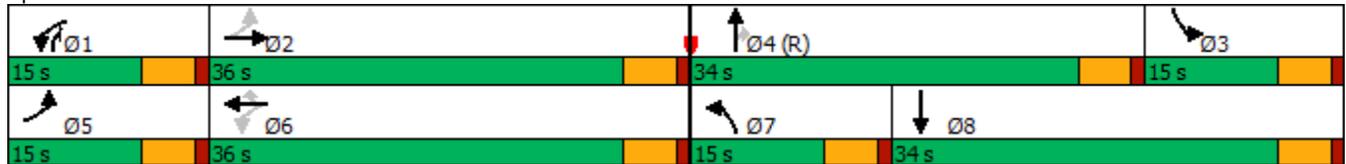
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	74	173	207	154	95	121	785	349	131	624
Future Volume (vph)	74	173	207	154	95	121	785	349	131	624
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6		7	4	1	3	8
Permitted Phases	2		6		6			4		
Detector Phase	5	2	1	6	6	7	4	1	3	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	15.0	36.0	15.0	36.0	36.0	15.0	34.0	15.0	15.0	34.0
Total Split (%)	15.0%	36.0%	15.0%	36.0%	36.0%	15.0%	34.0%	15.0%	15.0%	34.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	27.6	20.9	34.0	26.0	26.0	10.0	39.3	49.1	10.0	39.3
Actuated g/C Ratio	0.28	0.21	0.34	0.26	0.26	0.10	0.39	0.49	0.10	0.39
v/c Ratio	0.22	0.82	0.85	0.34	0.19	0.73	0.66	0.40	0.43	0.63
Control Delay	21.3	49.9	52.2	31.6	0.8	66.8	29.6	2.4	41.6	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	49.9	52.2	31.6	0.8	66.8	29.6	2.4	41.6	24.3
LOS	C	D	D	C	A	E	C	A	D	C
Approach Delay		44.0		34.5			25.6			27.0
Approach LOS		D		C			C			C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 40 (40%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 29.7
 Intersection Capacity Utilization 72.2%
 Analysis Period (min) 15

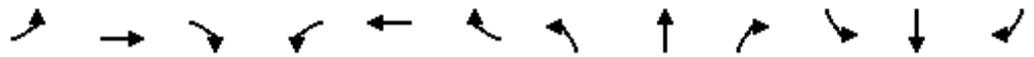
Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 5: SE 192nd Ave & SE 34th St



HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions

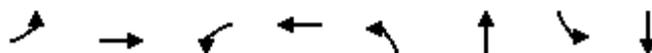


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	173	112	207	154	95	121	785	349	131	624	89
Future Volume (veh/h)	74	173	112	207	154	95	121	785	349	131	624	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1817	1803	1847	1943	2018	1988	2018	1883	1988	1832	1684	1817
Adj Flow Rate, veh/h	82	192	94	230	171	19	134	872	165	146	693	88
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	3	0	5	0	2	0	9	2	1	11	2
Cap, veh/h	367	228	111	300	501	411	166	1037	655	712	1182	150
Arrive On Green	0.05	0.20	0.20	0.10	0.25	0.25	0.09	0.29	0.29	0.21	0.41	0.41
Sat Flow, veh/h	1731	1140	558	1850	2018	1655	1922	3578	1679	3385	2856	362
Grp Volume(v), veh/h	82	0	286	230	171	19	134	872	165	146	388	393
Grp Sat Flow(s),veh/h/ln	1731	0	1698	1850	2018	1655	1922	1789	1679	1693	1600	1618
Q Serve(g_s), s	3.7	0.0	16.2	9.7	7.0	0.5	6.8	22.9	2.7	3.6	18.8	18.8
Cycle Q Clear(g_c), s	3.7	0.0	16.2	9.7	7.0	0.5	6.8	22.9	2.7	3.6	18.8	18.8
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	367	0	339	300	501	411	166	1037	655	712	662	670
V/C Ratio(X)	0.22	0.00	0.84	0.77	0.34	0.05	0.81	0.84	0.25	0.21	0.59	0.59
Avail Cap(c_a), veh/h	451	0	526	300	626	513	192	1037	655	712	662	670
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)	0.96	0.00	0.96	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79
Uniform Delay (d), s/veh	29.5	0.0	38.5	28.6	30.9	9.9	44.9	33.3	7.2	32.6	22.7	22.7
Incr Delay (d2), s/veh	0.1	0.0	4.1	10.3	0.1	0.0	16.8	8.2	0.9	0.0	3.0	3.0
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(95%),veh/ln	2.7	0.0	11.1	8.6	5.9	0.6	7.1	16.0	2.3	2.6	11.1	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	0.0	42.6	38.9	31.0	9.9	61.7	41.5	8.1	32.6	25.7	25.7
LnGrp LOS	C	A	D	D	C	A	E	D	A	C	C	C
Approach Vol, veh/h		368			420			1171			927	
Approach Delay, s/veh		39.7			34.4			39.1			26.8	
Approach LOS		D			C			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	25.0	26.0	34.0	10.1	29.8	13.6	46.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	31.0	10.0	29.0	10.0	31.0	10.0	29.0				
Max Q Clear Time (g_c+I1), s	11.7	18.2	5.6	24.9	5.7	9.0	8.8	20.8				
Green Ext Time (p_c), s	0.0	0.4	0.0	1.1	0.0	0.3	0.0	1.2				

Intersection Summary												
HCM 6th Ctrl Delay			34.5									
HCM 6th LOS			C									

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions

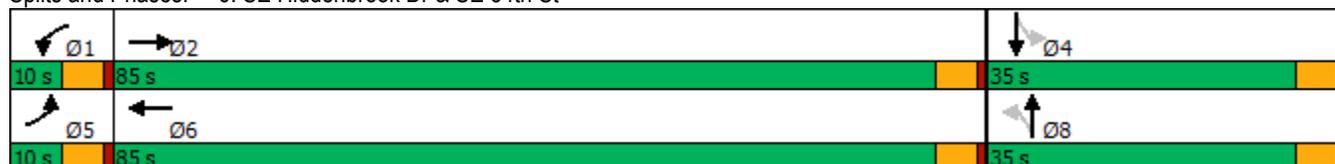


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	169	288	27	212	63	57	86	29
Future Volume (vph)	169	288	27	212	63	57	86	29
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	27.0	10.0	27.0	32.0	32.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	5.4	28.3	5.4	17.3	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.12	0.62	0.12	0.38	0.21	0.21	0.21	0.21
v/c Ratio	0.88	0.31	0.14	0.55	0.26	0.28	0.35	0.20
Control Delay	67.2	10.4	25.7	16.2	17.4	13.8	19.0	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.2	10.4	25.7	16.2	17.4	13.8	19.0	9.0
LOS	E	B	C	B	B	B	B	A
Approach Delay		30.4		16.9		15.2		14.5
Approach LOS		C		B		B		B

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 45.5
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 21.9
 Intersection Capacity Utilization 51.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	288	24	27	212	120	63	57	41	86	29	42
Future Volume (veh/h)	169	288	24	27	212	120	63	57	41	86	29	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1876	1802	1876	1832	1876	1876	1900	1900	1900
Adj Flow Rate, veh/h	188	320	24	30	236	107	70	63	22	96	32	4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	4	0	0	5	0	3	0	0	0	0	0
Cap, veh/h	217	761	57	63	428	194	359	207	72	324	257	32
Arrive On Green	0.12	0.45	0.45	0.04	0.37	0.37	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1810	1691	127	1787	1172	532	1344	1329	464	1333	1656	207
Grp Volume(v), veh/h	188	0	344	30	0	343	70	0	85	96	0	36
Grp Sat Flow(s),veh/h/ln	1810	0	1817	1787	0	1704	1344	0	1793	1333	0	1863
Q Serve(g_s), s	4.3	0.0	5.4	0.7	0.0	6.7	2.0	0.0	1.8	2.9	0.0	0.7
Cycle Q Clear(g_c), s	4.3	0.0	5.4	0.7	0.0	6.7	2.7	0.0	1.8	4.6	0.0	0.7
Prop In Lane	1.00		0.07	1.00		0.31	1.00		0.26	1.00		0.11
Lane Grp Cap(c), veh/h	217	0	818	63	0	623	359	0	279	324	0	289
V/C Ratio(X)	0.87	0.00	0.42	0.48	0.00	0.55	0.19	0.00	0.31	0.30	0.00	0.12
Avail Cap(c_a), veh/h	217	0	3484	214	0	3267	1116	0	1289	1075	0	1339
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	7.8	19.8	0.0	10.5	16.3	0.0	15.6	17.7	0.0	15.2
Incr Delay (d2), s/veh	27.9	0.0	0.1	2.1	0.0	0.3	0.1	0.0	0.2	0.2	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.6	0.0	2.4	0.5	0.0	3.2	1.0	0.0	1.2	1.4	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	7.9	21.8	0.0	10.8	16.4	0.0	15.9	17.9	0.0	15.2
LnGrp LOS	D	A	A	C	A	B	B	A	B	B	A	B
Approach Vol, veh/h		532			373			155			132	
Approach Delay, s/veh		21.4			11.7			16.1			17.1	
Approach LOS		C			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	23.8		11.5	10.0	20.2		11.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	2.7	7.4		6.6	6.3	8.7		4.7				
Green Ext Time (p_c), s	0.0	0.6		0.1	0.0	0.7		0.2				

Intersection Summary

HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷	↶	↷	
Traffic Vol, veh/h	465	11	7	310	29	17
Future Vol, veh/h	465	11	7	310	29	17
Conflicting Peds, #/hr	0	3	3	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	95	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	3	0	0	5	0	0
Mvmt Flow	547	13	8	365	34	20

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	563	0	938
Stage 1	-	-	-	-	557
Stage 2	-	-	-	-	381
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1019	-	296
Stage 1	-	-	-	-	578
Stage 2	-	-	-	-	695
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1016	-	293
Mov Cap-2 Maneuver	-	-	-	-	293
Stage 1	-	-	-	-	576
Stage 2	-	-	-	-	689

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	351	-	-	1016	-
HCM Lane V/C Ratio	0.154	-	-	0.008	-
HCM Control Delay (s)	17.1	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions

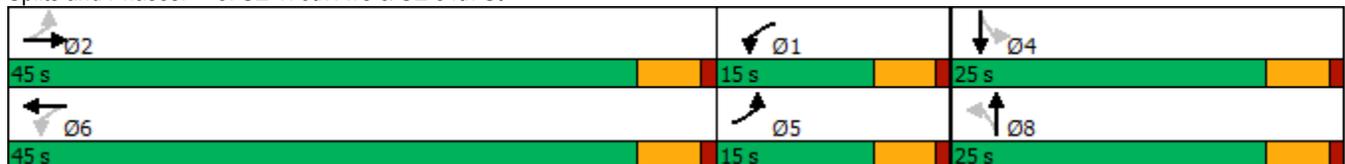


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	295	403	4	276	14	9	65	4
Future Volume (vph)	295	403	4	276	14	9	65	4
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	31.7	32.1	24.5	18.7	9.3	9.3	9.3	9.3
Actuated g/C Ratio	0.65	0.65	0.50	0.38	0.19	0.19	0.19	0.19
v/c Ratio	0.56	0.40	0.01	0.59	0.07	0.07	0.29	0.39
Control Delay	14.5	10.2	7.5	18.4	18.9	14.5	21.7	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	10.2	7.5	18.4	18.9	14.5	21.7	7.1
LOS	B	B	A	B	B	B	C	A
Approach Delay		12.0		18.3		16.4		11.6
Approach LOS		B		B		B		B

Intersection Summary

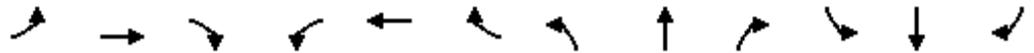
Cycle Length: 85
 Actuated Cycle Length: 49.1
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay: 13.7
 Intersection Capacity Utilization 59.8%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	295	403	2	4	276	59	14	9	8	65	4	141
Future Volume (veh/h)	295	403	2	4	276	59	14	9	8	65	4	141
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	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1856	1900	1900	1811	1826	1900	1900	1530	1870	1900	1885
Adj Flow Rate, veh/h	347	474	2	5	325	56	16	11	0	76	5	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	9	3	0	0	6	5	0	0	25	2	0	1
Cap, veh/h	596	708	3	572	580	100	330	202	0	324	202	0
Arrive On Green	0.12	0.38	0.38	0.13	0.39	0.39	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1682	1846	8	1810	1503	259	1407	1900	0	1378	1900	0
Grp Volume(v), veh/h	347	0	476	5	0	381	16	11	0	76	5	0
Grp Sat Flow(s),veh/h/ln	1682	0	1854	1810	0	1762	1407	1900	0	1378	1900	0
Q Serve(g_s), s	0.0	0.0	8.3	0.0	0.0	6.6	0.4	0.2	0.0	2.1	0.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	8.3	0.0	0.0	6.6	0.5	0.2	0.0	2.3	0.1	0.0
Prop In Lane	1.00		0.00	1.00		0.15	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	596	0	711	572	0	680	330	202	0	324	202	0
V/C Ratio(X)	0.58	0.00	0.67	0.01	0.00	0.56	0.05	0.05	0.00	0.23	0.02	0.00
Avail Cap(c_a), veh/h	816	0	1893	805	0	1800	899	970	0	880	970	0
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.6	0.0	10.0	9.7	0.0	9.4	15.9	15.7	0.0	16.7	15.7	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.0	0.0	0.3	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.9	0.0	4.0	0.0	0.0	3.0	0.2	0.1	0.0	1.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.9	0.0	10.4	9.7	0.0	9.7	15.9	15.8	0.0	16.9	15.7	0.0
LnGrp LOS	B	A	B	A	A	A	B	B	A	B	B	A
Approach Vol, veh/h		823			386			27			81	
Approach Delay, s/veh		11.5			9.7			15.9			16.8	
Approach LOS		B			A			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	20.0		9.2	9.9	20.1		9.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	10.3		4.3	2.0	8.6		2.5				
Green Ext Time (p_c), s	0.0	1.8		0.1	0.4	1.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

MOVEMENT SUMMARY

Site: 101 [SE 176 Avenue/ SE 29th Street Phase 4 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Phase 4
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] ft			mph	
South: SE 176th Avenue															
3	L2	All MCs	5	0.0	5	0.0	0.515	10.9	LOS B	3.9	97.6	0.71	0.64	0.94	30.6
8	T1	All MCs	144	2.0	144	2.0	0.515	11.2	LOS B	3.9	97.6	0.71	0.64	0.94	31.1
18	R2	All MCs	296	0.0	296	0.0	0.515	10.9	LOS B	3.9	97.6	0.71	0.64	0.94	30.9
Approach			445	0.6	445	0.6	0.515	11.0	LOS B	3.9	97.6	0.71	0.64	0.94	31.0
East: SE 29th Street															
1	L2	All MCs	122	0.0	122	0.0	0.527	8.9	LOS A	3.9	97.9	0.51	0.27	0.51	31.1
6	T1	All MCs	418	0.0	418	0.0	0.527	8.9	LOS A	3.9	97.9	0.51	0.27	0.51	31.7
16	R2	All MCs	79	0.0	79	0.0	0.527	8.9	LOS A	3.9	97.9	0.51	0.27	0.51	31.5
Approach			619	0.0	619	0.0	0.527	8.9	LOS A	3.9	97.9	0.51	0.27	0.51	31.6
North: SE 176th Avenue															
7	L2	All MCs	69	88.0	69	88.0	0.536	28.9	LOS D	2.9	90.3	0.75	0.78	1.15	26.5
4	T1	All MCs	104	1.0	104	1.0	0.536	12.3	LOS B	2.9	90.3	0.75	0.78	1.15	28.9
14	R2	All MCs	122	18.0	122	18.0	0.536	14.7	LOS B	2.9	90.3	0.75	0.78	1.15	28.4
Approach			295	28.5	295	28.5	0.536	16.4	LOS C	2.9	90.3	0.75	0.78	1.15	28.1
West: SE 29th Street															
5	L2	All MCs	6	0.0	6	0.0	0.351	7.5	LOS A	1.8	46.0	0.57	0.40	0.57	32.2
2	T1	All MCs	313	0.0	313	0.0	0.351	7.5	LOS A	1.8	46.0	0.57	0.40	0.57	32.8
12	R2	All MCs	15	10.0	15	10.0	0.351	8.7	LOS A	1.8	46.0	0.57	0.40	0.57	32.3
Approach			334	0.5	334	0.5	0.351	7.5	LOS A	1.8	46.0	0.57	0.40	0.57	32.8
All Vehicles			1693	5.2	1693	5.2	0.536	10.6	LOS B	3.9	97.9	0.62	0.48	0.75	31.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: H:\27127715 - VIC Implementation\005 - Master Plan Update TIA\Analysis\176th_29th With Project 2038 AM.sip9

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	272	36	87	314	14	55	94	66	0	93	10
Future Vol, veh/h	12	272	36	87	314	14	55	94	66	0	93	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	4	10	4	1	9	4	3	0	0	0	0
Mvmt Flow	13	299	40	96	345	15	60	103	73	0	102	11
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	18.8	17.9	12.8	12.8
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	59%	0%	88%	0%	96%	90%
Vol Right, %	0%	41%	0%	12%	0%	4%	10%
Sign Control	Stop						
Traffic Vol by Lane	55	160	12	308	87	328	103
LT Vol	55	0	12	0	87	0	0
Through Vol	0	94	0	272	0	314	93
RT Vol	0	66	0	36	0	14	10
Lane Flow Rate	60	176	13	338	96	360	113
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.13	0.338	0.026	0.614	0.185	0.638	0.235
Departure Headway (Hd)	7.746	6.923	7.051	6.526	6.969	6.377	7.466
Convergence, Y/N	Yes						
Cap	463	519	510	555	517	569	481
Service Time	5.489	4.665	4.763	4.238	4.681	4.089	5.517
HCM Lane V/C Ratio	0.13	0.339	0.025	0.609	0.186	0.633	0.235
HCM Control Delay	11.6	13.2	10	19.1	11.3	19.7	12.8
HCM Lane LOS	B	B	A	C	B	C	B
HCM 95th-tile Q	0.4	1.5	0.1	4.1	0.7	4.5	0.9

Timings
11: SE 164th Ave & SE 29th St

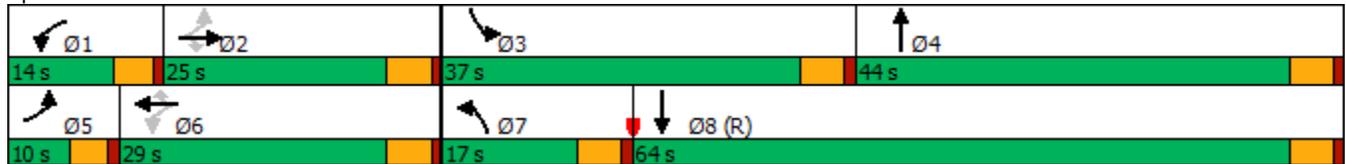
Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	42	30	46	234	56	259	23	1081	237	792
Future Volume (vph)	42	30	46	234	56	259	23	1081	237	792
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2		1	6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	5	2	2	1	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.5	39.0	39.0	9.5	38.0	38.0	10.0	32.0	10.0	32.0
Total Split (s)	10.0	25.0	25.0	14.0	29.0	29.0	17.0	44.0	37.0	64.0
Total Split (%)	8.3%	20.8%	20.8%	11.7%	24.2%	24.2%	14.2%	36.7%	30.8%	53.3%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	4.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	15.9	12.0	12.0	23.3	15.2	15.2	5.7	61.5	20.3	80.1
Actuated g/C Ratio	0.13	0.10	0.10	0.19	0.13	0.13	0.05	0.51	0.17	0.67
v/c Ratio	0.23	0.17	0.16	0.98	0.25	0.62	0.28	0.45	0.82	0.26
Control Delay	39.2	49.8	1.2	98.6	48.1	11.6	64.3	9.3	69.2	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	49.8	1.2	98.6	48.1	11.6	64.3	9.3	69.2	9.8
LOS	D	D	A	F	D	B	E	A	E	A
Approach Delay		27.3			52.4			10.4		23.1
Approach LOS		C			D			B		C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 4 (3%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 23.8
 Intersection Capacity Utilization 67.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Phase 4 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	30	46	234	56	259	23	1081	37	237	792	26
Future Volume (veh/h)	42	30	46	234	56	259	23	1081	37	237	792	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1856	1870	1870	1900	1900	1870	1796	1885	1856	1826
Adj Flow Rate, veh/h	44	32	2	246	59	22	24	1138	37	249	834	25
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, %	3	0	3	2	2	0	0	2	7	1	3	5
Cap, veh/h	225	158	130	293	243	209	42	1834	60	276	2485	74
Arrive On Green	0.03	0.08	0.08	0.08	0.13	0.13	0.02	0.36	0.36	0.15	0.49	0.49
Sat Flow, veh/h	1767	1900	1572	1781	1870	1610	1810	5079	165	1795	5054	151
Grp Volume(v), veh/h	44	32	2	246	59	22	24	763	412	249	557	302
Grp Sat Flow(s),veh/h/ln	1767	1900	1572	1781	1870	1610	1810	1702	1840	1795	1689	1828
Q Serve(g_s), s	2.7	1.9	0.1	9.5	3.4	1.4	1.6	22.1	22.2	16.4	12.0	12.1
Cycle Q Clear(g_c), s	2.7	1.9	0.1	9.5	3.4	1.4	1.6	22.1	22.2	16.4	12.0	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		0.08
Lane Grp Cap(c), veh/h	225	158	130	293	243	209	42	1229	664	276	1660	899
V/C Ratio(X)	0.20	0.20	0.02	0.84	0.24	0.11	0.58	0.62	0.62	0.90	0.34	0.34
Avail Cap(c_a), veh/h	249	317	262	293	374	322	181	1229	664	479	1660	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	51.3	50.5	48.9	46.9	46.0	58.0	31.6	31.6	49.9	18.6	18.6
Incr Delay (d2), s/veh	0.4	0.2	0.0	18.9	0.2	0.1	3.6	1.8	3.4	6.2	0.5	1.0
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(95%),veh/ln	2.2	1.7	0.1	7.7	2.9	1.0	1.4	13.5	14.8	12.2	8.2	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	51.6	50.5	67.8	47.1	46.1	61.6	33.4	34.9	56.1	19.1	19.6
LnGrp LOS	D	D	D	E	D	D	E	C	C	E	B	B
Approach Vol, veh/h		78			327			1199			1108	
Approach Delay, s/veh		49.9			62.6			34.5			27.6	
Approach LOS		D			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	15.0	23.4	48.3	8.3	20.6	7.8	64.0				
Change Period (Y+Rc), s	4.5	5.0	5.0	5.0	4.5	5.0	5.0	5.0				
Max Green Setting (Gmax), s	9.5	20.0	32.0	39.0	5.5	24.0	12.0	59.0				
Max Q Clear Time (g_c+I1), s	11.5	3.9	18.4	24.2	4.7	5.4	3.6	14.1				
Green Ext Time (p_c), s	0.0	0.0	0.1	4.4	0.0	0.1	0.0	3.7				

Intersection Summary												
HCM 6th Ctrl Delay				35.5								
HCM 6th LOS				D								

Notes

User approved pedestrian interval to be less than phase max green.

Timings
12: SE 164th Ave/SE164th Ave & SE 34th Street

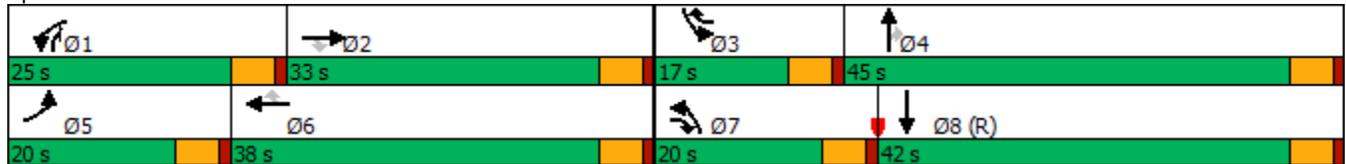
Vancouver Innovation Center
Phase 4 2038 AM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	28	60	165	312	121	99	111	953	465	155	833
Future Volume (vph)	28	60	165	312	121	99	111	953	465	155	833
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	20.0	33.0	20.0	25.0	38.0	17.0	20.0	45.0	25.0	17.0	42.0
Total Split (%)	16.7%	27.5%	16.7%	20.8%	31.7%	14.2%	16.7%	37.5%	20.8%	14.2%	35.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	6.4	8.2	23.0	20.0	23.8	46.4	11.8	56.2	81.2	17.6	62.0
Actuated g/C Ratio	0.05	0.07	0.19	0.17	0.20	0.39	0.10	0.47	0.68	0.15	0.52
v/c Ratio	0.39	0.56	0.53	1.18	0.36	0.16	0.72	0.65	0.43	0.66	0.54
Control Delay	68.3	70.9	31.3	152.9	45.0	4.8	74.0	28.4	2.3	65.1	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.3	70.9	31.3	152.9	45.0	4.8	74.0	28.4	2.3	65.1	17.1
LOS	E	E	C	F	D	A	E	C	A	E	B
Approach Delay		44.8			100.8			23.7			24.4
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 15 (13%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 37.8
 Intersection Capacity Utilization 71.4%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service C

Splits and Phases: 12: SE 164th Ave/SE164th Ave & SE 34th Street



HCM 6th Signalized Intersection Summary
 12: SE 164th Ave/SE164th Ave & SE 34th Street

Vancouver Innovation Center
 Phase 4 2038 AM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	60	165	312	121	99	111	953	465	155	833	37
Future Volume (veh/h)	28	60	165	312	121	99	111	953	465	155	833	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1565	1758	1803	1870	1885	1841	1791	1776	1746	1806	1761	1761
Adj Flow Rate, veh/h	31	67	124	347	134	30	123	1059	306	172	926	39
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	19	6	3	2	1	4	1	2	4	0	3	3
Cap, veh/h	40	159	270	297	434	515	147	1125	740	172	1327	56
Arrive On Green	0.03	0.09	0.09	0.17	0.23	0.23	0.09	0.33	0.33	0.10	0.35	0.35
Sat Flow, veh/h	1491	1758	1528	1781	1885	1560	1706	3375	1480	1720	3826	161
Grp Volume(v), veh/h	31	67	124	347	134	30	123	1059	306	172	545	420
Grp Sat Flow(s),veh/h/ln	1491	1758	1528	1781	1885	1560	1706	1687	1480	1720	1127	1732
Q Serve(g_s), s	2.5	4.3	8.7	20.0	7.1	1.6	8.5	36.6	15.6	12.0	25.0	25.1
Cycle Q Clear(g_c), s	2.5	4.3	8.7	20.0	7.1	1.6	8.5	36.6	15.6	12.0	25.0	25.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	40	159	270	297	434	515	147	1125	740	172	782	601
V/C Ratio(X)	0.77	0.42	0.46	1.17	0.31	0.06	0.84	0.94	0.41	1.00	0.70	0.70
Avail Cap(c_a), veh/h	186	410	488	297	518	585	213	1125	740	172	782	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	58.0	51.6	44.2	50.0	38.3	27.4	54.0	38.9	18.9	54.0	33.7	33.8
Incr Delay (d2), s/veh	11.1	0.7	0.5	106.0	0.1	0.0	11.8	16.0	1.7	65.9	4.7	6.1
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(95%),veh/ln	1.9	3.4	5.9	26.2	5.8	1.0	7.3	23.8	9.3	12.7	11.3	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.2	52.2	44.7	156.0	38.4	27.4	65.8	54.9	20.6	119.9	38.5	39.9
LnGrp LOS	E	D	D	F	D	C	E	D	C	F	D	D
Approach Vol, veh/h		222			511			1488			1137	
Approach Delay, s/veh		50.4			117.6			48.7			51.3	
Approach LOS		D			F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	15.9	17.0	45.0	8.2	32.7	15.4	46.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	28.0	12.0	40.0	15.0	33.0	15.0	37.0				
Max Q Clear Time (g_c+I1), s	22.0	10.7	14.0	38.6	4.5	9.1	10.5	27.1				
Green Ext Time (p_c), s	0.0	0.1	0.0	0.6	0.0	0.2	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			60.2									
HCM 6th LOS			E									

Timings
1: SE 192nd & SE 15th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions

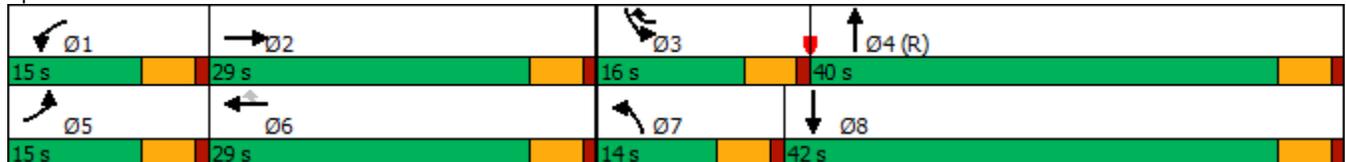


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↕	↖	↕
Traffic Volume (vph)	116	91	40	82	242	87	1360	115	1505
Future Volume (vph)	116	91	40	82	242	87	1360	115	1505
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	7	4	3	8
Permitted Phases					6				
Detector Phase	5	2	1	6	3	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	20.0	10.0	20.0
Total Split (s)	15.0	29.0	15.0	29.0	16.0	14.0	40.0	16.0	42.0
Total Split (%)	15.0%	29.0%	15.0%	29.0%	16.0%	14.0%	40.0%	16.0%	42.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes								
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	9.0	15.9	6.2	11.1	19.9	7.9	52.1	9.7	55.9
Actuated g/C Ratio	0.09	0.16	0.06	0.11	0.20	0.08	0.52	0.10	0.56
v/c Ratio	0.79	0.63	0.38	0.42	0.67	0.64	0.80	0.69	0.88
Control Delay	78.1	37.1	54.0	45.1	30.3	53.9	25.6	63.7	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	37.1	54.0	45.1	30.3	53.9	25.6	63.7	30.0
LOS	E	D	D	D	C	D	C	E	C
Approach Delay		52.5		36.2			27.2		32.3
Approach LOS		D		D			C		C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 98 (98%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 32.3
 Intersection Capacity Utilization 82.8%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 1: SE 192nd & SE 15th St



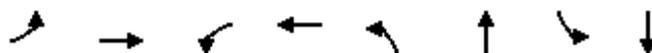
HCM 6th Signalized Intersection Summary
 1: SE 192nd & SE 15th St

Vancouver Innovation Center
 Phase 4 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	91	101	40	82	242	87	1360	32	115	1505	133
Future Volume (veh/h)	116	91	101	40	82	242	87	1360	32	115	1505	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1885	1900	1900	1856	1900	1900	1870	1900	1900	1870	1870
Adj Flow Rate, veh/h	122	96	60	42	86	192	92	1432	33	121	1584	135
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, %	5	1	0	0	3	0	0	2	0	0	2	2
Cap, veh/h	150	201	125	62	248	344	126	1768	41	149	1694	143
Arrive On Green	0.09	0.19	0.19	0.03	0.13	0.13	0.09	0.66	0.66	0.11	0.68	0.68
Sat Flow, veh/h	1739	1084	678	1810	1856	1582	1810	3550	82	1810	3315	280
Grp Volume(v), veh/h	122	0	156	42	86	192	92	716	749	121	842	877
Grp Sat Flow(s),veh/h/ln	1739	0	1762	1810	1856	1582	1810	1777	1855	1810	1777	1819
Q Serve(g_s), s	6.9	0.0	7.9	2.3	4.2	10.8	4.9	29.3	29.5	6.5	41.1	43.0
Cycle Q Clear(g_c), s	6.9	0.0	7.9	2.3	4.2	10.8	4.9	29.3	29.5	6.5	41.1	43.0
Prop In Lane	1.00		0.38	1.00		1.00	1.00		0.04	1.00		0.15
Lane Grp Cap(c), veh/h	150	0	326	62	248	344	126	885	924	149	908	929
V/C Ratio(X)	0.82	0.00	0.48	0.67	0.35	0.56	0.73	0.81	0.81	0.81	0.93	0.94
Avail Cap(c_a), veh/h	174	0	423	181	445	512	163	885	924	199	908	929
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.14	0.14	0.14	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	0.0	36.4	47.7	39.4	35.0	44.5	13.4	13.5	43.8	14.4	14.7
Incr Delay (d2), s/veh	19.5	0.0	0.4	4.6	0.3	0.5	1.1	1.2	1.2	12.5	16.8	18.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	0.0	6.0	2.0	3.5	7.3	3.1	9.7	10.1	5.9	20.7	22.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.4	0.0	36.8	52.4	39.7	35.5	45.5	14.6	14.6	56.3	31.3	33.4
LnGrp LOS	E	A	D	D	D	D	D	B	B	E	C	C
Approach Vol, veh/h		278			320			1557			1840	
Approach Delay, s/veh		48.9			38.8			16.4			33.9	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	23.5	13.2	54.8	13.6	18.4	12.0	56.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	24.0	11.0	35.0	10.0	24.0	9.0	37.0				
Max Q Clear Time (g_c+I1), s	4.3	9.9	8.5	31.5	8.9	12.8	6.9	45.0				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.5	0.0	0.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			28.5									
HCM 6th LOS			C									

Timings
2: SE 192nd Ave & SE 20th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions

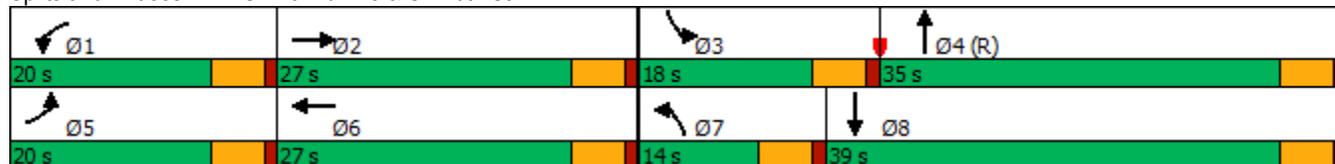


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↖	↖↗	↖	↖	↕↗	↖	↕↗
Traffic Volume (vph)	233	183	280	265	149	951	151	1126
Future Volume (vph)	233	183	280	265	149	951	151	1126
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases								
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	25.0	10.0	25.0
Total Split (s)	20.0	27.0	20.0	27.0	14.0	35.0	18.0	39.0
Total Split (%)	20.0%	27.0%	20.0%	27.0%	14.0%	35.0%	18.0%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes							
Recall Mode	None	None	None	None	Min	C-Max	None	Max
Act Effct Green (s)	11.3	23.3	12.4	24.4	9.5	32.6	11.7	34.8
Actuated g/C Ratio	0.11	0.23	0.12	0.24	0.10	0.33	0.12	0.35
v/c Ratio	0.62	0.67	0.67	0.88	0.91	1.05	0.75	1.17
Control Delay	49.0	40.5	49.7	56.7	104.0	62.1	61.1	115.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	40.5	49.7	56.7	104.0	62.1	61.1	115.4
LOS	D	D	D	E	F	E	E	F
Approach Delay		44.4		53.7		66.8		110.0
Approach LOS		D		D		E		F

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 93 (93%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.17
 Intersection Signal Delay: 78.1
 Intersection Capacity Utilization 91.4%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

Splits and Phases: 2: SE 192nd Ave & SE 20th St



HCM 6th Signalized Intersection Summary
2: SE 192nd Ave & SE 20th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔↔	↔		↔	↕↔		↔	↕↔	
Traffic Volume (veh/h)	233	183	95	280	265	118	149	951	210	151	1126	237
Future Volume (veh/h)	233	183	95	280	265	118	149	951	210	151	1126	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1870	1900	1885	1900	1885	1870	1885
Adj Flow Rate, veh/h	243	191	80	292	276	106	155	991	200	157	1173	228
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	1	0	0	2	0	1	0	1	2	1
Cap, veh/h	316	262	110	364	286	110	163	1142	230	189	1188	229
Arrive On Green	0.09	0.21	0.21	0.10	0.22	0.22	0.09	0.38	0.38	0.14	0.53	0.53
Sat Flow, veh/h	3510	1270	532	3510	1301	500	1810	2969	598	1795	2970	573
Grp Volume(v), veh/h	243	0	271	292	0	382	155	597	594	157	699	702
Grp Sat Flow(s),veh/h/ln	1755	0	1802	1755	0	1801	1810	1791	1777	1795	1777	1766
Q Serve(g_s), s	6.8	0.0	14.0	8.1	0.0	21.0	8.5	30.8	30.9	8.5	38.6	39.5
Cycle Q Clear(g_c), s	6.8	0.0	14.0	8.1	0.0	21.0	8.5	30.8	30.9	8.5	38.6	39.5
Prop In Lane	1.00		0.30	1.00		0.28	1.00		0.34	1.00		0.32
Lane Grp Cap(c), veh/h	316	0	372	364	0	396	163	689	683	189	711	707
V/C Ratio(X)	0.77	0.00	0.73	0.80	0.00	0.96	0.95	0.87	0.87	0.83	0.98	0.99
Avail Cap(c_a), veh/h	527	0	397	527	0	396	163	689	683	233	711	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.37	0.37	0.37
Uniform Delay (d), s/veh	44.5	0.0	37.1	43.8	0.0	38.6	45.3	28.4	28.5	42.1	23.1	23.3
Incr Delay (d2), s/veh	1.5	0.0	5.2	3.5	0.0	35.6	55.7	13.8	14.2	6.3	16.9	19.2
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(95%),veh/ln	5.3	0.0	10.7	6.5	0.0	18.7	10.3	21.3	21.3	5.8	19.8	20.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	0.0	42.3	47.3	0.0	74.2	101.0	42.3	42.6	48.4	40.0	42.5
LnGrp LOS	D	A	D	D	A	E	F	D	D	D	D	D
Approach Vol, veh/h		514			674			1346			1558	
Approach Delay, s/veh		44.0			62.6			49.2			42.0	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	25.6	15.6	43.4	14.0	27.0	14.0	45.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	15.0	22.0	13.0	30.0	15.0	22.0	9.0	34.0				
Max Q Clear Time (g_c+I1), s	10.1	16.0	10.5	32.9	8.8	23.0	10.5	41.5				
Green Ext Time (p_c), s	0.3	0.5	0.0	0.0	0.2	0.0	0.0	0.0				

Intersection Summary												
HCM 6th Ctrl Delay			48.0									
HCM 6th LOS			D									

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↶↷		↵	↶↷
Traffic Vol, veh/h	3	4	1320	3	10	1368
Future Vol, veh/h	3	4	1320	3	10	1368
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	125	0	-	-	230	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	3	4	1389	3	11	1440

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2135	698	0	0	1394
Stage 1	1393	-	-	-	-
Stage 2	742	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	43	388	-	-	497
Stage 1	199	-	-	-	-
Stage 2	437	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	42	387	-	-	496
Mov Cap-2 Maneuver	42	-	-	-	-
Stage 1	199	-	-	-	-
Stage 2	427	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	50.1	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	42	387	496
HCM Lane V/C Ratio	-	-	0.075	0.011	0.021
HCM Control Delay (s)	-	-	97.6	14.4	12.4
HCM Lane LOS	-	-	F	B	B
HCM 95th %tile Q(veh)	-	-	0.2	0	0.1

Timings
4: SE 192nd Ave & SE 29th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions

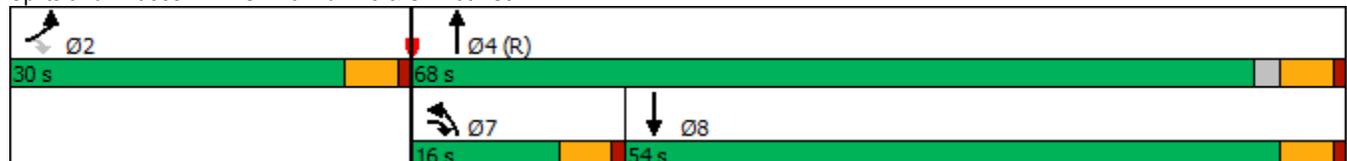


Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations	↶	↷	↶	↑↑	↑↓
Traffic Volume (vph)	157	57	70	1166	1239
Future Volume (vph)	157	57	70	1166	1239
Turn Type	Prot	pm+ov	Prot	NA	NA
Protected Phases	2	7	7	4	8
Permitted Phases		2			
Detector Phase	2	7	7	4	8
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	27.0	10.0	10.0	26.0	26.0
Total Split (s)	30.0	16.0	16.0	68.0	54.0
Total Split (%)	30.0%	16.0%	16.0%	68.0%	54.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag
Lead-Lag Optimize?		Yes	Yes		Yes
Recall Mode	Max	None	None	C-Max	None
Act Effct Green (s)	25.0	34.1	9.1	65.0	53.1
Actuated g/C Ratio	0.25	0.34	0.09	0.65	0.53
v/c Ratio	0.38	0.11	0.47	0.53	0.77
Control Delay	34.1	11.5	70.0	4.6	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	11.5	70.0	4.6	24.0
LOS	C	B	E	A	C
Approach Delay	28.1			8.3	24.0
Approach LOS	C			A	C

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 45 (45%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 17.5
 Intersection Capacity Utilization 73.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D

Splits and Phases: 4: SE 192nd Ave & SE 29th St



HCM 6th Signalized Intersection Summary
4: SE 192nd Ave & SE 29th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	157	57	70	1166	1239	132
Future Volume (veh/h)	157	57	70	1166	1239	132
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1826	1826	1885	1885	1826
Adj Flow Rate, veh/h	165	39	74	1227	1304	131
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	5	5	1	1	5
Cap, veh/h	442	470	94	2328	1795	180
Arrive On Green	0.25	0.25	0.11	1.00	0.55	0.55
Sat Flow, veh/h	1767	1547	1739	3676	3382	329
Grp Volume(v), veh/h	165	39	74	1227	708	727
Grp Sat Flow(s),veh/h/ln	1767	1547	1739	1791	1791	1826
Q Serve(g_s), s	7.7	1.8	4.1	0.0	29.7	30.0
Cycle Q Clear(g_c), s	7.7	1.8	4.1	0.0	29.7	30.0
Prop In Lane	1.00	1.00	1.00			0.18
Lane Grp Cap(c), veh/h	442	470	94	2328	978	997
V/C Ratio(X)	0.37	0.08	0.79	0.53	0.72	0.73
Avail Cap(c_a), veh/h	442	470	191	2328	978	997
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.46	0.46	1.00	1.00
Uniform Delay (d), s/veh	31.0	24.8	44.0	0.0	17.0	17.1
Incr Delay (d2), s/veh	2.4	0.3	6.6	0.4	2.7	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.4	3.4	3.3	0.2	17.2	17.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.4	25.2	50.6	0.4	19.7	19.9
LnGrp LOS	C	C	D	A	B	B
Approach Vol, veh/h	204			1301	1435	
Approach Delay, s/veh	31.9			3.3	19.8	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4		7 8
Phs Duration (G+Y+Rc), s		30.0		70.0		10.4 59.6
Change Period (Y+Rc), s		5.0		5.0		5.0 5.0
Max Green Setting (Gmax), s		25.0		63.0		11.0 49.0
Max Q Clear Time (g_c+I1), s		9.7		2.0		6.1 32.0
Green Ext Time (p_c), s		0.5		11.8		0.0 8.9
Intersection Summary						
HCM 6th Ctrl Delay			13.3			
HCM 6th LOS			B			

Timings
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions

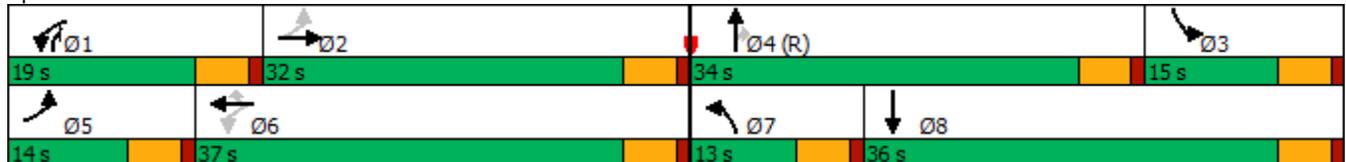


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↗	↖	↑↑	↗	↖↗	↖↗
Traffic Volume (vph)	191	258	355	224	129	148	1016	204	225	976
Future Volume (vph)	191	258	355	224	129	148	1016	204	225	976
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	1	6		7	4	1	3	8
Permitted Phases	2		6		6			4		
Detector Phase	5	2	1	6	6	7	4	1	3	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	25.0	10.0	10.0	25.0
Total Split (s)	14.0	32.0	19.0	37.0	37.0	13.0	34.0	19.0	15.0	36.0
Total Split (%)	14.0%	32.0%	19.0%	37.0%	37.0%	13.0%	34.0%	19.0%	15.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max
Act Effct Green (s)	33.8	25.2	44.2	30.7	30.7	9.6	30.8	44.8	10.0	31.2
Actuated g/C Ratio	0.34	0.25	0.44	0.31	0.31	0.10	0.31	0.45	0.10	0.31
v/c Ratio	0.47	0.94	1.13	0.40	0.22	0.89	0.97	0.26	0.69	1.08
Control Delay	22.2	64.1	117.8	29.5	2.2	92.2	55.9	2.1	72.0	97.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	64.1	117.8	29.5	2.2	92.2	55.9	2.1	72.0	97.2
LOS	C	E	F	C	A	F	E	A	E	F
Approach Delay		50.8		68.8			51.8			92.9
Approach LOS		D		E			D			F

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 36 (36%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 68.3
 Intersection Capacity Utilization 99.2%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

Splits and Phases: 5: SE 192nd Ave & SE 34th St



HCM 6th Signalized Intersection Summary
5: SE 192nd Ave & SE 34th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖	↖	↖	↖↖	↖	↖↖	↖↖	↖↖
Traffic Volume (veh/h)	191	258	153	355	224	129	148	1016	204	225	976	135
Future Volume (veh/h)	191	258	153	355	224	129	148	1016	204	225	976	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1817	1847	1817	2003	2003	2018	2018	1988	2003	1847	1832	1817
Adj Flow Rate, veh/h	201	272	138	374	236	35	156	1069	91	237	1027	130
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	0	2	1	1	0	0	2	1	0	1	2
Cap, veh/h	455	292	148	363	610	520	154	1095	726	393	1009	128
Arrive On Green	0.09	0.25	0.25	0.14	0.30	0.30	0.08	0.29	0.29	0.12	0.33	0.33
Sat Flow, veh/h	1731	1148	583	1908	2003	1705	1922	3777	1683	3413	3102	392
Grp Volume(v), veh/h	201	0	410	374	236	35	156	1069	91	237	576	581
Grp Sat Flow(s),veh/h/ln	1731	0	1731	1908	2003	1705	1922	1889	1683	1706	1741	1753
Q Serve(g_s), s	8.6	0.0	23.1	14.0	9.3	1.0	8.0	28.0	1.7	6.6	32.5	32.5
Cycle Q Clear(g_c), s	8.6	0.0	23.1	14.0	9.3	1.0	8.0	28.0	1.7	6.6	32.5	32.5
Prop In Lane	1.00		0.34	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	455	0	441	363	610	520	154	1095	726	393	566	570
V/C Ratio(X)	0.44	0.00	0.93	1.03	0.39	0.07	1.01	0.98	0.13	0.60	1.02	1.02
Avail Cap(c_a), veh/h	455	0	467	363	641	546	154	1095	726	393	566	570
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)	0.79	0.00	0.79	1.00	1.00	1.00	1.00	1.00	1.00	0.59	0.59	0.59
Uniform Delay (d), s/veh	24.4	0.0	36.4	25.5	27.4	11.8	46.0	35.2	6.4	42.1	33.7	33.7
Incr Delay (d2), s/veh	0.2	0.0	20.2	54.8	0.1	0.0	76.5	22.0	0.4	1.1	33.4	33.8
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(95%),veh/ln	6.1	0.0	16.8	17.2	7.7	1.0	11.4	22.0	1.5	4.9	23.8	24.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	0.0	56.6	80.4	27.5	11.8	122.5	57.1	6.7	43.2	67.2	67.5
LnGrp LOS	C	A	E	F	C	B	F	E	A	D	F	F
Approach Vol, veh/h		611			645			1316			1394	
Approach Delay, s/veh		46.1			57.3			61.4			63.2	
Approach LOS		D			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	30.5	16.5	34.0	14.0	35.5	13.0	37.5				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	27.0	10.0	29.0	9.0	32.0	8.0	31.0				
Max Q Clear Time (g_c+I1), s	16.0	25.1	8.6	30.0	10.6	11.3	10.0	34.5				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.0	0.0	0.4	0.0	0.0				

Intersection Summary

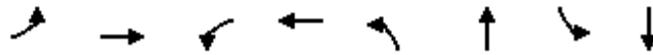
HCM 6th Ctrl Delay	59.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Timings
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions

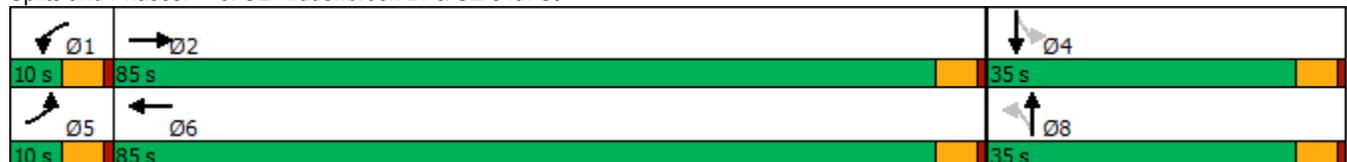


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	86	306	37	333	71	26	263	46
Future Volume (vph)	86	306	37	333	71	26	263	46
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	30.0	10.0	30.0	32.0	32.0	34.0	34.0
Total Split (s)	10.0	85.0	10.0	85.0	35.0	35.0	35.0	35.0
Total Split (%)	7.7%	65.4%	7.7%	65.4%	26.9%	26.9%	26.9%	26.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	5.2	29.9	5.2	24.9	19.0	19.0	19.0	19.0
Actuated g/C Ratio	0.08	0.46	0.08	0.38	0.29	0.29	0.29	0.29
v/c Ratio	0.63	0.49	0.28	0.79	0.26	0.12	0.71	0.40
Control Delay	55.8	16.1	38.9	26.1	21.8	11.3	32.7	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	16.1	38.9	26.1	21.8	11.3	32.7	11.1
LOS	E	B	D	C	C	B	C	B
Approach Delay		23.3		27.0		17.1		22.8
Approach LOS		C		C		B		C

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 64.7
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 23.9
 Intersection LOS: C
 Intersection Capacity Utilization 70.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 6: SE Hiddenbrook Dr & SE 34th St



HCM 6th Signalized Intersection Summary
6: SE Hiddenbrook Dr & SE 34th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	306	80	37	333	181	71	26	32	263	46	174
Future Volume (veh/h)	86	306	80	37	333	181	71	26	32	263	46	174
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	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1841	1832	1847	1876	1817	1876	1832	1885	1900	1900
Adj Flow Rate, veh/h	91	326	74	39	354	167	76	28	8	280	49	82
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, %	0	2	4	3	2	0	4	0	3	1	0	0
Cap, veh/h	134	553	125	74	407	192	398	367	105	494	167	279
Arrive On Green	0.07	0.38	0.38	0.04	0.34	0.34	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1810	1473	334	1745	1183	558	1220	1402	401	1378	637	1066
Grp Volume(v), veh/h	91	0	400	39	0	521	76	0	36	280	0	131
Grp Sat Flow(s),veh/h/ln	1810	0	1807	1745	0	1741	1220	0	1803	1378	0	1703
Q Serve(g_s), s	2.3	0.0	8.3	1.0	0.0	13.1	2.5	0.0	0.7	9.0	0.0	2.9
Cycle Q Clear(g_c), s	2.3	0.0	8.3	1.0	0.0	13.1	5.4	0.0	0.7	9.7	0.0	2.9
Prop In Lane	1.00		0.19	1.00		0.32	1.00		0.22	1.00		0.63
Lane Grp Cap(c), veh/h	134	0	678	74	0	598	398	0	472	494	0	446
V/C Ratio(X)	0.68	0.00	0.59	0.53	0.00	0.87	0.19	0.00	0.08	0.57	0.00	0.29
Avail Cap(c_a), veh/h	193	0	3088	186	0	2975	860	0	1155	1016	0	1092
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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.1	0.0	11.7	21.9	0.0	14.4	16.0	0.0	13.0	16.7	0.0	13.8
Incr Delay (d2), s/veh	2.2	0.0	0.3	2.1	0.0	1.6	0.1	0.0	0.0	0.4	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	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	4.5	0.7	0.0	7.4	1.1	0.0	0.5	4.6	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	12.0	24.1	0.0	16.0	16.1	0.0	13.0	17.1	0.0	14.0
LnGrp LOS	C	A	B	C	A	B	B	A	B	B	A	B
Approach Vol, veh/h		491			560			112			411	
Approach Delay, s/veh		14.1			16.5			15.1			16.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	22.6		17.2	8.5	21.1		17.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	5.0	80.0		30.0	5.0	80.0		30.0				
Max Q Clear Time (g_c+I1), s	3.0	10.3		11.7	4.3	15.1		7.4				
Green Ext Time (p_c), s	0.0	0.3		0.1	0.0	0.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				15.6								
HCM 6th LOS				B								

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	465	32	16	563	18	7
Future Vol, veh/h	465	32	16	563	18	7
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	95	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	511	35	18	619	20	8

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	546	0	1184
Stage 1	-	-	-	-	529
Stage 2	-	-	-	-	655
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1033	-	211
Stage 1	-	-	-	-	595
Stage 2	-	-	-	-	521
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1033	-	207
Mov Cap-2 Maneuver	-	-	-	-	207
Stage 1	-	-	-	-	595
Stage 2	-	-	-	-	512

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	21.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	251	-	-	1033	-
HCM Lane V/C Ratio	0.109	-	-	0.017	-
HCM Control Delay (s)	21.1	-	-	8.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Timings
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions

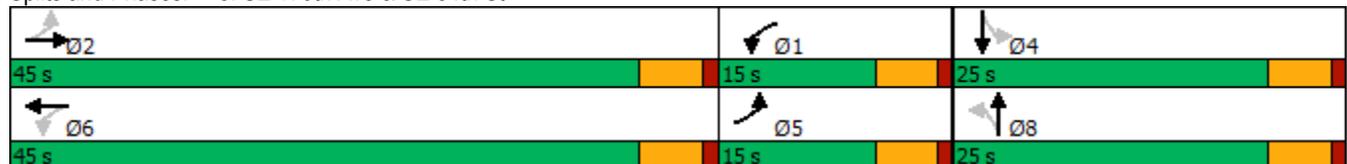


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	219	398	18	443	10	10	93	21
Future Volume (vph)	219	398	18	443	10	10	93	21
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	15.0	5.0	15.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	10.0	28.0	33.0	33.0	32.0	32.0
Total Split (s)	15.0	45.0	15.0	45.0	25.0	25.0	25.0	25.0
Total Split (%)	17.6%	52.9%	17.6%	52.9%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	35.9	34.6	29.8	23.5	10.3	10.3	10.3	10.3
Actuated g/C Ratio	0.62	0.60	0.51	0.40	0.18	0.18	0.18	0.18
v/c Ratio	0.55	0.40	0.04	0.82	0.07	0.06	0.41	0.50
Control Delay	19.1	10.9	7.6	25.7	23.8	18.5	28.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	10.9	7.6	25.7	23.8	18.5	28.5	9.7
LOS	B	B	A	C	C	B	C	A
Approach Delay		13.7		25.2		20.5		15.5
Approach LOS		B		C		C		B

Intersection Summary

Cycle Length: 85
 Actuated Cycle Length: 58.1
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 18.5
 Intersection LOS: B
 Intersection Capacity Utilization 68.2%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 8: SE 176th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
8: SE 176th Ave & SE 34th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	398	13	18	443	120	10	10	6	93	21	186
Future Volume (veh/h)	219	398	13	18	443	120	10	10	6	93	21	186
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1900	1900	1885	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	238	433	13	20	482	115	11	11	0	101	23	18
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, %	1	2	0	0	1	1	0	0	0	1	0	0
Cap, veh/h	450	670	20	607	590	141	304	215	0	330	110	86
Arrive On Green	0.12	0.37	0.37	0.15	0.40	0.40	0.11	0.11	0.00	0.11	0.11	0.11
Sat Flow, veh/h	1795	1806	54	1810	1471	351	1382	1900	0	1409	975	763
Grp Volume(v), veh/h	238	0	446	20	0	597	11	11	0	101	0	41
Grp Sat Flow(s),veh/h/ln	1795	0	1861	1810	0	1822	1382	1900	0	1409	0	1738
Q Serve(g_s), s	0.0	0.0	8.0	0.0	0.0	11.8	0.3	0.2	0.0	2.8	0.0	0.9
Cycle Q Clear(g_c), s	0.0	0.0	8.0	0.0	0.0	11.8	1.2	0.2	0.0	3.0	0.0	0.9
Prop In Lane	1.00		0.03	1.00		0.19	1.00		0.00	1.00		0.44
Lane Grp Cap(c), veh/h	450	0	690	607	0	731	304	215	0	330	0	196
V/C Ratio(X)	0.53	0.00	0.65	0.03	0.00	0.82	0.04	0.05	0.00	0.31	0.00	0.21
Avail Cap(c_a), veh/h	687	0	1839	790	0	1801	832	939	0	867	0	859
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.4	0.0	10.5	9.6	0.0	10.8	16.8	16.0	0.0	17.4	0.0	16.3
Incr Delay (d2), s/veh	0.4	0.0	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.2	0.0	0.2
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(95%),veh/ln	2.9	0.0	4.1	0.2	0.0	5.7	0.2	0.1	0.0	1.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	0.0	10.9	9.6	0.0	11.7	16.9	16.1	0.0	17.5	0.0	16.5
LnGrp LOS	B	A	B	A	A	B	B	B	A	B	A	B
Approach Vol, veh/h		684			617			22			142	
Approach Delay, s/veh		12.6			11.6			16.5			17.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	20.0		9.6	9.7	21.2		9.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	40.0		20.0	10.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	10.0		5.0	2.0	13.8		3.2				
Green Ext Time (p_c), s	0.0	1.6		0.2	0.2	2.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

MOVEMENT SUMMARY

Site: 101 [SE 176 Avenue/ SE 29th Street Phase 4 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Phase 4
 Site Category: (None)
 Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist]				mph
South: SE 176th Avenue															
3	L2	All MCs	16	15.0	16	15.0	0.373	9.0	LOS A	2.1	51.9	0.53	0.35	0.53	31.7
8	T1	All MCs	267	0.0	267	0.0	0.373	7.3	LOS A	2.1	51.9	0.53	0.35	0.53	32.8
18	R2	All MCs	100	0.0	100	0.0	0.373	7.3	LOS A	2.1	51.9	0.53	0.35	0.53	32.5
Approach			383	0.6	383	0.6	0.373	7.4	LOS A	2.1	51.9	0.53	0.35	0.53	32.7
East: SE 29th Street															
1	L2	All MCs	210	0.0	210	0.0	0.673	13.7	LOS B	9.1	227.6	0.79	0.71	1.20	29.0
6	T1	All MCs	408	0.0	408	0.0	0.673	13.7	LOS B	9.1	227.6	0.79	0.71	1.20	29.5
16	R2	All MCs	60	0.0	60	0.0	0.673	13.7	LOS B	9.1	227.6	0.79	0.71	1.20	29.3
Approach			677	0.0	677	0.0	0.673	13.7	LOS B	9.1	227.6	0.79	0.71	1.20	29.3
North: SE 176th Avenue															
7	L2	All MCs	66	0.0	66	0.0	0.369	9.7	LOS A	1.8	46.4	0.68	0.62	0.76	30.6
4	T1	All MCs	86	1.0	86	1.0	0.369	9.9	LOS A	1.8	46.4	0.68	0.62	0.76	31.2
14	R2	All MCs	113	0.0	113	0.0	0.369	9.7	LOS A	1.8	46.4	0.68	0.62	0.76	30.9
Approach			265	0.3	265	0.3	0.369	9.7	LOS A	1.8	46.4	0.68	0.62	0.76	30.9
West: SE 29th Street															
5	L2	All MCs	22	7.0	22	7.0	0.263	7.2	LOS A	1.3	31.7	0.53	0.38	0.53	32.3
2	T1	All MCs	194	0.0	194	0.0	0.263	6.4	LOS A	1.3	31.7	0.53	0.38	0.53	33.1
12	R2	All MCs	33	0.0	33	0.0	0.263	6.4	LOS A	1.3	31.7	0.53	0.38	0.53	32.9
Approach			248	0.6	248	0.6	0.263	6.4	LOS A	1.3	31.7	0.53	0.38	0.53	33.0
All Vehicles			1573	0.3	1573	0.3	0.673	10.3	LOS B	9.1	227.6	0.67	0.56	0.86	30.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: H:\27127715 - VIC Implementation\005 - Master Plan Update TIA\Analysis\176th_29th With Project 2038 PM.sip9

Intersection	
Intersection Delay, s/veh	97.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷			↷	
Traffic Vol, veh/h	48	466	76	96	503	18	52	142	79	27	104	28
Future Vol, veh/h	48	466	76	96	503	18	52	142	79	27	104	28
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
Heavy Vehicles, %	3	0	0	1	0	7	0	1	0	4	1	8
Mvmt Flow	52	507	83	104	547	20	57	154	86	29	113	30
Number of Lanes	1	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	137.5	114	20.9	20.8
HCM LOS	F	F	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	100%	0%	17%
Vol Thru, %	0%	64%	0%	86%	0%	97%	65%
Vol Right, %	0%	36%	0%	14%	0%	3%	18%
Sign Control	Stop						
Traffic Vol by Lane	52	221	48	542	96	521	159
LT Vol	52	0	48	0	96	0	27
Through Vol	0	142	0	466	0	503	104
RT Vol	0	79	0	76	0	18	28
Lane Flow Rate	57	240	52	589	104	566	173
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.142	0.554	0.119	1.235	0.235	1.191	0.438
Departure Headway (Hd)	9.852	9.084	8.658	7.985	8.65	8.088	10.159
Convergence, Y/N	Yes						
Cap	366	399	416	460	417	453	358
Service Time	7.552	6.784	6.358	5.685	6.35	5.788	8.159
HCM Lane V/C Ratio	0.156	0.602	0.125	1.28	0.249	1.249	0.483
HCM Control Delay	14.2	22.5	12.5	148.6	14	132.4	20.8
HCM Lane LOS	B	C	B	F	B	F	C
HCM 95th-tile Q	0.5	3.2	0.4	22.5	0.9	20.4	2.2

Timings
11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions

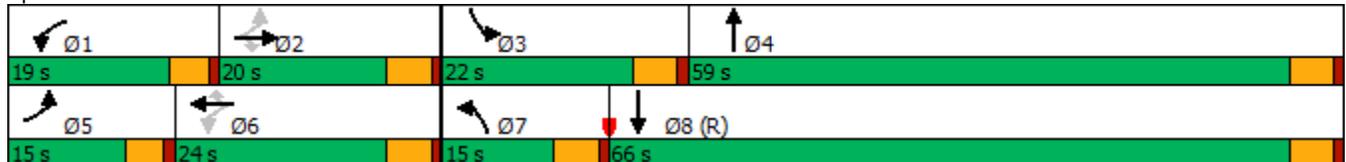
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	89	59	51	295	44	229	42	1419	194	1304
Future Volume (vph)	89	59	51	295	44	229	42	1419	194	1304
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2		1	6		7	4	3	8
Permitted Phases	2		2	6		6				
Detector Phase	5	2	2	1	6	6	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.5	39.0	39.0	9.5	38.0	38.0	10.0	32.0	19.5	32.0
Total Split (s)	15.0	20.0	20.0	19.0	24.0	24.0	15.0	59.0	22.0	66.0
Total Split (%)	12.5%	16.7%	16.7%	15.8%	20.0%	20.0%	12.5%	49.2%	18.3%	55.0%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	5.0	4.5	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes									
Recall Mode	None	Max	None	C-Max						
Act Effct Green (s)	18.9	11.0	11.0	28.7	14.5	14.5	6.3	60.6	15.9	72.1
Actuated g/C Ratio	0.16	0.09	0.09	0.24	0.12	0.12	0.05	0.50	0.13	0.60
v/c Ratio	0.38	0.36	0.19	0.94	0.20	0.60	0.49	0.60	0.86	0.94
Control Delay	40.8	56.6	1.5	79.8	48.6	12.5	51.0	37.6	82.8	36.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	56.6	1.5	79.8	48.6	12.5	51.0	37.6	82.8	36.2
LOS	D	E	A	E	D	B	D	D	F	D
Approach Delay		35.3			50.3			38.0		42.1
Approach LOS		D			D			D		D

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 112 (93%), Referenced to phase 8:SBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 41.3
 Intersection Capacity Utilization 74.8%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service D

Splits and Phases: 11: SE 164th Ave & SE 29th St



HCM 6th Signalized Intersection Summary
 11: SE 164th Ave & SE 29th St

Vancouver Innovation Center
 Phase 4 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	59	51	295	44	229	42	1419	36	194	1304	46
Future Volume (veh/h)	89	59	51	295	44	229	42	1419	36	194	1304	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1870	1870	1826	1870	1752	1885	1885	1900
Adj Flow Rate, veh/h	94	62	12	311	46	107	44	1494	36	204	1373	45
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, %	0	0	0	2	2	2	5	2	10	1	1	0
Cap, veh/h	278	164	138	348	273	230	56	2308	56	230	1883	62
Arrive On Green	0.06	0.09	0.09	0.12	0.15	0.15	0.03	0.45	0.45	0.13	0.55	0.55
Sat Flow, veh/h	1810	1900	1599	1781	1870	1579	1739	5128	124	1795	3448	113
Grp Volume(v), veh/h	94	62	12	311	46	107	44	992	538	204	676	742
Grp Sat Flow(s),veh/h/ln	1810	1900	1599	1781	1870	1579	1739	1702	1848	1795	848	1865
Q Serve(g_s), s	5.6	3.7	0.8	14.5	2.6	7.5	3.0	27.1	27.1	13.4	36.0	36.0
Cycle Q Clear(g_c), s	5.6	3.7	0.8	14.5	2.6	7.5	3.0	27.1	27.1	13.4	36.0	36.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		0.06
Lane Grp Cap(c), veh/h	278	164	138	348	273	230	56	1532	832	230	927	1018
V/C Ratio(X)	0.34	0.38	0.09	0.89	0.17	0.46	0.79	0.65	0.65	0.89	0.73	0.73
Avail Cap(c_a), veh/h	326	238	200	348	296	250	145	1532	832	254	927	1018
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	51.8	50.5	45.7	44.9	47.0	57.7	25.6	25.6	51.4	20.5	20.5
Incr Delay (d2), s/veh	0.7	0.5	0.1	24.0	0.1	0.5	6.3	1.5	2.8	25.6	5.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	3.2	0.6	8.2	2.2	5.3	2.5	15.3	16.8	12.1	11.7	22.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	52.3	50.6	69.7	45.0	47.5	64.0	27.1	28.4	77.0	25.6	25.1
LnGrp LOS	D	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		168			464			1574			1622	
Approach Delay, s/veh		49.1			62.1			28.6			31.8	
Approach LOS		D			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	15.3	20.4	59.0	11.8	22.5	8.9	70.5				
Change Period (Y+Rc), s	4.5	5.0	5.0	5.0	4.5	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.5	15.0	17.0	54.0	10.5	19.0	10.0	61.0				
Max Q Clear Time (g_c+I1), s	16.5	5.7	15.4	29.1	7.6	9.5	5.0	38.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.7	0.0	0.0	0.0	1.5				

Intersection Summary												
HCM 6th Ctrl Delay				34.9								
HCM 6th LOS				C								

Notes

User approved pedestrian interval to be less than phase max green.

Timings
12: SE 164th Ave & SE 34th St

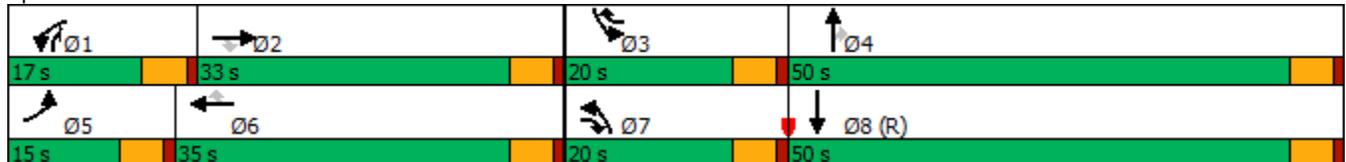
Vancouver Innovation Center
Phase 4 2038 PM Peak Hour Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	49	102	194	295	136	232	192	1220	426	162	1427
Future Volume (vph)	49	102	194	295	136	232	192	1220	426	162	1427
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	7	1	6	3	7	4	1	3	8
Permitted Phases			2			6			4		
Detector Phase	5	2	7	1	6	3	7	4	1	3	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	5.0	20.0
Minimum Split (s)	10.0	33.0	10.0	10.0	32.0	10.0	10.0	31.0	10.0	10.0	28.0
Total Split (s)	15.0	33.0	20.0	17.0	35.0	20.0	20.0	50.0	17.0	20.0	50.0
Total Split (%)	12.5%	27.5%	16.7%	14.2%	29.2%	16.7%	16.7%	41.7%	14.2%	16.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes										
Recall Mode	None	Max	None	None	C-Max						
Act Effct Green (s)	7.3	10.7	34.0	12.0	17.5	37.8	18.3	62.0	79.0	15.3	59.0
Actuated g/C Ratio	0.06	0.09	0.28	0.10	0.15	0.32	0.15	0.52	0.66	0.13	0.49
v/c Ratio	0.51	0.66	0.41	1.73	0.54	0.43	0.74	0.70	0.38	0.75	0.86
Control Delay	71.7	71.0	24.2	385.6	56.2	20.7	64.4	26.0	3.8	67.6	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.7	71.0	24.2	385.6	56.2	20.7	64.4	26.0	3.8	67.6	25.7
LOS	E	E	C	F	E	C	E	C	A	E	C
Approach Delay		44.8			190.1			24.9			29.9
Approach LOS		D			F			C			C

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 40 (33%), Referenced to phase 8:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.73	
Intersection Signal Delay: 52.7	Intersection LOS: D
Intersection Capacity Utilization 81.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 12: SE 164th Ave & SE 34th St



HCM 6th Signalized Intersection Summary
 12: SE 164th Ave & SE 34th St

Vancouver Innovation Center
 Phase 4 2038 PM Peak Hour Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	102	194	295	136	232	192	1220	426	162	1427	49
Future Volume (veh/h)	49	102	194	295	136	232	192	1220	426	162	1427	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1826	1885	1870	1841	1856	1885	1870	1885	1870	1870	1841
Adj Flow Rate, veh/h	51	106	152	307	142	167	200	1271	305	169	1486	48
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	5	1	2	4	3	1	2	1	2	2	4
Cap, veh/h	64	183	359	178	298	427	224	1387	783	195	1554	50
Arrive On Green	0.04	0.10	0.10	0.10	0.16	0.16	0.13	0.39	0.39	0.11	0.38	0.38
Sat Flow, veh/h	1682	1826	1598	1781	1841	1572	1795	3554	1598	1781	4144	134
Grp Volume(v), veh/h	51	106	152	307	142	167	200	1271	305	169	872	662
Grp Sat Flow(s),veh/h/ln	1682	1826	1598	1781	1841	1572	1795	1777	1598	1781	1216	1846
Q Serve(g_s), s	3.6	6.7	9.8	12.0	8.4	10.4	13.2	40.7	14.4	11.2	41.9	41.9
Cycle Q Clear(g_c), s	3.6	6.7	9.8	12.0	8.4	10.4	13.2	40.7	14.4	11.2	41.9	41.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	64	183	359	178	298	427	224	1387	783	195	912	692
V/C Ratio(X)	0.79	0.58	0.42	1.72	0.48	0.39	0.89	0.92	0.39	0.86	0.96	0.96
Avail Cap(c_a), veh/h	140	426	572	178	460	566	224	1387	783	223	912	692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.28	0.28	0.28
Uniform Delay (d), s/veh	57.2	51.6	39.8	54.0	45.7	35.6	51.7	34.7	19.3	52.5	36.5	36.5
Incr Delay (d2), s/veh	7.9	1.1	0.3	348.1	0.4	0.2	31.8	11.0	1.5	8.1	8.5	10.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	5.5	6.9	35.7	6.9	7.1	12.4	26.0	9.3	7.4	16.1	23.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.1	52.7	40.1	402.1	46.1	35.8	83.5	45.7	20.7	60.6	45.0	47.0
LnGrp LOS	E	D	D	F	D	D	F	D	C	E	D	D
Approach Vol, veh/h		309			616			1776			1703	
Approach Delay, s/veh		48.6			220.7			45.7			47.3	
Approach LOS		D			F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	17.0	18.2	51.8	9.6	24.4	20.0	50.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	12.0	28.0	15.0	45.0	10.0	30.0	15.0	45.0				
Max Q Clear Time (g_c+I1), s	14.0	11.8	13.2	42.7	5.6	12.4	15.2	43.9				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.1	0.0	0.3	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay				71.0								
HCM 6th LOS				E								