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BY EMAIL

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#1 - 13018 - 84th Avenue
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Dear Mr. Sharma,

**Re: 5737 Ladner Trunk Road Development Traffic Impact Assessment
Delta, BC**

Creative Transportation Solutions Ltd. (CTS) is pleased to submit this **FINAL** report summarising our work on the above study. CTS was retained by Sharma & Associates Inc. to conduct the traffic impact assessment for the proposed multi-family development at 5737 Ladner Trunk Road in the City of Delta, BC. The primary objectives of this study were as follows:

1. To conduct a traffic impact assessment for the proposed development located at 5737 Ladner Trunk Road in the City of Delta.
2. To determine if the requested parking variance for the proposed development may be supported through technical rationale.
3. To prepare a report that documents the data, technical analysis, key findings and recommendations (if any) that meets the terms set out by the City of Delta.

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1.0 BACKGROUND

1.1 The Site

Maple Leaf Homes Ltd. is proposing to construct a 6 storey multi-family apartment rental development comprising of 78 dwelling units, located at 5737 Ladner Trunk Road in the City of Delta. The proposed development will include a total of 47 parking spaces, of which 40 parking spaces will be designated for the residential apartment units, 2 parking spaces will be allocated for visitors, and 5 parking spaces will be provided as ride share spaces. The proposed site access is off 48A Avenue at the northeast corner of the study site.

Maple Leaf Homes Ltd is also proposing to construct a multi-family townhouse development consisting of 40 dwelling units, located at 4876 – 4938 57th Street in the City of Delta. This nearby development will be included as background traffic in this study.

The study area, study intersections, and the existing roadways are illustrated in **FIGURE 1**. The reference site plans and stats are included in **APPENDIX A**.

FIGURE 1
STUDY AREA AND INTERSECTIONS



The study site and land uses nearby are illustrated in **FIGURE 2** below.

**FIGURE 2
SITE CONTEXT**



1.2 Existing Road Network

Ladner Trunk Road

- East-West major arterial road,
- Four lanes, two in each direction,
- Part of City of Delta's Truck Route network,
- Concrete curb and gutter along both sides of the road,
- Sidewalk on both sides of the road,
- Street lighting on both sides of the road,
- At the intersection of Ladner Trunk Road and 57th Street, there is a protected permissive eastbound left turn phase.
- 50 km/h speed limit,
- No parking on both sides of the street.

57th Street

- North-South collector road,
- Two lanes, one in each direction,
- Parking generally permitted on both sides of the road,
- There are no stopping signs at bus stops to ensure that bus maneuvers are not obstructed by parked vehicles.
- There are no stopping signs on the west side of 57th Street between Grove Avenue and Ladner Trunk Road to improve visibility at intersections and driveways.
- Concrete curb and gutter along both sides of the road,
- Sidewalk on both sides of the road, Street lighting on East side of the road,
- There is a pedestrian crosswalk equipped with pedestrian activated flashing warning beacons and overhead pedestrian crossing signs on the north leg of the intersection of 57th Street at Grove Avenue.
- 50 km/h speed limit.

48B Avenue

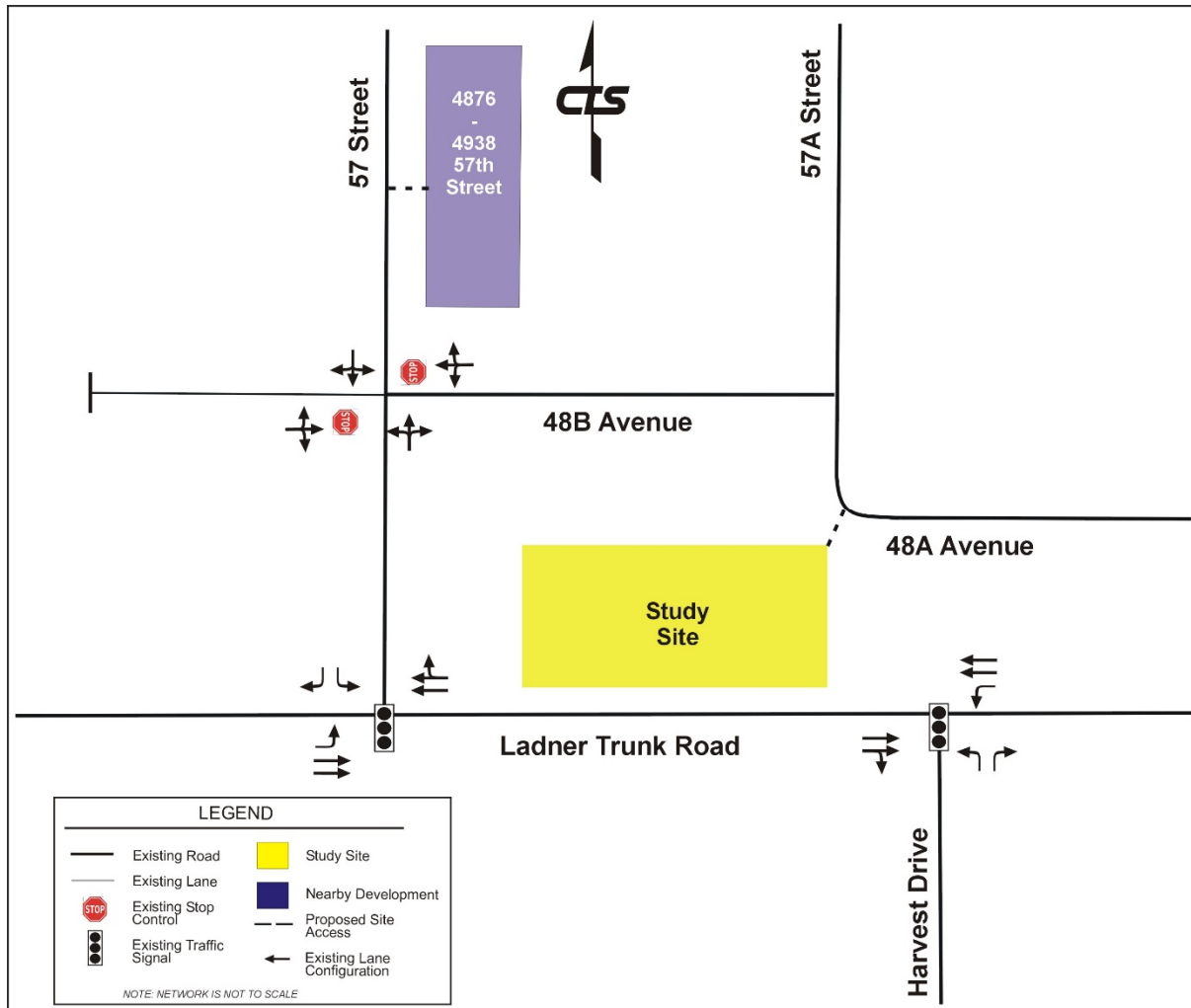
- East-West local road,
- Two undivided lanes, one in each direction,
- "No Stopping" on the North side of the road,
- Parking permitted on the South side of the road,
- Concrete curb and gutter along the South side of the road,
- Sidewalk on the South side of the road, Street lighting on South side of the road,
- 50 km/h speed limit.

Harvest Drive

- North-South collector road,
- Four-lane cross section, with a median dividing the north and south traffic,
- Parking is banned on both sides of the road approaching and departing Ladner Trunk Road within the study area,
- Sidewalk on both sides of the road, Street lighting on both sides of the road,
- Shared lane bike route on both sides of the road,
- 50 km/h speed limit.

The laning configuration and current traffic control for the study intersections are illustrated in **FIGURE 3**.

FIGURE 3
EXISTING LANE CONFIGURATION



1.3 Alternative Modes of Travel

Transit Network

The study site is serviced by the following bus routes within a 400-metre radius (or 5-minute walking distance), with bus stops located on Ladner Trunk Road, Harvest Drive, and 57th Road. The Ladner Exchange bus loop is within a 400-metre distance from the study site.

- Route #310 - Scottsdale / Ladner Exchange – This bus route connects Ladner with the Scottsdale Exchange in North Delta and operates between 10 to 30-minute intervals during the weekdays and weekends.
- Route #601 - Bridgeport Station / South Delta / Boundary Bay – This bus route connects Tsawwassen to Ladner to Bridgeport Station. The bus generally operates in 15-minute intervals during weekday peak hours, with less frequency during off peak hours and on the weekend.
- Route #606 / 608: Ladner Ring – These bus routes operate during the weekday morning (#608) and weekday afternoon (#606) peak hours in a loop around Ladner. During the weekday morning peak, the #608 bus runs a counterclockwise loop in a 35 minute or less interval. During the weekday afternoon peak, the #606 bus runs in a clockwise loop in a 40 minute or less interval.
- Route #618 - Ladner North / Ladner Exchange – This bus route connects North Ladner to the Ladner Exchange bus loop and generally operates in 30-minute intervals on Weekdays and Saturdays and 40-minute intervals on Sundays and Holidays.
- Route #640 - Scott Road Station / Ladner Exchange – This bus route connects Ladner with Scott Road Expo Line Skytrain Station in Surrey and generally operates in 15-minute intervals or less during the weekday peak hours with less frequency during off peak hours and on the weekend.

The transit network is illustrated in **FIGURE 4** below.

Bicycle Network

FIGURE 4 below illustrates the bicycle network as shown on the City of Delta Bike Routes Map. The primary existing bicycle route within a 400-metre radius of the study site area is along 48A Avenue. The City of Delta Cycling Master Plan identifies 57th Street as future location for a protected bike lane.

During the site visit conducted on Thursday June 6th, 2024, a bike route sign was observed on the corner of 48A Avenue and 57A Street, pointing to 57A Street as a bike route as shown in **FIGURE 4** below. With reference to the 2024 update to the Delta Route map, 48A Avenue is a bike route and 57A Street between 48A Avenue and 48B Avenue

(approximately 70 m block length) is a bike route. The City of Delta should consider updating the bike route signage to improve clarity on which roads are bike routes.

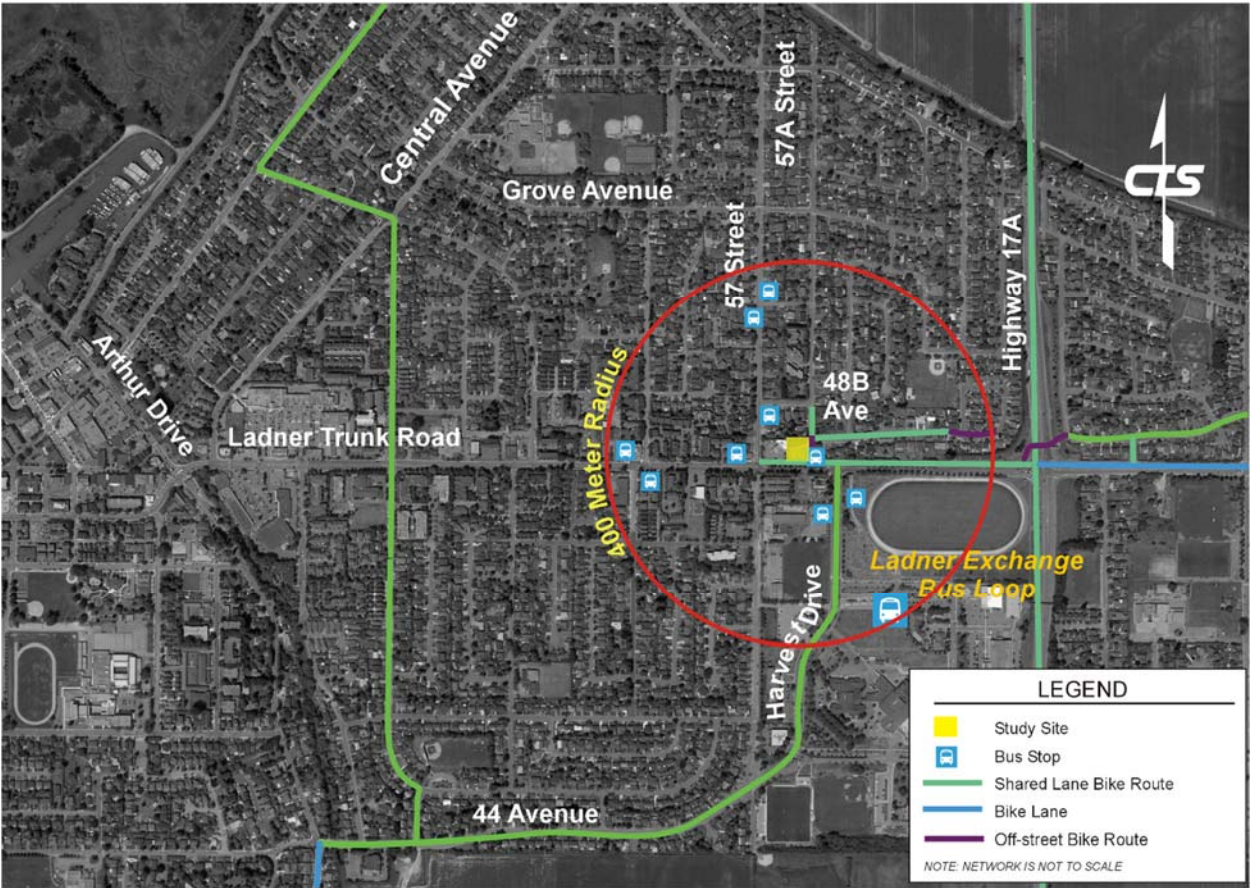
FIGURE 4
VIEW OF BIKE ROUTE SIGN AND PROPOSED ACCESS LOCATION FROM
48A AVENUE WESTBOUND



Pedestrian Network

The study area is well connected with sidewalks. All roads within the study area have a sidewalk on at least one side. There is currently a multi-use pathway along the east side of the study site and a 3-metre-wide pedestrian walkway will be constructed as part of the proposed development to replace it.

FIGURE 5
ALTERNATIVE MODES OF TRAVEL WITHIN STUDY AREA



1.4 Scope of Work

The following intersections were included in the traffic impact assessment:

- 57th Street at 48B Avenue (unsignalized),
- 57th Street at Ladner Trunk Road (signalized),
- 57th Street at Harvest Drive (signalized).

CTS selected the weekday morning and afternoon peak hours as the analysis design hours for this study as it represents the peak traffic time for the adjacent road network. For the purposes of this study, the subject proposed development and the nearby background development are both assumed to be built out and occupied by 2027.

The following scenarios were selected for this study:

- 2024 (existing base traffic conditions);
- 2027 (future base traffic conditions i.e., build-out year);
- 2027 (future base traffic conditions + background traffic volume);
- 2027 (future base traffic conditions + background traffic volume + study site generated traffic volume);
- 2032 (future base traffic conditions i.e., 5 years post build-out);
- 2032 (future base traffic conditions + background traffic volume + study site generated traffic volume);
- 2037 (future base traffic conditions i.e., 10 years post build-out); and
- 2037 (future base traffic conditions + background traffic volume + study site generated traffic volume).

2.0 BASE TRAFFIC VOLUMES

2.1 Existing Base Traffic Volumes

CTS conducted turning movement counts on Tuesday, April 9th, 2024, from 07:00 to 09:00 and 15:00 to 18:00 for 57th Street at 48B Avenue and 57th Street at Ladner Trunk Road; and on Tuesday, May 7th, 2024, for 57th Street at Harvest Drive to document both the weekday morning and afternoon peak period traffic volumes at the study intersections.

As the 57th Street at Harvest Drive and 57th Street at Ladner Trunk Road data were collected on different dates there is notable variance in the traffic volumes. For the analysis scenarios the westbound and eastbound traffic volumes along Ladner Trunk Road were conservatively factored up based on a comparison of the traffic balance between these two intersections. The traffic count data was summarized and reviewed to ensure data integrity and validity. The summarized traffic data sheets are included in **APPENDIX B**.

From the data summary, the design critical weekday morning and afternoon peak hours of the road network adjacent to the site were from 7:00 to 8:00 and from 15:30 to 16:30. The traffic volumes during the morning and afternoon peak hours are illustrated in **FIGURE 5** and **FIGURE 6**.

FIGURE 6
2024 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

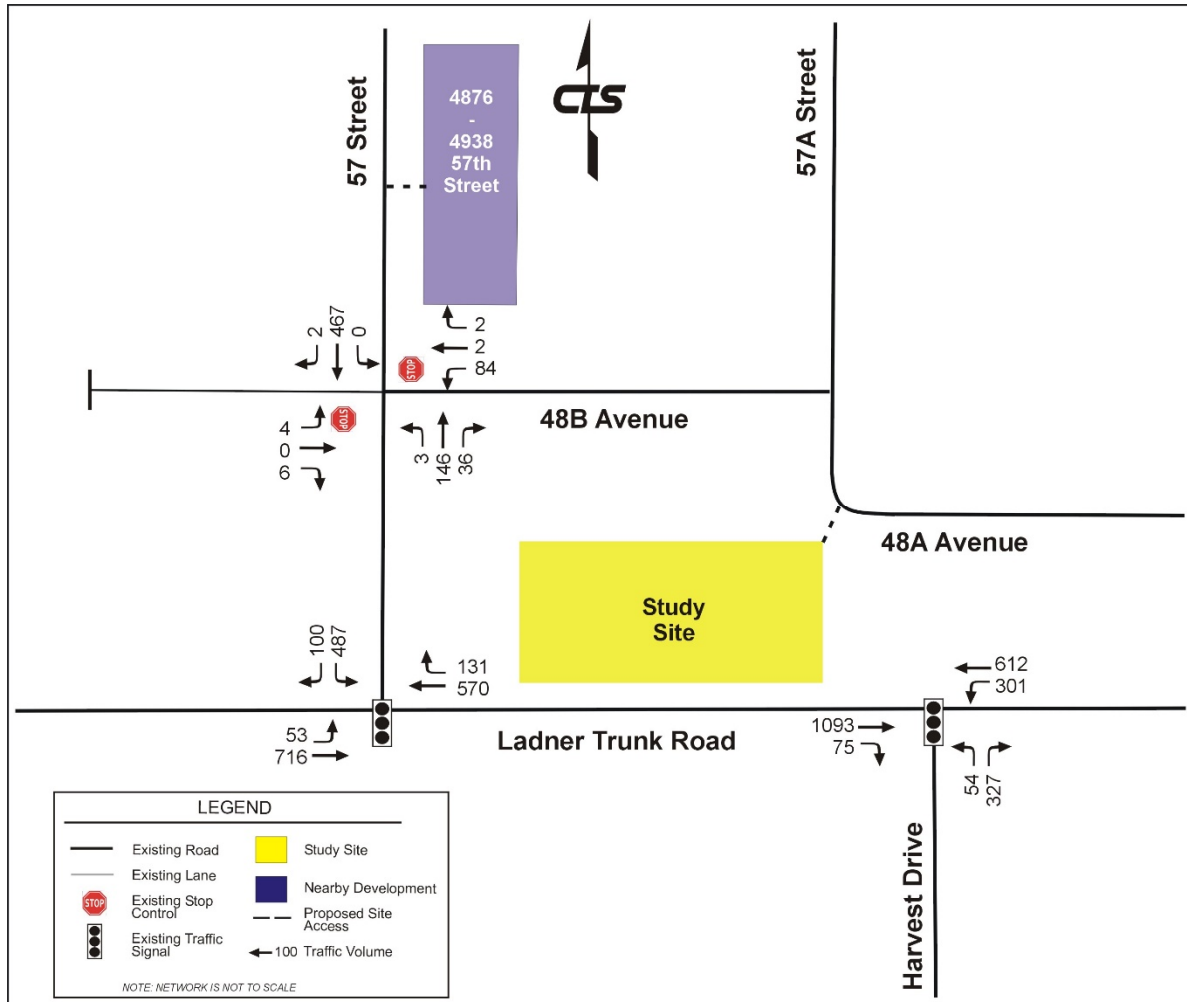
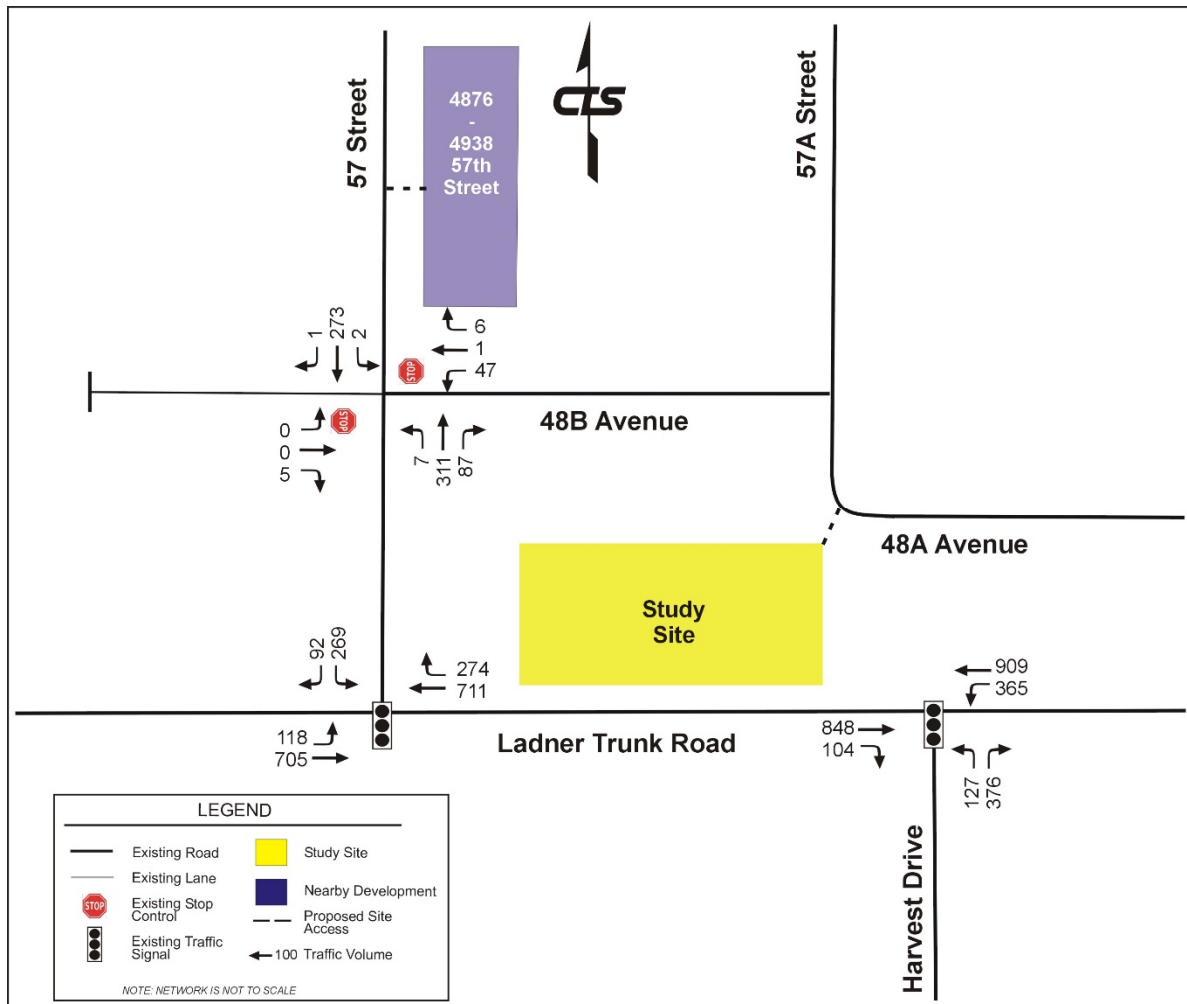


FIGURE 7
2024 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES



2.2 Future Base Traffic Volumes

2027 Future Base Traffic Volumes

Year 2027 is anticipated to be the build-out year for the proposed development. The 2024 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent the future base year 2027 traffic volumes. **FIGURE 7** and **FIGURE 8** illustrate the 2027 weekday AM and PM peak hour traffic volume future base scenarios.

2032 Future Base Traffic Volumes

Year 2032 is anticipated to be 5 years post build-out for the proposed development. The 2024 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent the future base year 2032 traffic volumes. **FIGURE 9** and **FIGURE 10** illustrate the 2032 weekday AM and PM peak hour traffic volume future base scenarios.

2037 Future Base Traffic Volumes

Year 2037 is anticipated to be 10 years post build-out for the proposed development. The 2024 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent the future base year 2037 traffic volumes. **FIGURE 11** and **FIGURE 12** illustrate the 2037 weekday AM and PM peak hour traffic volume future base scenarios.

FIGURE 8
2027 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

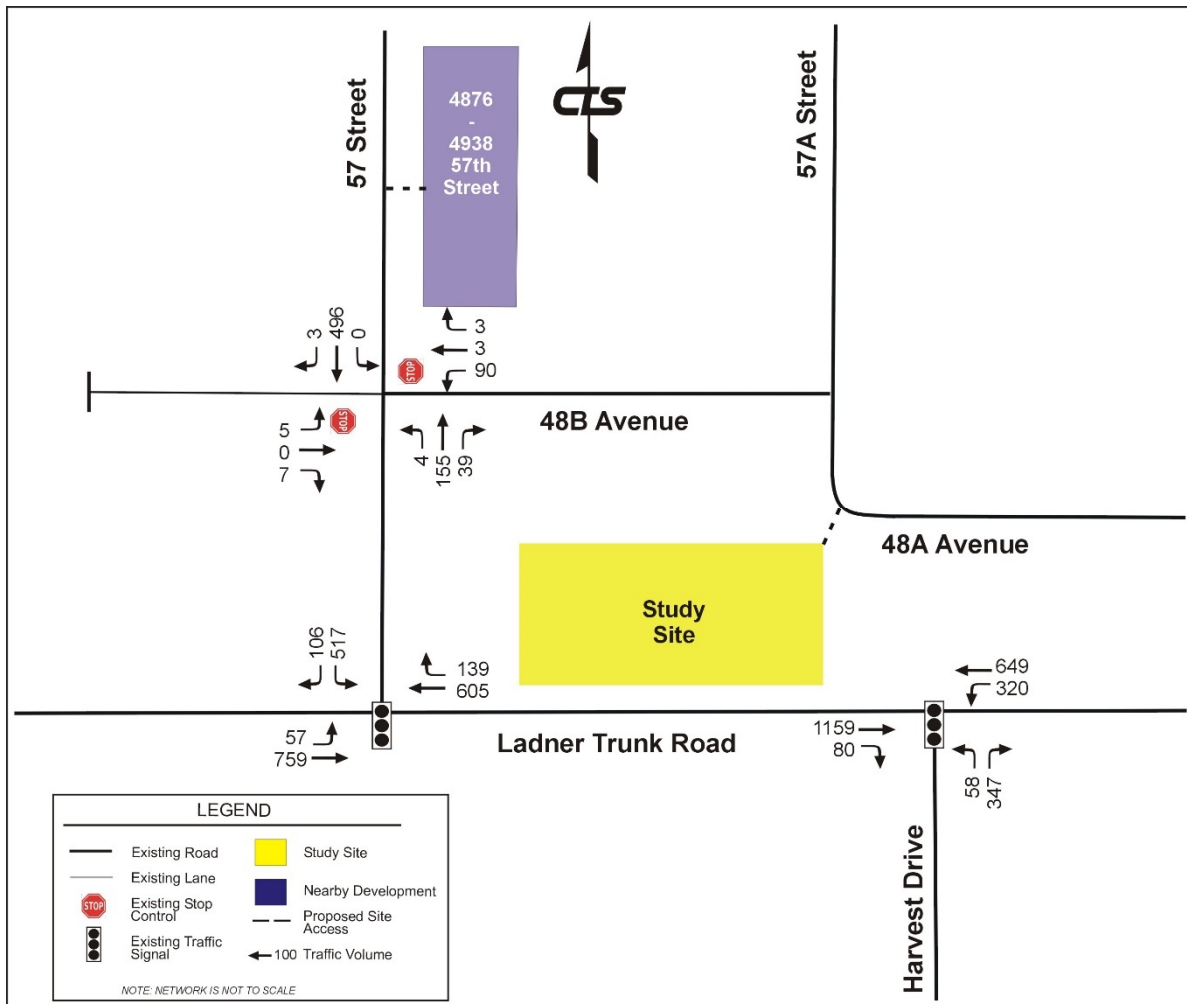


FIGURE 9
2027 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES

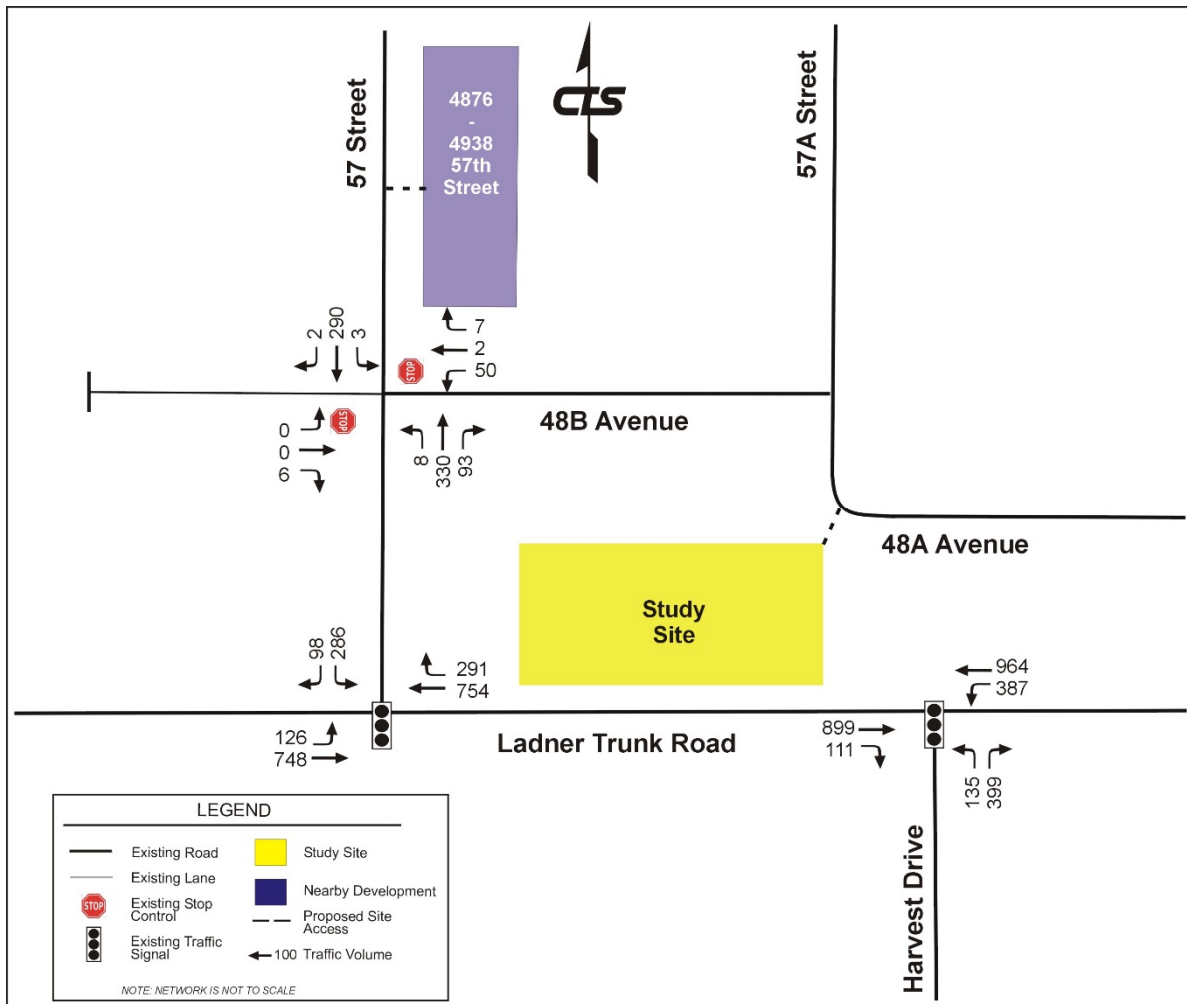


FIGURE 10
2032 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

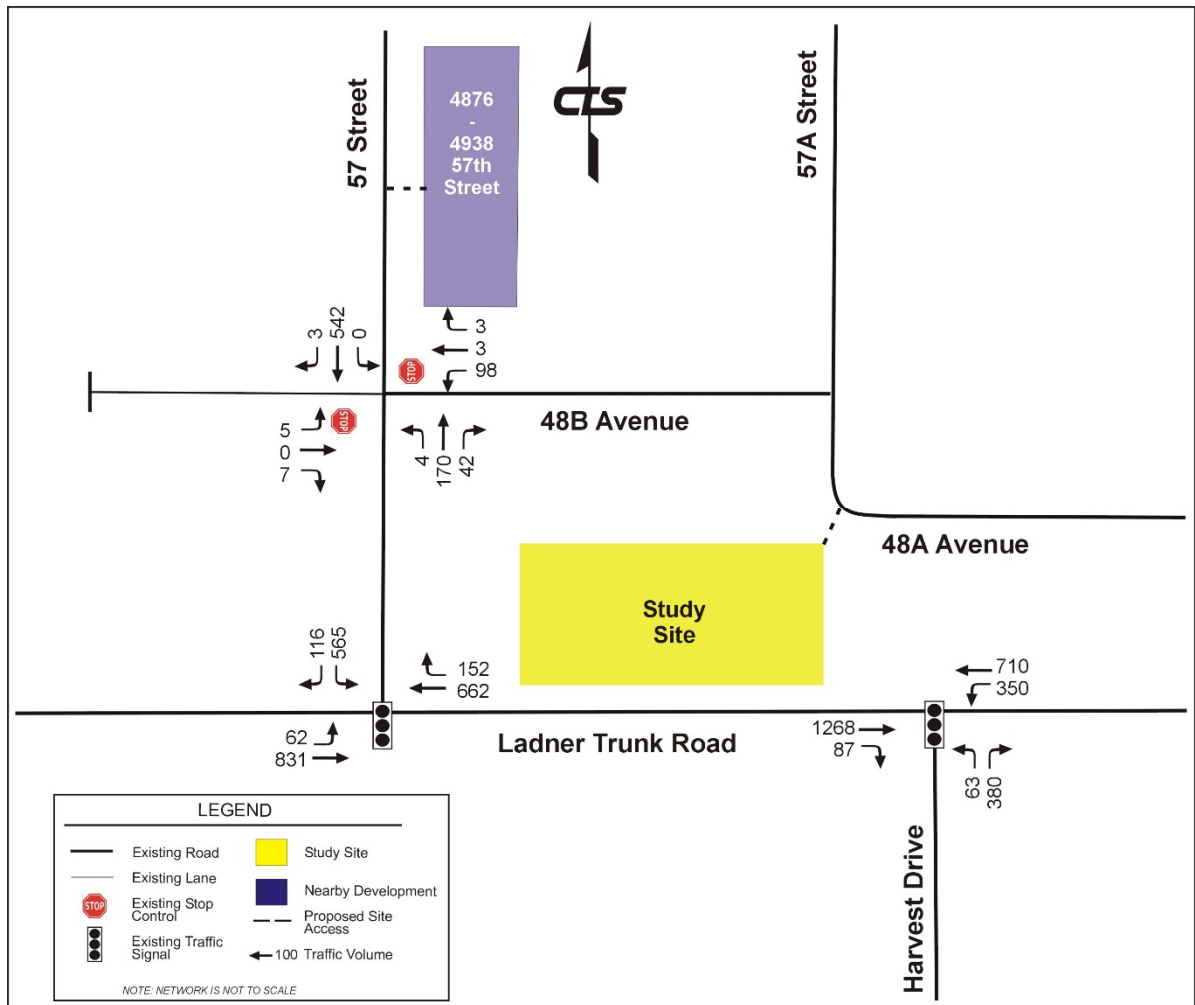


FIGURE 11
2032 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES

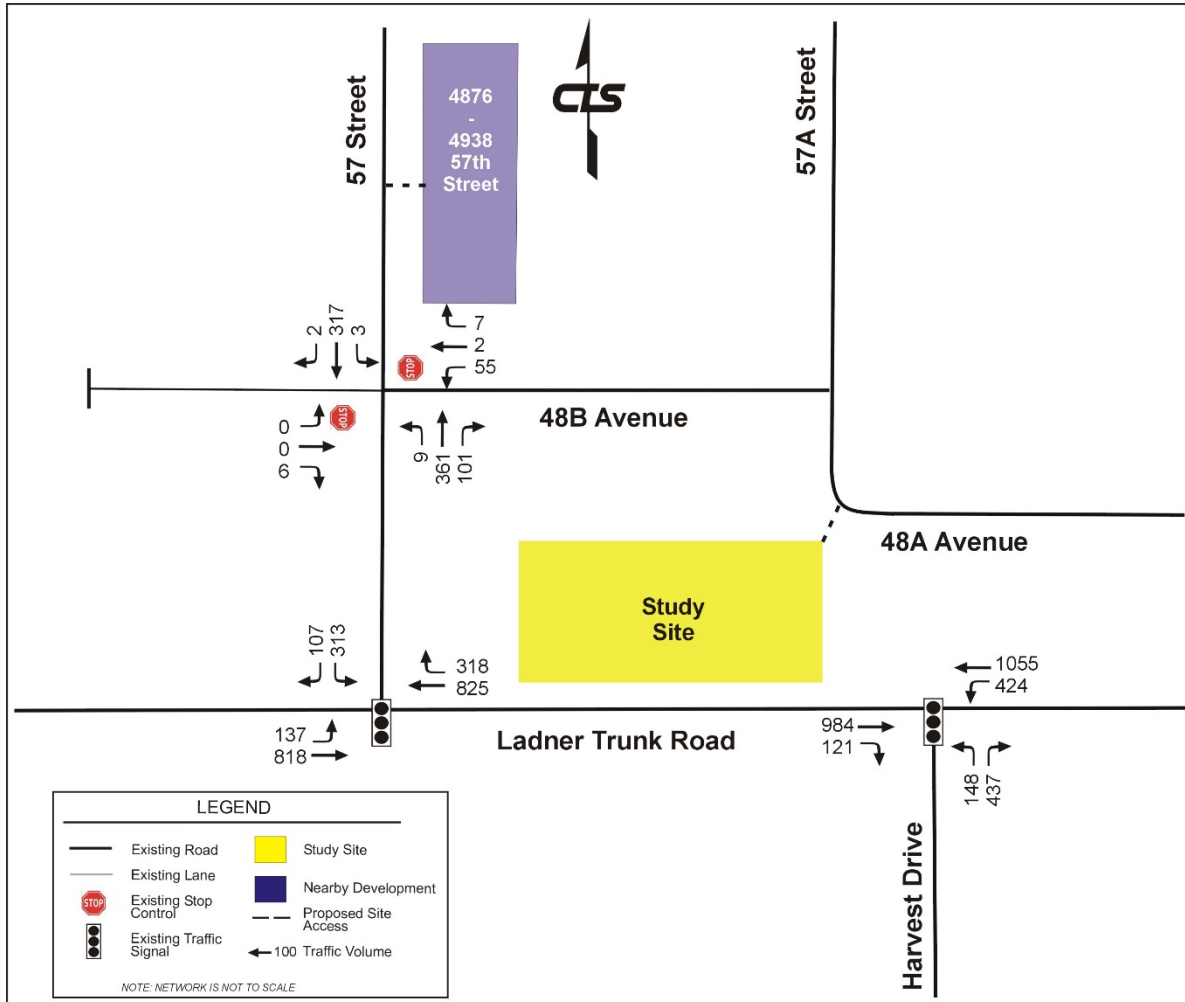


FIGURE 12
2037 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

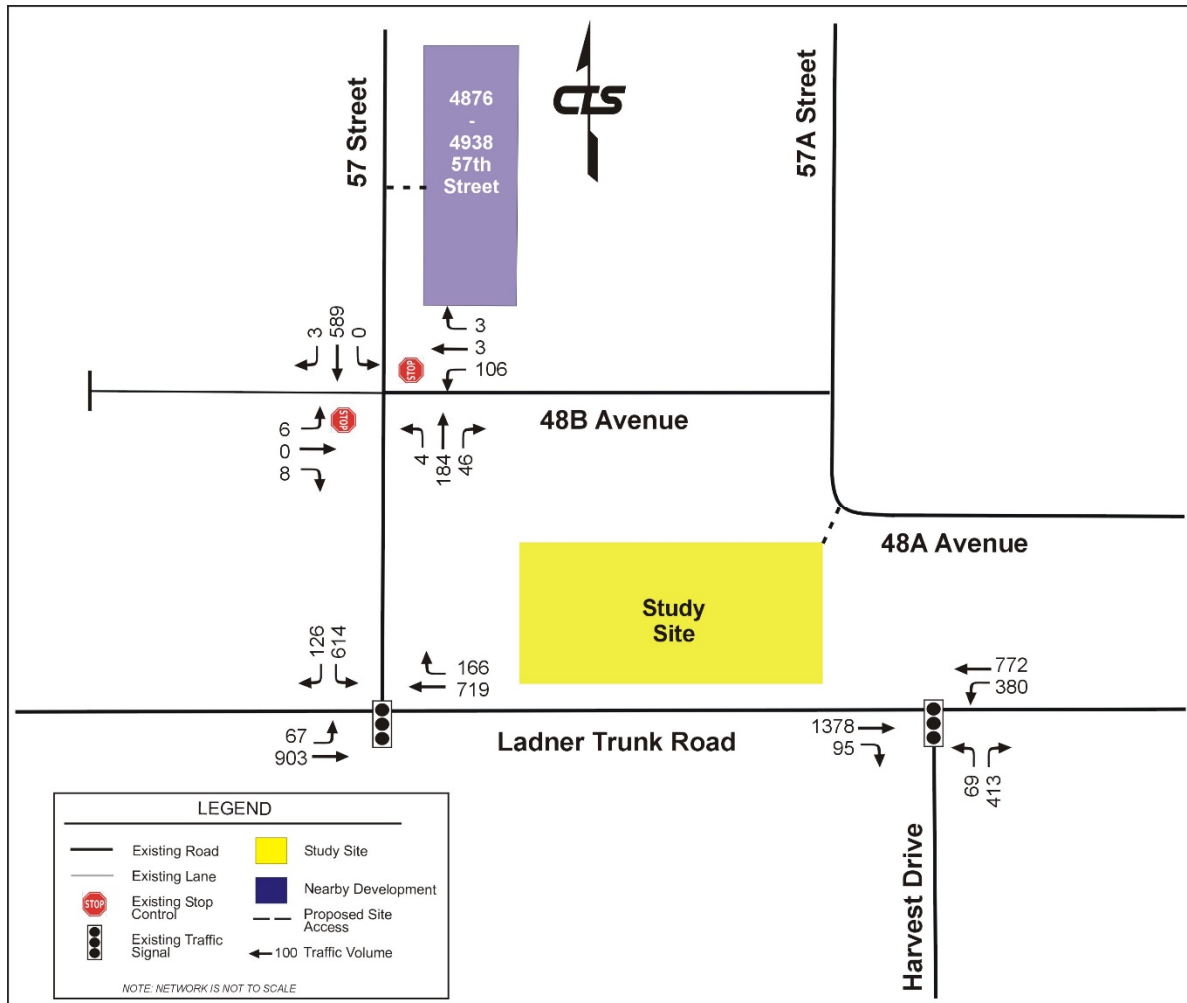
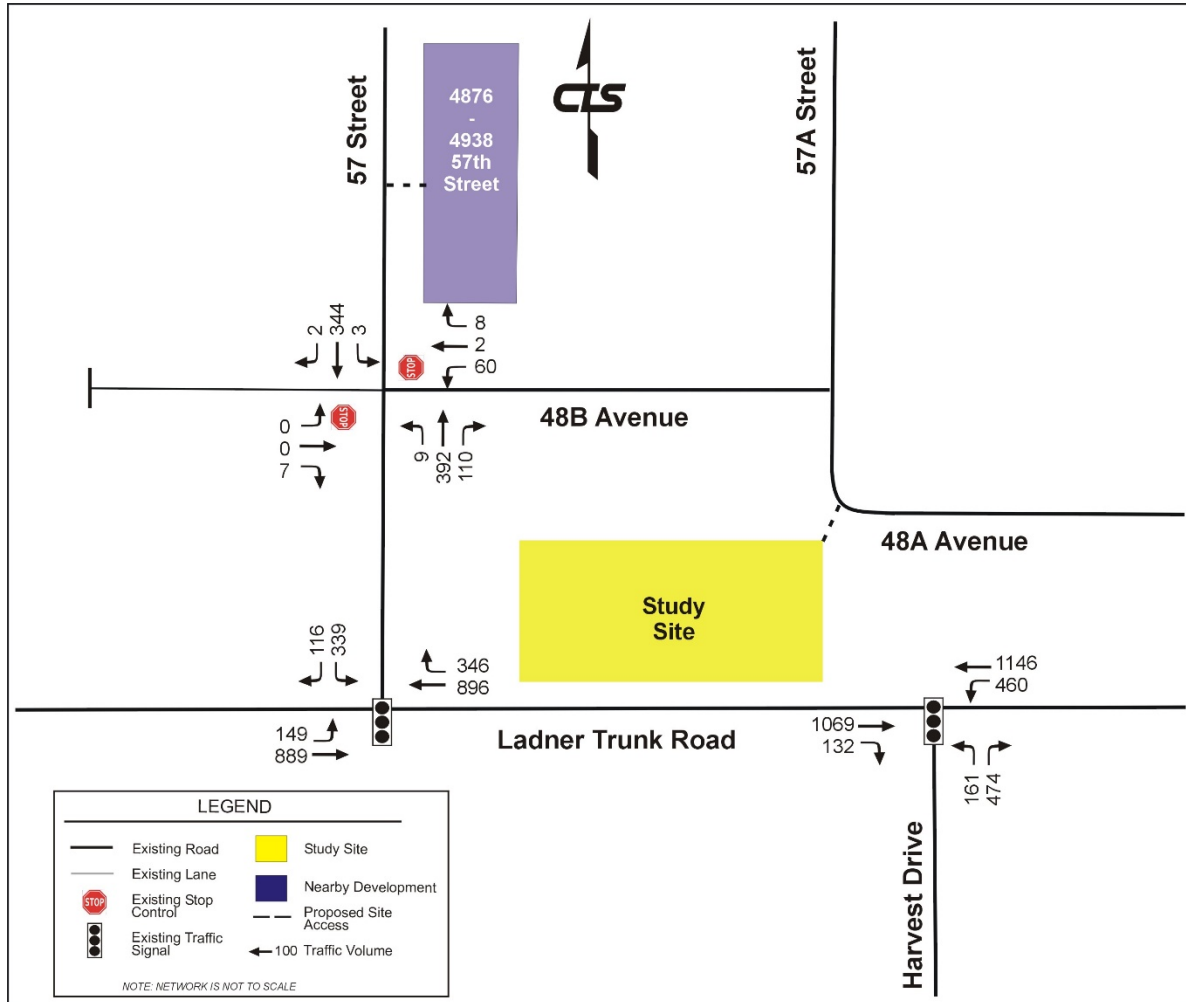


FIGURE 13
2037 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES



3.0 SITE & BACKGROUND TRAFFIC VOLUMES

3.1 Trip Generation

The published vehicle trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition were used to forecast the future traffic volumes generated by the study site and the background development.

- Study Site: 221 Multifamily Housing (Mid-Rise)
- Background Development: 220 Multifamily Housing (Low-Rise)

TABLE 1 summarizes the forecasted study site generated traffic for the proposed development and **TABLE 2** summarizes the forecasted traffic generated by the background development.

**TABLE 1
SUMMARY OF STUDY SITE GENERATED TRAFFIC**

Land Use	Trip Generation Variable	Scope of Development	Trip Rate Source	Peak Hour	Vehicle Trip Generation Rate	Directional Split		Peak Hour Volumes (vph)		
						% in	% out	in	out	total
Multifamily Housing (Mid-Rise)	Dwelling Units	78	ITE 11 th Edition - Code 221	Weekday Morning	0.37	23%	77%	7	22	29
				Weekday Afternoon	0.39	61%	39%	19	12	31
WEEKDAY MORNING PEAK HOUR TRAFFIC VOLUMES								7	22	29
WEEKDAY AFTERNOON PEAK HOUR TRAFFIC VOLUMES								19	12	31

From **TABLE 1**, the proposed development is forecast to generate a total of 29 vehicle trips (7 inbound, and 22 outbound) during the weekday morning peak hour and 31 vehicle trips (19 inbound, and 12 outbound) during the weekday afternoon peak hour. The weekday morning peak hour volume is equivalent to an average of approximately one vehicle movement every 2.07 minutes, while the weekday afternoon peak hour volume is equivalent to an average of approximately one vehicle movement every 1.94 minutes.

TABLE 2
SUMMARY OF BACKGROUND SITE GENERATED TRAFFIC

Land Use	Trip Generation Variable	Scope of Development	Trip Rate Source	Peak Hour	Vehicle Trip Generation Rate	Directional Split		Peak Hour Volumes (vph)		
						% in	% out	in	out	total
Multifamily Housing (Low-Rise)	Dwelling Units	40	ITE 11 th Edition - Code 220	Weekday Morning	0.40	24%	76%	4	12	16
				Weekday Afternoon	0.51	63%	37%	13	8	21
WEEKDAY MORNING PEAK HOUR TRAFFIC VOLUMES								4	12	16
WEEKDAY AFTERNOON PEAK HOUR TRAFFIC VOLUMES								13	8	21

From **TABLE 2**, the background development is forecast to generate a total of 16 vehicle trips (4 inbound, and 12 outbound) during the weekday morning peak hour and 21 vehicle trips (13 inbound, and 8 outbound) during the weekday afternoon peak hour.

3.2 Trip Distribution

Trip distribution percentages for site generated vehicle trips to/from for the proposed study development were developed from existing traffic patterns entering and exiting the study area. The percentage distribution and traffic volume assignment for the proposed development is summarized in **TABLE 3** and **TABLE 4**, respectively, while **TABLE 5** shows the distribution of the background development traffic following the same distribution percentages as the study site generated traffic.

**TABLE 3
DISTRIBUTION PERCENTAGES
FOR SITE GENERATED VEHICLE TRIPS**

From / To	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
North	14%	6%	10%	10%
East	41%	53%	43%	48%
South	16%	17%	20%	14%
West	29%	24%	27%	28%
TOTAL	100%	100%	100.0%	100.0%

**TABLE 4
TRIP DISTRIBUTION SITE VEHICLE VOLUMES**

From / To	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
57 St (N)	1	1	2	1
48B Ave (E)	0	0	0	0
48B Ave (W)	0	0	0	0
Ladner Trunk Rd (E)	3	12	8	6
Ladner Trunk Rd (W)	2	5	5	3
Harvest Dr (S)	1	4	4	2
TOTAL	7	22	19	12
	29		31	

**TABLE 5
TRIP DISTRIBUTION BACKGROUND VEHICLE VOLUMES**

From / To	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
57 St (N)	0	1	1	1
48B Ave (E)	0	0	0	0
48B Ave (W)	0	0	0	0
Ladner Trunk Rd (E)	2	6	5	4
Ladner Trunk Rd (W)	1	3	4	2
Harvest Dr (S)	1	2	3	1
TOTAL	4	12	13	8
	16		21	

The weekday morning and afternoon peak hour site generated traffic volumes of the study's proposed development for the build-out year of 2027 are illustrated in **FIGURE 13** and **FIGURE 14**.

FIGURE 14
SITE TRAFFIC VOLUMES FOR WEEKDAY MORNING PEAK HOUR

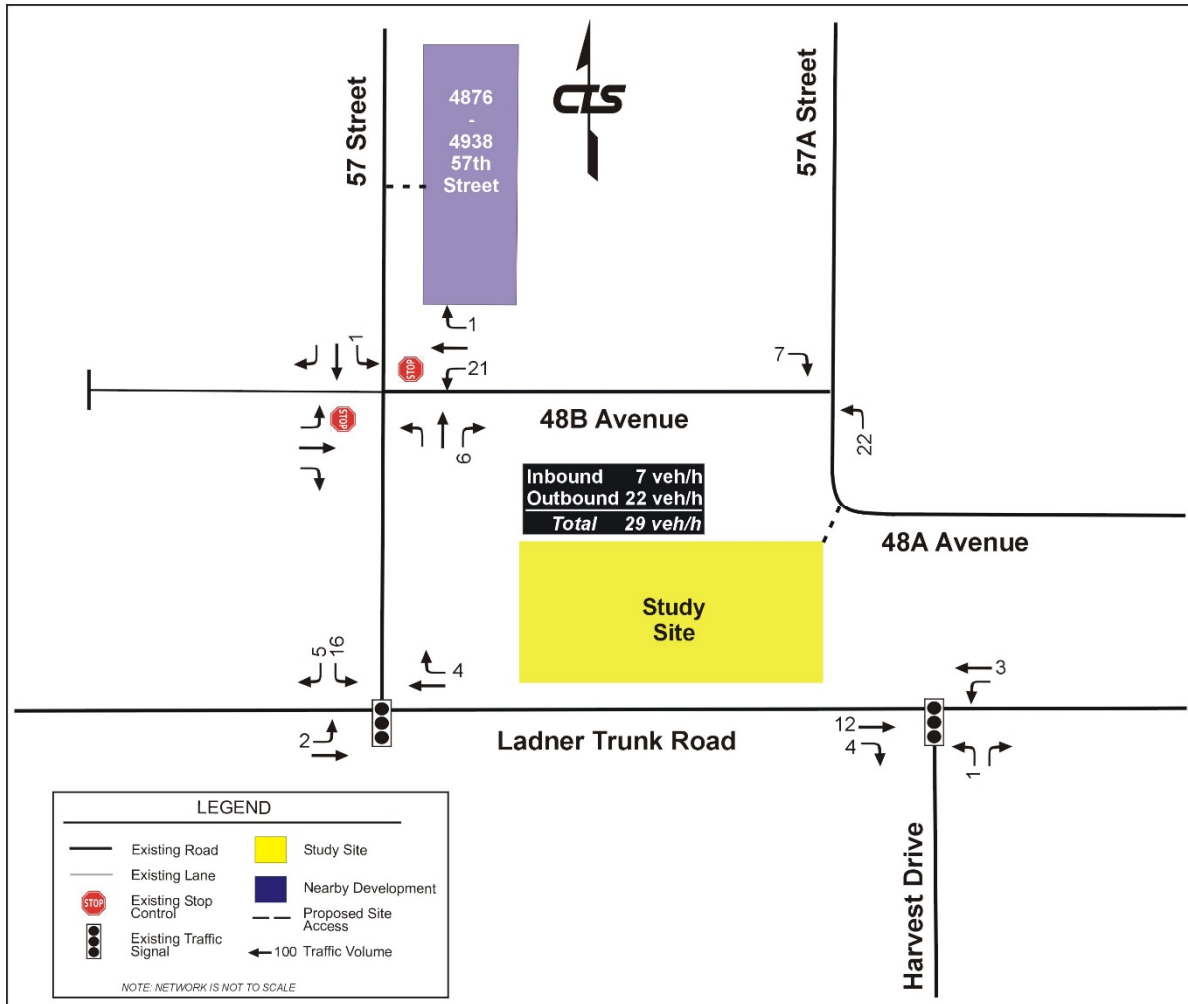
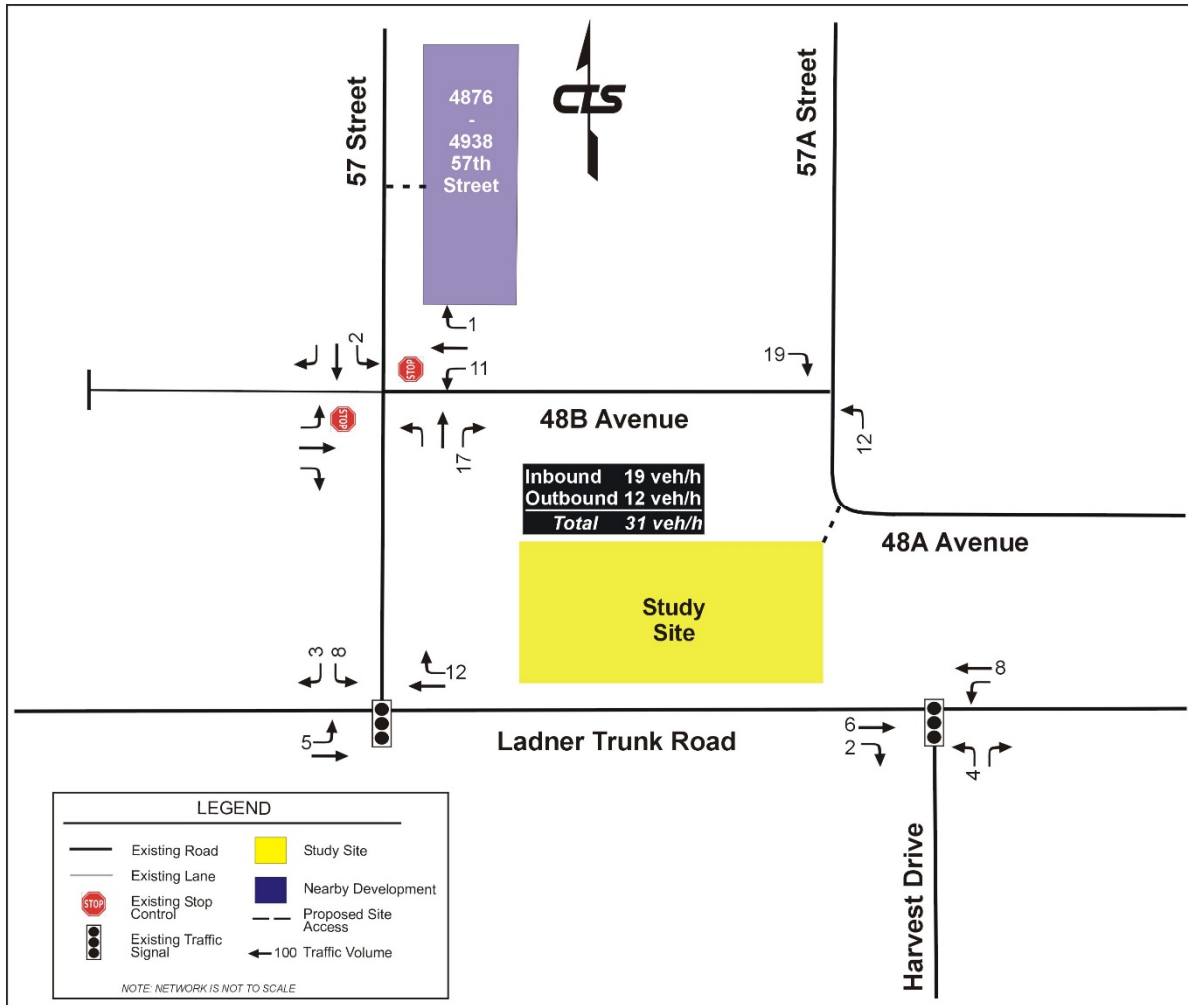


FIGURE 15
SITE TRAFFIC VOLUMES FOR WEEKDAY AFTERNOON PEAK HOUR



3.3 Future Base + Background

2027 Future Base + Background Traffic

2027 is anticipated to be the buildout year for the proposed development. The 2027 base + background traffic volumes were calculated by factoring up the 2024 base traffic volumes by the approved traffic volume growth rate of 2.0% per annum (simple straight line) to the year 2027 and distributing the background development traffic to the study intersections.

The 2027 base + background weekday morning and afternoon peak hour traffic volumes are illustrated in **FIGURE 15** and **FIGURE 16**, respectively.

FIGURE 16
2027 WEEKDAY MORNING PEAK HOUR BASE + BACKGROUND TRAFFIC VOLUMES

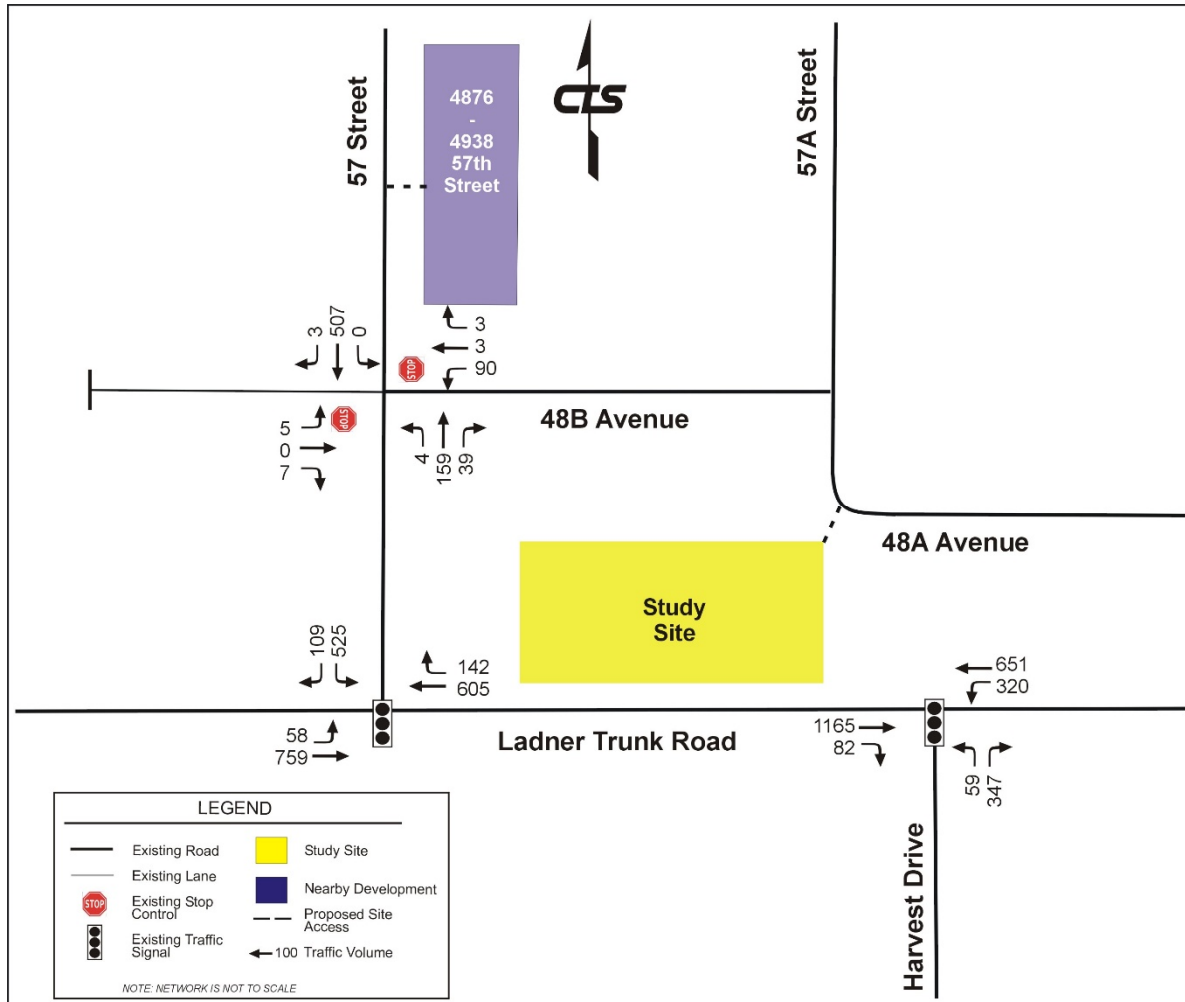
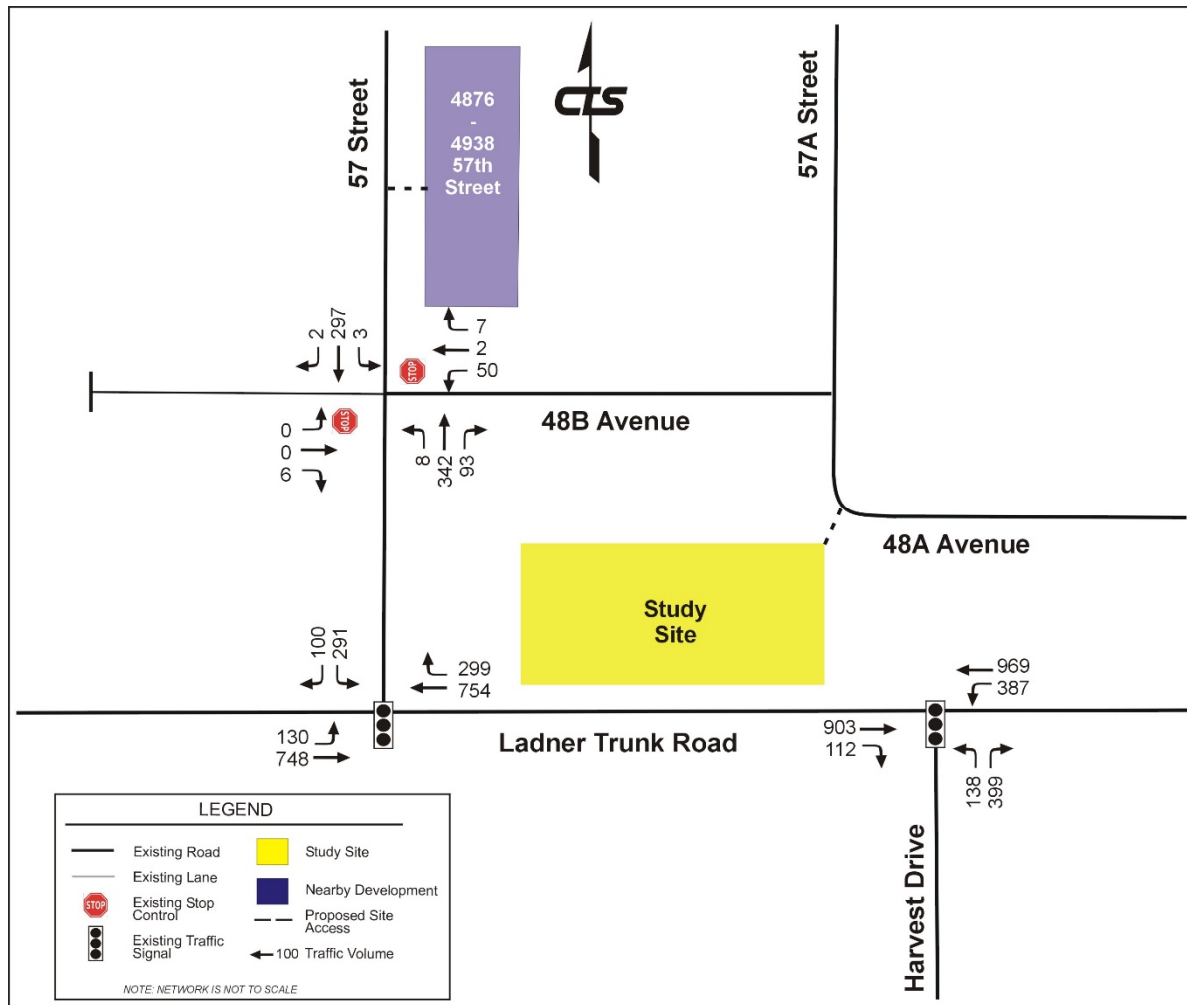


FIGURE 17
2027 WEEKDAY AFTERNOON PEAK HOUR BASE + BACKGROUND TRAFFIC VOLUMES



4.0 BASE + BACKGROUND + SITE TRAFFIC VOLUMES

4.1 Base + Background + Site Traffic Volumes

2027 Future Base + Background + Site Traffic Volumes (Build-out Year)

The proposed development is anticipated to be built by the year 2027. The 2027 base + background + site traffic volumes were calculated by first factoring up the 2024 base traffic volumes by the approved traffic volume growth rate of 2.0% per annum (simple straight line) to the year 2027. Then, adding both the traffic generated by the nearby background development and the study site's proposed development.

The 2027 base + background + site weekday morning and afternoon peak hour traffic volumes are illustrated in **FIGURE 17** and **FIGURE 18**, respectively.

2032 Future Base + Background + Site Traffic Volumes (5 Years Post Build-out Year)

Year 2032 is anticipated to be 5 years post build-out for the proposed development. The 2032 base + background + site traffic volumes were calculated by first factoring up the 2024 base traffic volumes by the approved traffic volume growth rate of 2.0% per annum (simple straight line) to the year 2032. Then, adding both the traffic generated by the nearby background development and the study site's proposed development.

The 2032 base + background + site weekday morning and afternoon peak hour traffic volumes are illustrated in **FIGURE 19** and **FIGURE 20**, respectively.

2037 Future Base + Background + Site Traffic Volumes (10 Years Post Build-out Year)

Year 2037 is anticipated to be 10 years post build-out for the proposed development. The 2037 base + background + site traffic volumes were calculated by first factoring up the 2024 base traffic volumes by the approved traffic volume growth rate of 2.0% per annum (simple straight line) to the year 2037. Then, adding both the traffic generated by the nearby background development and the study site's proposed development.

The 2037 base + background + site weekday morning and afternoon peak hour traffic volumes are illustrated in **FIGURE 21** and **FIGURE 22**, respectively.

FIGURE 18
2027 WEEKDAY MORNING PEAK HOUR BASE + BACKGROUND + SITE TRAFFIC
VOLUMES

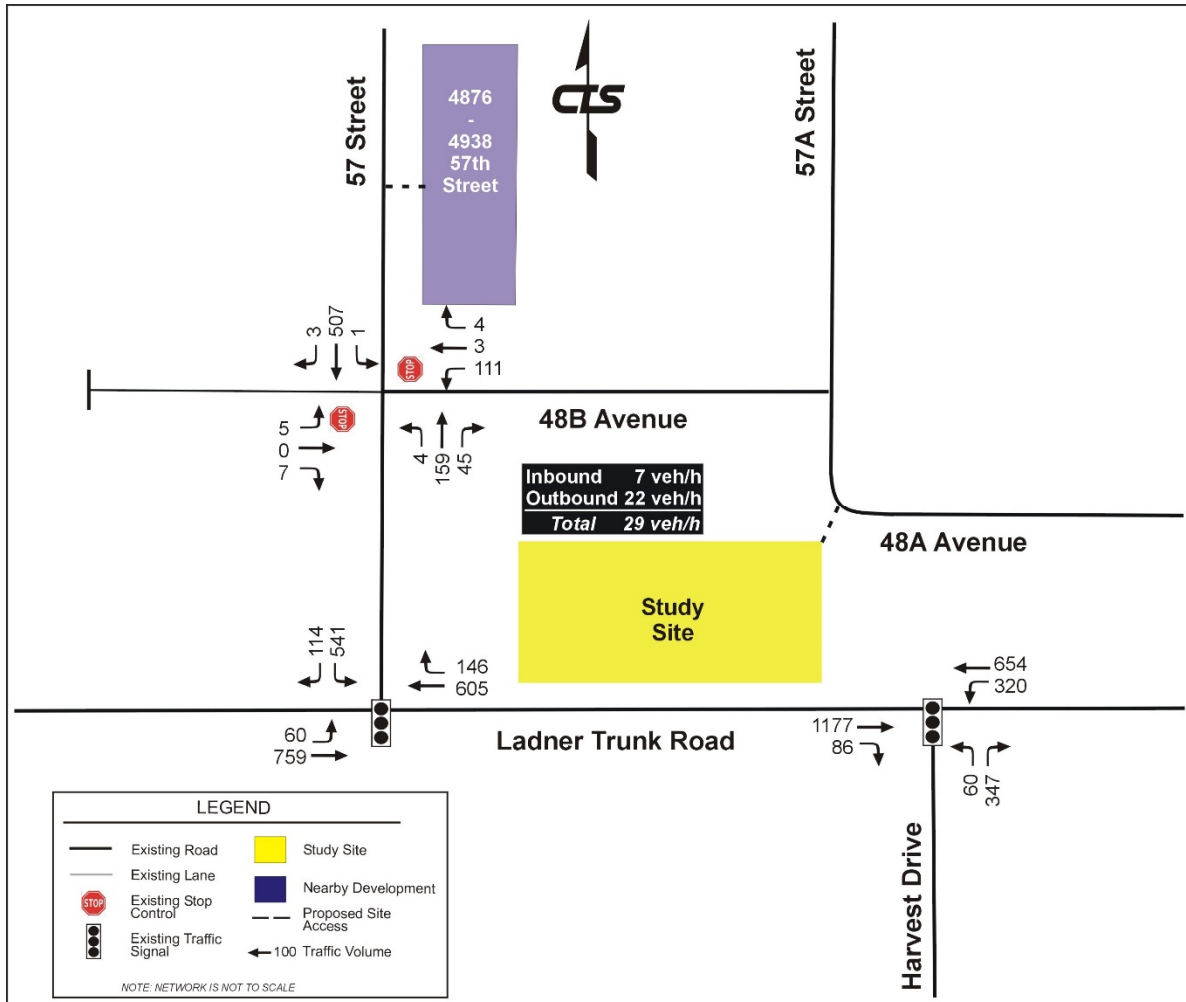


FIGURE 19
2027 WEEKDAY AFTERNOON PEAK HOUR BASE + BACKGROUND + SITE TRAFFIC
VOLUMES

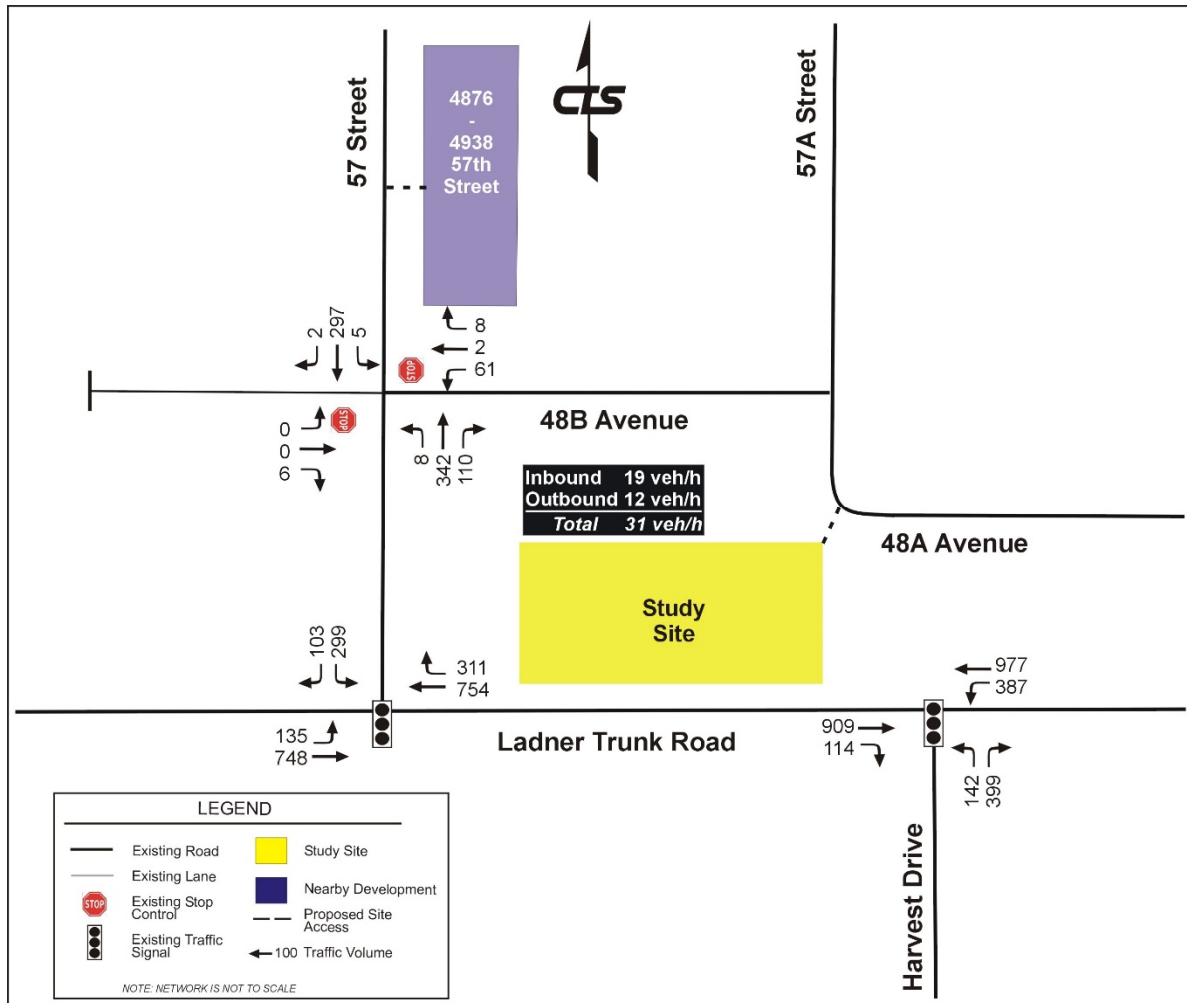


FIGURE 20
2032 WEEKDAY MORNING PEAK HOUR BASE + BACKGROUND + SITE TRAFFIC
VOLUMES

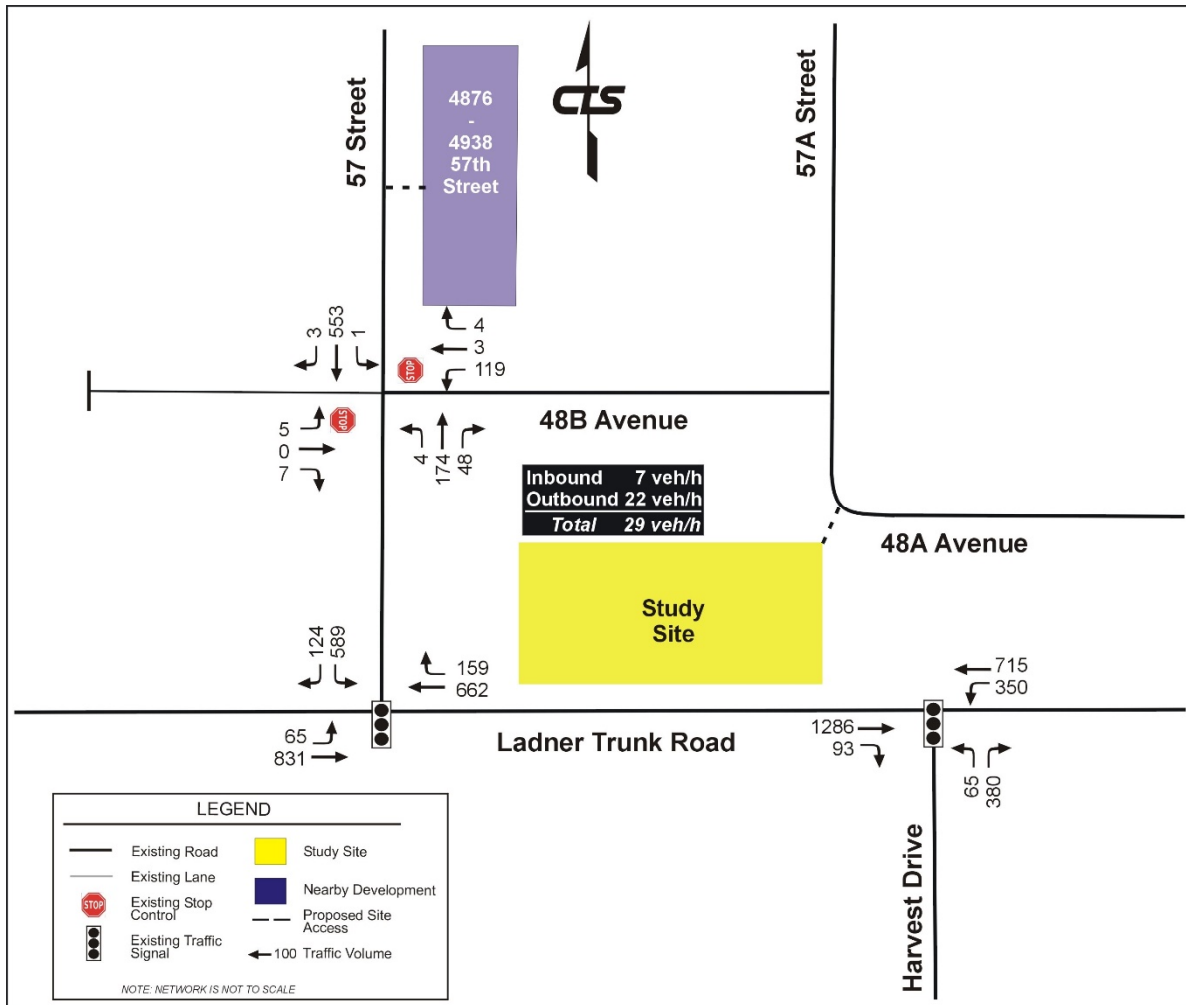


FIGURE 21
2032 WEEKDAY AFTERNOON PEAK HOUR BASE + BACKGROUND + SITE TRAFFIC
VOLUMES

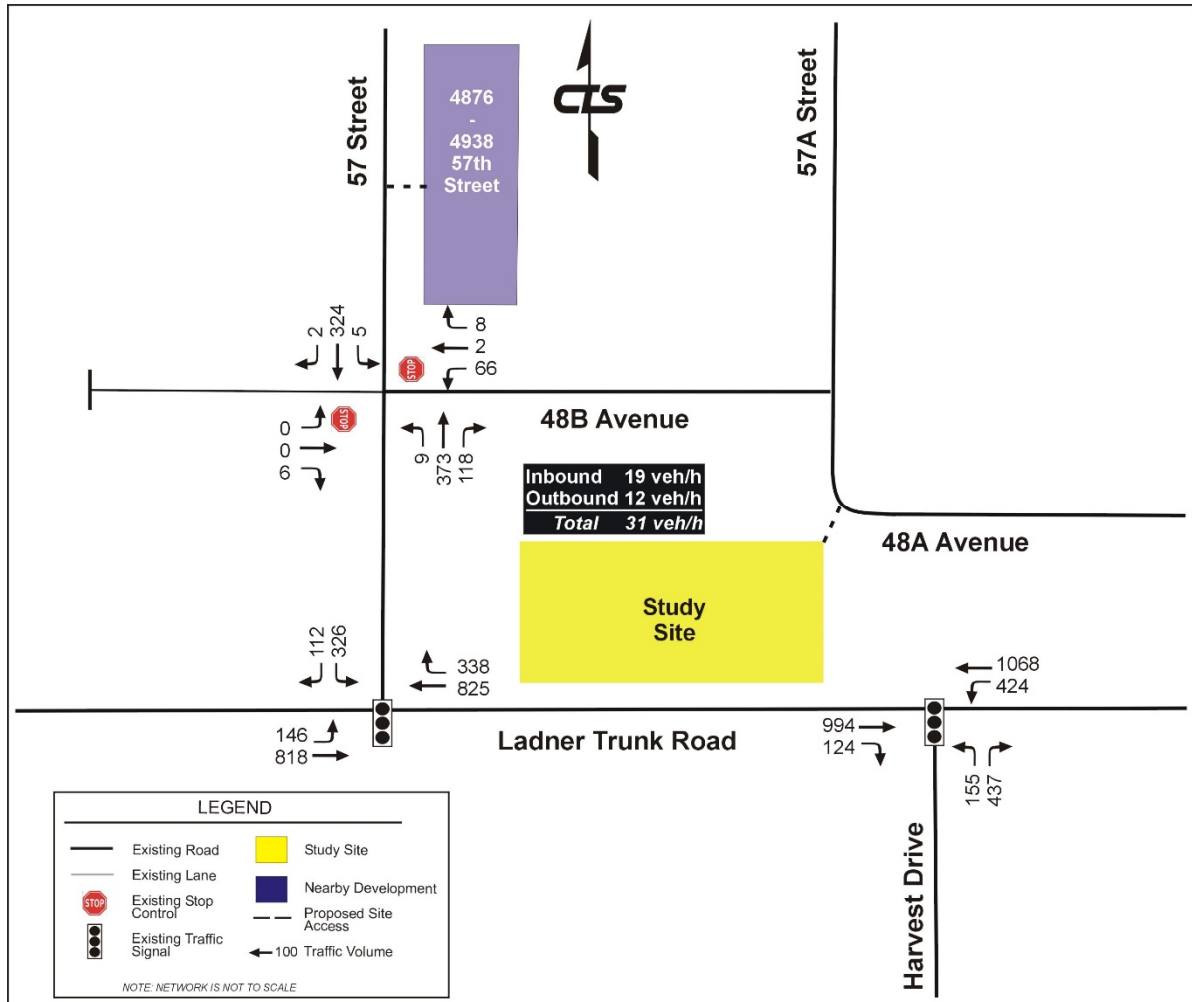


FIGURE 22
2037 WEEKDAY MORNING PEAK HOUR BASE + BACKGROUND+ SITE TRAFFIC
VOLUMES

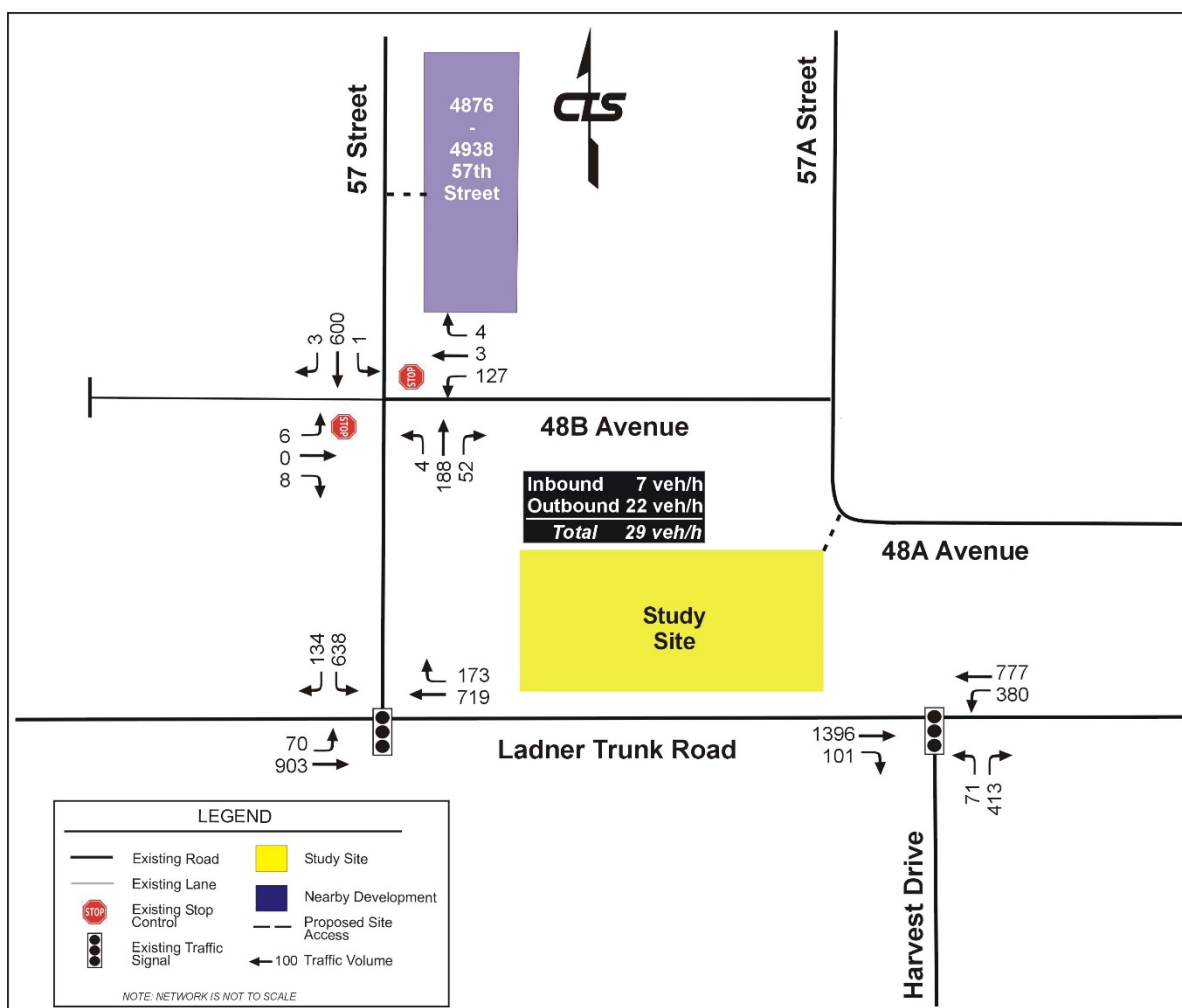
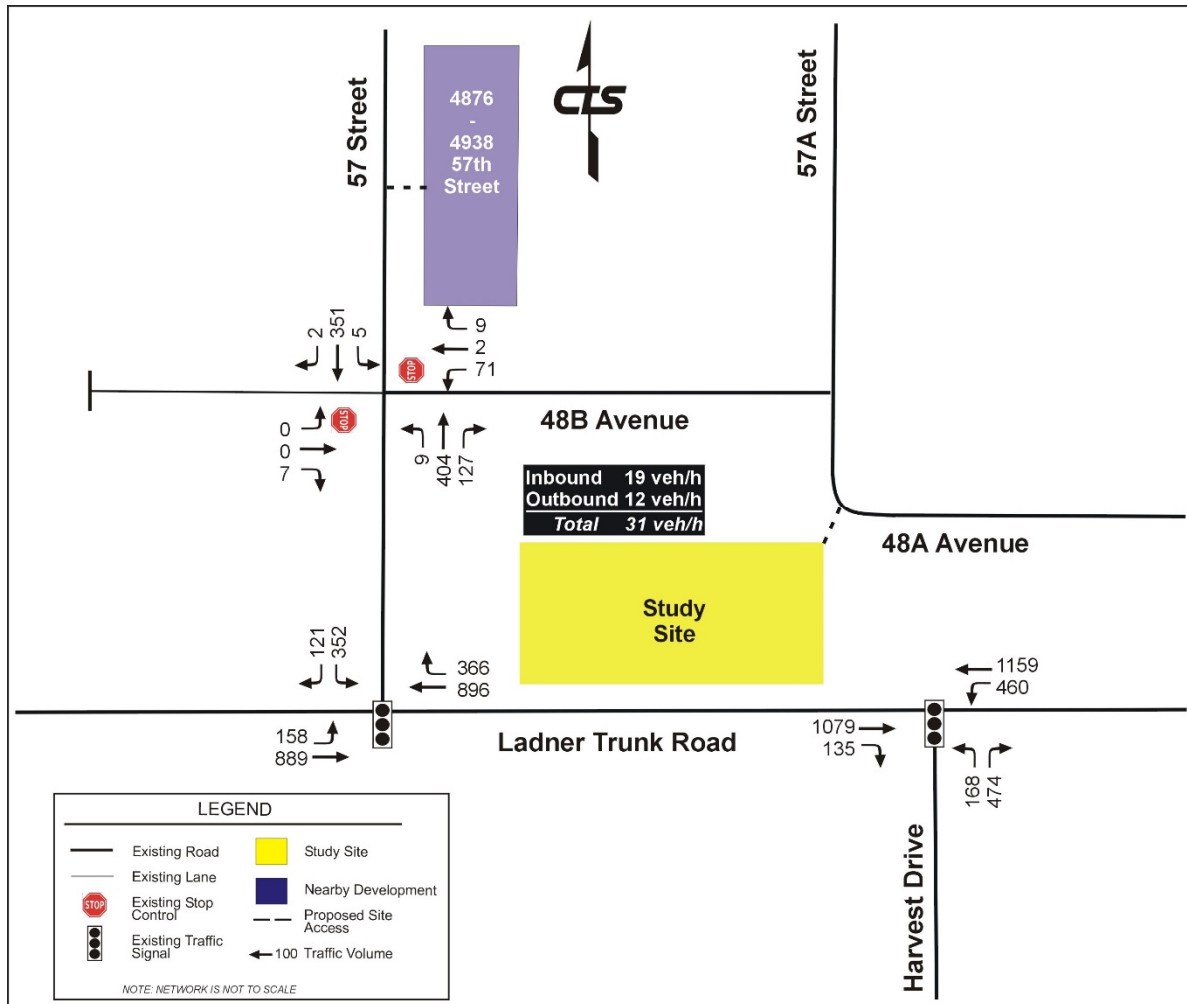


FIGURE 23
2037 WEEKDAY AFTERNOON PEAK HOUR BASE + BACKGROUND + SITE TRAFFIC
VOLUMES



5.0 TRAFFIC ENGINEERING ANALYSIS

5.1 Intersection Capacity Analysis

Capacity analysis was performed at each study intersection to determine the intersection and individual movement Level of Service (LOS) that is provided to motorists. The LOS for intersections and individual movements is defined in terms of delay (seconds per vehicle) which is a measure of driver discomfort and frustration, fuel consumption and lost travel time.

An intersection or movement LOS can range from "A" (Excellent) to "E" (Poor). A LOS of "F" (Fail) indicates that an intersection or individual movement is failing because the intersection or movement is over capacity and delays are excessive. A LOS of "D" (Fair) or better is considered acceptable by many public agencies for intersection, through and right-turn movements and a LOS of "E" (Poor) or better is considered acceptable for left-turn movements, at signalized intersections.

With respect to the intersection and individual movement analysis, the following tables evaluate the performance of the study road network with and without the future traffic generated by the proposed development. The study area intersections were analysed based on capacity analysis methods from the *Highway Capacity Manual* published by the Transportation Research Board of the National Academies of Science in the United States. Synchro 11 was used to analyze the intersection and individual movement level of service for signalized intersections. Highway Capacity Software HCS2024 was used to analyze the intersection and individual movement level of service for unsignalized intersections. These tools conduct a rigorous analysis of peak hour intersection operation based on intersection lane configurations, traffic signal timing and phasing and turning movement volumes. The purpose of the analysis is to identify movements that are or will become problematic under future scenarios.

Measures of effectiveness generated by the calculations include the following:

- Volume to capacity ratio (V/C) for each movement or lane group where there are shared lanes. This is the proportion of available capacity used by the expected demand;
- Average delay per vehicle (Delay) in the lane group over the hour analysed. This indicates a weighted average delay in seconds per vehicle for drivers approaching during the hour analysed;
- 95th percentile queue length (m). This indicates the length of the vehicle queues which 95% of the time are not exceeded;
- Intersection Level of Service. This indicates the weighted average delay for the intersection during the hour analysed, converted to a letter representing a range of delays. The ranges of delays corresponding to each Level of Service are summarized in **TABLE 6**.

TABLE 6
LEVEL OF SERVICE AND CORRESPONDING AVERAGE DELAY

Level of Service	Average Delay (Seconds per Vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	0 - 10	0 - 10
B	>10 - 20	>10 - 15
C	>20 - 35	>15 - 25
D	>35 - 55	>25 - 35
E	>55 - 80	>35 - 50
F	>80	>50

5.2 Evaluation Approach

The signalized intersection capacity analysis was conducted using the signal timing plans provided by the City of Delta, attached in **APPENDIX C**, and the existing intersection geometry.

The following assumptions were made with respect to the intersection capacity analysis:

- Saturation flow rate → 1,900 passenger cars/hour of green/lane (pcphgpl)
- Truck percentage → 2% for all roads
- Peak Hour Factor (PHF) → 0.91 for the weekday AM peak hour and 0.93 for the weekday PM peak hour which were the weighted average of the PHF's from the traffic turning movement counts.

Saturation flow rate is the equivalent hourly rate at which previously queued vehicles can traverse an intersection approach under prevailing conditions, assuming that the green signal is always available, and no lost times are experienced. It is a base rate to which adjustment factors are applied.

Peak Hour Factor is a measure of traffic demand fluctuation within the analysis hour. The closer the number is to 1.00, the less fluctuation during the hour.

TABLE 7 summarizes the main performance parameters of the intersection capacity analysis for the unsignalized intersection.

TABLES 8 - 11 summarize the main performance parameters of the intersection capacity analysis for the signalized intersections.

For unsignalized intersections, the delay time in seconds for each lane group is summarized. Delay is additional travel time experienced by a driver, passenger, bicyclist, or pedestrian beyond that required to travel at the desired speed.

For signalized intersections, the volume to capacity ratio for each movement is summarized. The signal timing of the base 2024 scenario was optimized using Synchro and this timing was then applied to the build-out and horizon year scenarios.

The volume to capacity ratio (v/c) and the 95th percentile queue in metres were summarized for the signalized intersections, whereas delay time in seconds for each lane group and the 95th percentile queue in vehicle numbers, were summarized for the unsignalized intersections.

Of note, HCS expresses the queue length in terms of number of vehicles, while Synchro 11 expresses the queue length in terms of metres. The capacity analysis summary sheets are included as **APPENDIX D**.

TABLE 7
57TH STREET AND 48B AVENUE WEEKDAY MORNING AND AFTERNOON PEAK HOURS
CAPACITY ANALYSIS SUMMARY

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
57 Street (N/S) at 48B Avenue (E/W)	Weekday Morning Peak Hour	2024 Base	Volumes	4	0	6	84	2	2	3	146	36	0	467	2	A	Ok.
			Delay	13.7			19.2			0.2			0.0				
			95% Queue (veh)	0.1			1.1			0.0			0.0				
		2027 Base	Volumes	5	0	7	90	3	3	4	155	39	0	496	3	A	Ok.
			Delay	14.4			21.3			0.2			0.0				
			95% Queue (veh)	0.1			1.4			0.0			0.0				
		2027 Base + Background	Volumes	5	0	7	90	3	3	4	159	39	0	507	3	A	Ok.
			Delay	14.6			21.9			0.2			0.0				
			95% Queue (veh)	0.1			1.4			0.0			0.0				
		2027 Base + Background + Site	Volumes	5	0	7	111	3	4	4	159	45	1	507	3	A	Ok.
			Delay	14.7			24.3			0.2			0.0				
			95% Queue (veh)	0.1			1.9			0.0			0.0				
		2032 Base	Volumes	5	0	7	98	3	3	4	170	42	0	542	3	A	Westbound traffic medium approach delays
			Delay	15.3			25.1			0.2			0.0				
			95% Queue (veh)	0.1			1.8			0.0			0.0				
		2032 Base + Background + Site	Volumes	5	0	7	119	3	4	4	174	48	1	553	3	A	Westbound traffic medium approach delays
			Delay	15.6			29.5			0.2			0.0				
			95% Queue (veh)	0.1			2.5			0.0			0.0				
		2037 Base	Volumes	6	0	8	106	3	3	4	184	46	0	589	3	A	Westbound traffic medium approach delays
			Delay	16.5			30.6			0.2			0.0				
			95% Queue (veh)	0.1			2.4			0.0			0.0				
		2037 Base + Background + Site	Volumes	6	0	8	127	3	4	4	188	52	1	600	3	A	Westbound traffic medium approach delays
			Delay	16.9			37.6			0.2			0.0				
			95% Queue (veh)	0.2			3.4			0.0			0.0				
	Weekday Afternoon Peak Hour	2024 Base	Volumes	0	0	5	47	1	6	7	311	87	2	273	1	A	Ok.
			Delay	10.1			16.9			0.2			0.1				
			95% Queue (veh)	0.0			0.6			0.0			0.0				
		2027 Base	Volumes	0	0	6	50	2	7	8	330	93	3	290	2	A	Ok.
			Delay	10.2			18.2			0.2			0.1				
			95% Queue (veh)	0.0			0.7			0.0			0.0				
		2027 Base + Background	Volumes	0	0	6	50	2	7	8	342	93	3	297	2	A	Ok.
			Delay	10.3			18.8			0.2			0.1				
			95% Queue (veh)	0.0			0.7			0.0			0.0				
		2027 Base + Background + Site	Volumes	0	0	6	61	2	8	8	342	110	5	297	2	A	Ok.
			Delay	10.3			20.0			0.2			0.2				
			95% Queue (veh)	0.0			0.9			0.0			0.0				
		2032 Base	Volumes	0	0	6	55	2	7	9	361	101	3	317	2	A	Ok.
			Delay	10.5			20.5			0.2			0.1				
			95% Queue (veh)	0.0			0.9			0.0			0.0				
		2032 Base + Background + Site	Volumes	0	0	6	66	2	8	9	373	118	5	324	2	A	Ok.
			Delay	10.5			22.8			0.2			0.2				
			95% Queue (veh)	0.0			1.2			0.0			0.0				
		2037 Base	Volumes	0	0	7	60	2	8	9	392	110	3	344	2	A	Ok.
			Delay	10.7			23.3			0.2			0.1				
			95% Queue (veh)	0.0			1.1			0.0			0.0				
		2037 Base + Background + Site	Volumes	0	0	7	71	2	9	9	404	127	5	351	2	A	Westbound traffic medium approach delays
			Delay	10.7			26.3			0.2			0.2				
			95% Queue (veh)	0.0			1.5			0.0			0.0				

Delay = Average Delay (seconds/vehicle)

Intersection approaching capacity (LOS 'D' or 'E'); or medium approach delays (25sec to <50sec)

Intersection equals or exceeds capacity (LOS 'F'); or high approach delays (>= 50sec)

UNSIGNALIZED QUEUE IS PER VEHICLE

From **TABLE 7** the following observations can be made:

57th Street (N/S) and 48B Avenue (E/W)

- This unsignalized intersection is forecast to operate at an overall Level of Service (LOS) A in all of the study scenarios.
- The westbound traffic is forecast to experience medium approach delays by the 2032 base case in the morning and by the 2037 base + background + site case in the afternoon.
- From the capacity analysis summarized in **TABLE 7** above, this intersection does not require geometric or operational improvements. However, due to the southbound left turn 95th percentile queue at 57th Street at Ladner Trunk Road extending past 48B Avenue, white hatched pavement marking (box junction) is recommended to be installed at this intersection to remind motorists not to block the intersection.

TABLE 8
57TH STREET AND LADNER TRUNK ROAD WEEKDAY MORNING AND AFTERNOON
PEAK HOURS CAPACITY ANALYSIS SUMMARY

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
57 Street (N/S) at Ladner Trunk Road (E/W)	Weekday Morning Peak Hour	2024 Base	Volumes	53	716			570	131				487		100	C	Ok. SBR 95% Q exceeds storage lane length.
			V/C	0.21	0.53			0.68					0.77		0.18		
			95% Queue (m)	10.5	53.7			69.1					137.3		19.2		
		2027 Base	Volumes	57	759			605	139				517		106	C	Ok. SBR 95% Q exceeds storage lane length.
			V/C	0.25	0.56			0.71					0.80		0.18		
			95% Queue (m)	11.0	57.4			74.0					154.5		20.9		
		2027 Base + Background	Volumes	58	759			605	142				525		109	C	Ok. SBR 95% Q exceeds storage lane length.
			V/C	0.26	0.56			0.72					0.80		0.19		
			95% Queue (m)	11.2	57.4			74.3					158.2		21.5		
		2027 Base + Background + Site	Volumes	60	759			605	146				541		114	C	Ok. SBR 95% Q exceeds storage lane length.
			V/C	0.28	0.54			0.76					0.84		0.20		
			95% Queue (m)	11.5	57.3			74.6					165.9		22.4		
		2032 Base	Volumes	62	831			662	152				565		116	C	SBL approaching capacity and SBR 95% Q exceeds storage lane length.
			V/C	0.20	0.57			0.77					0.90		0.20		
			95% Queue (m)	11.5	63.9			82.5					182.3		23.9		
		2032 Base + Background + Site	Volumes	65	831			662	159				589		124	C	SBL approaching capacity and SBR 95% Q exceeds storage lane length.
			V/C	0.30	0.57			0.78					0.94		0.22		
			95% Queue (m)	12.0	63.9			83.4					192.4		25.6		
		2037 Base	Volumes	67	903			719	166				614		126	C	SBL over capacity and SBR 95% Q exceeds storage lane length.
			V/C	0.33	0.60			0.80					1.01		0.23		
			95% Queue (m)	12.3	71.1			92.2					203.6		26.2		
		2037 Base + Background + Site	Volumes	70	903			719	173				638		134	C	SBL over capacity and SBR 95% Q exceeds storage lane length.
			V/C	0.34	0.60			0.80					1.05		0.24		
			Volumes	118	705			711	274				269		92	B	Ok. SBR 95% Q exceeds storage lane length.
		2024 Base	V/C	0.43	0.39			0.75					0.64		0.23		
			95% Queue (m)	17.7	46.4			96.5					66.9		16.3		
		2027 Base	Volumes	126	748			754	291				286		98	B	Ok. SBR 95% Q exceeds storage lane length.
			V/C	0.48	0.41			0.78					0.67		0.24		
			95% Queue (m)	20.5	49.8			105.4					71.4		17.6		
		2027 Base + Background	Volumes	130	748			754	299				291		100	B	Ok. SBR 95% Q exceeds storage lane length.
			V/C	0.50	0.41			0.78					0.68		0.24		
			95% Queue (m)	22.1	49.8			106.4					72.8		17.9		
		2027 Base + Background + Site	Volumes	135	748			754	311				299		103	B	Ok. SBR 95% Q exceeds storage lane length.
			V/C	0.53	0.39			0.83					0.72		0.26		
			95% Queue (m)	24.2	49.8			107.6					75.2		18.6		
	Weekday Afternoon Peak Hour	2032 Base	Volumes	137	818			825	318				313		107	C	Westbound traffic approaching capacity and SBR 95% Q exceeds storage lane length.
			V/C	0.56	0.42			0.86					0.75		0.27		
			95% Queue (m)	28.8	55.6			121.7					79.2		19.5		
		2032 Base + Background + Site	Volumes	146	818			825	338				326		112	C	Westbound traffic approaching capacity and SBR 95% Q exceeds storage lane length.
			V/C	0.61	0.42			0.87					0.77		0.27		
			95% Queue (m)	34.0	55.6			128.0					82.8		20.4		
		2037 Base	Volumes	149	889			896	346				339		116	C	Westbound traffic approaching capacity and SBR 95% Q exceeds storage lane length.
			V/C	0.64	0.46			0.90					0.80		0.28		
			95% Queue (m)	37.1	61.8			153.4					86.6		21.7		
		2037 Base + Background + Site	Volumes	158	889			896	366				352		121	C	Westbound traffic approaching capacity and SBR 95% Q exceeds storage lane length.
			V/C	0.69	0.46			0.92					0.81		0.29		
			95% Queue (m)	42.2	61.8			157.7					90.9		22.4		

Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99)

Intersection equals or exceeds capacity (LOS 'F'); or approach demand exceeds capacity (v/c ≥ 1.00)

From **TABLE 8**, the following observations can be made:

57th Street (N/S) and Ladner Trunk Road (E/W)

- The signal timing of the base 2024 scenario was optimized using Synchro 11 and this timing was then applied to the build-out, 5-year post-build-out, and 10-year post-build-out horizon year scenarios.
- This signalized intersection is forecast to operate at an overall Level of Service (LOS) C in all the weekday morning peak hour study scenarios.
- This signalized intersection is forecast to operate at an overall Level of Service (LOS) B in the weekday afternoon peak hour study scenarios up to 2032 future base scenario where it declines to Level of Service (LOS) C.
- For all analyzed scenarios, the southbound right turn 95th percentile queue extends past the right turn lane's existing 15 metre storage length, with the longest queue being 27.8 metres during the weekday morning peak hour in the 2037 base + background + site scenario.
- For all analyzed years, during the weekday morning peak hour, the southbound left turn 95th percentile queue extends past 48B Avenue. In 2024, this analyzed 95th percentile queue is 137.3 metres long, and in the 2037 base + background + site scenario it is 213.7 metres long. This means that during the busiest times of the day, vehicles in the southbound left turn queue may block the intersection of 57th Street and 48B Avenue, restricting the intersection to right-in / right-out operation at 48B Avenue.
- During the morning peak hour, the southbound left turn movement is forecast to exceed capacity by the 2037 future base scenario. It is noted that this movement is forecast to exceed capacity by 2037 even without the addition of the site and background traffic.
- During the afternoon peak hour, the westbound 95th percentile queue extends past the block length in the year 2037 regardless of the proposed development traffic.

TABLE 9 shows the forecast intersection performance of 57th Street at Ladner Trunk Road during the design critical morning peak hour of the 2037 base + background + site scenario if an additional 15 seconds is provided to the southbound maximum green time.

TABLE 9
57TH STREET AND LADNER TRUNK ROAD WEEKDAY MORNING EXTENDED SBL PHASE
CAPACITY ANALYSIS

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
57 Street (N/S) at Ladner Trunk Road (E/W)	Weekday Morning Peak Hour	2037 Base + Background + Site	Volumes	70	903			719	173				638		134	C	Westbound traffic and SBL approaching capacity and SBR 95% Q exceeds storage lane length.
			V/C	0.39	0.65			0.85					0.91		0.21		
			95% Queue (m)	17.7	100.1			121.6					206.5		26.4		

From **TABLE 9**, the following observations can be made:

57th Street (N/S) and Ladner Trunk Road (E/W)

- The southbound left turn improves in performance from a V/C of 1.05 to 0.91.
- The westbound through/right movement degrades from a V/C of 0.80 to 0.85.
- The southbound left turn 95th percentile queue improves from 213.7 metres to 206.5 metres, a decrease of 7.2 metres.
- The westbound through/right 95th percentile queue degrades from 93 metres to 121.6 metres, an increase to 28.6 metres.

In summary, increasing the green time for the southbound movements results in improved performance for the southbound left turn movements at the degradation of the westbound through/right movements.

The City of Delta may consider monitoring and further evaluating the intersection to determine if geometric or signal timing improvements are warranted.

Based on the capacity analysis summarized in **TABLE 8** and **TABLE 9** above, it is also recommended to install a white hatched pavement marking (box junction) at the intersection of 57th Street at 48B Avenue to remind motorists in the southbound left turn queue of 57th Street at Ladner Trunk Road not to block the intersection of 57th Street at 48B Avenue.

TABLE 10
HARVEST DRIVE AND LADNER TRUNK ROAD WEEKDAY MORNING AND AFTERNOON
PEAK HOURS CAPACITY ANALYSIS SUMMARY

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Harvest Drive (N/S) at Ladner Trunk Road (E/W)	Weekday Morning Peak Hour	2024 Base	Volumes		1,093	75	301	612		54		327				B	Ok. WBL 95% Q exceeds storage lane length.
			V/C		0.84		0.74	0.25		0.29		0.76					
			95% Queue (m)		119.7	71.3	22.3			17.4		28.5					
		2027 Base	Volumes		1,159	80	320	649		58		347				B	Eastbound traffic approaching capacity and WBL 95% Q exceeds storage lane length.
			V/C		0.86		0.80	0.27		0.30		0.80					
			95% Queue (m)		150.4	86.6	26.8			18.4		34.0					
		2027 Base + Background	Volumes		1,165	82	320	651		59		347				B	Eastbound traffic approaching capacity and WBL 95% Q exceeds storage lane length.
			V/C		0.86		0.81	0.27		0.31		0.80					
			95% Queue (m)		151.8	86.6	26.9			18.8		34.0					
		2027 Base + Background + Site	Volumes		1,177	86	320	654		60		347				B	Eastbound traffic approaching capacity and WBL 95% Q exceeds storage lane length.
			V/C		0.86		0.81	0.27		0.31		0.81					
			95% Queue (m)		155.6	87.1	27.1			18.9		34.1					
		2032 Base	Volumes		1,268	87	350	710		63		380				C	Eastbound traffic, WBL, and NBR approaching capacity. WBL 95% Q exceeds storage lane length.
			V/C		0.93		0.90	0.29		0.29		0.86					
			95% Queue (m)		180.6	105.0	32.6			19.5		43.9					
		2032 Base + Background + Site	Volumes		1,286	93	350	715		65		380				C	Eastbound traffic, WBL, and NBR approaching capacity. WBL 95% Q exceeds storage lane length.
			V/C		0.94		0.90	0.29		0.30		0.86					
			95% Queue (m)		185.5	105.0	32.9			19.9		44.2					
		2037 Base	Volumes		1,378	95	380	772		69		413				D	Intersection approaching capacity. Eastbound traffic and WBL over capacity. NBR approaching capacity. WBL 95% Q exceeds storage lane length.
			V/C		1.03		1.00	0.33		0.28		0.89					
			95% Queue (m)		204.7	118.2	36.1			20.9		57.7					
		2037 Base + Background + Site	Volumes		1,396	101	380	777		71		413				D	Intersection approaching capacity. Eastbound traffic and WBL over capacity. NBR approaching capacity. WBL 95% Q exceeds storage lane length.
			V/C		1.05		1.00	0.33		0.29		0.89					
			95% Queue (m)		209.8	118.2	36.4			21.4		57.7					
	Weekday Afternoon Peak Hour	2024 Base	Volumes		848	104	365	909		127		376				B	Ok. WBL 95% Q exceeds storage lane length.
			V/C		0.81		0.78	0.39		0.54		0.76					
			95% Queue (m)		86.1	88.3	39.0			32.0		31.2					
		2027 Base	Volumes		899	111	387	964		135		399				B	WBL traffic approaching capacity and WBL 95% Q exceeds storage lane length.
			V/C		0.83		0.87	0.41		0.54		0.80					
			95% Queue (m)		98.7	104.3	47.3			33.3		37.8					
		2027 Base + Background	Volumes		903	112	387	969		138		399				B	WBL traffic approaching capacity and WBL 95% Q exceeds storage lane length.
			V/C		0.83		0.87	0.41		0.55		0.80					
			95% Queue (m)		99.3	104.6	47.7			33.9		37.9					
		2027 Base + Background + Site	Volumes		909	114	387	977		142		399				B	WBL traffic approaching capacity and WBL 95% Q exceeds storage lane length.
			V/C		0.83		0.88	0.42		0.56		0.80					
			95% Queue (m)		100.3	104.9	48.3			35.0		37.9					
		2032 Base	Volumes		984	121	424	1,055		148		437				C	Eastbound traffic and NBR approaching capacity. WBL over capacity. WBL 95% Q exceeds storage lane length.
			V/C		0.87		1.01	0.45		0.55		0.86					
			95% Queue (m)		125.2	121.9	53.7			36.2		49.8					
		2032 Base + Background + Site	Volumes		994	124	424	1,068		155		437				C	Eastbound traffic and NBR approaching capacity. WBL over capacity. WBL 95% Q exceeds storage lane length.
			V/C		0.87		1.02	0.46		0.58		0.87					
			95% Queue (m)		127.5	122.5	54.6			37.8		50.1					
		2037 Base	Volumes		1,069	132	460	1,146		161		474				D	Intersection approaching capacity. WBL over capacity. Eastbound and NBR approaching capacity. WBL 95% Q exceeds storage lane length.
			V/C		0.91		1.18	0.50		0.54		0.91					
			95% Queue (m)		143.4	139.2	60.5			39.0		74.4					
		2037 Base + Background + Site	Volumes		1,079	135	460	1,159		168		474				D	Intersection approaching capacity. WBL over capacity. Eastbound and NBR approaching capacity. WBL 95% Q exceeds storage lane length.
			V/C		0.91		1.19	0.50		0.57		0.91					
			95% Queue (m)		146.0	139.5	61.4			40.7		74.6					

Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99)

Intersection equals or exceeds capacity (LOS 'F'); or approach demand exceeds capacity (v/c ≥ 1.00)

From **TABLE 10**, the following observations can be made:

Harvest Drive (N/S) and Ladner Trunk Road (E/W)

- The signal timing of the base 2024 scenario was optimized using Synchro 11 and this timing was then applied to the build-out, 5-year post-build-out, and 10-year post-build-out horizon year scenarios.
- This signalized intersection is forecast to operate at an overall Level of Service (LOS) B during the weekday morning peak period from the 2024 base scenario up to the 2027 future base + background + site scenario, declining to Level of Service (LOS) C by the 2032 future base scenario and further declining to Level of Service (LOS) D by the 2037 future base scenario. It is noted that the decline in overall intersection Level of Service (LOS) is forecast to occur even without the addition of the site and the background traffic.
- This signalized intersection is forecast to operate at an overall Level of Service (LOS) B during the weekday afternoon peak period from the 2024 base scenario up to the 2027 future base + background + site scenario, declining to Level of Service (LOS) C by the 2032 future base scenario and further declining to Level of Service (LOS) D by the 2037 future base scenario. It is noted that the decline in overall intersection Level of Service (LOS) is forecast to occur even without the addition of the site and the background traffic.
- For all analyzed years, during both the weekday morning and afternoon peak hours, the westbound left turn 95th percentile queue extends past the left turn bay's existing 19 metres storage length, with the longest queue being 139.5 metres during the weekday afternoon peak hour in the 2037 base + background + site scenario.
- During the morning peak hour, the eastbound traffic and westbound left movements are forecast to exceed capacity by the 2037 future base scenario. It is noted that these movements are forecast to exceed capacity by 2037 even without the addition of the site and background traffic.
- During the afternoon peak hour, the westbound left movement is forecast to exceed capacity by the 2032 future base scenario. It is noted that this movement is forecast to exceed capacity by 2032 even without the addition of the site and background traffic.
- During the morning peak hour, the eastbound 95th percentile queue length extends past the block length starting from the year 2027 regardless of the proposed development traffic.

TABLE 11 shows the forecast intersection performance during the design critical morning and afternoon peak hour 2037 base + background + site scenarios if the signal timing is reoptimized using Synchro 11 for these scenarios.

**TABLE 11
HARVEST DRIVE AND LADNER TRUNK ROAD REOPTIMIZED SIGNAL TIMING CAPACITY
ANALYSIS**

Intersection	Time of Day	Scenario	Performance Measure	Eastbound			Westbound			Northbound			Southbound			LOS	Notes
				Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Harvest Drive (N/S) at Ladner Trunk Road (E/W)	Weekday Morning Peak Hour	2037 Base + Background + Site	Volumes		1,396	101	380	777		71		413				C	Eastbound traffic, WBL, and NBR approaching capacity. WBL 95% Q exceeds storage lane length.
			V/C		0.94		0.91	0.30		0.36		0.93					
			95% Queue (m)		245.2		142.1	35.3		29.8		80.5					
	Weekday Afternoon Peak Hour	2037 Base + Background + Site	Volumes		1,079	135	460	1,159		168		474				C	Eastbound traffic, WBL, and NBR approaching capacity. WBL 95% Q exceeds storage lane length.
			V/C		0.92		0.91	0.46		0.73		0.87					
			95% Queue (m)		170.2		140.5	60.0		50.1		53.9					

From **TABLE 11**, the following observations can be made:

Harvest Drive (N/S) and Ladner Trunk Road (E/W)

- Reoptimizing the signal timing for the 2037 base + background + site scenarios show the overall forecast intersection Level of Service (LOS) improve from D to C and there are no overcapacity movements for the reoptimized scenarios.

The City of Delta may consider evaluating this intersection for alternative signal operations to allow a dual westbound left turn lane – this would require a split phase operation unless the intersection is reconstructed.

The City of Delta should extend the westbound left turn storage lane to at least 90 metres as existing 95th percentile traffic conditions exceed the current storage lane. Per **TABLE 10** the 2024 base weekday afternoon peak hour westbound left turn 95th percentile queue is 88.3 metres long.

6.0 ACCESS REVIEW

6.1 Swept Path Analysis

The swept path analyses to test the functionality of the proposed driveway and solid waste staging area were conducted using the HSU (heavy single unit truck) as the design vehicle. The specifications for the HSU are from the 2017 Transportation Association of Canada Geometric Design Guide for Canadian Roads, Chapter 2. The length of the HSU is 11.50 metres, with a front overhang of 0.50 metres and a wheelbase of 8.40 metres.

The swept path analyses to test the functionality of the proposed driveway and on-site shared car parking spaces on the north “lane” were conducted using the Honda Accord 2009 as the selected passenger vehicle. The Honda Accord has a shorter length and was selected since the shared vehicles provided by the applicant/operator will be small cars. The custom AutoTurn template was created from the specifications provided on the official Honda website. The length of the Honda Accord 2009 is 4.93 metres, with a front overhang of 0.73 metres and a wheelbase of 2.93 metres.

The below referenced swept path drawings are included as **APPENDIX E**.

FIGURE 24 illustrates a Honda Accord pulling into the east lane and then backing into the ride share space in the north lane.

FIGURE 25 illustrates a Honda Accord exiting the site from the north lane onto 57A Street.

FIGURE 26 illustrates the sightlines and the area that needs to be kept clear (hatched yellow) in order to maintain sufficient sightlines for a vehicle exiting from the north lane of the site.

FIGURE 27 illustrates an HSU heading south on 57A Street, heading east 48A Avenue, then backing into the north lane from 48A Avenue to access the solid waste staging area.

FIGURE 28 illustrates an HSU exiting from the north lane, requiring a 3-point turn on the driveway to head north on 57A Street.

Through the swept path analysis, it was found that due to the geometry of the site that vehicles cannot access the ride share spaces in the north lane by making a right turn in from the site access and must back in. It was also found that that vehicles cannot access the north lane or exit the site from the north lane while the solid waste staging area is occupied by the HSU. In order to accommodate this, the resident caretaker must coordinate the use of the lane on the north side of the study site to ensure access for solid waste removal. Overall, vehicles accessing the north lane may impact the operation of the site access. Hence, CTS recommends limiting the frequency of the north lane usage.

It should be noted that the proposed development is seeking a variance in the driveway width with the provision of a 7-metre-wide site access. This variance is requested due to the challenging geometry of where the proposed site access must interface with the existing roadway in order to maintain sufficient sightlines in the east facing direction.

FIGURE 26
SIGHTLINES FOR A VEHICLE EXITING THE NORTH LANE TO EXIT THE SITE

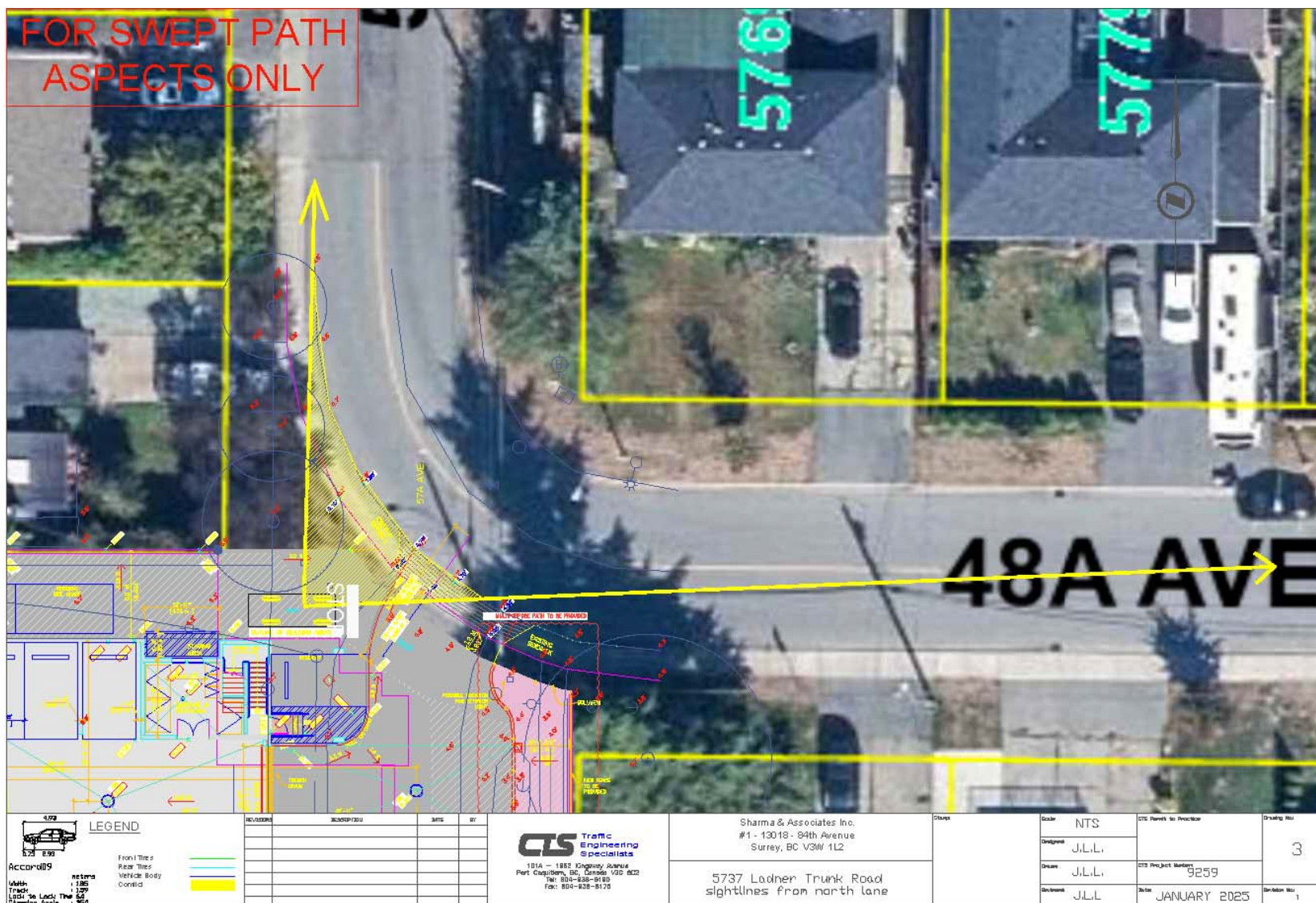
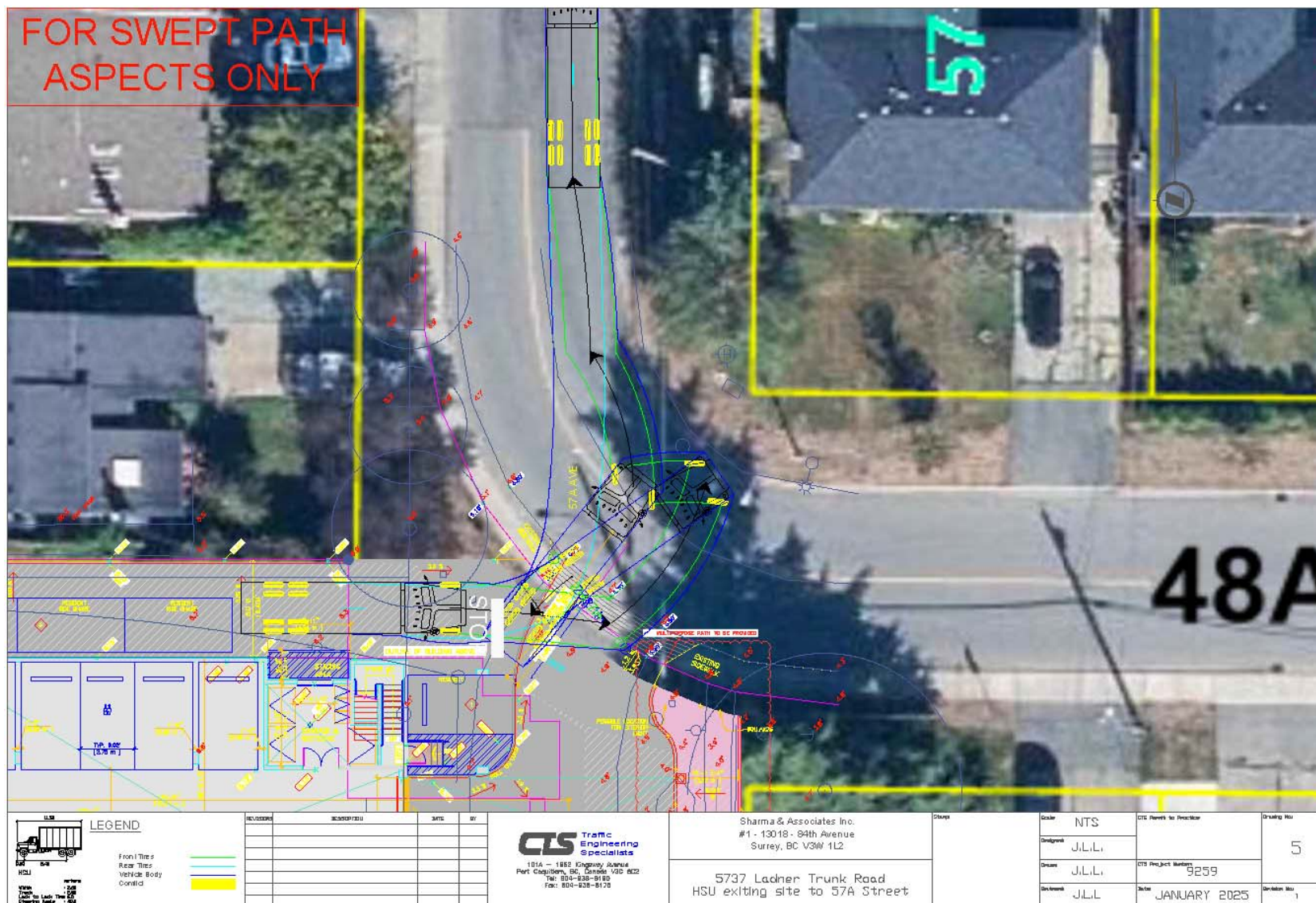


FIGURE 28
HSU EXITING FROM SITE



6.2 Sight Line Analysis

CTS conducted a site visit on June 7, 2024, to measure and review the sight distances of the proposed access to ensure the motorists who use the access have sufficient sightline on all movements including right-in, right-out, left-in and left-out. **FIGURE 27** illustrates the motorist views at the proposed access location onto 57A Street & 48A Avenue.

According to *Geometric Design Guide for Canadian Roads of Transportation Association of Canada (TAC)*, the following parameters are applicable to sight distance review:

- minimum stopping sight distance for a passenger car running at 50 km/hr to a complete stop is 65 metre;
- minimum sight distance for a passenger vehicle turning left onto a 50 km/hr design speed roadway across passenger vehicle approaching from the left is 95 metre;
- minimum sight distance for a passenger vehicle turning left onto a 50 km/hr roadway without being overtaken by a vehicle approaching from the right is 105 metre; and
- minimum sight distance for passenger vehicle turning right onto a 50 km/hr roadway without being overtaken by a vehicle approaching from the left is 95 metre.

From the measurement at the location of the proposed access during the site visit, it was found that the on 48A Avenue there is an unobstructed sight distance of 110 metres and on 57A Street the unobstructed sight distance is even greater. Therefore, the sight distances of the proposed access location meet the TAC requirements for all movements.

**FIGURE 29
MOTORIST SIGHT LINES**



7.0 PARKING REVIEW

7.1 Vehicle Parking City Bylaw

With reference to the City of Delta *ZONING BYLAW No. 7600, 2017 PART 8 OFF-STREET PARKING*, 86 vehicle parking spaces are required for the development based on the architectural plan's unit breakdown attached as **APPENDIX A. TABLE 12** illustrates the parking requirements for the proposed rental apartment building.

TABLE 12
ZONING BYLAW PARKING REQUIREMENTS FOR MARKET RENTAL DEVELOPMENTS

Use	Zoning Bylaw Section	Bylaw Rate	Scope	Parking Requirement	Parking Provided
Market Rental	8.4.2	1 space per dwelling unit of purpose-built rental	78 units	78	47*
Visitors	8.4.2	0.1 Per dwelling unit	78 units	8	2
TOTAL PARKING SPACES				86	49

***Note: Includes 7 ride share parking spaces**

With reference to **TABLE 12** above, the proposed development requires 86 parking spaces.

With reference to the architectural drawings provided in **APPENDIX A**, the proposed development is providing a total of 49 parking spaces:

- 40 residential parking spaces
 - 19 small car parking spaces
 - 14 standard parking spaces
 - 4 accessible parking spaces
 - 3 van accessible parking spaces
- two (2) visitor parking spaces
 - 1 standard parking space
 - 1 van accessible parking space
- 7 ride share parking spaces
 - 3 parallel parking spaces along the east side of the property adjacent to the pedestrian walkway
 - 4 tandem parking spaces along the north side of the property

With reference to the City of Delta zoning bylaw, the proposed development is requesting a parking variance of 43% or 37 parking spaces.

However, the proposed development is providing seven (7) of their residential parking spaces as ride share parking. The seven (7) ride share spaces shall be managed by the resident caretaker and rented to residents on an hourly or daily basis. Per the City of Delta *ZONING BYLAW No. 7600, 2017 PART 8.4.5 CAR SHARING PARKING*, a maximum of 5% of required parking spaces may be provided as shared car parking excluding the required visitor parking spaces. The seven (7) ride share spaces proposed by the development is equivalent to 8.1% of the required parking spaces, which is three (3) spaces higher than the maximum amount permitted by the bylaw.

While the City of Delta *ZONING BYLAW No. 7600, 2017 PART 8.4.5 CAR SHARING PARKING* states that each car share space counts as credit for 1.5 parking spaces, the City has advised that “as the proposed ride-share concept does not propose an external operator, and will be privately operated by the developer, the spaces will be counted as regular spaces for the purpose of parking calculation...[to] allow flexibility for future use of these spaces in case a private car share operation is not viable.” Therefore, the parking provision count remains at 49 parking spaces, which is a parking variance of 43% or 37 parking spaces from the bylaw requirements.

8.0 TRANSPORTATION DEMAND MANAGEMENT

The study site is near a variety of amenities including the Delta Hospital and Community Health Foundation, public parks, churches, restaurants, daycares, grocery stores, and restaurants. It is expected that future residents will be able to access these amenities by walking or cycling.

The following actions and measures that prioritize and promote sustainable modes of transportation, are presented for consideration.

8.1 Pedestrian Facilities and Initiatives

Walking is the primary mode of transportation for nearly everyone whether linking with cycling, transit or vehicle modes. People will generally walk for up to fifteen minutes or within a distance of 400 to 800 meters (five-to-ten-minute walk) to connect with another mode or access local amenities.

To encourage transportation by walking, the following measures may be considered:

- Provide ample pedestrian scale lighting throughout the development site;
- Provide an up-to-date wayfinding map with local amenities, destinations, bike routes, and transit stops/hubs in the lobby.
- Ensuring buildings, facilities and other pedestrian infrastructure meet local accessibility standards;

8.2 Bicycle Facilities and Initiatives

People will generally travel by bicycle up to ten kilometers to their place of work, for recreation, or personal reasons.

Measures having a positive impact towards increasing numbers of cyclists and cycling may include the following for consideration:

- Provide bicycle parking spaces for different bicycle types i.e., cargo bicycles, recumbent bicycles and trailers.
- Whenever feasible, position secure bicycle parking spaces within buildings or facilities, in areas separated from vehicle traffic and easily accessible to the street by way of a separate entrance.
- Provide visitor bicycle parking spaces in areas that are visible, well-lit and protected from the elements.
- Provide a shared bicycle fleet for the residents.
- Provide a bicycle repair station with a bench, tools, and air pump.

The proposed development will have extensive bicycle parking, consistent with the bylaw, to encourage the bicycle mode.

8.3 Transit Facilities and Initiatives

The study site is located within 400-metres of the Ladner Exchange bus loop. This distance is generally accepted as the maximum walking distance when planning bus transit systems.

To ensure the best usage of the transit mode, several transit related site improvements may be considered:

- Install transit shelters and benches at transit stops adjacent to the development site.
- Ensure transit stops are fully accessible.
- Ensure transit stops are well illuminated.
- Install electronic display boards in transit shelters giving real time transit information.
- Provide all new residents with a 2-zone monthly bus pass.

8.4 Vehicle Facilities and Initiatives – Rideshare Provision

Transportation by motor vehicle continues to be the most prevalent travel mode in the City of Delta.

To reduce reliance on the motor vehicle mode and motor vehicle ownership, the applicant is providing seven (7) on-site rideshare vehicles that will be privately operated by the developer and managed by the on-site resident caretaker. The following measures may be considered to optimize the usage of the rideshare vehicles:

- The resident caretaker shall manage the bookings of the rideshare vehicles.
- Residents from dwelling units without a parking space will be prioritized.
- The resident caretaker must coordinate the use of the north lane between the four (4) tandem rideshare parking spaces and the solid waste collection.
- The resident caretaker may need to act as a valet to reshuffle the rideshare vehicles in the north lane.
- Use of the rideshare vehicles shall be free to residents.

8.5 Other Transportation Demand Measures

In addition to the preceding actions and measures, other related transportation demand measures for consideration are:

- New residents to be provided with a welcome package with information on local amenities and sustainable transportation options.

8.0 CONCLUSIONS & RECOMMENDATIONS

8.1 Conclusions

- 1) Maple Leaf Homes Ltd. is proposing to construct a 6 storey multi-family apartment rental development comprising of 78 dwelling units, located at 5737 Ladner Trunk Road in the City of Delta.
- 2) The proposed site access is off of 48A Avenue on the northeast corner of the site.
- 3) The site is well-served by transit, with the 310, 601, 606/608, 618, and 640 bus routes within 5-minute walking distance (400m) of the site and the Ladner Exchange bus loop is within a 400 metres (straight) distance from the study site.
- 4) The study site is also close to a variety of amenities including the Delta Hospital and Community Health Foundation, public parks, churches, restaurants, daycares, grocery stores, and restaurants.
- 5) CTS conducted turning movement counts on Tuesday April 9th and on Tuesday, May 7th, 2024, from 07:00 to 09:00 and from 15:00 to 18:00 to document both the weekday morning and afternoon peak period traffic volumes at the study intersections. From the data summary, it was determined that the weekday morning and afternoon peak hours of the road network adjacent to the site were from 7:00 to 8:00 and from 15:30 to 16:30, respectively.
- 6) Upon full build-out, the proposed development is forecasted to generate a total of 29 vehicle trips (7 inbound and 22 outbound) during the weekday morning peak hour and 31 vehicle trips (19 inbound and 12 outbound) during the weekday afternoon peak hour.
- 7) The year 2027 is anticipated to be the year of full buildout for the proposed development. The 2024 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent the future base 2027 volumes.
- 8) The addition of the study site traffic to the road network did not result in a significant change in the intersection performance measures.
- 9) The capacity analysis for the unsignalized intersection of 57th Street and 48B Avenue is forecast to operate at LOS A during all study scenarios.
- 10) The capacity analysis for the signalized intersection of 57th Street and Ladner Trunk Road is forecast to operate at LOS C during the weekday morning peak all analysis years and scenarios, regardless of the proposed development traffic and the nearby background development traffic.
- 11) The capacity analysis for the signalized intersection of 57th Street and Ladner Trunk Road is forecast to decline from LOS B to LOS C during the weekday afternoon peak period by the year 2032, regardless of the proposed development traffic and the nearby background development traffic.

- 12) The southbound left turn at the intersection of 57th Street at Ladner Trunk Road is forecast to be overcapacity during the weekday morning peak hour by the year 2037, regardless of the proposed development traffic and the nearby background development traffic.
- 13) The southbound left turn 95th percentile queue at the intersection of 57th Street at Ladner Trunk Road extends past 48B Avenue during the weekday morning peak hour for all analysed scenarios regardless of development traffic.
- 14) The capacity analysis for the signalized intersection of Harvest Drive and Ladner Trunk Road is forecast to decline from LOS B to LOS D during both the weekday morning and afternoon peak periods by the year 2037, regardless of the proposed development traffic and the nearby background development traffic.
- 15) The eastbound and westbound left turn traffic is forecast to be overcapacity for the Harvest Drive and Ladner Trunk Road intersection during the weekday morning peak period by the year 2037, regardless of the proposed development traffic and the nearby background development traffic.
- 16) The westbound left turn traffic is forecast to be overcapacity for the Harvest Drive and Ladner Trunk Road intersection during the weekday afternoon peak period by the year 2032, regardless of the proposed development traffic and the nearby background development traffic.
- 17) Implementation of new signal timing designs improves the forecasted capacity issues experienced at 57th Street at Ladner Trunk Road and Harvest Drive at Ladner Trunk Road.
- 18) CTS undertook swept path analysis of the proposed driveway, garbage staging area and onsite shared car parking spaces using the Honda Accord and HSU to represent the passenger cars utilizing the north lane and the garbage truck conducting solid waste collection.
- 19) Through the swept path analysis, it was found that due to the geometry of the site that vehicles cannot access the ride share spaces in the north lane by making a right turn in from the site access and must back in. It was also found that that vehicles cannot access the north lane or exit the site from the north lane while the solid waste staging area is occupied by the HSU. In order to accommodate this, the resident caretaker must coordinate the use of the lane on the north side of the study site to ensure access for solid waste removal. Overall, vehicles accessing the north lane may impact the operation of the site access. Hence, CTS recommends limiting the frequency of the north lane usage.
- 20) The HSU must back into the site from 48A Avenue to access the solid waste staging area.
- 21) CTS conducted a site visit on June 7, 2024, to measure and review the sight distances of the proposed site access and found that there are sufficient sight distances for motorists.

- 22) The development does not meet the parking requirements of the City of Delta *Zoning Bylaw No. 7600* and is requesting a parking variance of 37 parking spaces.
- 23) The application of the recommended Transportation Demand Management measures in Section 8.0 of this report is anticipated to reduce the parking demand of the proposed development.

8.2 Recommendations

Based on the findings of this study, the following is recommended:

- 1) That the City of Delta accepts the findings of this traffic impact assessment.
- 2) That the City of Delta consider installing white hatched pavement marking (box junction) at the intersection of 57th Street at 48B Avenue to remind motorists in the southbound left turn queue of 57th Street at Ladner Trunk Road not to block the intersection.
- 3) That the City of Delta monitor the intersection performance of the 57th Street at Ladner Trunk Road and Harvest Drive at Ladner Trunk Road and implement geometric or signal timing improvements as warranted.
- 4) That the City of Delta discusses and approves the details of the rideshare operation with the applicant.
- 5) That the City of Delta advise the applicant which TDM measures are to be provided in support of the requested parking variance.
- 6) That as a condition of development, the applicant is required to ensure that the resident caretaker coordinates the use of the lane on the north side of the study site to ensure that access for solid waste removal.
- 7) That the City of Delta considers extending the westbound left turn storage lane at Harvest Drive at Ladner Trunk Road to at least 90 metres.

We would like to take this opportunity to thank you for this unique project and we look forward to working with you again in the future. Please call the undersigned should you have any questions or comments.

Yours truly,

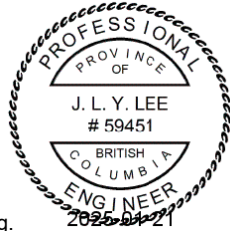
CREATIVE TRANSPORTATION SOLUTIONS LTD



Prepared by:

A handwritten signature in black ink, appearing to read 'J Lee', is positioned above the date '2025-01-21'.

Jacqueline Lee, P.Eng.
Traffic Engineer



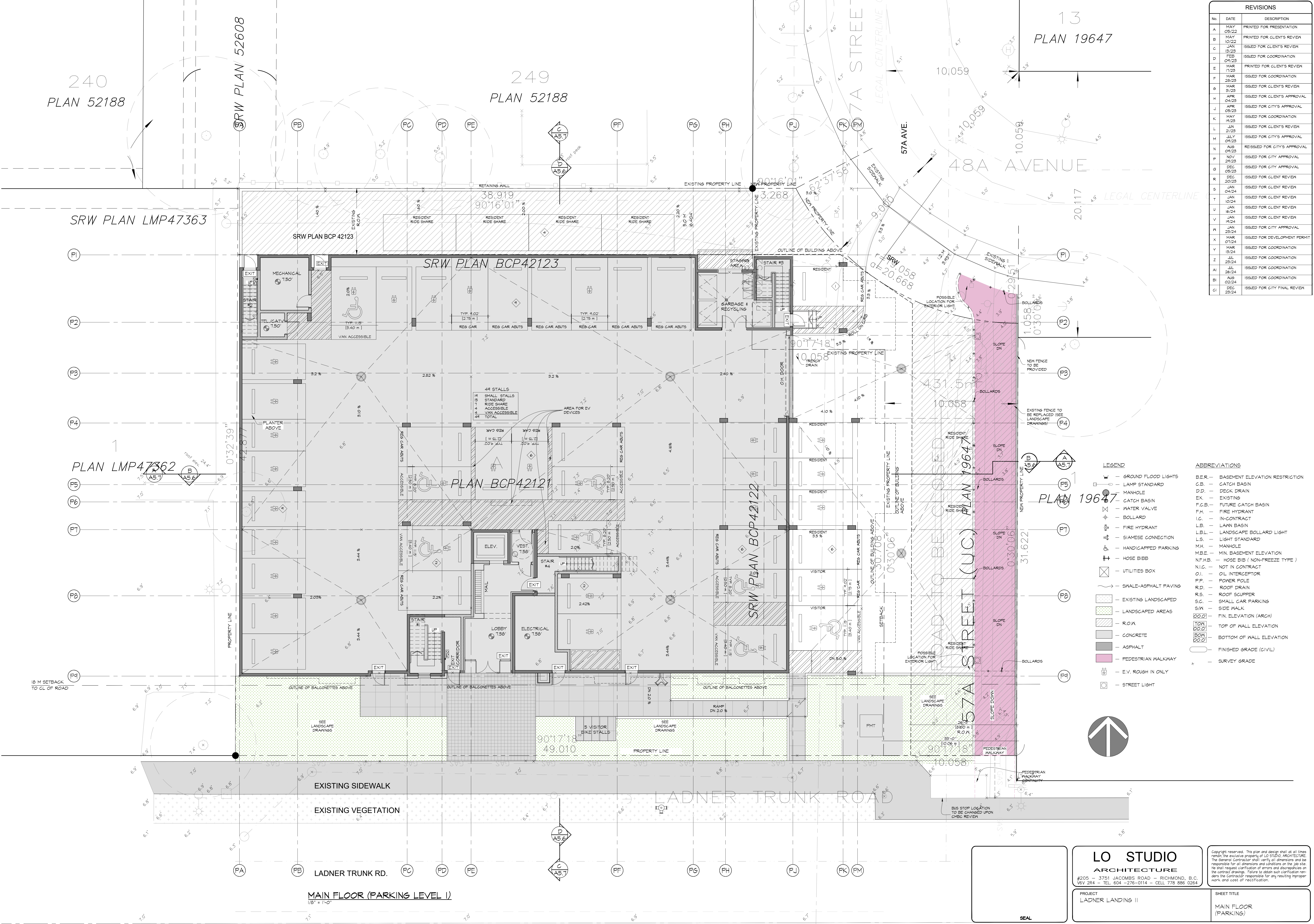
Reviewed by:

Aaron Chan, P.Eng.
Engineering Group Manager

Attachment

Appendix A

Architectural Plan and Site Statistics



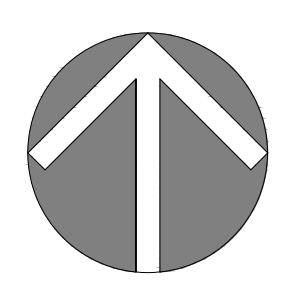
REVISIONS		
No.	DATE	DESCRIPTION
A	MAY 05/22	PRINTED FOR PRESENTATION
B	MAY 10/22	PRINTED FOR CLIENTS REVIEW
C	JAN 13/23	ISSUED FOR CLIENTS REVIEW
D	FEB 04/23	ISSUED FOR COORDINATION
E	MAR 17/23	PRINTED FOR CLIENTS REVIEW
F	MAR 28/23	ISSUED FOR COORDINATION
G	MAR 31/23	ISSUED FOR CLIENTS REVIEW
H	APR 04/23	ISSUED FOR CLIENTS APPROVAL
I	APR 05/23	ISSUED FOR CITY'S APPROVAL
J	MAY 18/23	ISSUED FOR COORDINATION
K	JUL 09/23	ISSUED FOR CLIENTS REVIEW
L	JAN 21/23	ISSUED FOR CLIENTS REVIEW
M	JUL 09/23	REISSUED FOR CITY'S APPROVAL
N	AUG 09/23	ISSUED FOR CITY APPROVAL
O	DEC 05/23	ISSUED FOR CITY APPROVAL
P	DEC 05/23	ISSUED FOR CLIENT REVIEW
Q	JAN 04/24	ISSUED FOR CLIENT REVIEW
R	JAN 16/24	ISSUED FOR CLIENT REVIEW
S	JAN 23/24	ISSUED FOR CITY APPROVAL
T	MAR 07/24	ISSUED FOR DEVELOPMENT PERMIT
U	MAR 13/24	ISSUED FOR COORDINATION
V	JUL 24/24	ISSUED FOR COORDINATION
W	AUG 22/24	ISSUED FOR COORDINATION
X	DEC 23/24	ISSUED FOR CITY FINAL REVIEW

LEGEND

- GROUND FLOOD LIGHTS
- LAMP STANDARD
- MANHOLE
- CATCH BASIN
- WATER VALVE
- BOLLARD
- FIRE HYDRANT
- SIAMSE CONNECTION
- HANDICAPPED PARKING
- HOSE BIBB
- UTILITIES BOX
- SMALL-ASPHALT PAVING
- EXISTING LANDSCAPED
- LANDSCAPED AREAS
- R.O.N.
- CONCRETE
- ASPHALT
- PEDESTRIAN WALKWAY
- E.V. ROUGH IN ONLY
- STREET LIGHT

ABBREVIATIONS

- B.E.R. - BASEMENT ELEVATION RESTRICTION
- C.B. - CATCH BASIN
- D.D. - DECK DRAIN
- E.X. - EXISTING
- F.C.B. - FUTURE CATCH BASIN
- F.H. - FIRE HYDRANT
- I.N.C. - IN-CONTRACT
- L.B. - LAWN BASIN
- L.B.L. - LANDSCAPE BOLLARD LIGHT
- L.S. - LIGHT STANDARD
- M.H. - MANHOLE
- M.B.E. - MIN. BASEMENT ELEVATION
- N.F.B. - HOSE BIBB (NON-FREEZE TYPE)
- N.I.C. - NOT IN CONTRACT
- O.I. - OIL INTERCEPTOR
- P.P. - POWER POLE
- R.D. - ROOF DRAIN
- R.S. - ROOF SCUPPER
- S.G. - SMALL CAR PARKING
- S/W. - SIDE WALK
- 00.00 - FIN. ELEVATION (ARCH)
- TO.00 - TOP OF WALL ELEVATION
- BO.00 - BOTTOM OF WALL ELEVATION
- 00.00 - FINISHED GRADE (CIVIL)
- x - SURVEY GRADE



LO STUDIO
ARCHITECTURE

#205 - 3751 JACOBS ROAD - RICHMOND, B.C.
V6V 2R4 - TEL: 604-276-0114 - CELL: 778-886-0254

PROJECT: LADNER LANDING II

Copyright reserved. This plan and design shall at all times remain the exclusive property of LO STUDIO ARCHITECTURE. The General Contractor shall verify all dimensions and be responsible for all dimensions and conditions on the job site. We shall request confirmation of errors and discrepancies on the contract drawings. Failure to obtain such confirmation renders the Contractor responsible for any resulting improper work and cost of rectification.

SHEET TITLE: MAIN FLOOR (PARKING)

SEAL

Appendix B

Traffic Data Summary Sheets



Harvest Dr & Ladner Trunk Rd

Tuesday, May 07, 2024

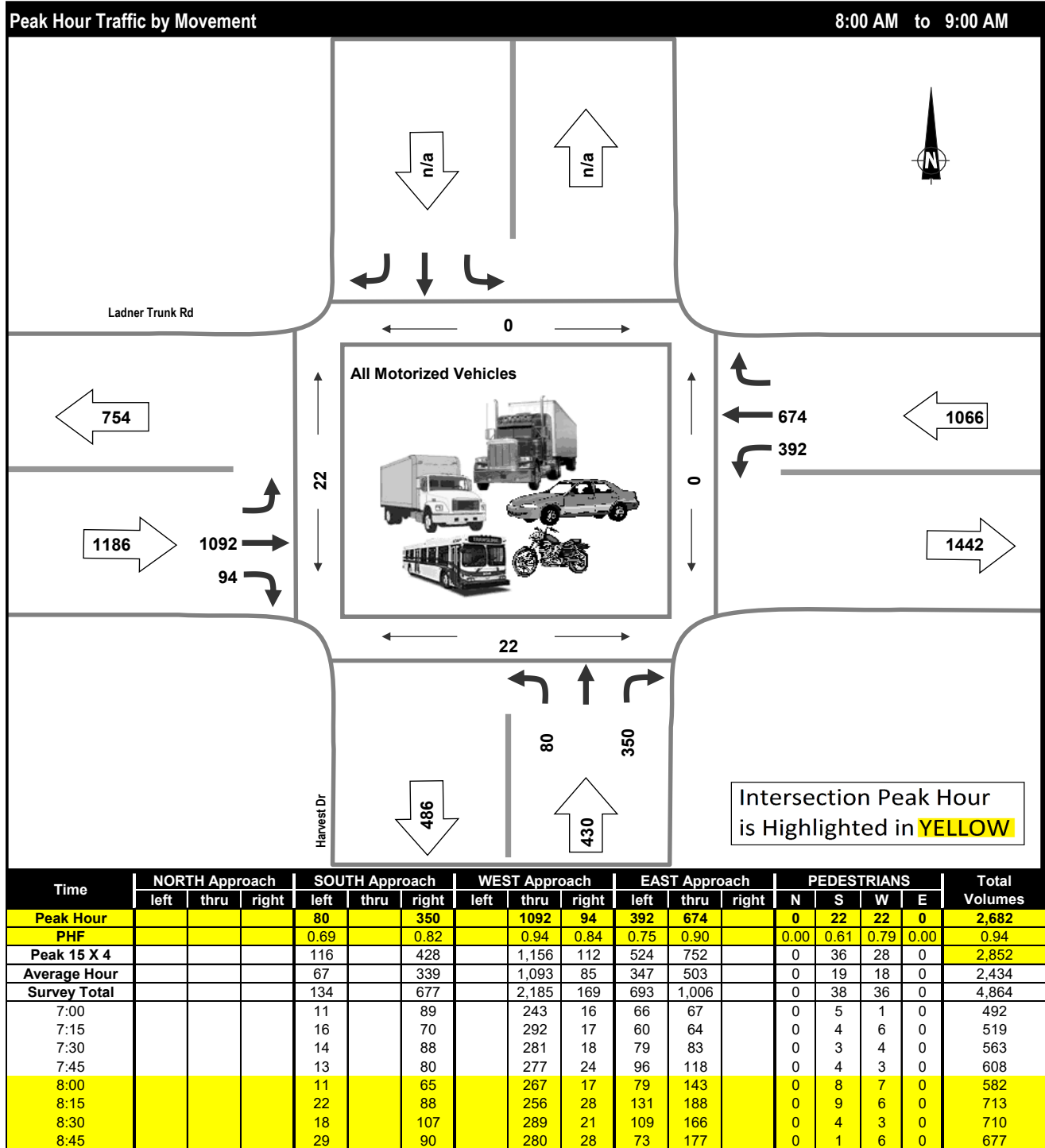
Vehicle Classification Summary

Project: #9259: 5737 Ladner Trunk Traffic Impact Assessment
Municipality: City of Delta
Weather: Sunny

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	4,829	35				4,864
	%	99.3%	0.7%				100.0%
	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	8,037	23				8,060
	%	99.7%	0.3%				100.0%
Total (5 Hours)	Volume	12,866	58				12,924
	%	99.6%	0.4%				100.0%

Project: #9259: 5737 Ladner Trunk Traffic Impact Assessment
Municipality: City of Delta
Weather: Sunny
Vehicle Class: All Motorized Vehicles

Morning Peak Period

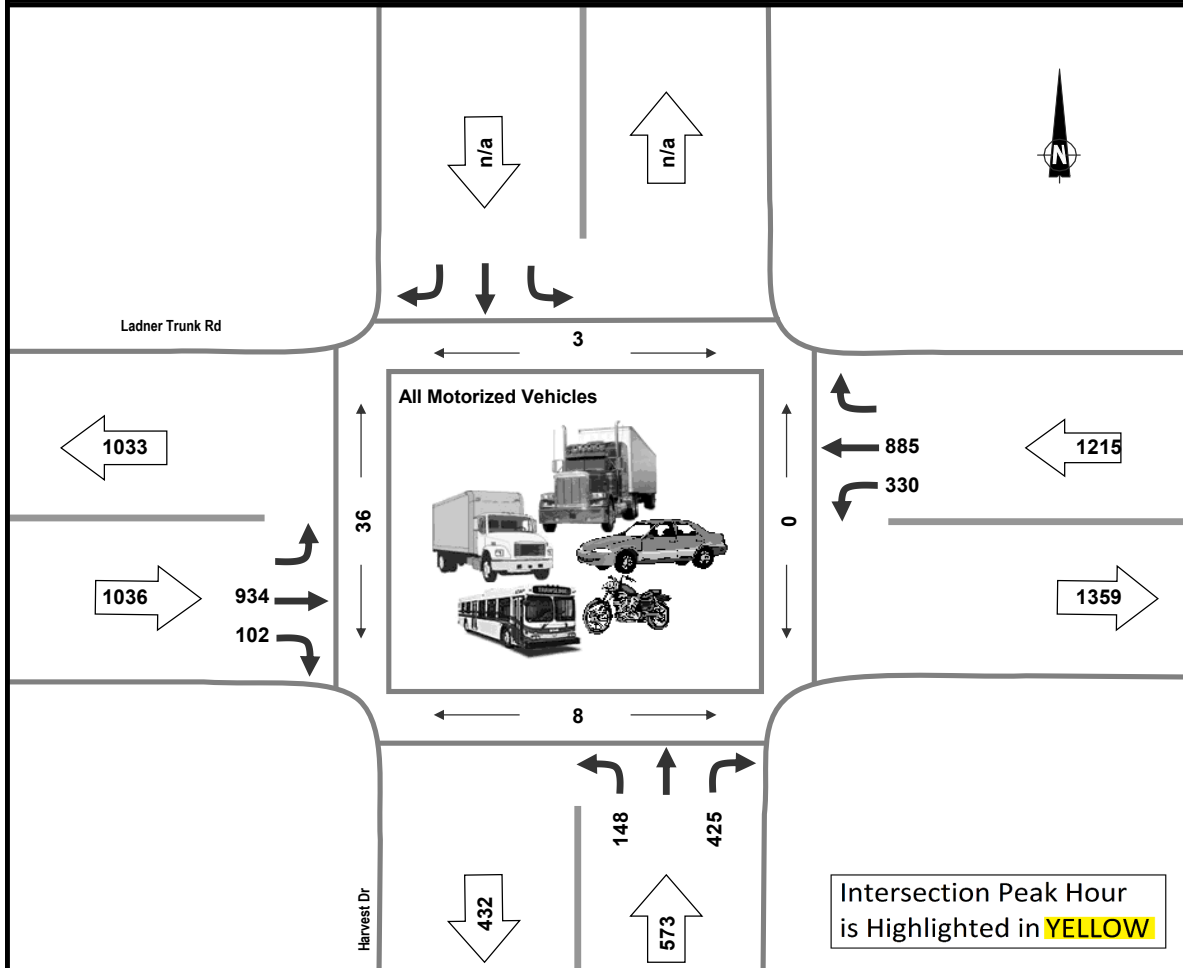


Project: #9259: 5737 Ladner Trunk Traffic Impact Assessment
Municipality: City of Delta
Weather: Sunny
Vehicle Class: All Motorized Vehicles

Afternoon Peak Period

Peak Hour Traffic by Movement

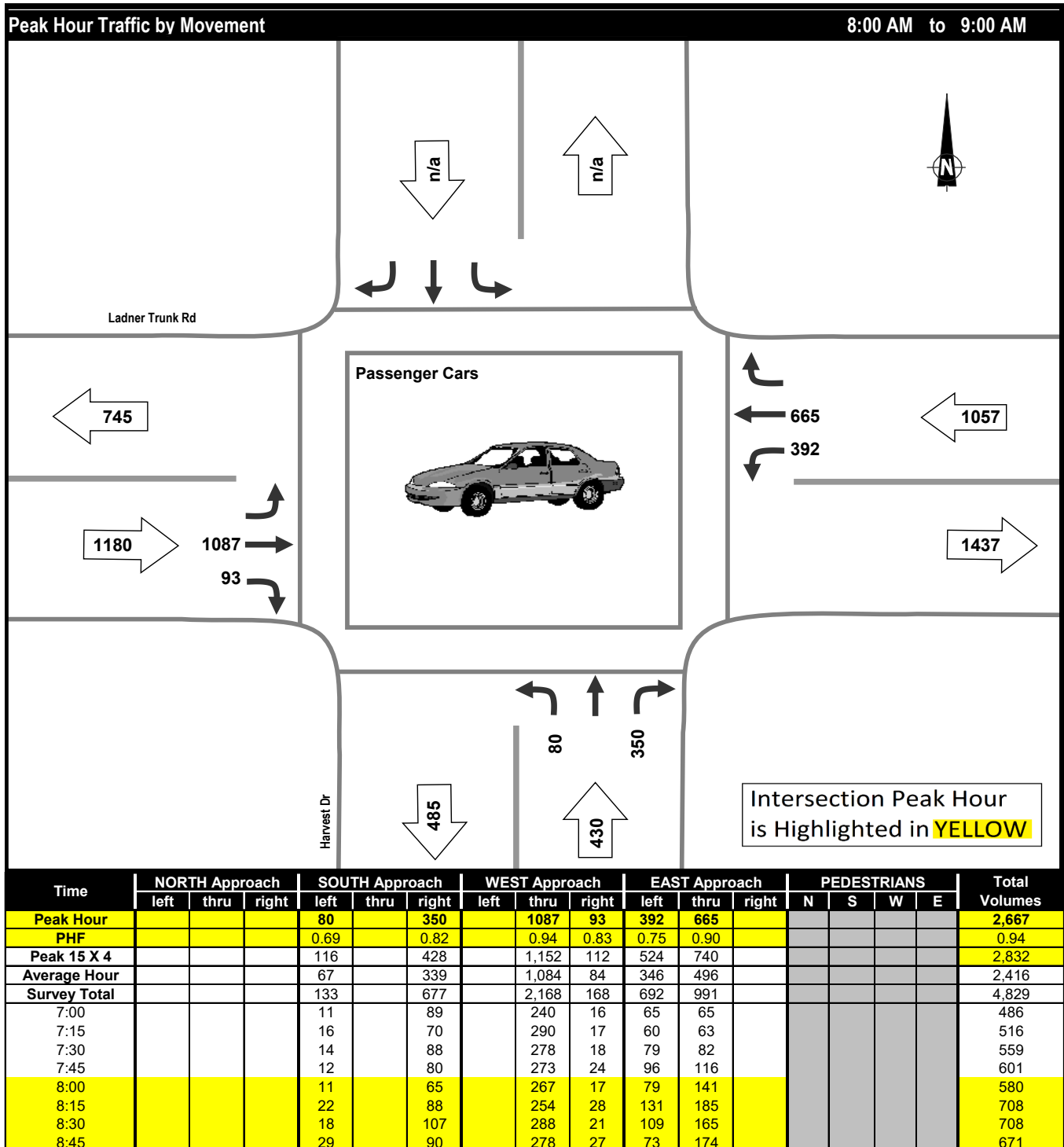
3:00 PM to 4:00 PM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			PEDESTRIANS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour				148		425		934	102	330	885		3	8	36	0	2,824
PHF				0.82		0.80		0.81	0.82	0.74	0.91		0.38	0.50	0.53	0.00	0.96
Peak 15 X 4				180		532		1,148	124	444	968		8	16	68	0	2,928
Average Hour				143		374		906	105	318	841		4	11	24	0	2,687
Survey Total				429		1,121		2,718	314	954	2,524		11	32	71	0	8,060
15:00				45		133		287	23	53	191		0	4	5	0	732
15:15				30		101		220	31	87	217		1	1	9	0	686
15:30				40		114		222	26	79	242		2	2	17	0	723
15:45				33		77		205	22	111	235		0	1	5	0	683
16:00				23		109		216	23	79	222		0	3	6	0	672
16:15				31		76		205	33	96	210		4	0	2	0	651
16:30				34		78		235	24	86	210		0	1	4	0	667
16:45				56		125		170	25	84	231		2	0	10	0	691
17:00				36		82		257	22	67	207		2	17	6	0	671
17:15				28		93		257	25	89	229		0	2	1	0	721
17:30				42		71		231	34	48	144		0	1	2	0	570
17:45				31		62		213	26	75	186		0	0	4	0	593

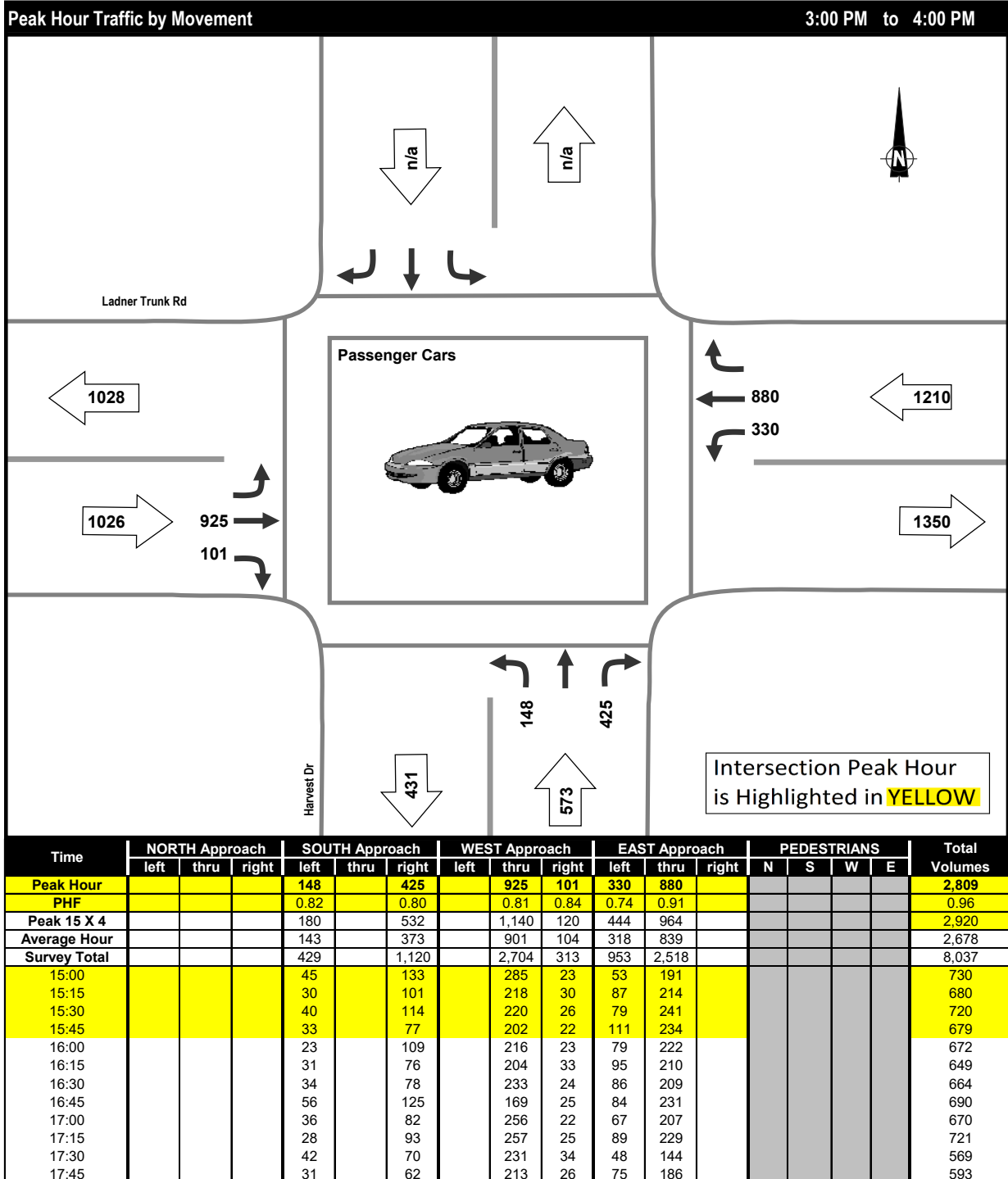
Project: #9259: 5737 Ladner Trunk Traffic Impact Assessment
Municipality: City of Delta
Weather: Sunny
Vehicle Class: Passenger Cars

Morning Peak Period



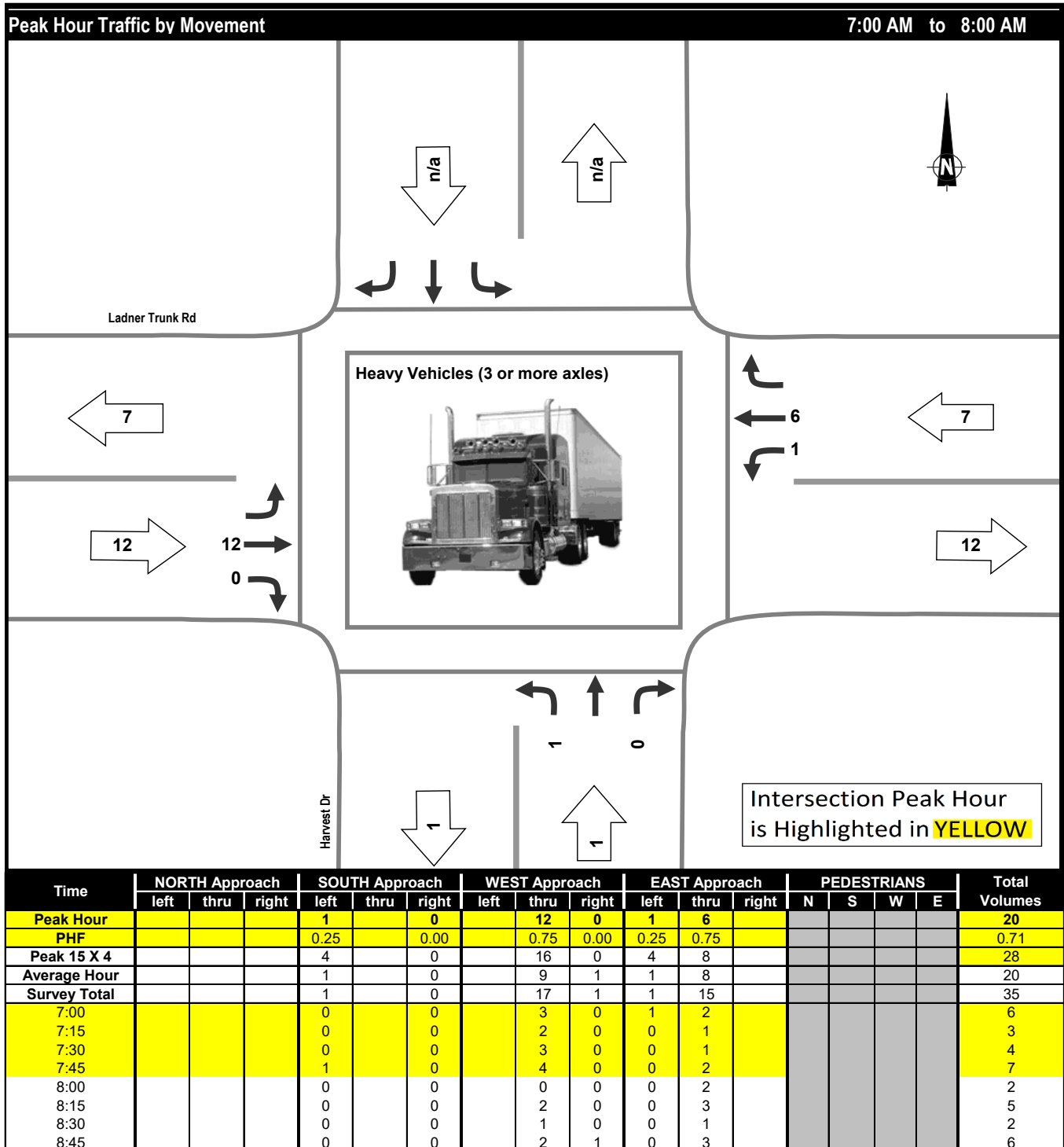
Project: #9259: 5737 Ladner Trunk Traffic Impact Assessment
Municipality: City of Delta
Weather: Sunny
Vehicle Class: Passenger Cars

Afternoon Peak Period



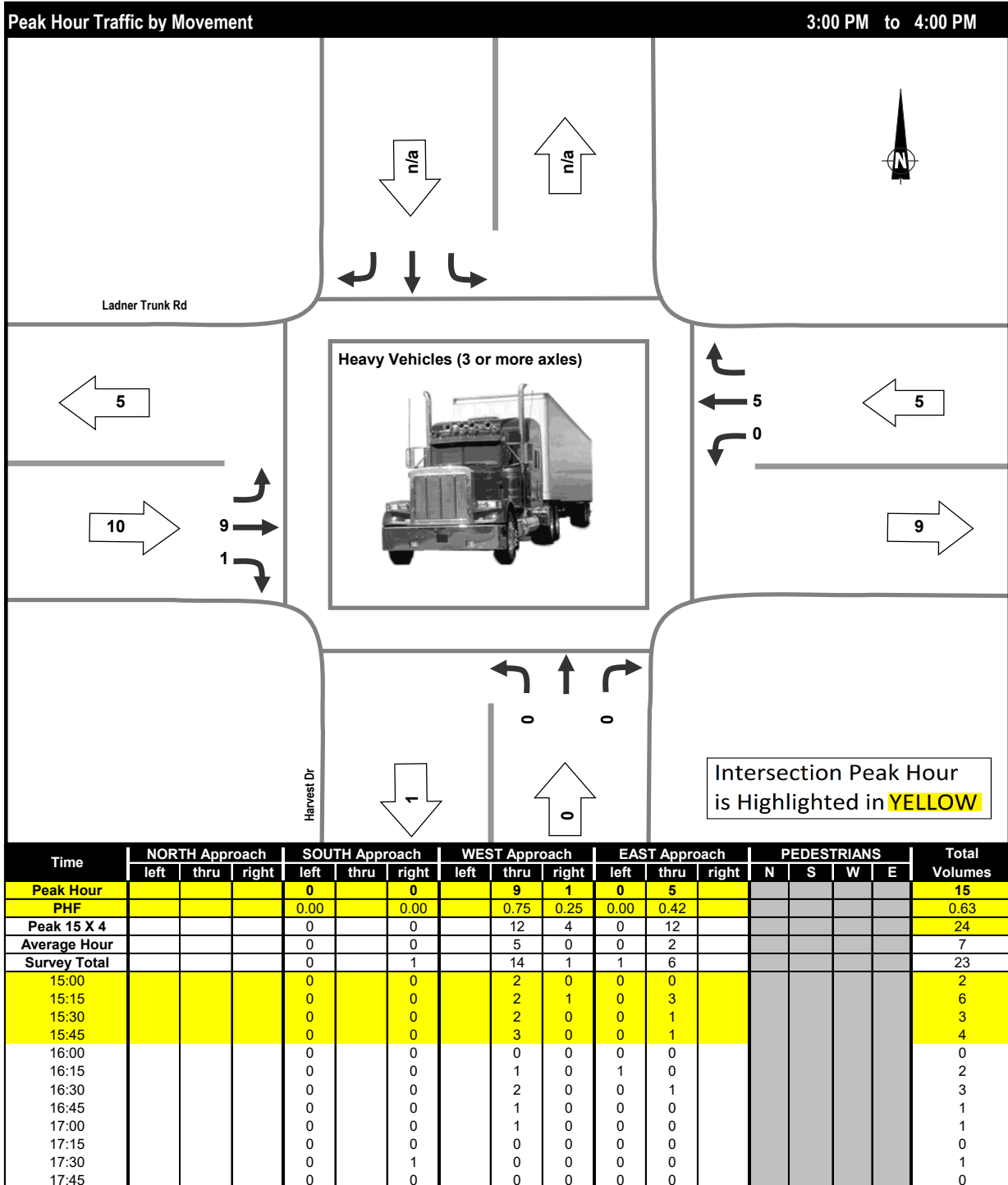
Project: #9259: 5737 Ladner Trunk Traffic Impact Assessment
Municipality: City of Delta
Weather: Sunny
Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period



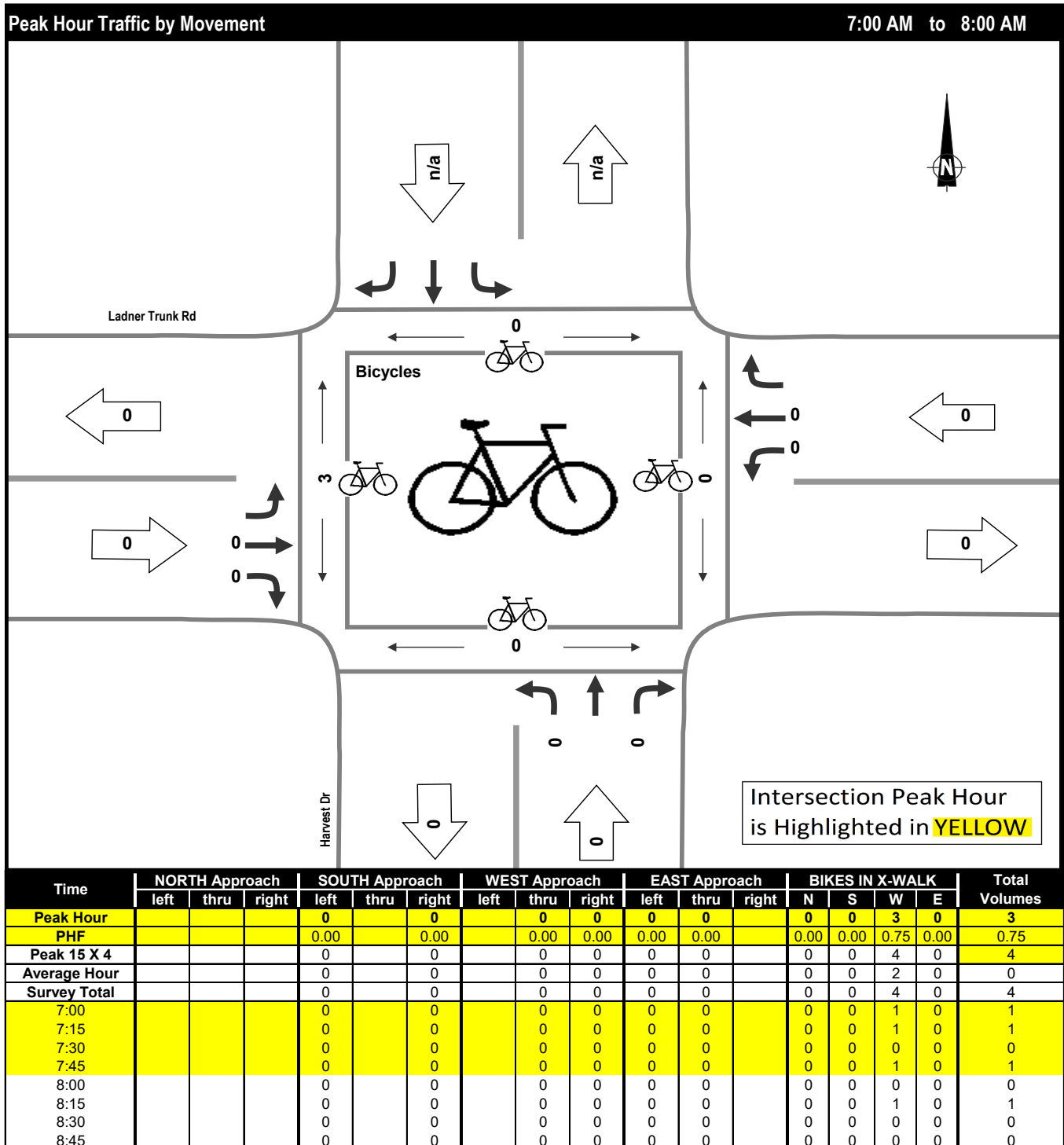
Project: #9259: 5737 Ladner Trunk Traffic Impact Assessment
Municipality: City of Delta
Weather: Sunny
Vehicle Class: Heavy Vehicles (3 or more axles)

Afternoon Peak Period



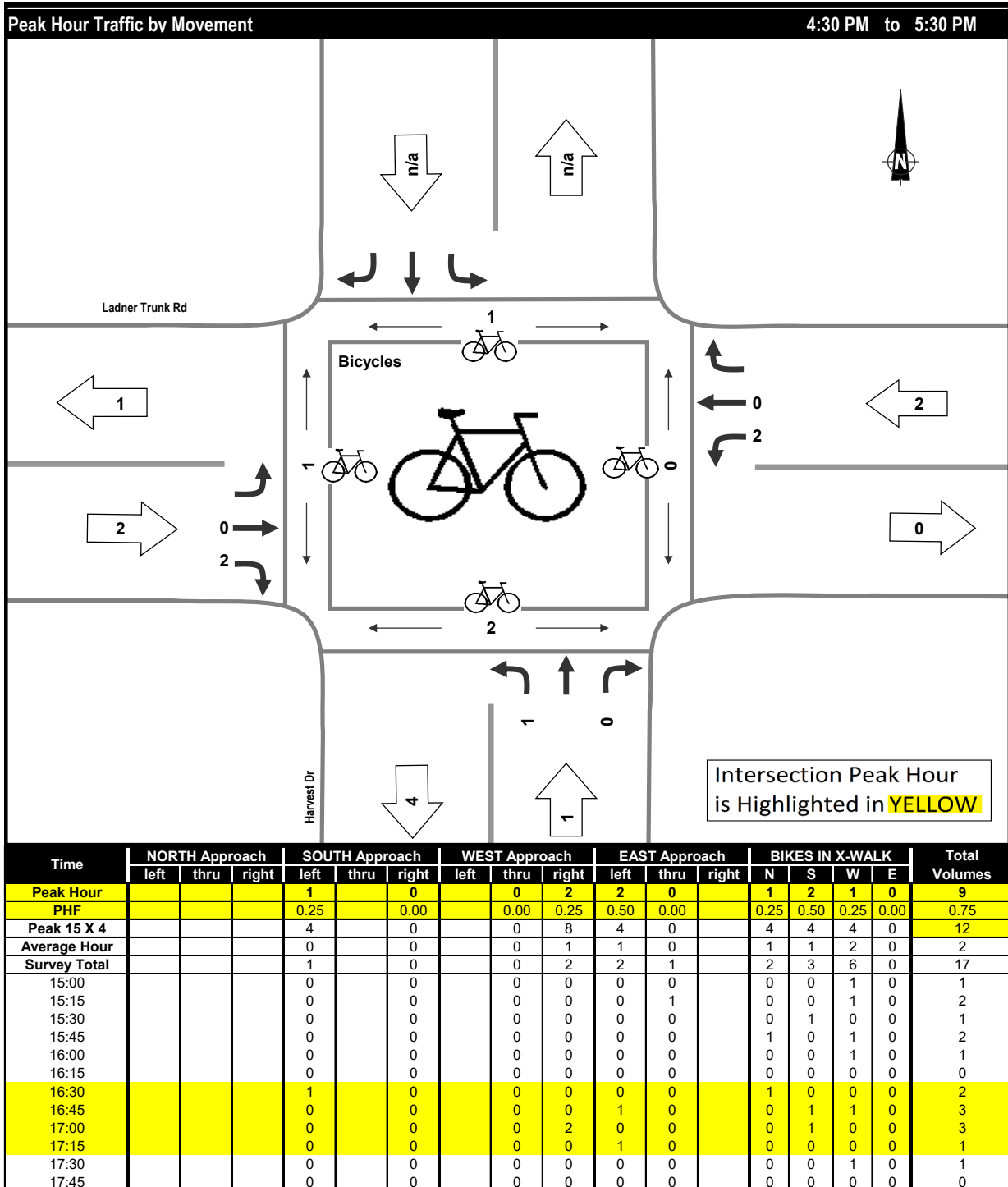
Project: #9259: 5737 Ladner Trunk Traffic Impact Assessment
Municipality: City of Delta
Weather: Sunny
Vehicle Class: Bicycles

Morning Peak Period



Project: #9259: 5737 Ladner Trunk Traffic Impact Assessment
Municipality: City of Delta
Weather: Sunny
Vehicle Class: Bicycles

Afternoon Peak Period



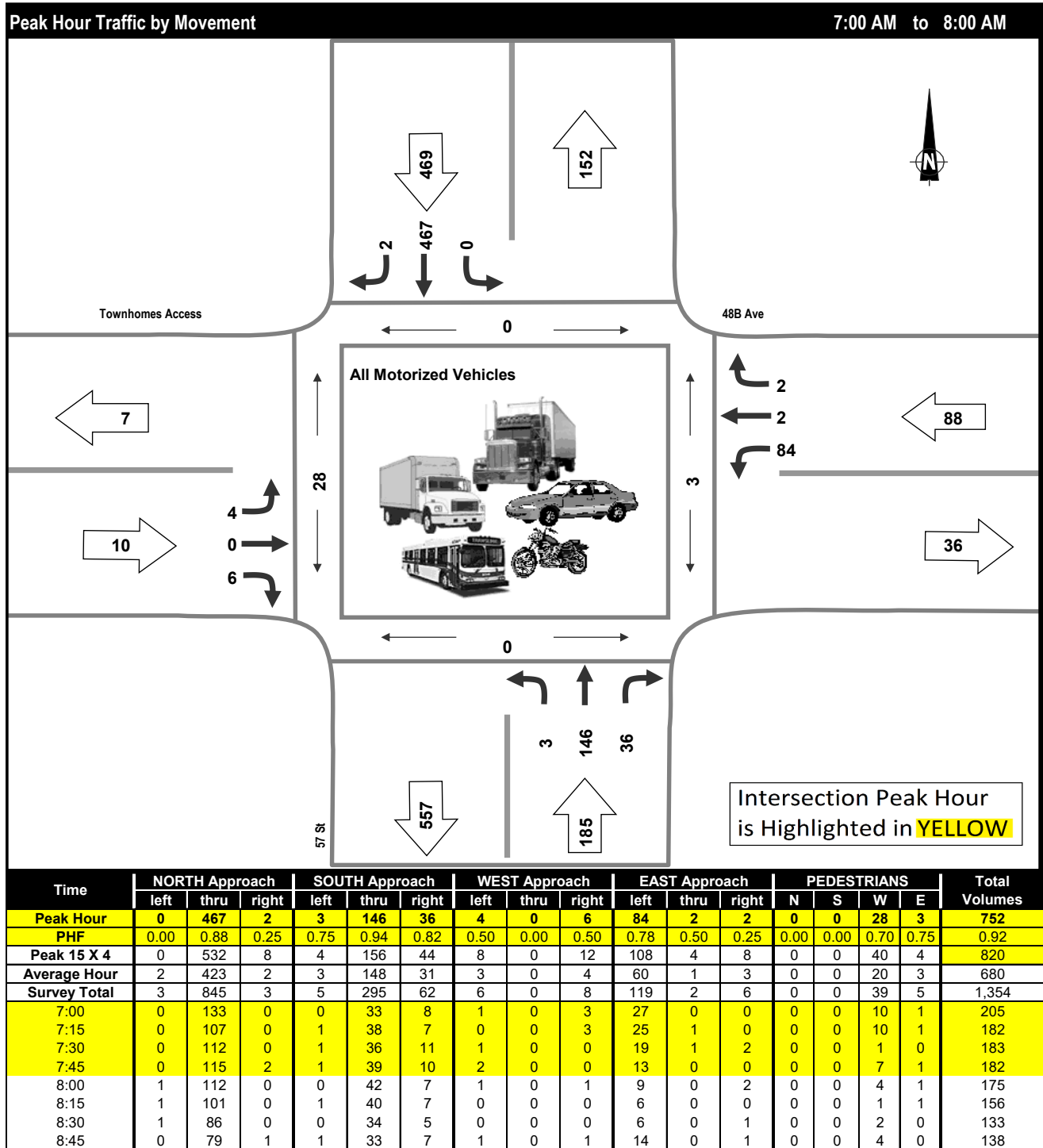


Vehicle Classification Summary

Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
Municipality: City of Delta
Weather: Sunny

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	1,348	6				1,354
	%	99.6%	0.4%				100.0%
	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	1,993	18				2,011
	%	99.1%	0.9%				100.0%
Total (5 Hours)	Volume	3,341	24				3,365
	%	99.3%	0.7%				100.0%

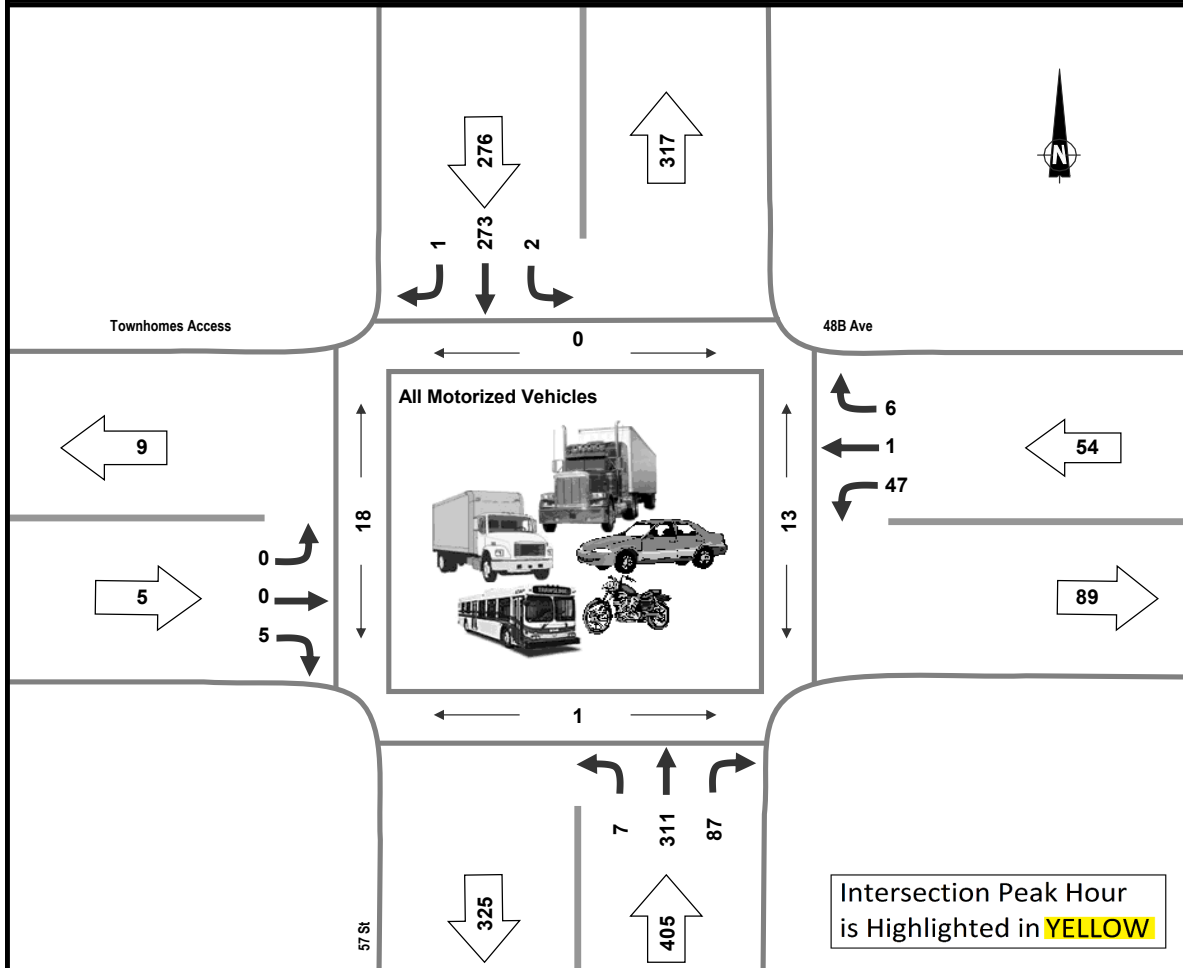
Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: All Motorized Vehicles

Morning Peak Period


Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: All Motorized Vehicles

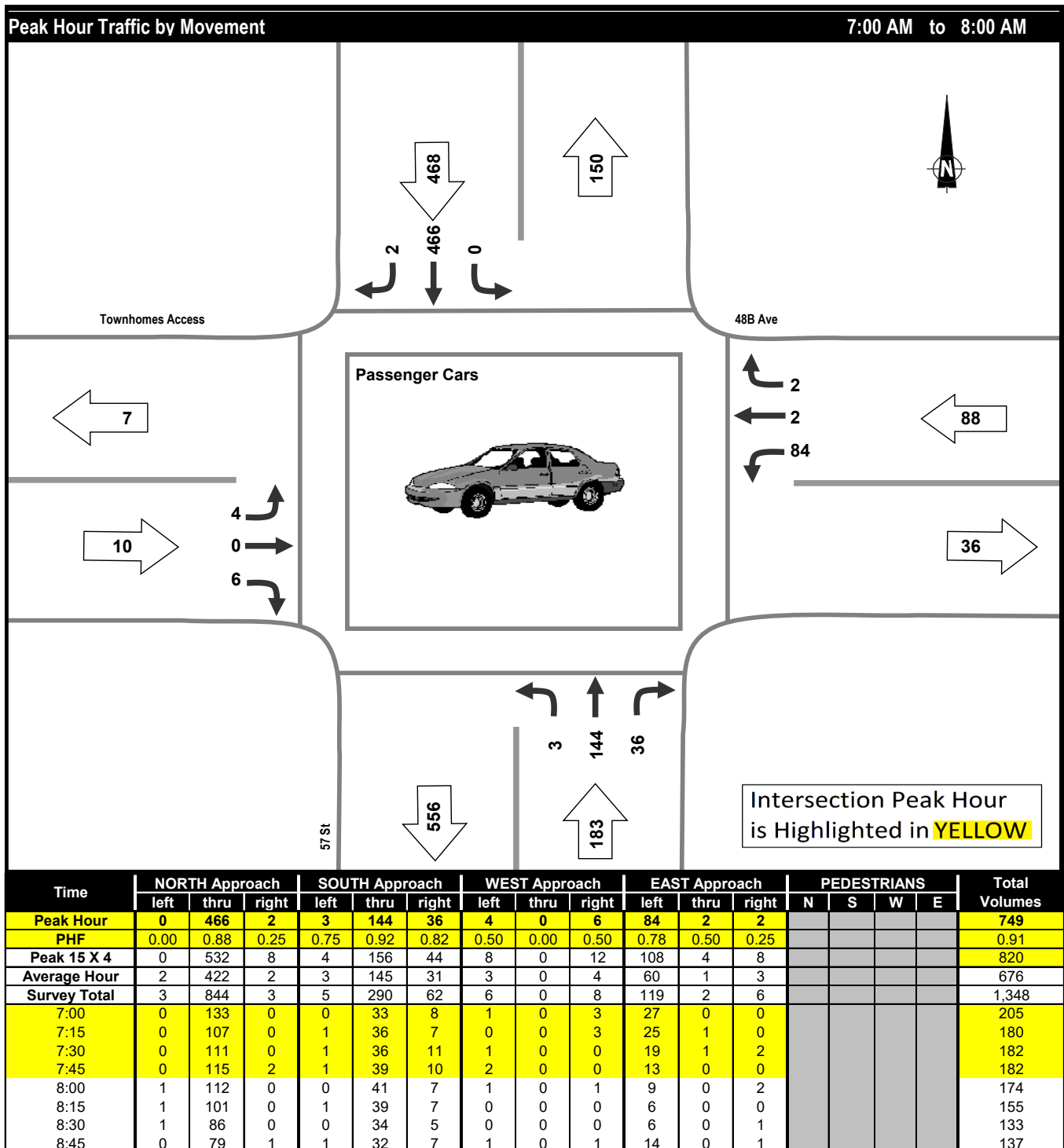
Afternoon Peak Period
Peak Hour Traffic by Movement

3:30 PM to 4:30 PM

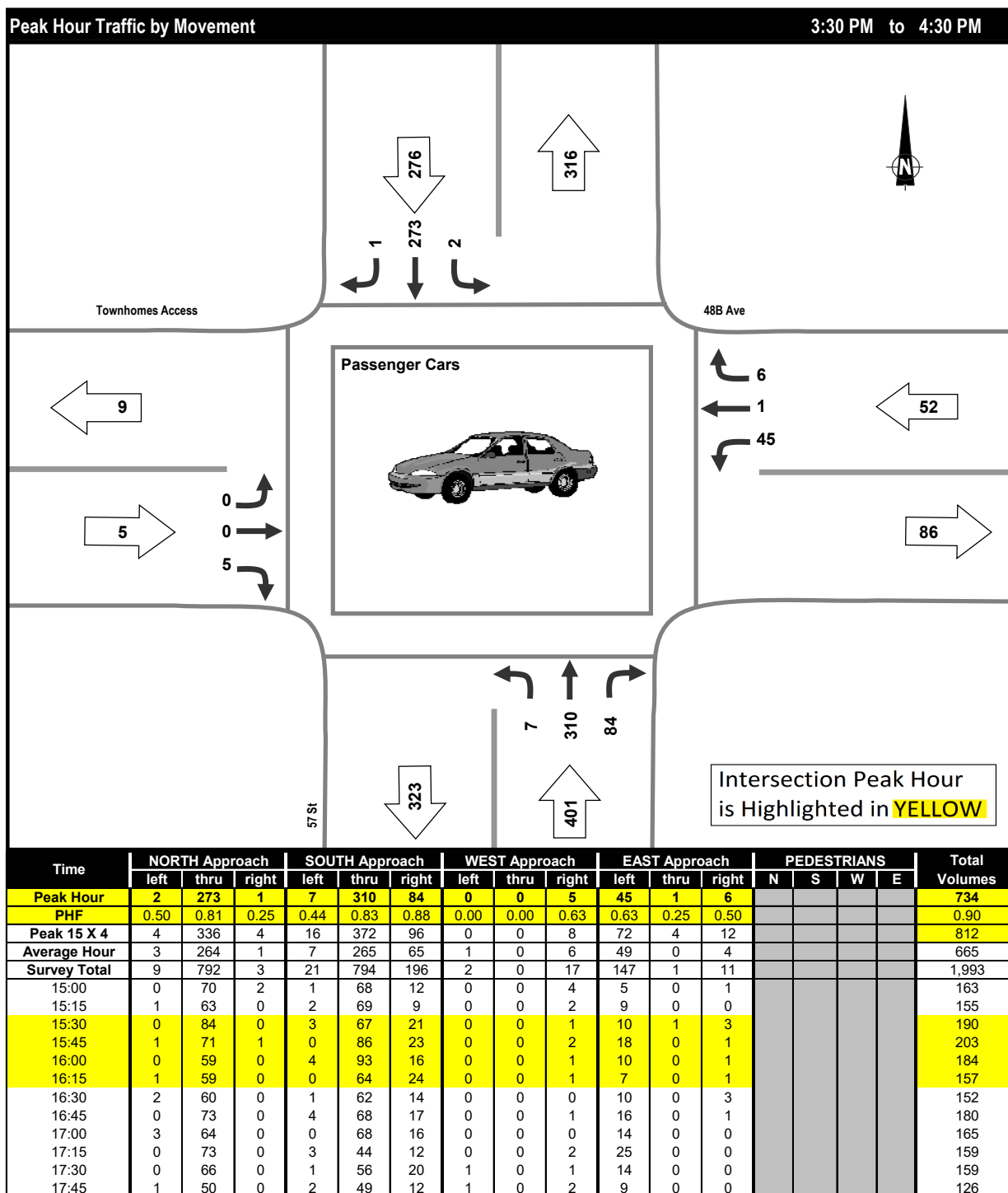


Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			PEDESTRIANS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	2	273	1	7	311	87	0	0	5	47	1	6	0	1	18	13	740
PHF	0.50	0.81	0.25	0.44	0.84	0.87	0.00	0.00	0.63	0.65	0.25	0.50	0.00	0.25	0.50	0.65	0.90
Peak 15 X 4	4	336	4	16	372	100	0	0	8	72	4	12	0	4	36	20	820
Average Hour	3	266	1	7	266	67	1	0	6	50	0	4	0	1	14	9	671
Survey Total	10	798	3	21	798	200	2	0	17	150	1	11	1	3	41	28	2,011
15:00	0	71	2	1	69	12	0	0	4	5	0	1	0	0	1	2	165
15:15	1	63	0	2	70	9	0	0	2	9	0	0	0	0	7	1	156
15:30	0	84	0	3	67	22	0	0	1	12	1	3	0	0	9	4	193
15:45	1	71	1	0	87	24	0	0	2	18	0	1	0	0	2	0	205
16:00	0	59	0	4	93	16	0	0	1	10	0	1	0	0	6	5	184
16:15	1	59	0	0	64	25	0	0	1	7	0	1	0	1	1	4	158
16:30	2	61	0	1	62	14	0	0	0	10	0	3	0	1	4	1	153
16:45	0	74	0	4	68	17	0	0	1	16	0	1	0	0	2	1	181
17:00	4	65	0	0	68	16	0	0	0	14	0	0	1	0	4	4	167
17:15	0	75	0	3	44	12	0	0	2	25	0	0	0	0	2	3	161
17:30	0	66	0	1	57	21	1	0	1	15	0	0	0	1	0	2	162
17:45	1	50	0	2	49	12	1	0	2	9	0	0	0	0	3	1	126

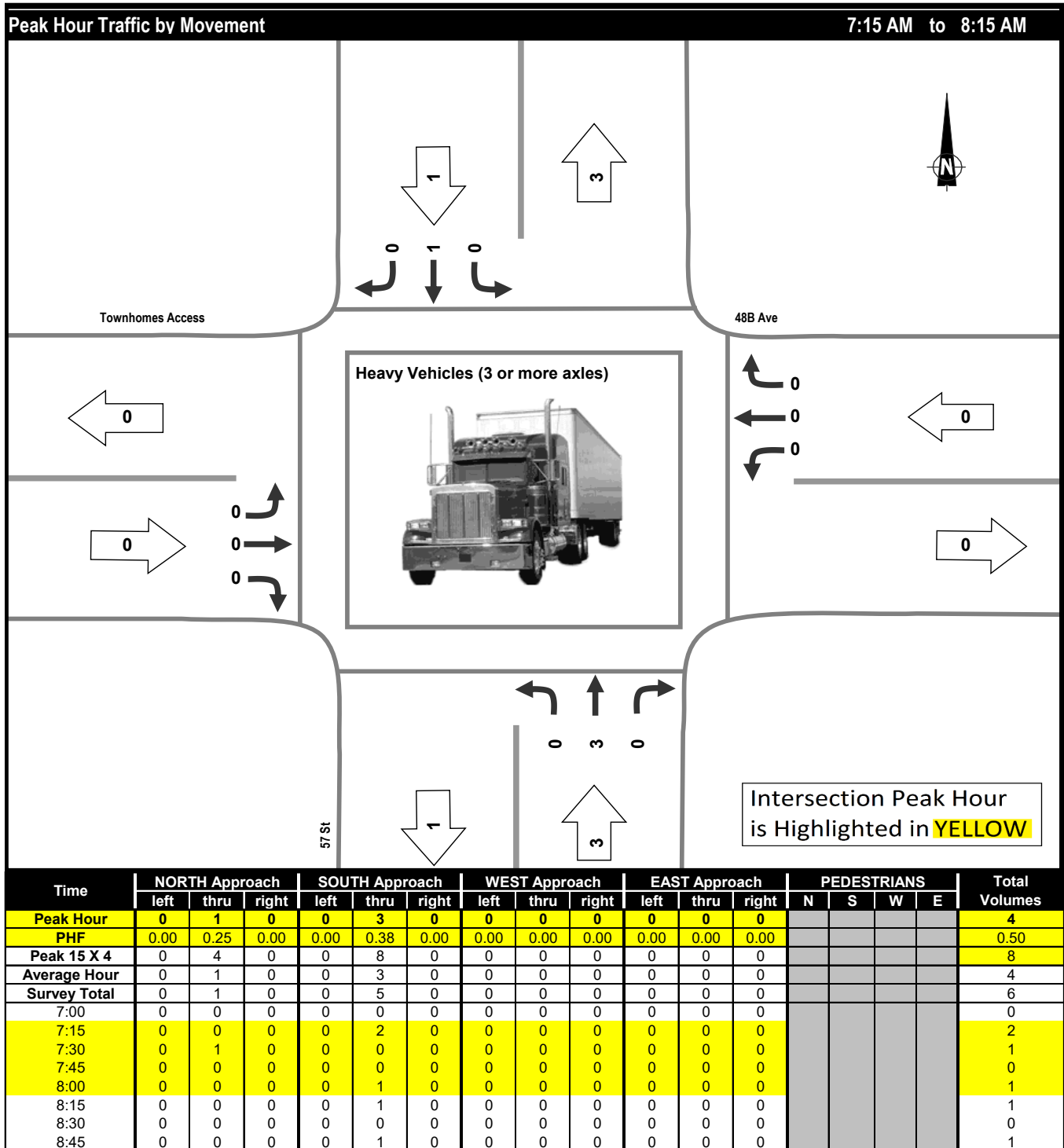
Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: Passenger Cars

Morning Peak Period


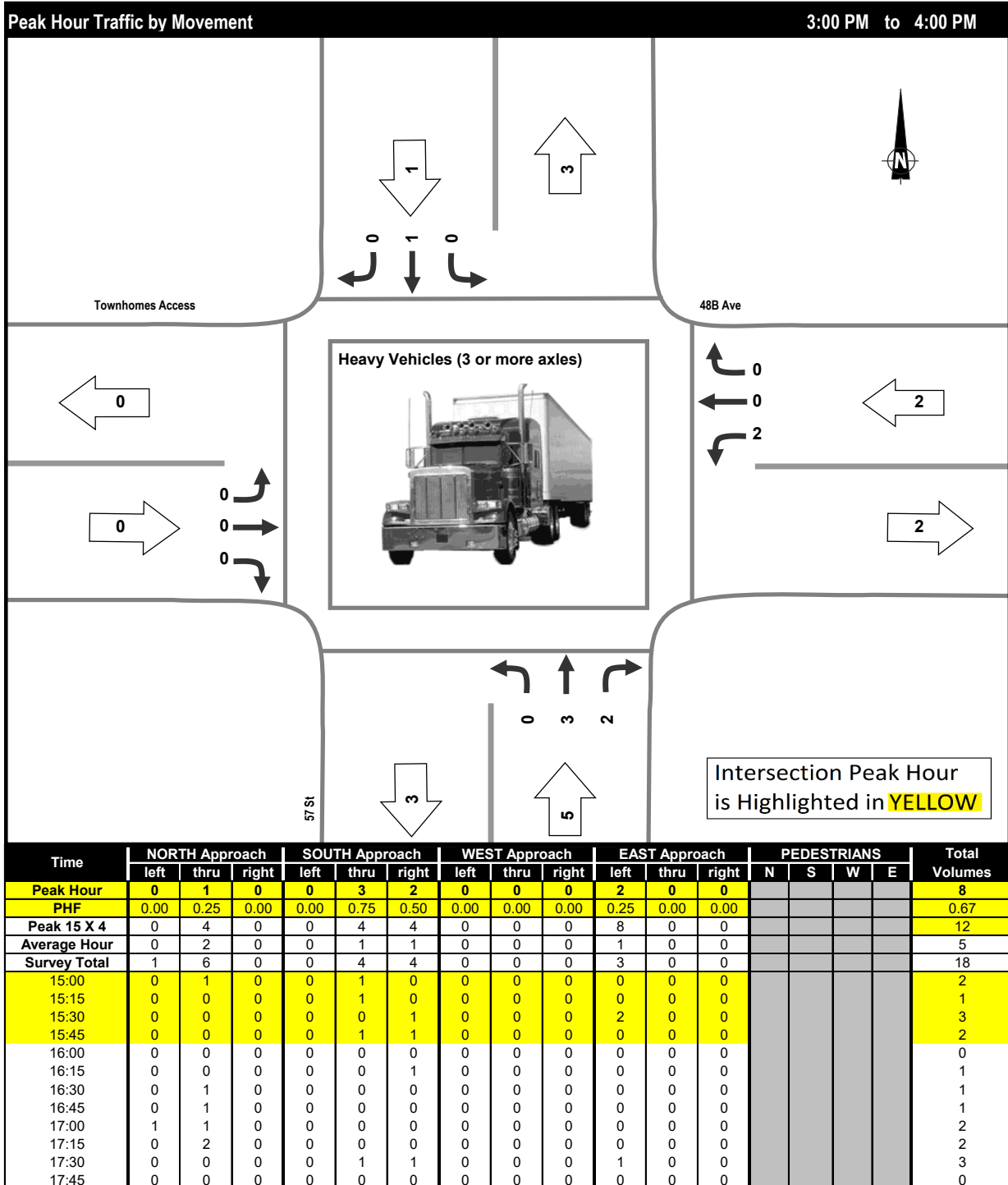
Afternoon Peak Period



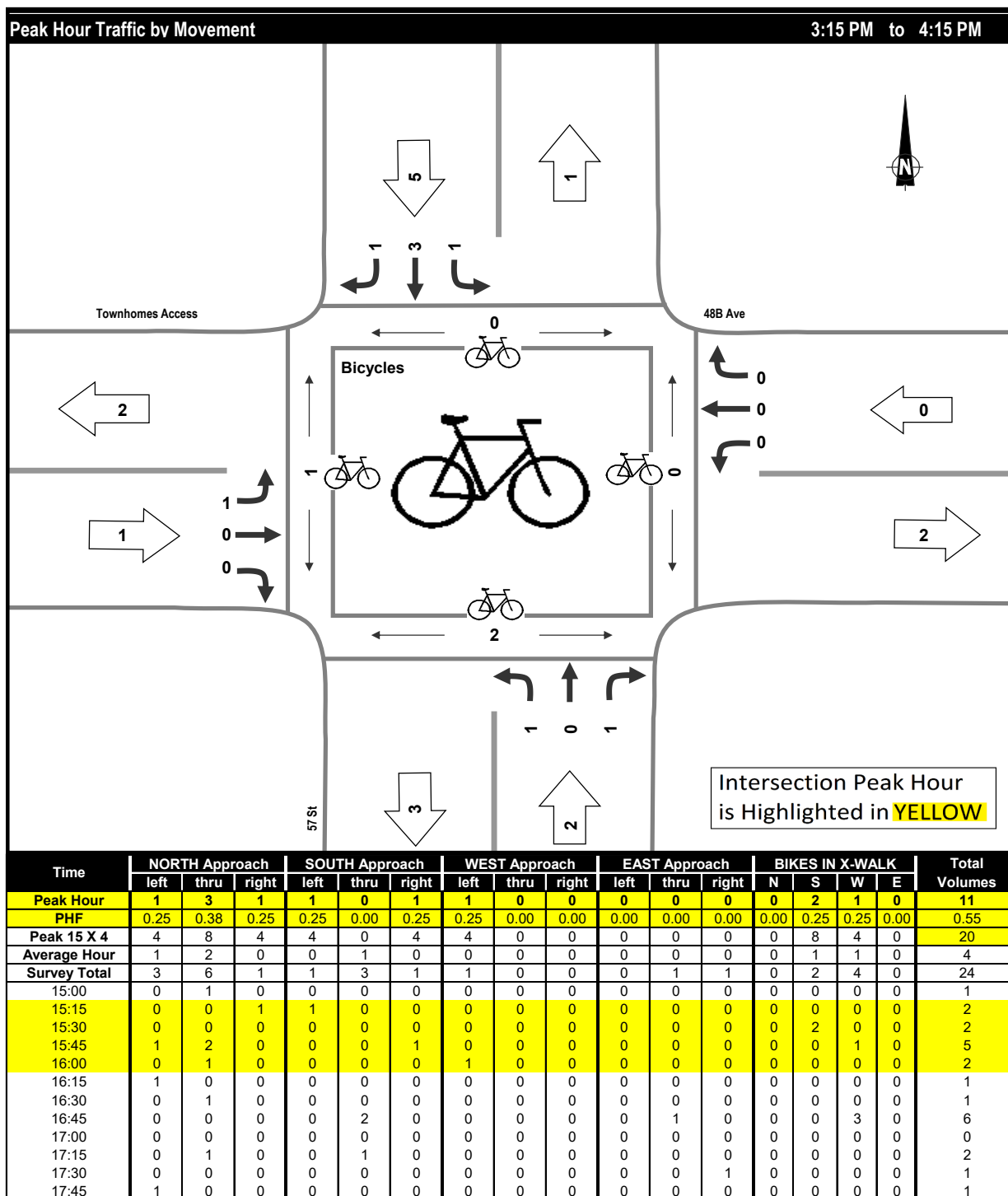
Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period


Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: Heavy Vehicles (3 or more axes)

Afternoon Peak Period


Afternoon Peak Period





57th St & Ladner Trunk Rd

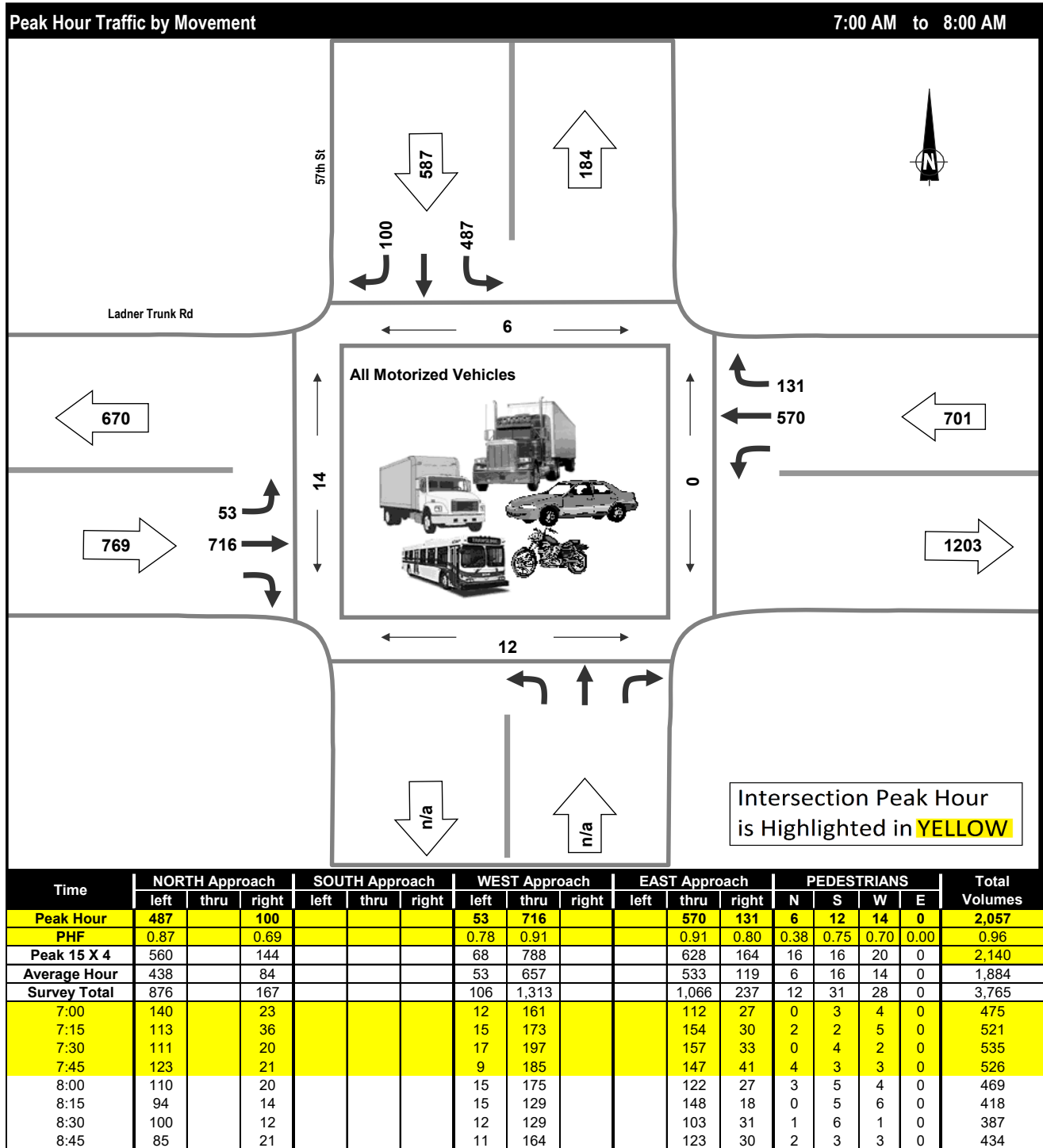
Tuesday, April 09, 2024

Vehicle Classification Summary

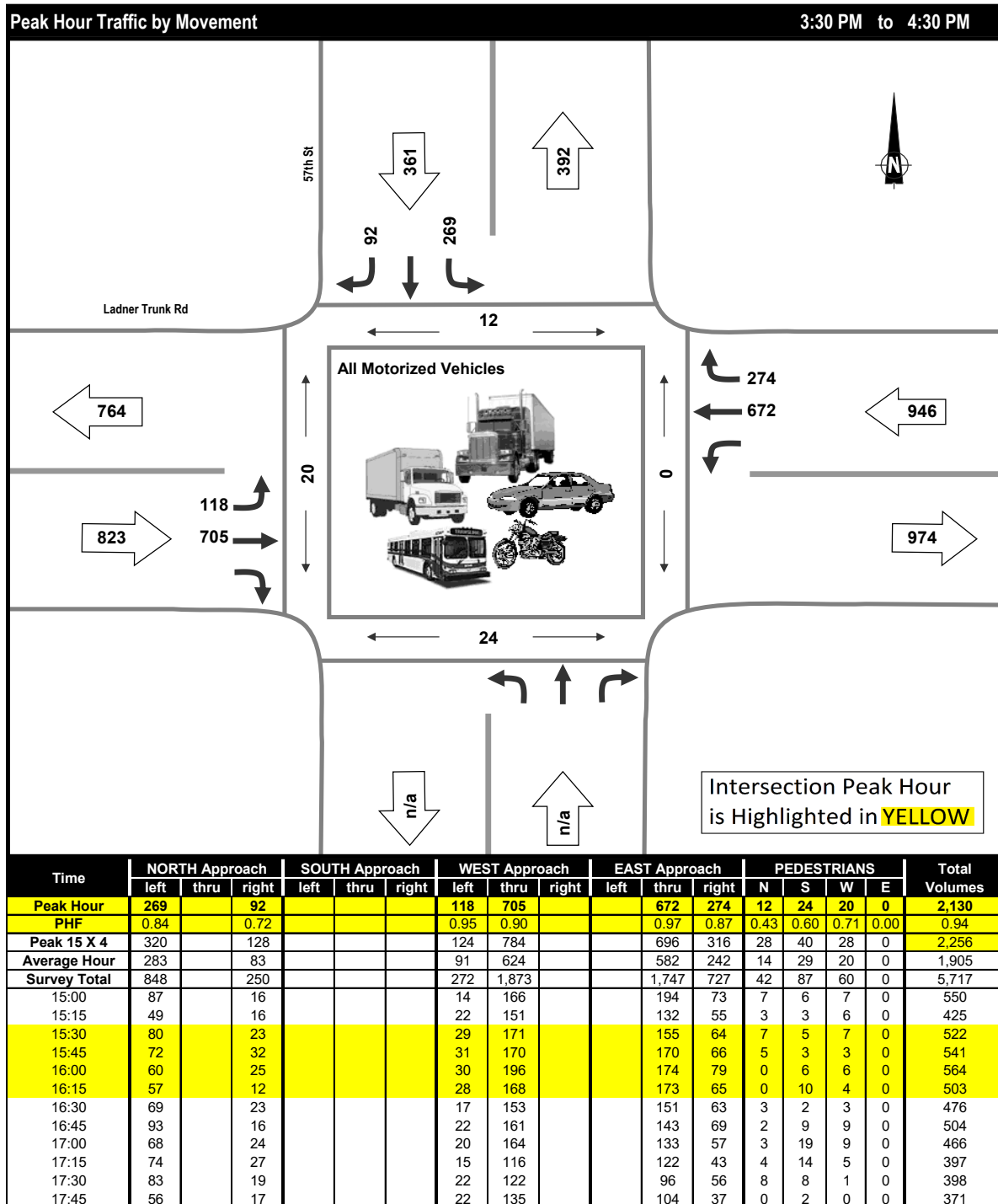
Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
Municipality: City of Delta
Weather: Sunny

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	3,722	43				3,765
	%	98.9%	1.1%				100.0%
	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	5,681	36				5,717
	%	99.4%	0.6%				100.0%
Total (5 Hours)	Volume	9,403	79				9,482
	%	99.2%	0.8%				100.0%

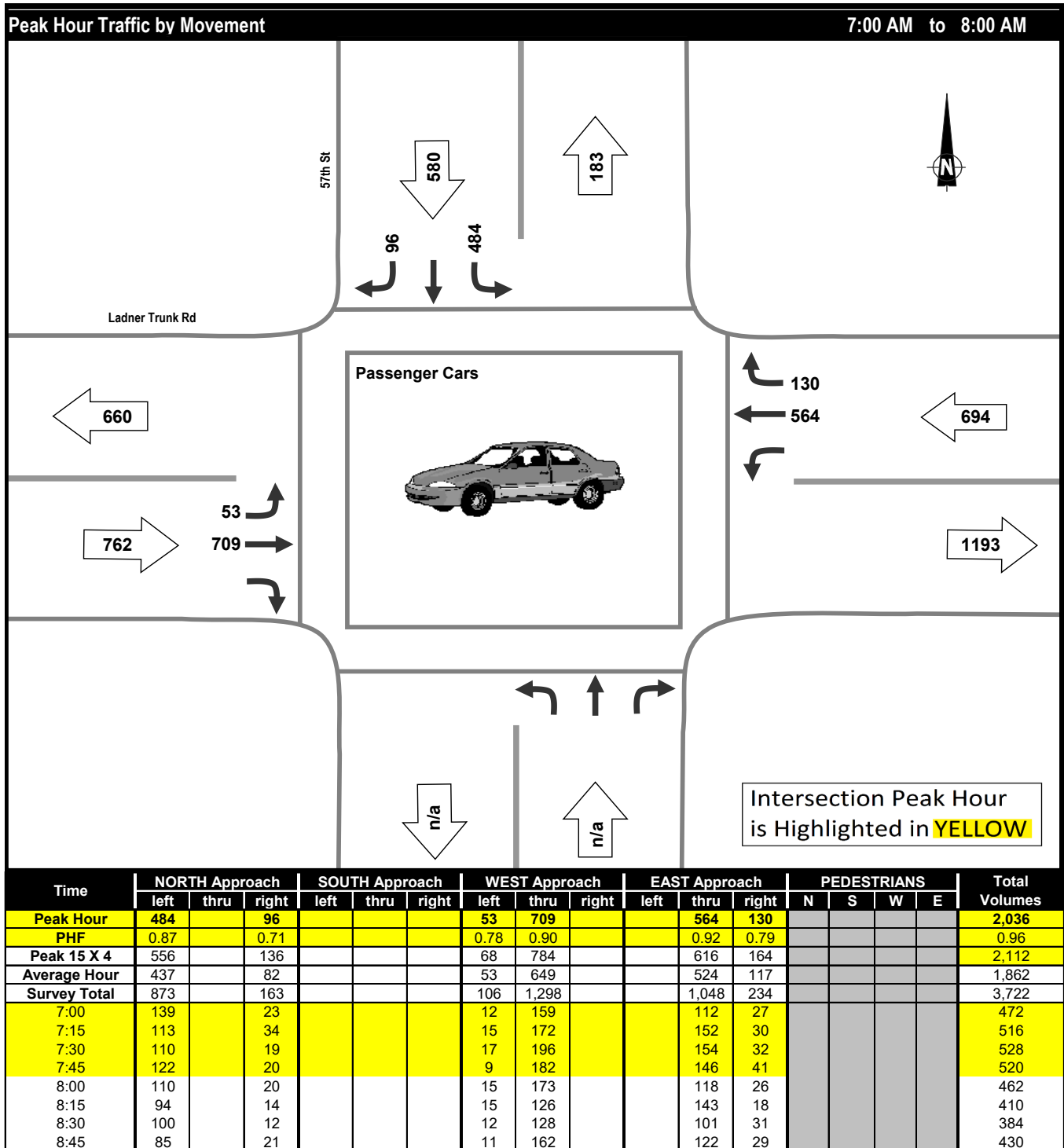
Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: All Motorized Vehicles

Morning Peak Period


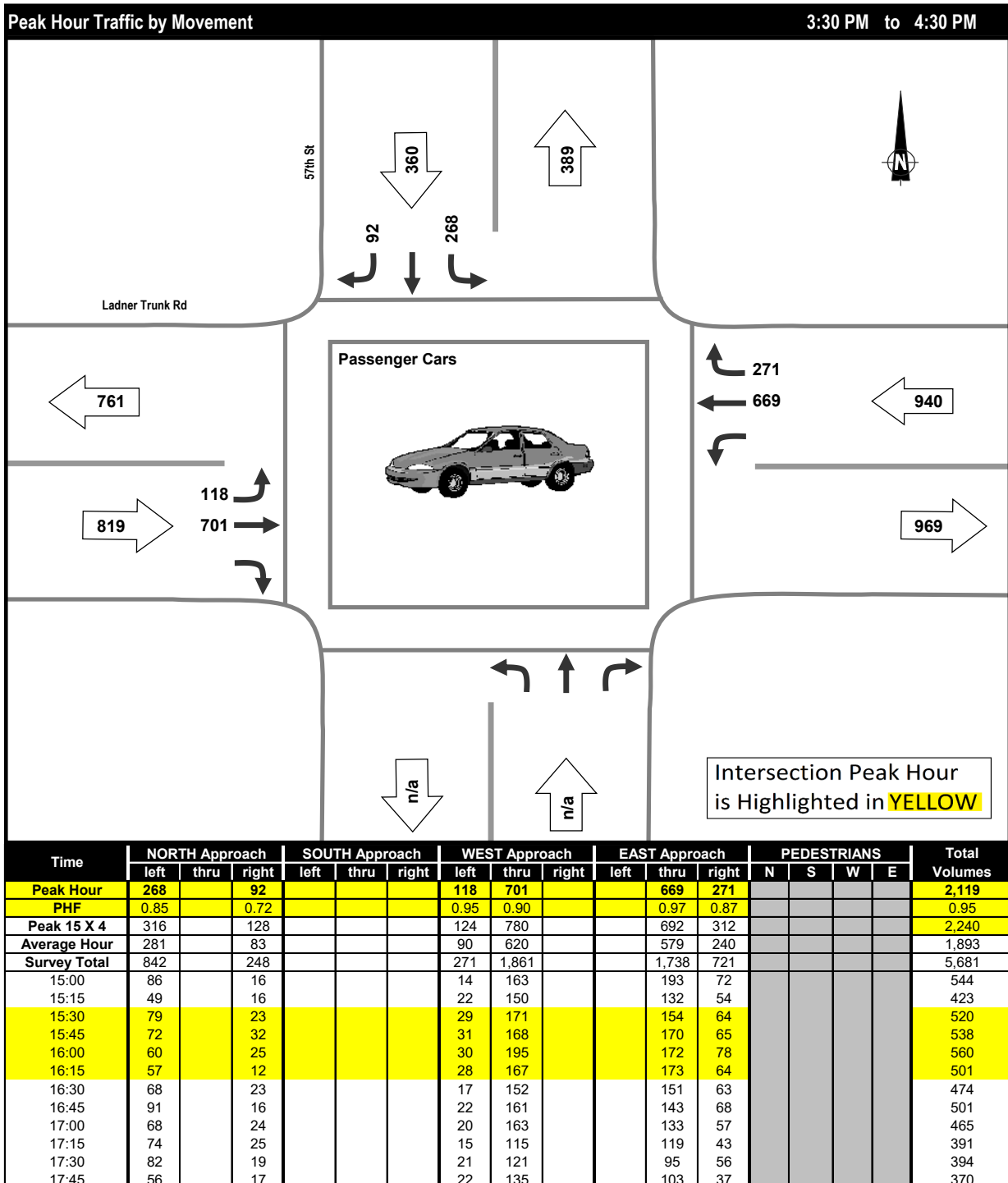
Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: All Motorized Vehicles

Afternoon Peak Period


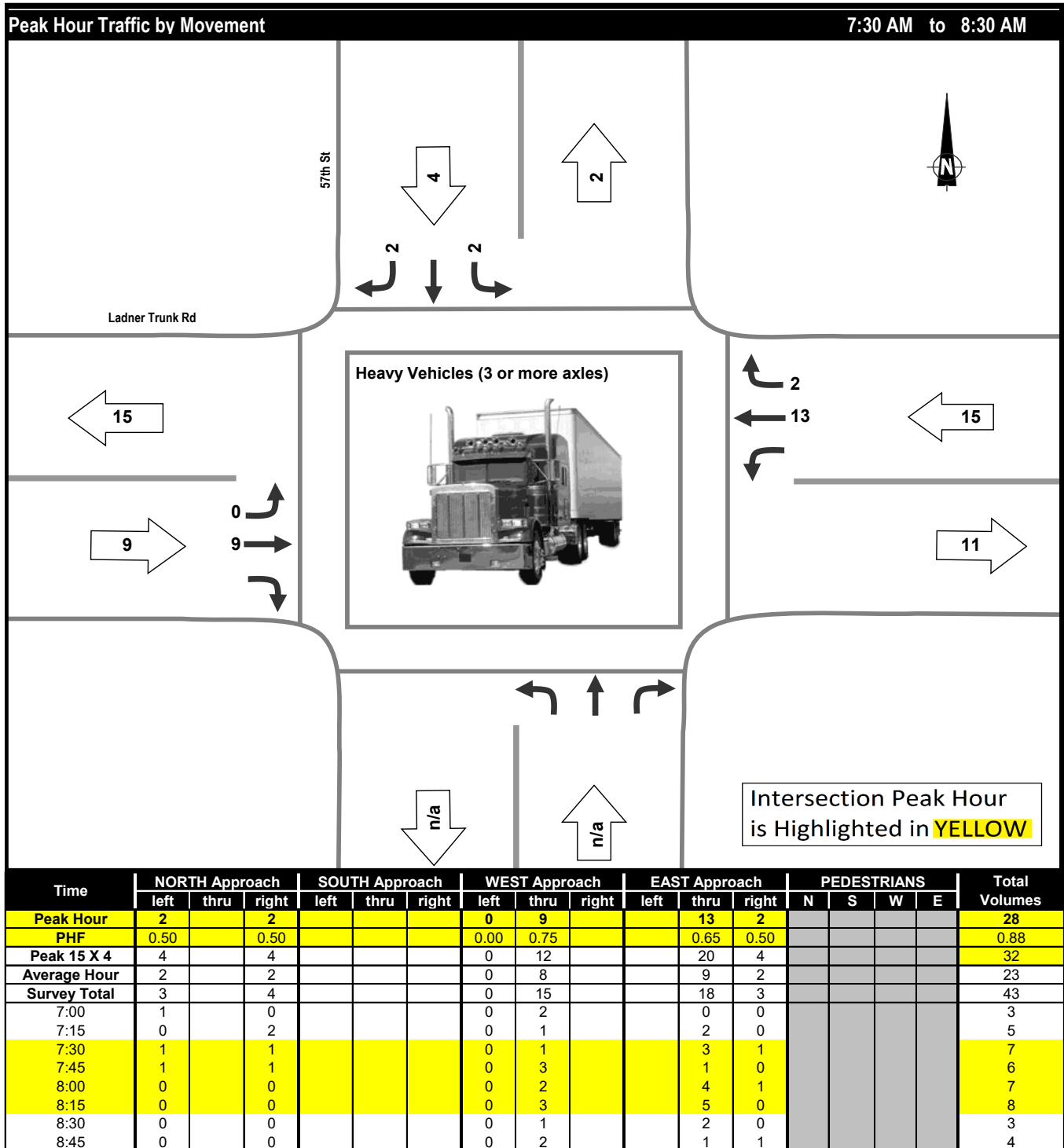
Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: Passenger Cars

Morning Peak Period


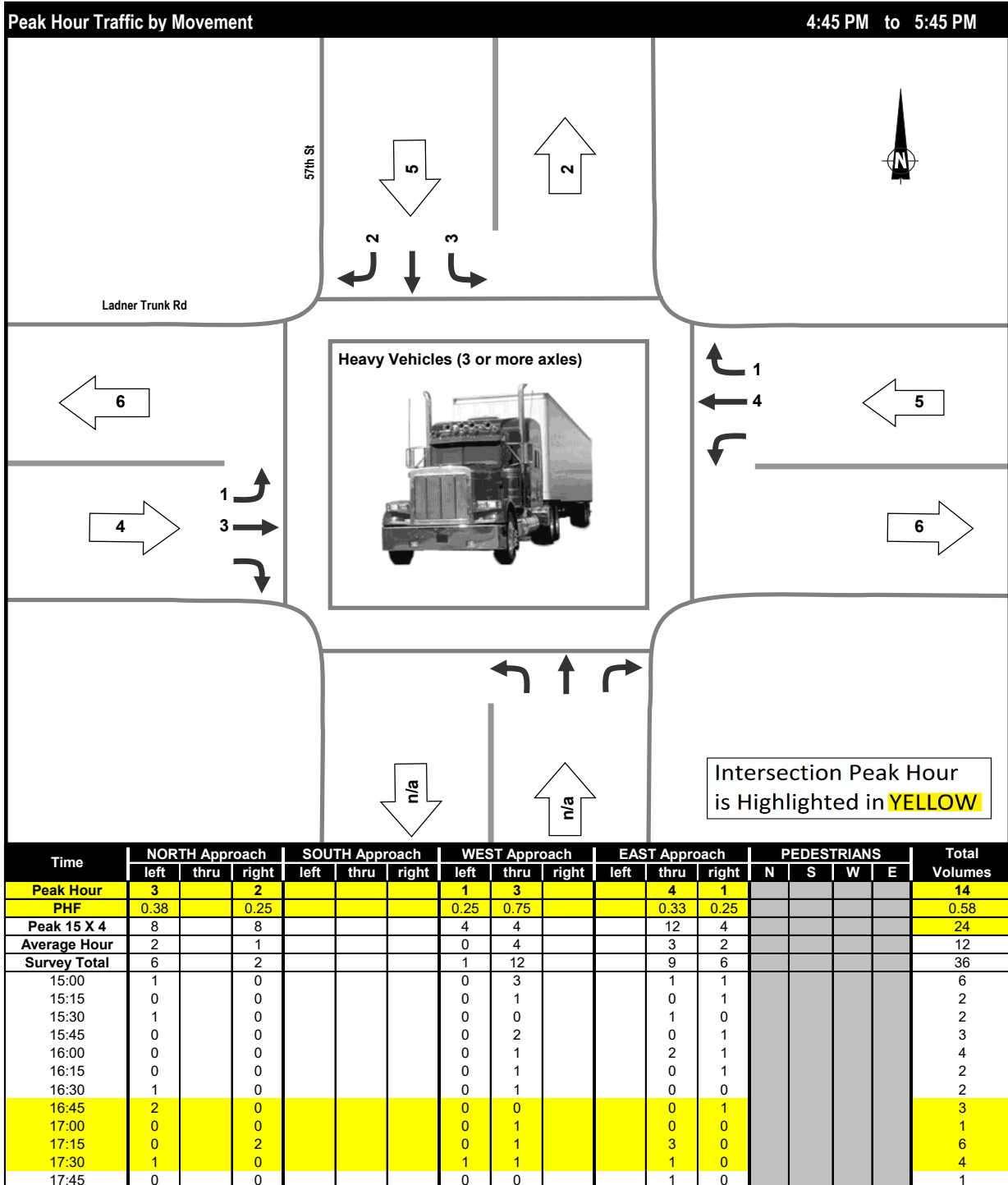
Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: Passenger Cars

Afternoon Peak Period


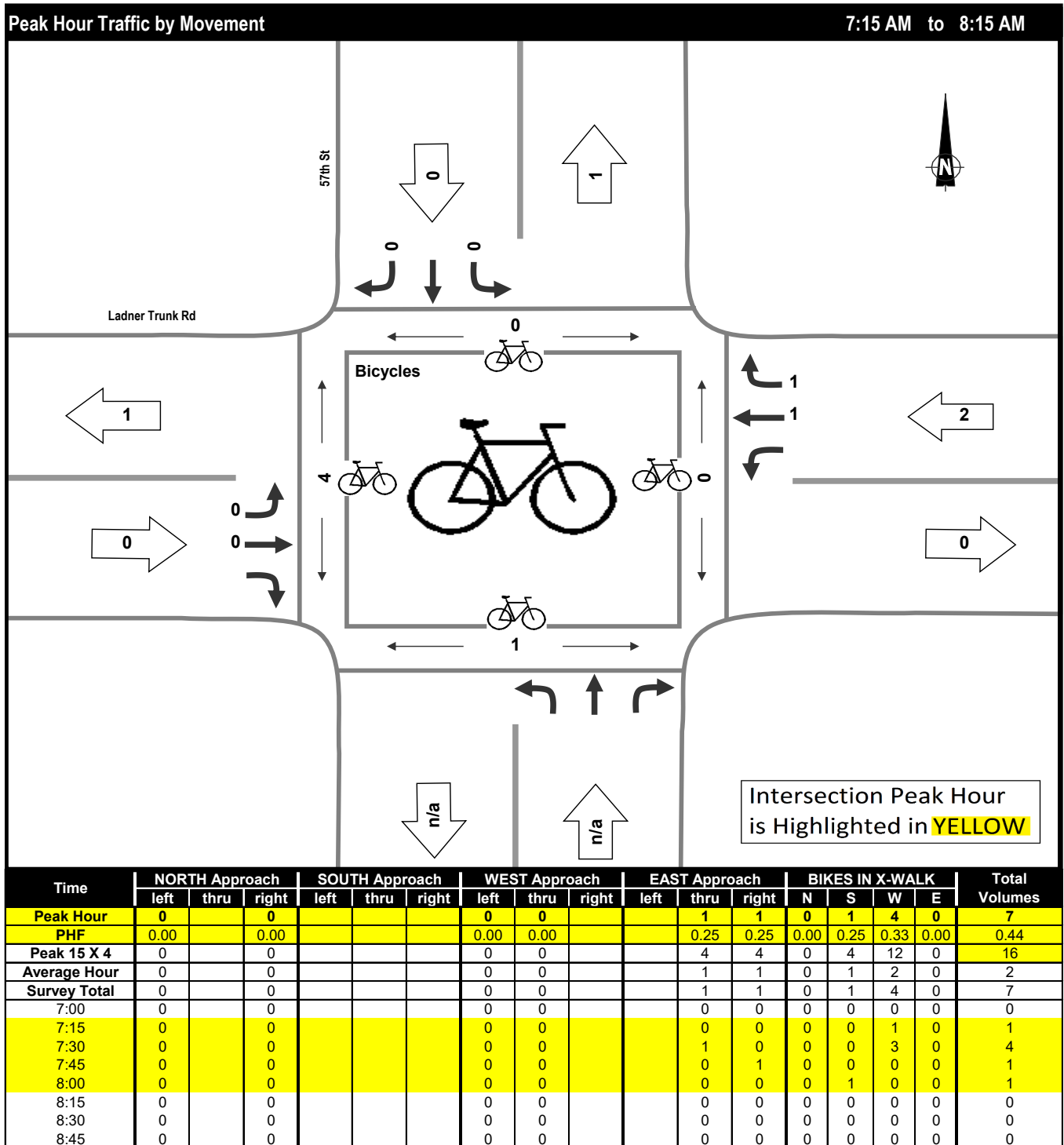
Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: Heavy Vehicles (3 or more axles)

Morning Peak Period


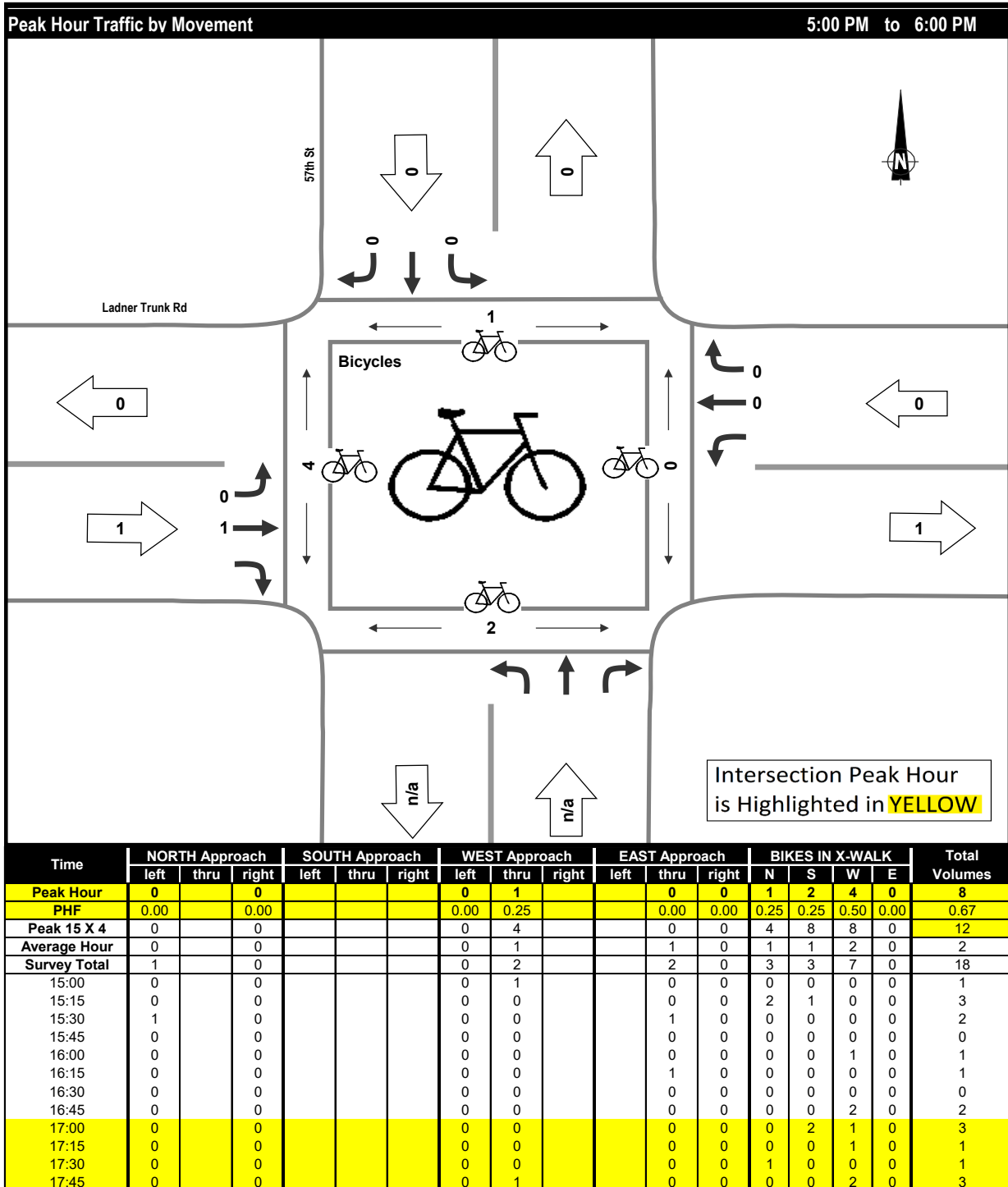
Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: Heavy Vehicles (3 or more axes)

Afternoon Peak Period


Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: Bicycles

Morning Peak Period


Project: #9055: 57 Street Multi-Family Traffic Impact Study Update
 Municipality: City of Delta
 Weather: Sunny
 Vehicle Class: Bicycles

Afternoon Peak Period


Appendix C

Signal Timing Plan

LADNER - Harvest Drive

Controller Timing Plan (MM)2-1

Plan 1



Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	WBLT	EB				WB		NB								
Min Green	7	7	5	7	5	5	5	5	5	5	5	5	5	5	5	5
BK Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	5	0	5	0	10	0	10	0	10	0	10
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	20	0	15	0	7	0	7	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	2.5	2.0	0.0	2.5	0.0	0.0	0.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max 1	25	45	35	20	35	35	35	35	35	35	35	35	35	35	35	35
Max 2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Stp	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.3	3.3	3.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	2.6	2.6	1.0	2.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACT B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC/ACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPT Duc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Plan 2 8:00 am to 9:00 am



Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	WBLT	EB				WB		NB								
Min Green	7	7	5	7	5	5	5	5	5	5	5	5	5	5	5	5
BK Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	5	0	5	0	10	0	10	0	10	0	10
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	20	0	15	0	7	0	7	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	3.0	2.0	0.0	2.5	0.0	0.0	0.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max 1	25	45	35	20	35	35	35	35	35	35	35	35	35	35	35	35
Max 2	50	40	40	30	40	40	40	40	40	40	40	40	40	40	40	40
Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Stp	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.3	3.3	3.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	2.6	2.6	1.0	2.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACT B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC/ACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPT Duc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	WBLT	EB				WB		NB								
Min Green	7	7	5	7	5	5	5	5	5	5	5	5	5	5	5	5
BK Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	5	0	5	0	10	0	10	0	10	0	10
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	20	0	15	0	7	0	7	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	2.5	2.0	0.0	2.5	0.0	0.0	0.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max 1	25	45	35	20	35	35	35	35	35	35	35	35	35	35	35	35
Max 2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Stp	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.3	3.3	3.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	2.6	2.6	1.0	2.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACT B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC/ACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPT Duc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Plan 4

Phase	WBLT	EB	3	4	5	WB	7	NB	9	10	11	12	13	14	15	16
Direction	EBLT	WB				EB		SB								
Min Green	7	7	5	7	5	5	5	5	5	5	5	5	5	5	5	5
BK Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	5	0	5	0	10	0	10	0	10	0	10
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	20	0	15	0	7	0	7	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	2.5	2.0	0.0	2.5	0.0	0.0	0.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max 1	25	45	35	20	35	35	35	35	35	35	35	35	35	35	35	35
Max 2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Stp	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.3	3.3	3.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	2.6	2.6	1.0	2.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACT B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC/ACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPT Duc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LADNER - Harvest Drive

Controller Options

Controller Options (MM)2-6-1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Green Phase	F2															
Guaranteed Passage																
Non Act 1		X				X										
Non Act 2				X				X								
Dual Entry																
Conditional Service																
Conditional Reservice																
Ped Reservice																
Rest In Walk																
Flashing Walk																
Ped Clear Yellow																
Ped Clear Red																
IGRN + Veh Ext																

Ped Clear Protect: Off

Red Revert: 2.0

MUTCD 3 Seconds Don't Walk: No

Act Pre-Time (MM)2-7

Pre-Time Mode Enable: No

Free Input Enables Pre-Timed: Yes

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed Phase																

Phase Recall Options (MM)2-8

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall		X														
Ped Recall																
Max Recall																
Soft Recall																
No Rest																
AI Calc																

Plan 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall		X														
Ped Recall																
Max Recall																
Soft Recall																
No Rest																
AI Calc																

Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall		X														
Ped Recall																
Max Recall																
Soft Recall																
No Rest																
AI Calc																

Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall		X														
Ped Recall																
Max Recall																
Soft Recall																
No Rest																
AI Calc																

LADNER - Harvest Drive

Preemptor

Preempt Plan (MM)4-1

Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Track Clear Vehicle																
Track Clear Overlap																
Enable Trailing																
Dwell Vehicle				X												
Dwell Ped																
Dwell Overlap																
Cycling Vehicle																
Cycling Ped																
Cycling Overlap																
Exit Phase																
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	No	Interlock Enable	No
Detector Lock	No	Delay	0	Inhibit	0
Override Flash	No	Duration	0	CLR > GRN	No
Term Overlap Asap	No	PC Through Yellow	No	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	Flash Exit Color	Green	Exit Option	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Preempt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	255	255	25.5	25.5
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	25.5	25.5
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	90	25.5	25.5

Preempt Active Out	On	Preempt Active Dwell	No
Other Priority Preempt	On	Non-Priority Preempt	No
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return % Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Plan 5

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Track Clear Vehicle																
Track Clear Overlap																
Enable Trailing																
Dwell Vehicle		X														
Dwell Ped																
Dwell Overlap																
Cycling Vehicle																
Cycling Ped																
Cycling Overlap																
Exit Phase																
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	No	Interlock Enable	No
Detector Lock	No	Delay	0	Inhibit	0
Override Flash	No	Duration	0	CLR > GRN	No
Term Overlap Asap	No	PC Through Yellow	No	Terminate Phase	Yes
Ped Dark	No	Track Clear Rsv	No	Dwell Flash	Off
Linked Pmt	0	Flash Exit Color	Green	Exit Option	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Preempt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	255	255	25.5	25.5
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	25.5	25.5
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	90	25.5	25.5

Preempt Active Out	On	Preempt Active Dwell	No
Other Priority Preempt	On	Non-Priority Preempt	No
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return % Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Plan 6

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Track Clear Vehicle																
Track Clear Overlap																
Enable Trailing																
Dwell Vehicle	F2															
Dwell Ped																
Dwell Overlap	X															
Cycling Vehicle																
Cycling Ped																
Cycling Overlap																
Exit Phase																
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	No	Interlock Enable	No
Detector Lock	No	Delay	0	Inhibit	0
Override Flash	No	Duration	0	CLR > GRN	No
Term Overlap Asap	No	PC Through Yellow	No	Terminate Phase	No
Ped Dark	No	Track Clear Rsv	No	Dwell Flash	Off
Linked Pmt	0	Flash Exit Color	Green	Exit Option	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Preempt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	255	255	25.5	25.5
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	25.5	25.5
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	90	25.5	25.5

Preempt Active Out	On	Preempt Active Dwell	No
Other Priority Preempt	On	Non-Priority Preempt	No
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return % Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LADNER - Harvest Drive

Time Base Day Plan/Schedule

Day Plan (MM)5-3

Day Plan - 1

Event	Action Plan	Start Time
1	1	12:00 AM
2	2	8:00 AM
3	1	9:00 AM



CITY OF DELTA

TRAFFIC SIGNAL TIMING CHANGE ORDER

1.0 IMPLEMENTATION ORDER

TO: **ELECTRICAL / MECHANICAL SUPERINTENDENT**

INTERSECTION: LTR @ 57 Street

REFERENCE FILES: G2000.8054.60010.R19145

INITIATED BY: Asiyeh Eslami DATE: October 23, 2019

AUTHORIZATION: _____

DATE: Nov 1, 2019

Steven Lan

for

Steven Lan, P.Eng.
Director of Engineering

2.0 IMPLEMENTATION RECORD

This is to certify that changes to the traffic signal timings at the above noted intersection were implemented.

TIMING CHANGES MADE BY: _____

DATE: _____ TIME: _____ ☐ CHANGES NOTED IN CABINET LOG BOOK

NOTES: _____

ELECTRICAL / MECHANICAL SUPERINTENDENT

CITY OF DELTA

SCHEDULE: A

ORDER NO: 6721

3.0 General Instructions

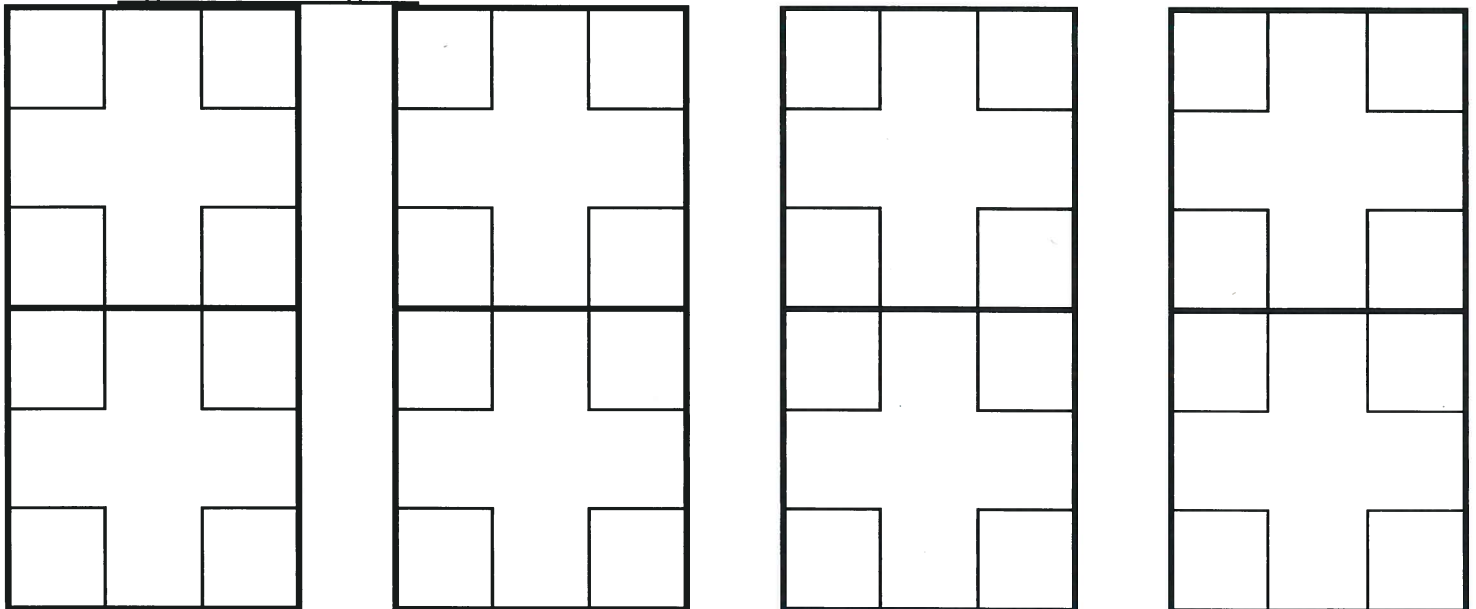
Please implement attached new signal timing plan for Ladner Trunk Road at 57 Street.
Changes are for new eastbound protected permissive left turn.

NOTE: Signal Timing change can only be implemented once Standard Electric BC has completed their construction work at this location.

3.1 Signal Timing Plan

Interval	φ1	φ2	φ3	φ4	φ5	φ6	φ7	φ8
φ Desc.								
Initial								
Passage								
Yellow								
Red								
Walk								
Clearance								
Max 1								

3.2 Signal Phase Diagram



Signal Timings
57 Street at Ladner Trunk Road, Delta

DMD project number: 6268-18
 Prepared by: Michael Ng, EIT
 Date: 19-Jul-19



DMD & Associates Ltd
 #12-17358 104A Avenue
 Surrey, British Columbia
 Canada, V4N 5M3
 Tel: 604-589-9010

PHASES IN USE

Vehicle Phase (x=yes, blank=no)
 Pedestrian Phase (x=yes, blank=no)
 Direction (NB / SB / EB / WB)

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
	x		x	x	x		
			x		x		
	EB		SB	EBL	WB		

VEHICLE CLEARANCE TIMES

(w) Cross Street Width (m)
 (v) Approach Speed (Km/h)
 (L) Assumed Vehicle Length (m)
 (t) Driver Perception Time (s)
 (a) Average Deceleration (m/s²)
 (g) Acceleration due to gravity (m/s²)
 (G) Grade of approach (%)

Yellow Interval

Red Clearance Interval

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
	25.2		30.5	25.6	23.9		
	50		50	38	50		
	6		6	6	6		
	1		1	1	1		
	3.1		3.1	3.1	3.1		
	9.81		9.81	9.81	9.81		
	0.0%		0.6%	0.0%	0.0%		
	3.3		3.3	3.0	3.3		
	2.3		2.7	3.1	2.2		

PEDESTRIAN CLEARANCE

Crosswalk Distance (m)
 Pedestrian Walking Speed (m/s)
 Ped Crossing Time (s)

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
			21.0		17.7		
			1.0		1.0		
			17.7		14.4		

ADVANCE WARNING FLASHERS

AWF in use (x=yes, blank=no)
 (D) Distance (m)
 (AW) Advance Warning Time (s)

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8

Traffic Controller Input Timings

57 Street at Ladner Trunk Road, Delta

Phase
 Direction
 MIN GRN
 WALK
 PED CLR
 VEHICLE EXTENSION
 YELLOW INTERVAL
 RED CLR INTERVAL
 RECALL
 DUAL ENTRY

1	2	3	4	5	6	7	8
	EB		SB	EBL	WB		
	10		7	6	10		
			7		7		
			18		15		
	3		3	3	3		
	3.3		3.3	3.0	3.3		
	2.3		2.7	3.1	2.3		
	X				X		

Comments:

(w) Cross Street Width - Front of stop bar to back of crosswalk line or projected curb line, whichever is greater
 Crosswalk Distance - Curb to curb
 Ped Crossing Time does include deduction of associated yellow time
 Grade of Approach - Positive for upward, negative for downward
 Left turn approach speed is typically 75% of the corresponding through movement



Version 2.0

Appendix D

Intersection Capacity Analysis

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2024 Base
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1093	75	301	612	54	327
Future Volume (vph)	1093	75	301	612	54	327
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.97	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3494	0	1770	3539	1761	1575
Flt Permitted			0.113		0.950	
Satd. Flow (perm)	3494	0	210	3539	1701	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	10					326
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		16	16		17	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1201	82	331	673	59	359
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1283	0	331	673	59	359
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	38.4		19.0	57.4	22.6	22.6
Total Split (%)	48.0%		23.8%	71.8%	28.3%	28.3%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	27.5		45.6	47.5	7.3	7.3
Actuated g/C Ratio	0.44		0.72	0.75	0.12	0.12
v/c Ratio	0.84		0.74	0.25	0.29	0.76
Control Delay	22.4		24.7	2.9	30.7	16.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	22.4		24.7	2.9	30.7	16.9
LOS	C		C	A	C	B
Approach Delay	22.4			10.1	18.8	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2024 Base
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			B		
Queue Length 50th (m)	65.6		19.4	6.8	6.9	3.8
Queue Length 95th (m)	#119.7		#71.3	22.3	17.4	28.5
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1848		483	3011	531	703
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.69		0.69	0.22	0.11	0.51

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 63

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 17.3

Intersection LOS: B

Intersection Capacity Utilization 65.4%

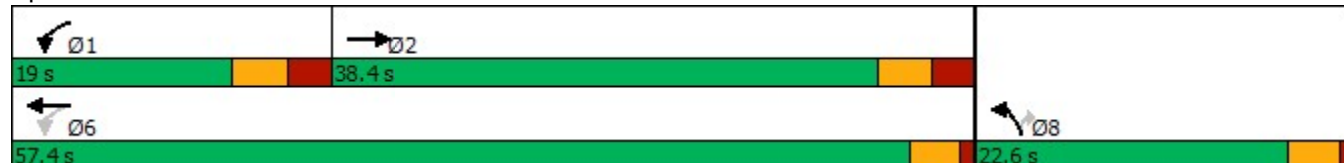
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2024 Base
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	848	104	365	909	127	376
Future Volume (vph)	848	104	365	909	127	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.94	
Frt	0.984					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3471	0	1770	3539	1761	1575
Flt Permitted			0.139		0.950	
Satd. Flow (perm)	3471	0	259	3539	1655	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	20					354
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		7	7		32	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	912	112	392	977	137	404
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1024	0	392	977	137	404
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	34.4		18.0	52.4	22.6	22.6
Total Split (%)	45.9%		24.0%	69.9%	30.1%	30.1%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	20.7		39.1	41.1	8.3	8.3
Actuated g/C Ratio	0.36		0.68	0.71	0.14	0.14
v/c Ratio	0.81		0.78	0.39	0.54	0.76
Control Delay	22.5		26.3	4.2	32.1	15.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	22.5		26.3	4.2	32.1	15.3
LOS	C		C	A	C	B
Approach Delay	22.5			10.5	19.6	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2024 Base
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			B		
Queue Length 50th (m)	48.5		22.9	14.8	14.2	4.9
Queue Length 95th (m)	86.1		#88.3	39.0	32.0	31.2
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1767		500	3018	582	757
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.58		0.78	0.32	0.24	0.53

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 57.6

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 67.3%

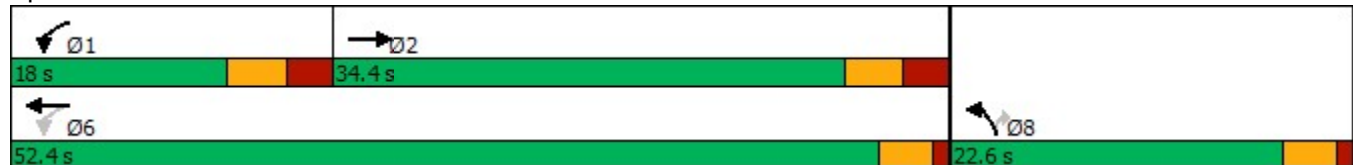
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1159	80	320	649	58	347
Future Volume (vph)	1159	80	320	649	58	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.97	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3494	0	1770	3539	1761	1575
Flt Permitted			0.104		0.950	
Satd. Flow (perm)	3494	0	194	3539	1701	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					323
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		16	16		17	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1274	88	352	713	64	381
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1362	0	352	713	64	381
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	38.4		19.0	57.4	22.6	22.6
Total Split (%)	48.0%		23.8%	71.8%	28.3%	28.3%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	30.4		49.1	51.0	8.2	8.2
Actuated g/C Ratio	0.45		0.73	0.76	0.12	0.12
v/c Ratio	0.86		0.80	0.27	0.30	0.80
Control Delay	24.4		31.6	3.2	30.9	20.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	24.4		31.6	3.2	30.9	20.0
LOS	C		C	A	C	C
Approach Delay	24.4			12.6	21.6	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

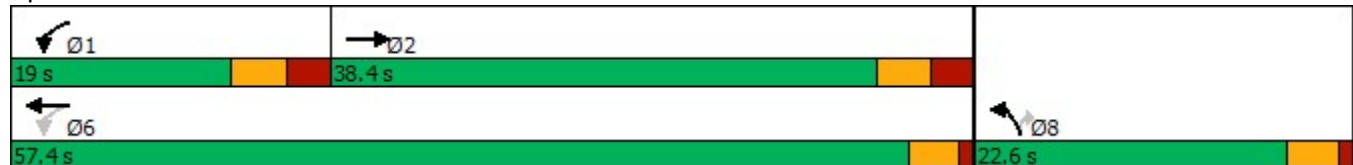
2027 Base
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			B C		
Queue Length 50th (m)	74.2		26.3	8.1	8.2	7.4
Queue Length 95th (m)	#150.4		#86.6	26.8	18.4	34.0
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1714		452	2843	492	673
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.79		0.78	0.25	0.13	0.57

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 67.3
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 19.6
 Intersection LOS: B
 Intersection Capacity Utilization 68.4%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base + Background
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1165	82	320	651	59	347
Future Volume (vph)	1165	82	320	651	59	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.97	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3494	0	1770	3539	1761	1575
Flt Permitted			0.104		0.950	
Satd. Flow (perm)	3494	0	194	3539	1701	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					323
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		16	16		17	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1280	90	352	715	65	381
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1370	0	352	715	65	381
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	38.4		19.0	57.4	22.6	22.6
Total Split (%)	48.0%		23.8%	71.8%	28.3%	28.3%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	30.7		49.3	51.2	8.2	8.2
Actuated g/C Ratio	0.45		0.73	0.76	0.12	0.12
v/c Ratio	0.86		0.81	0.27	0.31	0.80
Control Delay	24.4		31.8	3.2	31.1	20.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	24.4		31.8	3.2	31.1	20.1
LOS	C		C	A	C	C
Approach Delay	24.4			12.6	21.7	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base + Background
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			B		C
Queue Length 50th (m)	75.1		26.3	8.1	8.3	7.4
Queue Length 95th (m)	#151.8		#86.6	26.9	18.8	34.0
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1706		450	2830	490	671
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.80		0.78	0.25	0.13	0.57

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 67.5

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 19.6

Intersection LOS: B

Intersection Capacity Utilization 68.7%

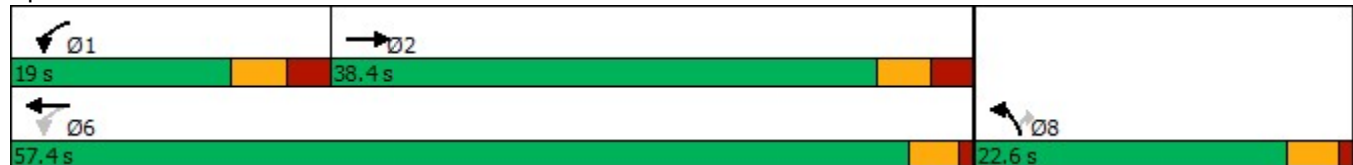
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base + Background + Site
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1177	86	320	654	60	347
Future Volume (vph)	1177	86	320	654	60	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.97	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3493	0	1770	3539	1761	1575
Flt Permitted			0.102		0.950	
Satd. Flow (perm)	3493	0	190	3539	1701	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					322
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		16	16		17	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1293	95	352	719	66	381
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1388	0	352	719	66	381
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	38.4		19.0	57.4	22.6	22.6
Total Split (%)	48.0%		23.8%	71.8%	28.3%	28.3%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	31.3		49.9	51.8	8.2	8.2
Actuated g/C Ratio	0.46		0.73	0.76	0.12	0.12
v/c Ratio	0.86		0.81	0.27	0.31	0.81
Control Delay	24.6		32.9	3.2	31.3	20.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	24.6		32.9	3.2	31.3	20.3
LOS	C		C	A	C	C
Approach Delay	24.6			13.0	21.9	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base + Background + Site
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			B		
Queue Length 50th (m)	76.5		26.7	8.3	8.5	7.5
Queue Length 95th (m)	#155.6		#87.1	27.1	18.9	34.1
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1688		445	2800	485	667
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.82		0.79	0.26	0.14	0.57

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 68.1

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 19.9

Intersection LOS: B

Intersection Capacity Utilization 69.2%

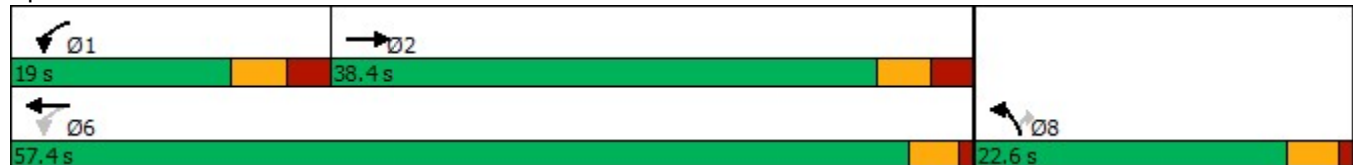
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	899	111	387	964	135	399
Future Volume (vph)	899	111	387	964	135	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.94	
Frt	0.984					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3471	0	1770	3539	1761	1575
Flt Permitted			0.131		0.950	
Satd. Flow (perm)	3471	0	244	3539	1655	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	20					349
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		7	7		32	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	967	119	416	1037	145	429
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1086	0	416	1037	145	429
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	34.4		18.0	52.4	22.6	22.6
Total Split (%)	45.9%		24.0%	69.9%	30.1%	30.1%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	22.5		41.0	42.9	9.3	9.3
Actuated g/C Ratio	0.37		0.68	0.71	0.15	0.15
v/c Ratio	0.83		0.87	0.41	0.54	0.80
Control Delay	24.0		36.7	4.7	32.0	18.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	24.0		36.7	4.7	32.0	18.2
LOS	C		D	A	C	B
Approach Delay	24.0			13.9	21.7	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			B		C
Queue Length 50th (m)	54.0		28.7	17.0	15.8	8.4
Queue Length 95th (m)	98.7		#104.3	47.3	33.3	37.8
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1690		479	2902	556	736
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.64		0.87	0.36	0.26	0.58

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 60.4

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 18.8

Intersection LOS: B

Intersection Capacity Utilization 70.6%

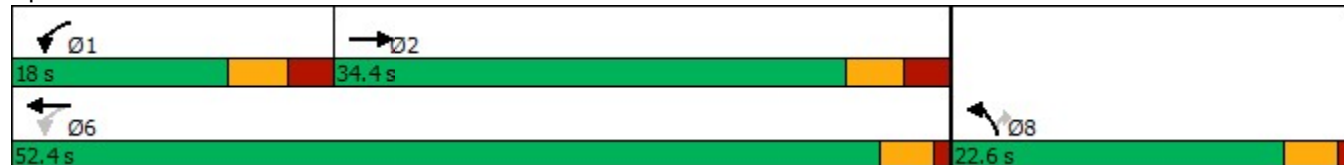
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base + Background
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	903	112	387	969	138	399
Future Volume (vph)	903	112	387	969	138	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.94	
Frt	0.984					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3471	0	1770	3539	1761	1575
Flt Permitted			0.130		0.950	
Satd. Flow (perm)	3471	0	242	3539	1655	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	20					348
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		7	7		32	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	971	120	416	1042	148	429
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1091	0	416	1042	148	429
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	34.4		18.0	52.4	22.6	22.6
Total Split (%)	45.9%		24.0%	69.9%	30.1%	30.1%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	22.7		41.1	43.1	9.3	9.3
Actuated g/C Ratio	0.37		0.68	0.71	0.15	0.15
v/c Ratio	0.83		0.87	0.41	0.55	0.80
Control Delay	24.0		37.3	4.7	32.3	18.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	24.0		37.3	4.7	32.3	18.3
LOS	C		D	A	C	B
Approach Delay	24.0			14.0	21.9	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base + Background
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			B		C
Queue Length 50th (m)	54.4		29.1	17.2	16.2	8.6
Queue Length 95th (m)	99.3		#104.6	47.7	33.9	37.9
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1684		477	2893	554	734
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.65		0.87	0.36	0.27	0.58

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 60.6

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 19.0

Intersection LOS: B

Intersection Capacity Utilization 70.9%

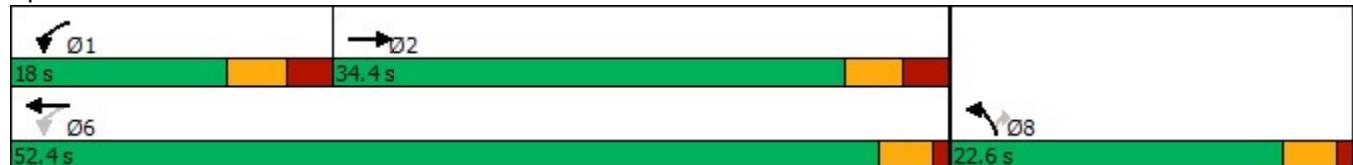
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base + Background + Site
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	909	114	387	977	142	399
Future Volume (vph)	909	114	387	977	142	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.94	
Frt	0.983					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3468	0	1770	3539	1761	1575
Flt Permitted			0.129		0.950	
Satd. Flow (perm)	3468	0	240	3539	1655	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	21					348
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		7	7		32	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	977	123	416	1051	153	429
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1100	0	416	1051	153	429
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	34.4		18.0	52.4	22.6	22.6
Total Split (%)	45.9%		24.0%	69.9%	30.1%	30.1%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	22.9		41.4	43.3	9.4	9.4
Actuated g/C Ratio	0.38		0.68	0.71	0.15	0.15
v/c Ratio	0.83		0.88	0.42	0.56	0.80
Control Delay	24.2		38.2	4.8	33.0	18.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	24.2		38.2	4.8	33.0	18.2
LOS	C		D	A	C	B
Approach Delay	24.2			14.2	22.1	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2027 Base + Background + Site
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			B		C
Queue Length 50th (m)	55.4		29.7	17.8	16.9	8.6
Queue Length 95th (m)	100.3		#104.9	48.3	35.0	37.9
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1673		474	2878	550	732
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.66		0.88	0.37	0.28	0.59

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 60.9

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 19.2

Intersection LOS: B

Intersection Capacity Utilization 71.3%

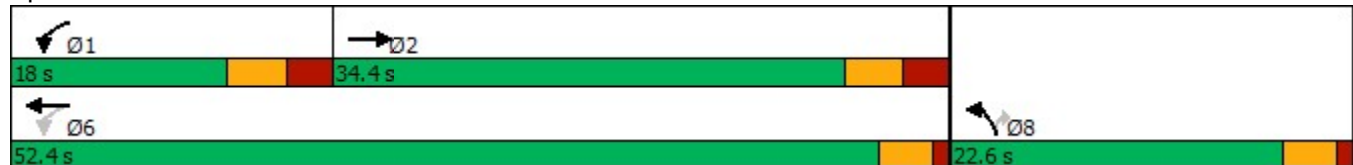
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2032 Base
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1268	87	350	710	63	380
Future Volume (vph)	1268	87	350	710	63	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.97	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3494	0	1770	3539	1761	1575
Flt Permitted			0.099		0.950	
Satd. Flow (perm)	3494	0	184	3539	1701	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					320
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		16	16		17	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1393	96	385	780	69	418
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1489	0	385	780	69	418
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	38.4		19.0	57.4	22.6	22.6
Total Split (%)	48.0%		23.8%	71.8%	28.3%	28.3%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	32.7		51.8	53.7	9.6	9.6
Actuated g/C Ratio	0.46		0.73	0.75	0.13	0.13
v/c Ratio	0.93		0.90	0.29	0.29	0.86
Control Delay	31.3		45.8	3.7	30.0	25.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	31.3		45.8	3.7	30.0	25.5
LOS	C		D	A	C	C
Approach Delay	31.3			17.6	26.1	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2032 Base
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			B		C
Queue Length 50th (m)	93.3		35.1	11.8	8.9	12.9
Queue Length 95th (m)	#180.6		#105.0	32.6	19.5	43.9
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1606		426	2665	462	649
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.93		0.90	0.29	0.15	0.64

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 71.3

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 25.4

Intersection LOS: C

Intersection Capacity Utilization 73.3%

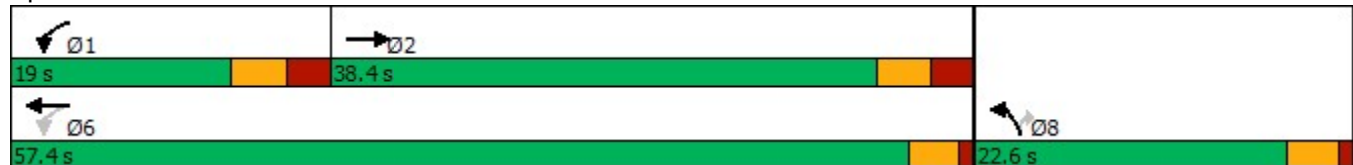
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2032 Base + Background + Site
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1286	93	350	715	65	380
Future Volume (vph)	1286	93	350	715	65	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.97	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3494	0	1770	3539	1761	1575
Flt Permitted			0.099		0.950	
Satd. Flow (perm)	3494	0	184	3539	1701	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					319
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		16	16		17	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1413	102	385	786	71	418
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1515	0	385	786	71	418
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	38.4		19.0	57.4	22.6	22.6
Total Split (%)	48.0%		23.8%	71.8%	28.3%	28.3%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	32.7		51.8	53.7	9.6	9.6
Actuated g/C Ratio	0.46		0.73	0.75	0.13	0.13
v/c Ratio	0.94		0.90	0.29	0.30	0.86
Control Delay	33.4		45.8	3.7	30.2	25.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	33.4		45.8	3.7	30.2	25.7
LOS	C		D	A	C	C
Approach Delay	33.4			17.6	26.3	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2032 Base + Background + Site
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			B	C	
Queue Length 50th (m)	96.3		35.1	11.8	9.1	13.0
Queue Length 95th (m)	#185.5		#105.0	32.9	19.9	44.2
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1606		426	2665	462	648
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.94		0.90	0.29	0.15	0.65

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 71.3

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 26.5

Intersection LOS: C

Intersection Capacity Utilization 74.1%

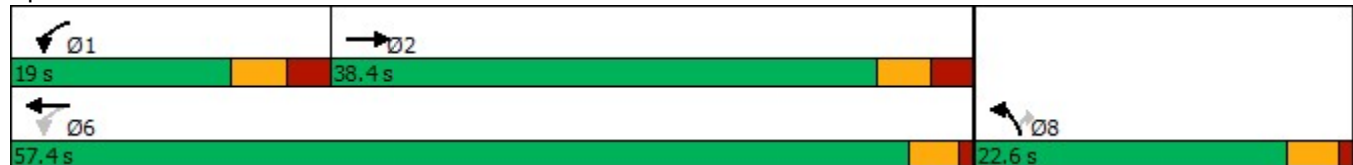
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2032 Base
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	984	121	424	1055	148	437
Future Volume (vph)	984	121	424	1055	148	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.94	
Frt	0.984					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3471	0	1770	3539	1761	1575
Flt Permitted			0.122		0.950	
Satd. Flow (perm)	3471	0	227	3539	1655	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	20					342
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		7	7		32	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1058	130	456	1134	159	470
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1188	0	456	1134	159	470
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	34.4		18.0	52.4	22.6	22.6
Total Split (%)	45.9%		24.0%	69.9%	30.1%	30.1%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	24.9		43.3	45.3	10.5	10.5
Actuated g/C Ratio	0.39		0.68	0.71	0.16	0.16
v/c Ratio	0.87		1.01	0.45	0.55	0.86
Control Delay	26.9		66.3	5.4	32.4	25.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	26.9		66.3	5.4	32.4	25.0
LOS	C		E	A	C	C
Approach Delay	26.9			22.8	26.9	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

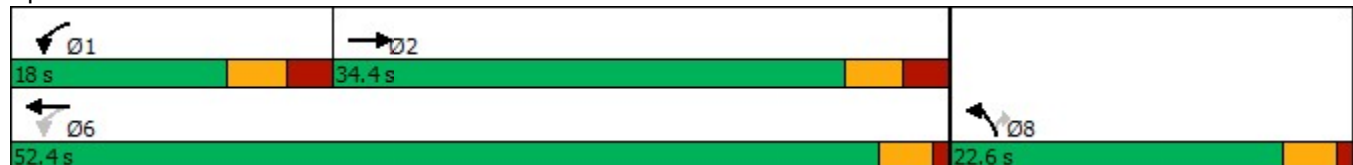
2032 Base
Timing Plan: PM Peak Hr

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			C	C	
Queue Length 50th (m)	65.4		~43.7	22.8	19.2	15.4
Queue Length 95th (m)	#125.2		#121.9	53.7	36.2	49.8
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1591		452	2736	523	708
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.75		1.01	0.41	0.30	0.66

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 63.9
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 25.0 Intersection LOS: C
 Intersection Capacity Utilization 76.0% ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2032 Base + Background + Site
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	994	124	424	1068	155	437
Future Volume (vph)	994	124	424	1068	155	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.94	
Frt	0.983					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3468	0	1770	3539	1761	1575
Flt Permitted			0.120		0.950	
Satd. Flow (perm)	3468	0	223	3539	1655	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	21					341
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		7	7		32	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1069	133	456	1148	167	470
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1202	0	456	1148	167	470
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	34.4		18.0	52.4	22.6	22.6
Total Split (%)	45.9%		24.0%	69.9%	30.1%	30.1%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	25.4		43.7	45.7	10.6	10.6
Actuated g/C Ratio	0.39		0.68	0.71	0.16	0.16
v/c Ratio	0.87		1.02	0.46	0.58	0.87
Control Delay	27.1		69.6	5.4	33.4	25.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	27.1		69.6	5.4	33.4	25.2
LOS	C		E	A	C	C
Approach Delay	27.1			23.7	27.3	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2032 Base + Background + Site
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			C	C	
Queue Length 50th (m)	66.8		~48.4	23.5	20.6	15.7
Queue Length 95th (m)	#127.5		#122.5	54.6	37.8	50.1
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1574		447	2709	518	704
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.76		1.02	0.42	0.32	0.67

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 64.4

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 25.5

Intersection LOS: C

Intersection Capacity Utilization 76.8%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1378	95	380	772	69	413
Future Volume (vph)	1378	95	380	772	69	413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.97	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3494	0	1770	3539	1761	1575
Flt Permitted			0.099		0.950	
Satd. Flow (perm)	3494	0	184	3539	1701	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					317
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		16	16		17	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1514	104	418	848	76	454
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1618	0	418	848	76	454
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	38.4		19.0	57.4	22.6	22.6
Total Split (%)	48.0%		23.8%	71.8%	28.3%	28.3%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	32.7		51.8	53.7	11.1	11.1
Actuated g/C Ratio	0.45		0.71	0.74	0.15	0.15
v/c Ratio	1.03		1.00	0.33	0.28	0.89
Control Delay	53.2		67.9	4.4	29.0	30.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	53.2		67.9	4.4	29.0	30.7
LOS	D		E	A	C	C
Approach Delay	53.2			25.3	30.5	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

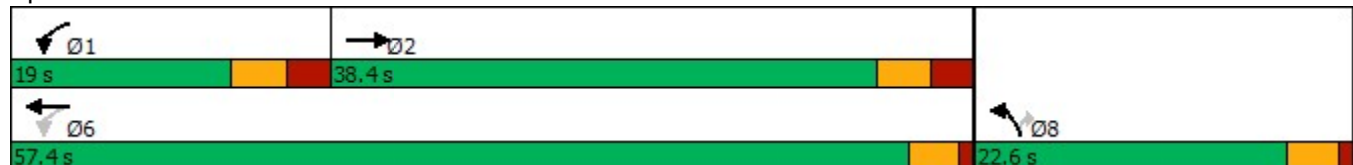
2037 Base
Timing Plan: AM Peak Hr

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	D			C	C	
Queue Length 50th (m)	~125.7		~44.4	17.0	9.8	18.5
Queue Length 95th (m)	#204.7		#118.2	36.1	20.9	#57.7
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)	18.0					
Base Capacity (vph)	1573		417	2609	452	640
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	1.03		1.00	0.33	0.17	0.71

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 72.8
 Natural Cycle: 100
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 39.3
 Intersection LOS: D
 Intersection Capacity Utilization 78.3%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base + Background + Site
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1396	101	380	777	71	413
Future Volume (vph)	1396	101	380	777	71	413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.95	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3492	0	1770	3539	1761	1575
Flt Permitted			0.068		0.950	
Satd. Flow (perm)	3492	0	127	3539	1678	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	9					336
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		16	16		17	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1534	111	418	854	78	454
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1645	0	418	854	78	454
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	58.4		28.4	86.8	23.2	23.2
Total Split (%)	53.1%		25.8%	78.9%	21.1%	21.1%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	51.1		79.6	81.5	12.7	12.7
Actuated g/C Ratio	0.50		0.78	0.80	0.12	0.12
v/c Ratio	0.94		0.91	0.30	0.36	0.93
Control Delay	36.8		55.2	3.6	45.4	38.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	36.8		55.2	3.6	45.4	38.8
LOS	D		E	A	D	D
Approach Delay	36.8			20.5	39.8	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base + Background + Site
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	D			C		
Queue Length 50th (m)	167.1		71.2	20.9	15.4	25.0
Queue Length 95th (m)	#245.2		#142.1	35.3	29.8	#80.5
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1810		463	2886	332	570
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.91		0.90	0.30	0.23	0.80

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 102.3

Natural Cycle: 110

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 31.3

Intersection LOS: C

Intersection Capacity Utilization 79.1%

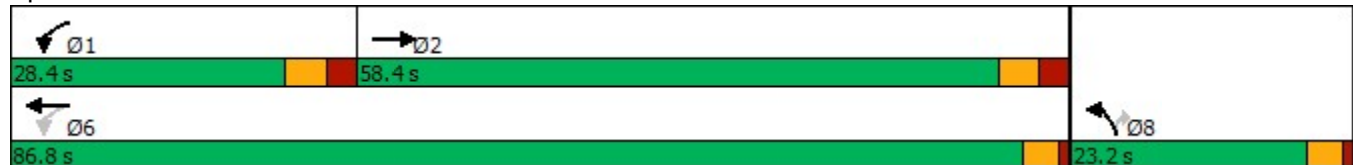
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base + Background + Site
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1396	101	380	777	71	413
Future Volume (vph)	1396	101	380	777	71	413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.97	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3494	0	1770	3539	1761	1575
Flt Permitted			0.099		0.950	
Satd. Flow (perm)	3494	0	184	3539	1701	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					317
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		16	16		17	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1534	111	418	854	78	454
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1645	0	418	854	78	454
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	38.4		19.0	57.4	22.6	22.6
Total Split (%)	48.0%		23.8%	71.8%	28.3%	28.3%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	32.7		51.8	53.7	11.1	11.1
Actuated g/C Ratio	0.45		0.71	0.74	0.15	0.15
v/c Ratio	1.05		1.00	0.33	0.29	0.89
Control Delay	58.5		67.9	4.4	29.2	30.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	58.5		67.9	4.4	29.2	30.7
LOS	E		E	A	C	C
Approach Delay	58.5			25.2	30.5	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base + Background + Site
Timing Plan: AM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	E			C	C	
Queue Length 50th (m)	~137.1		~44.4	17.1	10.1	18.5
Queue Length 95th (m)	#209.8		#118.2	36.4	21.4	#57.7
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1573		417	2609	452	640
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	1.05		1.00	0.33	0.17	0.71

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 72.8

Natural Cycle: 110

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 41.9

Intersection LOS: D

Intersection Capacity Utilization 79.1%

ICU Level of Service D

Analysis Period (min) 15

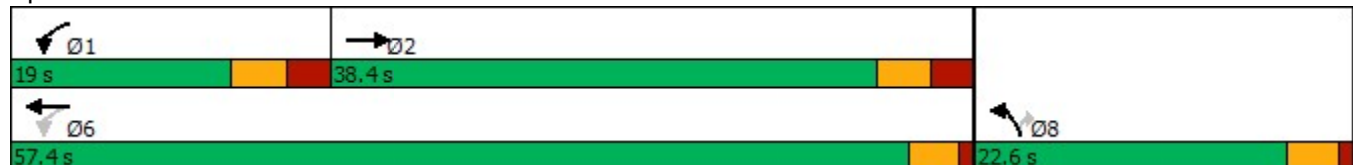
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1069	132	460	1146	161	474
Future Volume (vph)	1069	132	460	1146	161	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.94	
Frt	0.984					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3471	0	1770	3539	1761	1575
Flt Permitted			0.112		0.950	
Satd. Flow (perm)	3471	0	209	3539	1655	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	20					337
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		7	7		32	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1149	142	495	1232	173	510
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1291	0	495	1232	173	510
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	34.4		18.0	52.4	22.6	22.6
Total Split (%)	45.9%		24.0%	69.9%	30.1%	30.1%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	27.7		45.9	47.8	12.4	12.4
Actuated g/C Ratio	0.41		0.67	0.70	0.18	0.18
v/c Ratio	0.91		1.18	0.50	0.54	0.91
Control Delay	31.5		125.3	6.4	31.6	31.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	31.5		125.3	6.4	31.6	31.7
LOS	C		F	A	C	C
Approach Delay	31.5			40.5	31.6	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			D		
Queue Length 50th (m)	83.3		~69.7	34.1	21.5	22.1
Queue Length 95th (m)	#143.4		#139.2	60.5	39.0	#74.4
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1476		420	2535	484	678
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.87		1.18	0.49	0.36	0.75

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 68.3

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.18

Intersection Signal Delay: 35.7

Intersection LOS: D

Intersection Capacity Utilization 81.4%

ICU Level of Service D

Analysis Period (min) 15

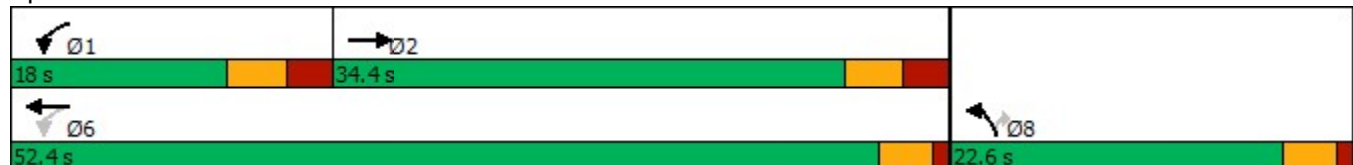
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base + Background + Site
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1079	135	460	1159	168	474
Future Volume (vph)	1079	135	460	1159	168	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.93	
Frt	0.983					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3467	0	1770	3539	1761	1575
Flt Permitted			0.096		0.950	
Satd. Flow (perm)	3467	0	179	3539	1634	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	17					426
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		7	7		32	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1160	145	495	1246	181	510
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1305	0	495	1246	181	510
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	40.2		27.0	67.2	22.8	22.8
Total Split (%)	44.7%		30.0%	74.7%	25.3%	25.3%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	33.7		60.8	62.7	11.7	11.7
Actuated g/C Ratio	0.41		0.74	0.76	0.14	0.14
v/c Ratio	0.92		0.91	0.46	0.73	0.87
Control Delay	35.1		46.4	4.8	50.8	23.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	35.1		46.4	4.8	50.8	23.1
LOS	D		D	A	D	C
Approach Delay	35.1			16.7	30.4	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base + Background + Site
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	D			B C		
Queue Length 50th (m)	101.2		62.2	29.5	29.2	12.9
Queue Length 95th (m)	#170.2		#140.5	60.0	50.1	#53.9
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1460		541	2727	403	689
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.89		0.91	0.46	0.45	0.74

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82.4

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 25.6

Intersection LOS: C

Intersection Capacity Utilization 82.2%

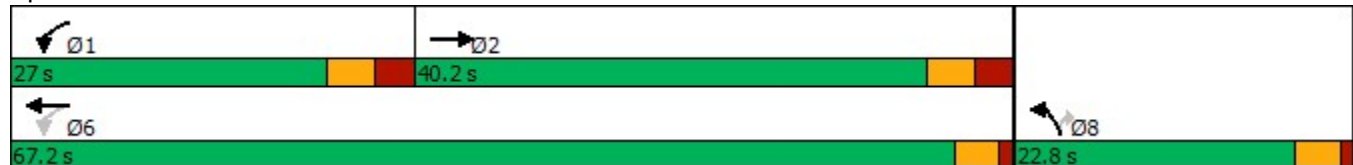
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base + Background + Site
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	1079	135	460	1159	168	474
Future Volume (vph)	1079	135	460	1159	168	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	1%	
Storage Length (m)		0.0	18.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			30.2		30.2	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00				0.94	
Frt	0.983					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3468	0	1770	3539	1761	1575
Flt Permitted			0.111		0.950	
Satd. Flow (perm)	3468	0	207	3539	1655	1575
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	21					336
Link Speed (k/h)	50			50	50	
Link Distance (m)	151.9			415.6	223.0	
Travel Time (s)	10.9			29.9	16.1	
Confl. Peds. (#/hr)		7	7		32	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1160	145	495	1246	181	510
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1305	0	495	1246	181	510
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	5.0	5.0	5.0
Minimum Split (s)	32.9		12.9	22.5	22.5	22.5
Total Split (s)	34.4		18.0	52.4	22.6	22.6
Total Split (%)	45.9%		24.0%	69.9%	30.1%	30.1%
Yellow Time (s)	3.3		3.3	3.0	3.0	3.0
All-Red Time (s)	2.6		2.6	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9		5.9	4.0	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	None	None	None
Act Effct Green (s)	28.1		46.3	48.2	12.4	12.4
Actuated g/C Ratio	0.41		0.67	0.70	0.18	0.18
v/c Ratio	0.91		1.19	0.50	0.57	0.91
Control Delay	31.8		128.7	6.4	32.5	31.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	31.8		128.7	6.4	32.5	31.9
LOS	C		F	A	C	C
Approach Delay	31.8			41.2	32.0	

Lanes, Volumes, Timings
3: Harvest Drive & Ladner Trunk Rd

2037 Base + Background + Site
Timing Plan: PM Peak Hr

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	C			D		
Queue Length 50th (m)	85.0		~70.2	34.8	22.6	22.2
Queue Length 95th (m)	#146.0		#139.5	61.4	40.7	#74.6
Internal Link Dist (m)	127.9			391.6	199.0	
Turn Bay Length (m)			18.0			
Base Capacity (vph)	1463		417	2515	480	674
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.89		1.19	0.50	0.38	0.76

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 68.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 36.2

Intersection LOS: D

Intersection Capacity Utilization 82.2%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

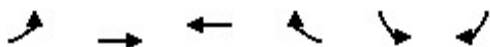
Queue shown is maximum after two cycles.

Splits and Phases: 3: Harvest Drive & Ladner Trunk Rd



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

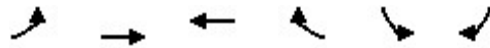
2024 Base
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	53	716	570	131	487	100
Future Volume (vph)	53	716	570	131	487	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		0.99			0.97
Frt			0.972			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3419	0	1778	1591
Flt Permitted	0.176				0.950	
Satd. Flow (perm)	325	3522	3419	0	1778	1544
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			38			38
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	6			6		18
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	58	787	626	144	535	110
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	787	770	0	535	110
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	12.1	51.0	38.9		34.0	34.0
Total Split (%)	14.2%	60.0%	45.8%		40.0%	40.0%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	26.7	27.3	21.1		25.3	25.3
Actuated g/C Ratio	0.41	0.42	0.32		0.39	0.39
v/c Ratio	0.21	0.53	0.68		0.77	0.18
Control Delay	12.9	15.0	22.6		29.6	12.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	12.9	15.0	22.6		29.6	12.4
LOS	B	B	C		C	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2024 Base
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		14.9	22.6		26.6	
Approach LOS		B	C		C	
Queue Length 50th (m)	4.6	39.7	50.1		66.5	6.6
Queue Length 95th (m)	10.5	53.7	69.1		#137.3	19.2
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	275	2535	1890		819	731
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.21	0.31	0.41		0.65	0.15

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 65

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 20.9

Intersection LOS: C

Intersection Capacity Utilization 66.8%

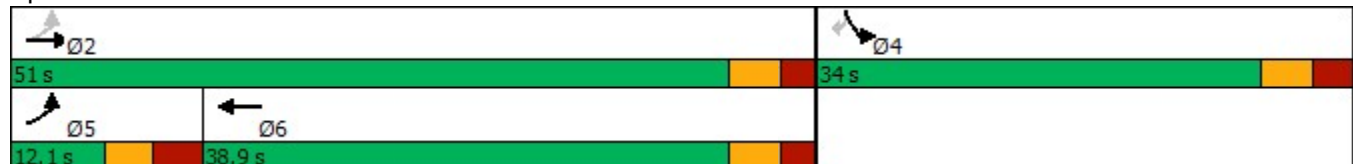
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

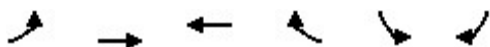
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

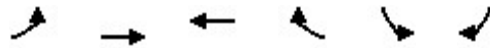
2024 Base
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	118	705	711	274	269	92
Future Volume (vph)	118	705	711	274	269	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			0.99			0.97
Frt			0.958			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3349	0	1778	1591
Flt Permitted	0.122				0.950	
Satd. Flow (perm)	226	3522	3349	0	1778	1539
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			81			60
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	12			12		21
Confl. Bikes (#/hr)				2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	127	758	765	295	289	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	127	758	1060	0	289	99
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	13.0	54.0	41.0		31.0	31.0
Total Split (%)	15.3%	63.5%	48.2%		36.5%	36.5%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	35.8	36.4	26.8		16.8	16.8
Actuated g/C Ratio	0.54	0.55	0.41		0.26	0.26
v/c Ratio	0.43	0.39	0.75		0.64	0.23
Control Delay	12.4	9.0	20.4		31.0	12.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	12.4	9.0	20.4		31.0	12.2
LOS	B	A	C		C	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2024 Base
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		9.5	20.4		26.2	
Approach LOS		A	C		C	
Queue Length 50th (m)	6.9	25.0	58.0		34.7	4.0
Queue Length 95th (m)	17.7	46.4	96.5		66.9	16.3
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	297	2612	1983		730	668
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.43	0.29	0.53		0.40	0.15

Intersection Summary

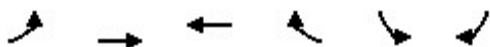
Area Type:	Other
Cycle Length: 85	
Actuated Cycle Length: 65.7	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 17.2	Intersection LOS: B
Intersection Capacity Utilization 67.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Ladner Trunk Rd & 57 St

54 s	31 s
13 s	41 s

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

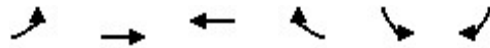
2027 Base
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	57	759	605	139	517	106
Future Volume (vph)	57	759	605	139	517	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		0.99			0.97
Frt			0.972			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3419	0	1778	1591
Flt Permitted	0.155				0.950	
Satd. Flow (perm)	287	3522	3419	0	1778	1544
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			38			38
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	6			6		18
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	63	834	665	153	568	116
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	834	818	0	568	116
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	12.1	51.0	38.9		34.0	34.0
Total Split (%)	14.2%	60.0%	45.8%		40.0%	40.0%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	28.2	28.7	22.4		27.2	27.2
Actuated g/C Ratio	0.41	0.42	0.33		0.40	0.40
v/c Ratio	0.25	0.56	0.71		0.80	0.18
Control Delay	13.4	15.7	23.6		31.9	13.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	13.4	15.7	23.6		31.9	13.2
LOS	B	B	C		C	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2027 Base
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		15.6	23.6		28.7	
Approach LOS		B	C		C	
Queue Length 50th (m)	5.0	42.9	54.4		74.9	7.4
Queue Length 95th (m)	11.0	57.4	74.0		#154.4	20.9
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	254	2450	1763		762	684
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.25	0.34	0.46		0.75	0.17

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 68.1

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 22.1

Intersection LOS: C

Intersection Capacity Utilization 69.7%

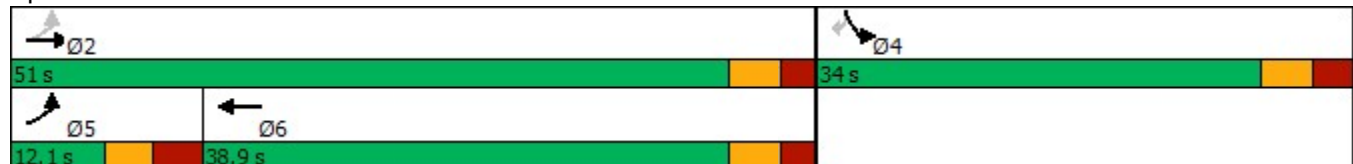
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

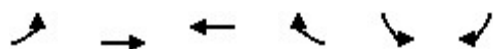
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

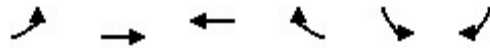
2027 Base + Background
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	58	759	605	142	525	109
Future Volume (vph)	58	759	605	142	525	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		0.99			0.97
Frt			0.971			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3415	0	1778	1591
Flt Permitted	0.151				0.950	
Satd. Flow (perm)	279	3522	3415	0	1778	1544
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			39			39
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	6			6		18
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	64	834	665	156	577	120
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	834	821	0	577	120
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	12.1	51.0	38.9		34.0	34.0
Total Split (%)	14.2%	60.0%	45.8%		40.0%	40.0%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	28.3	28.8	22.4		27.8	27.8
Actuated g/C Ratio	0.41	0.42	0.33		0.40	0.40
v/c Ratio	0.26	0.56	0.72		0.80	0.19
Control Delay	13.6	15.9	23.9		32.1	13.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	13.6	15.9	23.9		32.1	13.2
LOS	B	B	C		C	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2027 Base + Background
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		15.7	23.9		28.8	
Approach LOS		B	C		C	
Queue Length 50th (m)	5.0	42.9	54.6		77.0	7.7
Queue Length 95th (m)	11.2	57.4	74.3		#158.2	21.5
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	249	2413	1736		751	675
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.26	0.35	0.47		0.77	0.18

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 68.7

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 22.3

Intersection LOS: C

Intersection Capacity Utilization 70.2%

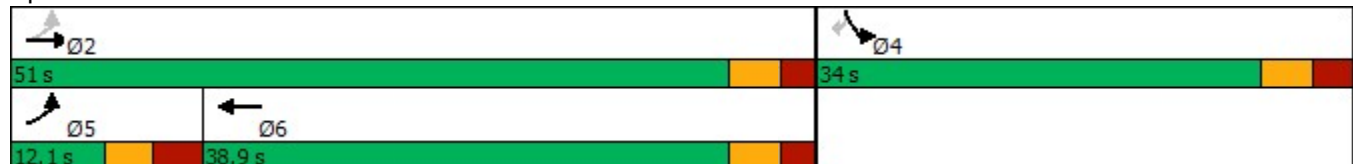
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

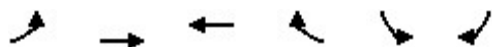
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

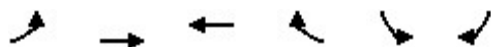
2027 Base + Background + Site
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	60	759	605	146	541	114
Future Volume (vph)	60	759	605	146	541	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		0.99			0.97
Frt			0.971			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3415	0	1778	1591
Flt Permitted	0.142				0.950	
Satd. Flow (perm)	263	3522	3415	0	1778	1544
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			41			39
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	6			6		18
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	66	834	665	160	595	125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	66	834	825	0	595	125
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	12.1	51.0	38.9		34.0	34.0
Total Split (%)	14.2%	60.0%	45.8%		40.0%	40.0%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	31.1	31.6	22.5		28.7	28.7
Actuated g/C Ratio	0.43	0.44	0.31		0.40	0.40
v/c Ratio	0.28	0.54	0.76		0.84	0.20
Control Delay	13.7	15.5	26.3		36.2	13.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	13.7	15.5	26.3		36.2	13.7
LOS	B	B	C		D	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2027 Base + Background + Site
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		15.4	26.3		32.3	
Approach LOS		B	C		C	
Queue Length 50th (m)	5.2	42.9	54.8		80.7	8.2
Queue Length 95th (m)	11.5	57.3	74.6		#165.9	22.4
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	240	2269	1635		706	637
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.28	0.37	0.50		0.84	0.20

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 72.1

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 24.0

Intersection LOS: C

Intersection Capacity Utilization 71.2%

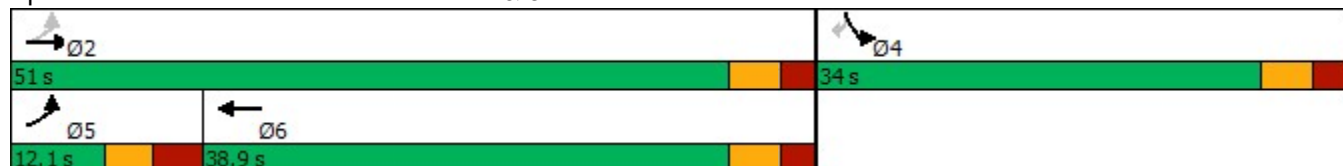
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

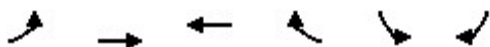
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

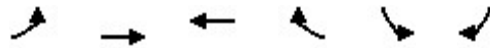
2027 Base
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	126	748	754	291	286	98
Future Volume (vph)	126	748	754	291	286	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			0.99			0.97
Frt			0.958			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3349	0	1778	1591
Flt Permitted	0.116				0.950	
Satd. Flow (perm)	215	3522	3349	0	1778	1539
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			81			60
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	12			12		21
Confl. Bikes (#/hr)				2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	135	804	811	313	308	105
Shared Lane Traffic (%)						
Lane Group Flow (vph)	135	804	1124	0	308	105
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	13.0	54.0	41.0		31.0	31.0
Total Split (%)	15.3%	63.5%	48.2%		36.5%	36.5%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	37.6	38.1	28.6		17.7	17.7
Actuated g/C Ratio	0.55	0.56	0.42		0.26	0.26
v/c Ratio	0.48	0.41	0.78		0.67	0.24
Control Delay	14.4	9.3	21.5		32.7	13.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	14.4	9.3	21.5		32.7	13.1
LOS	B	A	C		C	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2027 Base
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		10.1	21.5		27.7	
Approach LOS		B	C		C	
Queue Length 50th (m)	7.8	28.5	66.0		39.3	4.9
Queue Length 95th (m)	20.5	49.8	105.4		71.4	17.6
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	286	2539	1904		700	643
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.47	0.32	0.59		0.44	0.16

Intersection Summary

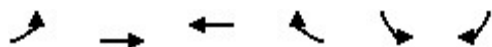
Area Type:	Other
Cycle Length: 85	
Actuated Cycle Length: 68.3	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 70.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Ladner Trunk Rd & 57 St

 Ø2 54 s	 Ø4 31 s
 Ø5 13 s	 Ø6 41 s

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

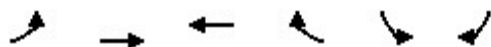
2027 Base + Background
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	130	748	754	299	291	100
Future Volume (vph)	130	748	754	299	291	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			0.99			0.97
Frt			0.957			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3344	0	1778	1591
Flt Permitted	0.115				0.950	
Satd. Flow (perm)	213	3522	3344	0	1778	1539
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			85			61
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	12			12		21
Confl. Bikes (#/hr)				2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	140	804	811	322	313	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	140	804	1133	0	313	108
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	13.0	54.0	41.0		31.0	31.0
Total Split (%)	15.3%	63.5%	48.2%		36.5%	36.5%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	37.7	38.3	28.7		17.9	17.9
Actuated g/C Ratio	0.55	0.56	0.42		0.26	0.26
v/c Ratio	0.50	0.41	0.78		0.68	0.24
Control Delay	15.3	9.4	21.7		33.0	13.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	15.3	9.4	21.7		33.0	13.2
LOS	B	A	C		C	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2027 Base + Background
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		10.3	21.7		28.0	
Approach LOS		B	C		C	
Queue Length 50th (m)	8.2	28.8	67.2		40.3	5.2
Queue Length 95th (m)	22.1	49.8	106.4		72.8	17.9
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	284	2528	1890		695	639
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.49	0.32	0.60		0.45	0.17

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 68.6

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 18.4

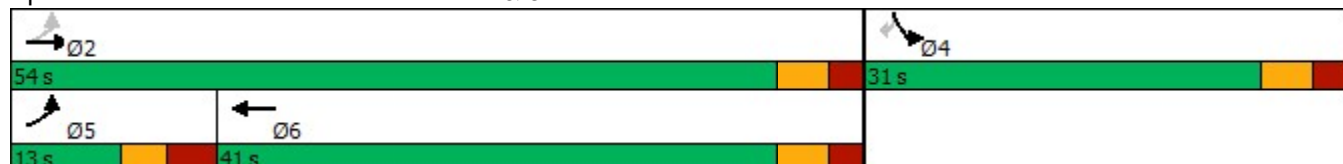
Intersection LOS: B

Intersection Capacity Utilization 71.2%

ICU Level of Service C

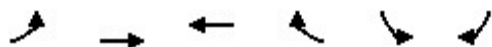
Analysis Period (min) 15

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

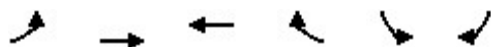
2027 Base + Background + Site
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	135	748	754	311	299	103
Future Volume (vph)	135	748	754	311	299	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			0.99			0.97
Frt			0.956			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3340	0	1778	1591
Flt Permitted	0.114				0.950	
Satd. Flow (perm)	211	3522	3340	0	1778	1539
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			90			61
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	12			12		21
Confl. Bikes (#/hr)				2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	145	804	811	334	322	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	145	804	1145	0	322	111
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	13.0	54.0	41.0		31.0	31.0
Total Split (%)	15.3%	63.5%	48.2%		36.5%	36.5%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	41.6	42.1	28.7		18.1	18.1
Actuated g/C Ratio	0.58	0.58	0.40		0.25	0.25
v/c Ratio	0.53	0.39	0.83		0.72	0.26
Control Delay	16.7	9.2	24.2		35.6	13.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	16.7	9.2	24.2		35.6	13.7
LOS	B	A	C		D	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2027 Base + Background + Site
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		10.4	24.2		30.0	
Approach LOS		B	C		C	
Queue Length 50th (m)	8.8	29.8	69.5		43.2	5.7
Queue Length 95th (m)	#24.2	49.8	107.6		75.2	18.6
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	274	2504	1731		634	588
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.53	0.32	0.66		0.51	0.19

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 72.1

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 20.0

Intersection LOS: B

Intersection Capacity Utilization 72.1%

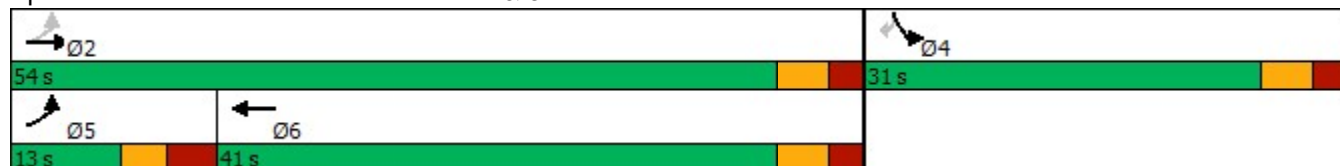
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

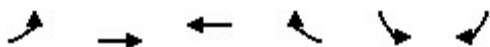
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

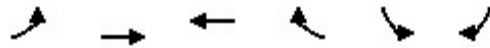
2032 Base
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	62	831	662	152	565	116
Future Volume (vph)	62	831	662	152	565	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		0.99			0.97
Frt			0.972			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3419	0	1778	1591
Flt Permitted	0.131				0.950	
Satd. Flow (perm)	242	3522	3419	0	1778	1544
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			38			38
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	6			6		18
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	68	913	727	167	621	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	913	894	0	621	127
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	12.1	51.0	38.9		34.0	34.0
Total Split (%)	14.2%	60.0%	45.8%		40.0%	40.0%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	33.1	33.6	24.5		28.7	28.7
Actuated g/C Ratio	0.45	0.45	0.33		0.39	0.39
v/c Ratio	0.29	0.57	0.77		0.90	0.20
Control Delay	13.7	15.7	26.6		44.2	14.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	13.7	15.7	26.6		44.2	14.7
LOS	B	B	C		D	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2032 Base
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		15.6	26.6		39.2	
Approach LOS		B	C		D	
Queue Length 50th (m)	5.4	48.4	61.6		90.2	8.9
Queue Length 95th (m)	11.5	63.9	82.5		#182.3	23.9
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	233	2208	1592		687	620
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.29	0.41	0.56		0.90	0.20

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 74.1

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 26.1

Intersection LOS: C

Intersection Capacity Utilization 74.3%

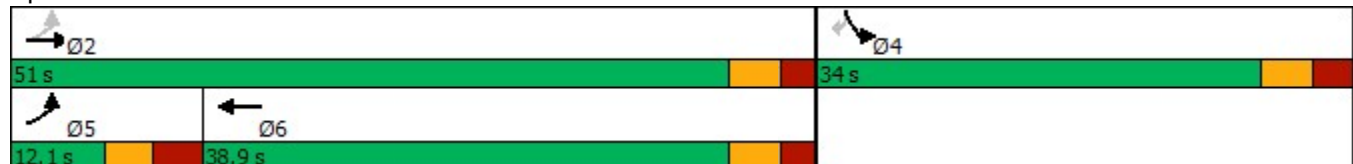
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

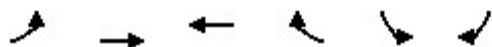
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

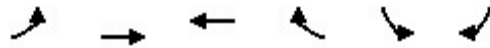
2032 Base + Background + Site
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	831	662	159	589	124
Future Volume (vph)	65	831	662	159	589	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		0.99			0.97
Frt			0.971			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3415	0	1778	1591
Flt Permitted	0.130				0.950	
Satd. Flow (perm)	240	3522	3415	0	1778	1544
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			41			39
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	6			6		18
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	71	913	727	175	647	136
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	913	902	0	647	136
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	12.1	51.0	38.9		34.0	34.0
Total Split (%)	14.2%	60.0%	45.8%		40.0%	40.0%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	33.2	33.7	24.6		28.7	28.7
Actuated g/C Ratio	0.45	0.45	0.33		0.39	0.39
v/c Ratio	0.30	0.57	0.78		0.94	0.22
Control Delay	13.9	15.7	26.7		50.2	15.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	13.9	15.7	26.7		50.2	15.0
LOS	B	B	C		D	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2032 Base + Background + Site
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		15.6	26.7		44.1	
Approach LOS		B	C		D	
Queue Length 50th (m)	5.6	48.4	62.2		96.6	9.8
Queue Length 95th (m)	12.0	63.9	83.4		#192.4	25.6
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	233	2205	1590		686	620
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.30	0.41	0.57		0.94	0.22

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 74.2

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 27.7

Intersection LOS: C

Intersection Capacity Utilization 75.9%

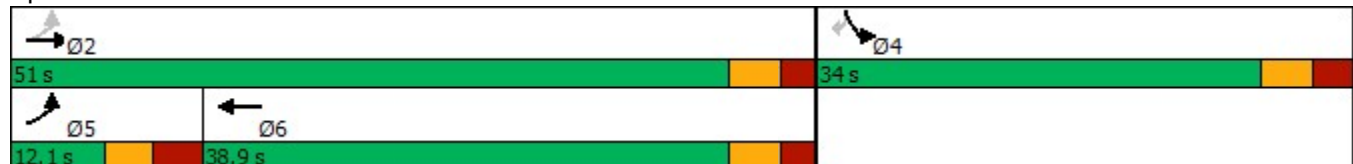
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

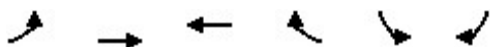
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

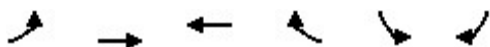
2032 Base
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	137	818	825	318	313	107
Future Volume (vph)	137	818	825	318	313	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			0.99			0.97
Frt			0.958			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3349	0	1778	1591
Flt Permitted	0.107				0.950	
Satd. Flow (perm)	198	3522	3349	0	1778	1539
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			81			60
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	12			12		21
Confl. Bikes (#/hr)				2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	147	880	887	342	337	115
Shared Lane Traffic (%)						
Lane Group Flow (vph)	147	880	1229	0	337	115
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	13.0	54.0	41.0		31.0	31.0
Total Split (%)	15.3%	63.5%	48.2%		36.5%	36.5%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	43.8	44.3	31.1		19.0	19.0
Actuated g/C Ratio	0.58	0.59	0.41		0.25	0.25
v/c Ratio	0.56	0.42	0.86		0.75	0.27
Control Delay	19.0	9.7	26.5		37.9	14.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	19.0	9.7	26.5		37.9	14.2
LOS	B	A	C		D	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2032 Base
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		11.0	26.5		31.9	
Approach LOS		B	C		C	
Queue Length 50th (m)	9.4	35.2	81.2		49.3	6.8
Queue Length 95th (m)	#28.8	55.6	#121.7		79.2	19.5
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	261	2314	1652		603	562
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.56	0.38	0.74		0.56	0.20

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 75.1

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 21.5

Intersection LOS: C

Intersection Capacity Utilization 74.8%

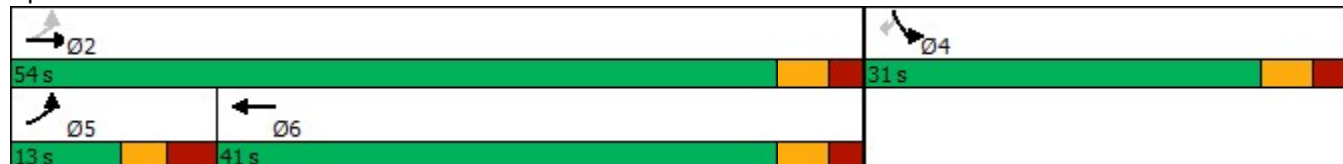
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

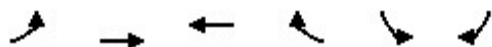
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

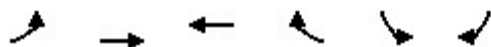
2032 Base + Background + Site
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	146	818	825	338	326	112
Future Volume (vph)	146	818	825	338	326	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			0.99			0.97
Frt			0.956			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3340	0	1778	1591
Flt Permitted	0.106				0.950	
Satd. Flow (perm)	196	3522	3340	0	1778	1539
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			89			60
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	12			12		21
Confl. Bikes (#/hr)				2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	157	880	887	363	351	120
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	880	1250	0	351	120
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	13.0	54.0	41.0		31.0	31.0
Total Split (%)	15.3%	63.5%	48.2%		36.5%	36.5%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	44.3	44.8	31.6		19.6	19.6
Actuated g/C Ratio	0.58	0.59	0.41		0.26	0.26
v/c Ratio	0.61	0.42	0.87		0.77	0.27
Control Delay	22.0	9.9	27.4		38.9	14.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	22.0	9.9	27.4		38.9	14.6
LOS	C	A	C		D	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2032 Base + Background + Site
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		11.7	27.4		32.7	
Approach LOS		B	C		C	
Queue Length 50th (m)	10.3	36.2	84.6		52.5	7.5
Queue Length 95th (m)	#34.0	55.6	#128.0		82.8	20.4
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	257	2276	1625		593	553
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.61	0.39	0.77		0.59	0.22

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 76.2

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 22.4

Intersection LOS: C

Intersection Capacity Utilization 76.3%

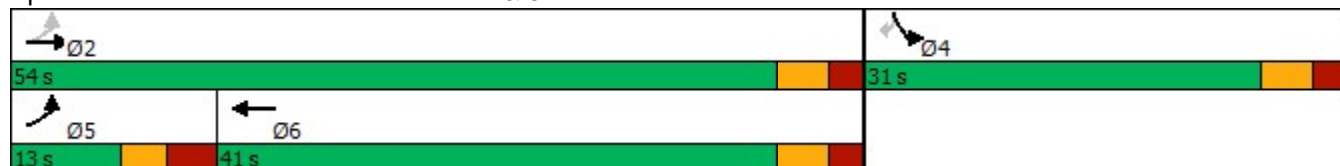
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

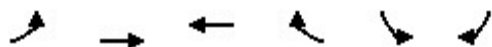
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

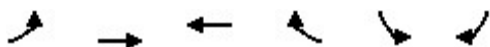
2037 Base
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	67	903	719	166	614	126
Future Volume (vph)	67	903	719	166	614	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		0.99			0.97
Frt			0.972			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3419	0	1778	1591
Flt Permitted	0.122				0.950	
Satd. Flow (perm)	226	3522	3419	0	1778	1544
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			38			38
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	6			6		18
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	74	992	790	182	675	138
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	992	972	0	675	138
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	12.1	51.0	38.9		34.0	34.0
Total Split (%)	14.2%	60.0%	45.8%		40.0%	40.0%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	35.2	35.7	26.6		28.6	28.6
Actuated g/C Ratio	0.46	0.47	0.35		0.38	0.38
v/c Ratio	0.33	0.60	0.80		1.01	0.23
Control Delay	14.2	15.9	27.2		66.9	15.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	14.2	15.9	27.2		66.9	15.7
LOS	B	B	C		E	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2037 Base
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		15.8	27.2		58.2	
Approach LOS		B	C		E	
Queue Length 50th (m)	5.8	54.3	69.3		~122.4	10.9
Queue Length 95th (m)	12.3	71.1	92.2		#203.6	26.2
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	227	2144	1547		667	603
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.33	0.46	0.63		1.01	0.23

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 76.2

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 31.8

Intersection LOS: C

Intersection Capacity Utilization 79.1%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

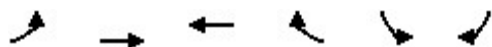
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St

 Ø2		 Ø4	
51 s		34 s	
 Ø5	 Ø6		
12.1 s	38.9 s		

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

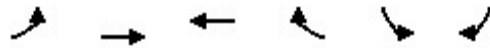
2037 Base + Background + Site
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	903	719	173	638	134
Future Volume (vph)	70	903	719	173	638	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			0.99			0.97
Frt			0.971			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3414	0	1778	1591
Flt Permitted	0.111				0.950	
Satd. Flow (perm)	206	3522	3414	0	1778	1538
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			31			39
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	6			6		18
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	77	992	790	190	701	147
Shared Lane Traffic (%)						
Lane Group Flow (vph)	77	992	980	0	701	147
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	12.1	51.0	38.9		49.0	49.0
Total Split (%)	12.1%	51.0%	38.9%		49.0%	49.0%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	38.3	38.8	30.0		39.0	39.0
Actuated g/C Ratio	0.43	0.43	0.33		0.43	0.43
v/c Ratio	0.39	0.65	0.85		0.91	0.21
Control Delay	21.9	22.6	36.5		43.4	14.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	21.9	22.6	36.5		43.4	14.1
LOS	C	C	D		D	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2037 Base + Background + Site
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		22.5	36.5		38.3	
Approach LOS		C	D		D	
Queue Length 50th (m)	8.8	78.6	94.2		131.3	13.2
Queue Length 95th (m)	17.7	100.1	#121.6		#206.5	26.4
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	196	1871	1349		894	793
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.39	0.53	0.73		0.78	0.19

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 90

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 31.9

Intersection LOS: C

Intersection Capacity Utilization 80.6%

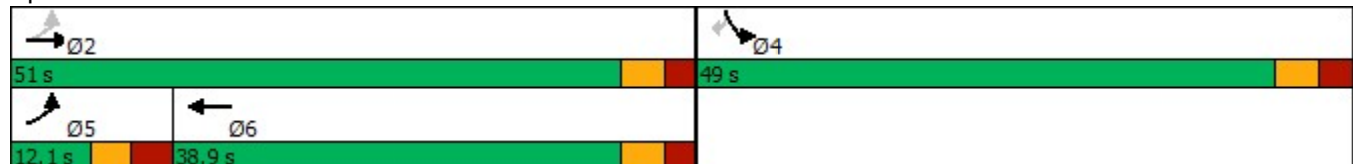
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

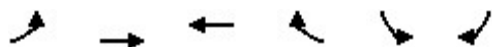
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

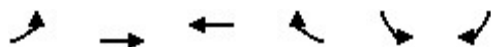
2037 Base + Background + Site
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	903	719	173	638	134
Future Volume (vph)	70	903	719	173	638	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		0.99			0.97
Frt			0.971			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3415	0	1778	1591
Flt Permitted	0.122				0.950	
Satd. Flow (perm)	226	3522	3415	0	1778	1544
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			41			39
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	6			6		18
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	77	992	790	190	701	147
Shared Lane Traffic (%)						
Lane Group Flow (vph)	77	992	980	0	701	147
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	12.1	51.0	38.9		34.0	34.0
Total Split (%)	14.2%	60.0%	45.8%		40.0%	40.0%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	35.3	35.8	26.7		28.6	28.6
Actuated g/C Ratio	0.46	0.47	0.35		0.37	0.37
v/c Ratio	0.34	0.60	0.80		1.05	0.24
Control Delay	14.4	15.9	27.3		78.2	16.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	14.4	15.9	27.3		78.2	16.0
LOS	B	B	C		E	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2037 Base + Background + Site
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		15.8	27.3		67.4	
Approach LOS		B	C		E	
Queue Length 50th (m)	6.1	54.3	70.0		~132.1	11.9
Queue Length 95th (m)	12.8	71.1	93.0		#213.7	27.8
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	227	2140	1545		666	603
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.34	0.46	0.63		1.05	0.24

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 76.3

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 34.8

Intersection LOS: C

Intersection Capacity Utilization 80.6%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

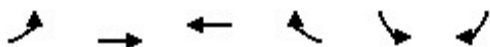
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St

51 s		34 s	
12.1 s	38.9 s		

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

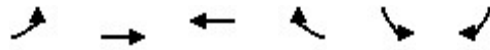
2037 Base
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	149	889	896	346	339	116
Future Volume (vph)	149	889	896	346	339	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			0.99			0.97
Frt			0.958			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3349	0	1778	1591
Flt Permitted	0.101				0.950	
Satd. Flow (perm)	187	3522	3349	0	1778	1539
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			82			60
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	12			12		21
Confl. Bikes (#/hr)				2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	160	956	963	372	365	125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	160	956	1335	0	365	125
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	13.0	54.0	41.0		31.0	31.0
Total Split (%)	15.3%	63.5%	48.2%		36.5%	36.5%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	46.3	46.8	33.6		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.43		0.26	0.26
v/c Ratio	0.64	0.46	0.90		0.80	0.28
Control Delay	25.0	10.3	30.7		41.4	15.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.0	10.3	30.7		41.4	15.0
LOS	C	B	C		D	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2037 Base
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		12.4	30.7		34.7	
Approach LOS		B	C		C	
Queue Length 50th (m)	10.8	41.7	97.1		55.1	8.1
Queue Length 95th (m)	#37.1	61.8	#153.4		86.6	21.7
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	249	2185	1564		569	534
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.64	0.44	0.85		0.64	0.23

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 78.8

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 24.4

Intersection LOS: C

Intersection Capacity Utilization 79.0%

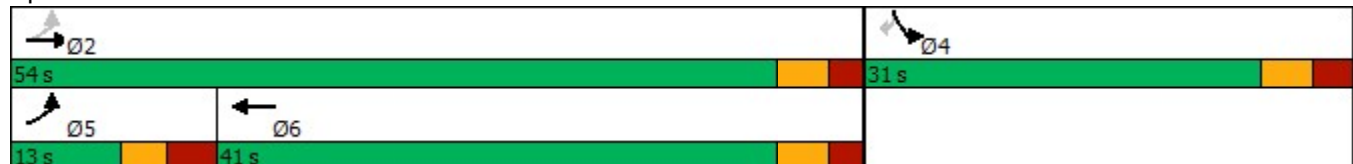
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

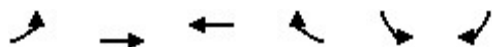
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ladner Trunk Rd & 57 St



Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

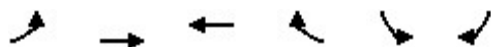
2037 Base + Background + Site
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	158	889	896	366	352	121
Future Volume (vph)	158	889	896	366	352	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	0%		-1%	
Storage Length (m)	46.5			0.0	0.0	15.5
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			0.99			0.97
Frt			0.956			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1761	3522	3340	0	1778	1591
Flt Permitted	0.100				0.950	
Satd. Flow (perm)	185	3522	3340	0	1778	1539
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			89			61
Link Speed (k/h)		50	50		50	
Link Distance (m)		236.2	145.4		128.5	
Travel Time (s)		17.0	10.5		9.3	
Confl. Peds. (#/hr)	12			12		21
Confl. Bikes (#/hr)				2		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	170	956	963	394	378	130
Shared Lane Traffic (%)						
Lane Group Flow (vph)	170	956	1357	0	378	130
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	6.0	10.0	10.0		7.0	7.0
Minimum Split (s)	12.1	15.6	38.7		31.0	31.0
Total Split (s)	13.0	54.0	41.0		31.0	31.0
Total Split (%)	15.3%	63.5%	48.2%		36.5%	36.5%
Yellow Time (s)	3.0	3.3	3.3		3.3	3.3
All-Red Time (s)	3.1	2.3	2.3		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	5.6	5.6		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	46.6	47.1	34.0		20.9	20.9
Actuated g/C Ratio	0.58	0.59	0.43		0.26	0.26
v/c Ratio	0.69	0.46	0.92		0.81	0.29
Control Delay	29.0	10.5	32.6		42.5	15.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	29.0	10.5	32.6		42.5	15.2
LOS	C	B	C		D	B

Lanes, Volumes, Timings
1: Ladner Trunk Rd & 57 St

2037 Base + Background + Site
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		13.3	32.6		35.5	
Approach LOS		B	C		D	
Queue Length 50th (m)	12.0	43.3	101.8		57.7	8.7
Queue Length 95th (m)	#42.2	61.8	#157.4		#90.9	22.4
Internal Link Dist (m)		212.2	121.4		104.5	
Turn Bay Length (m)	46.5					15.5
Base Capacity (vph)	245	2157	1545		562	528
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.69	0.44	0.88		0.67	0.25

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 79.7

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 25.8

Intersection LOS: C

Intersection Capacity Utilization 80.5%

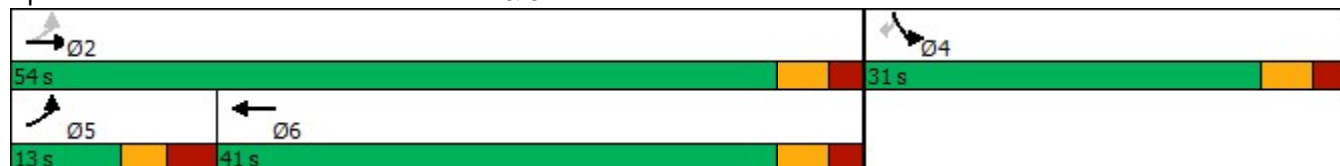
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

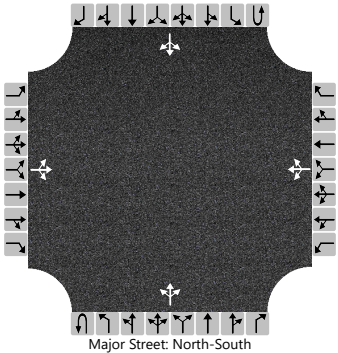
Splits and Phases: 1: Ladner Trunk Rd & 57 St



HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2024	North/South Street	57 St
Time Analyzed	AM Base	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		4	0	6		84	2	2		3	146	36		0	467	2
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

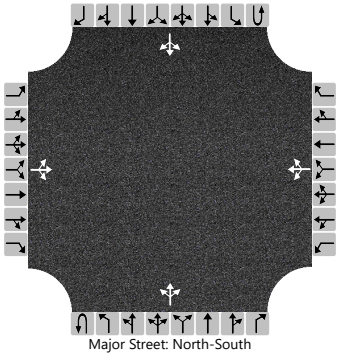
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			11			97			3				0			
Capacity, c (veh/h)			424			349			993				1365			
v/c Ratio			0.03			0.28			0.00				0.00			
95% Queue Length, Q ₉₅ (veh)			0.1			1.1			0.0				0.0			
95% Queue Length, Q ₉₅ (ft)			2.5			27.9										
Control Delay (s/veh)			13.7			19.2			8.6	0.0	0.0		7.6	0.0	0.0	
Level of Service (LOS)			B			C			A	A	A		A	A	A	
Approach Delay (s/veh)	13.7				19.2				0.2				0.0			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2024	North/South Street	57 St
Time Analyzed	PM Base	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	5		47	1	6		7	311	87		2	273	1
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

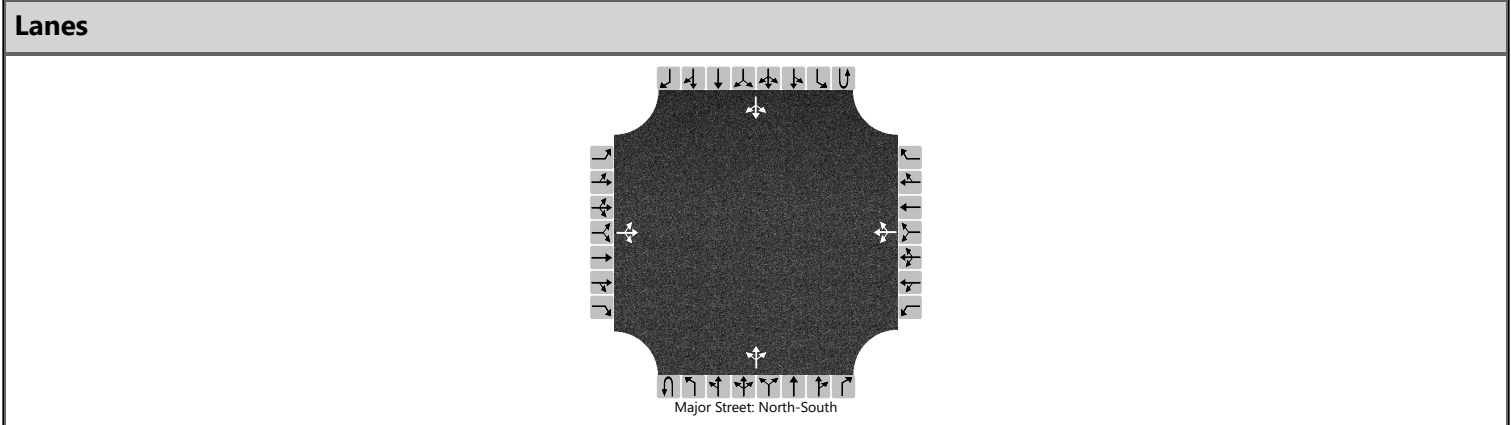
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			5			58				8				2		
Capacity, c (veh/h)			709			359				1224				1105		
v/c Ratio			0.01			0.16				0.01				0.00		
95% Queue Length, Q ₉₅ (veh)			0.0			0.6				0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			0.0			15.2										
Control Delay (s/veh)			10.1			16.9				8.0	0.1	0.1		8.3	0.0	0.0
Level of Service (LOS)			B			C				A	A	A		A	A	A
Approach Delay (s/veh)	10.1			16.9			0.2			0.1						
Approach LOS	B			C			A			A						

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2027	North/South Street	57 St
Time Analyzed	AM Base	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		



Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		5	0	7		90	3	3		4	155	39		0	496	3
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

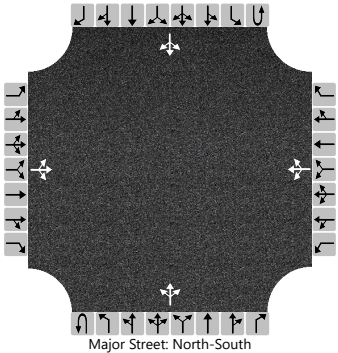
Critical and Follow-up Headways																
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)			13			105				4				0		
Capacity, c (veh/h)			396			325				965				1350		
v/c Ratio			0.03			0.32				0.00				0.00		
95% Queue Length, Q ₉₅ (veh)			0.1			1.4				0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			2.5			35.6										
Control Delay (s/veh)			14.4			21.3				8.7	0.0	0.0		7.7	0.0	0.0
Level of Service (LOS)			B			C				A	A	A		A	A	A
Approach Delay (s/veh)	14.4				21.3				0.2				0.0			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2027	North/South Street	57 St
Time Analyzed	AM Base + Bckgrnd	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		5	0	7		90	3	3		4	159	39		0	507	3
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

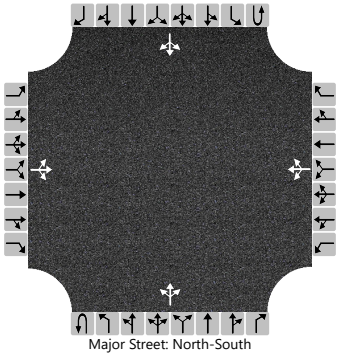
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			13			105			4				0		
Capacity, c (veh/h)			387			317			955				1345		
v/c Ratio			0.03			0.33			0.00				0.00		
95% Queue Length, Q ₉₅ (veh)			0.1			1.4			0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			2.5			35.6									
Control Delay (s/veh)			14.6			21.9			8.8	0.0	0.0		7.7	0.0	0.0
Level of Service (LOS)			B			C			A	A	A		A	A	A
Approach Delay (s/veh)	14.6			21.9			0.2			0.0					
Approach LOS	B			C			A			A					

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2027	North/South Street	57 St
Time Analyzed	AM Base + Bckgrnd + Site	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		5	0	7		111	3	4		4	159	45		1	507	3
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

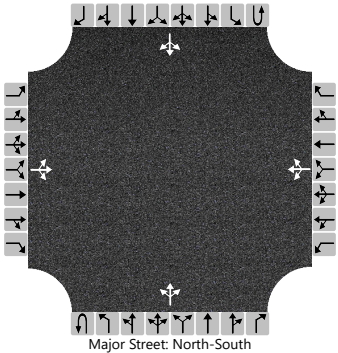
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			13			130				4				1		
Capacity, c (veh/h)			385			314				955				1337		
v/c Ratio			0.03			0.41				0.00				0.00		
95% Queue Length, Q ₉₅ (veh)			0.1			1.9				0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			2.5			48.3										
Control Delay (s/veh)			14.7			24.3				8.8	0.0	0.0		7.7	0.0	0.0
Level of Service (LOS)			B			C				A	A	A		A	A	A
Approach Delay (s/veh)	14.7			24.3			0.2			0.0						
Approach LOS	B			C			A			A						

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2027	North/South Street	57 St
Time Analyzed	PM Base	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	6		50	2	7		8	330	93		3	290	2
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

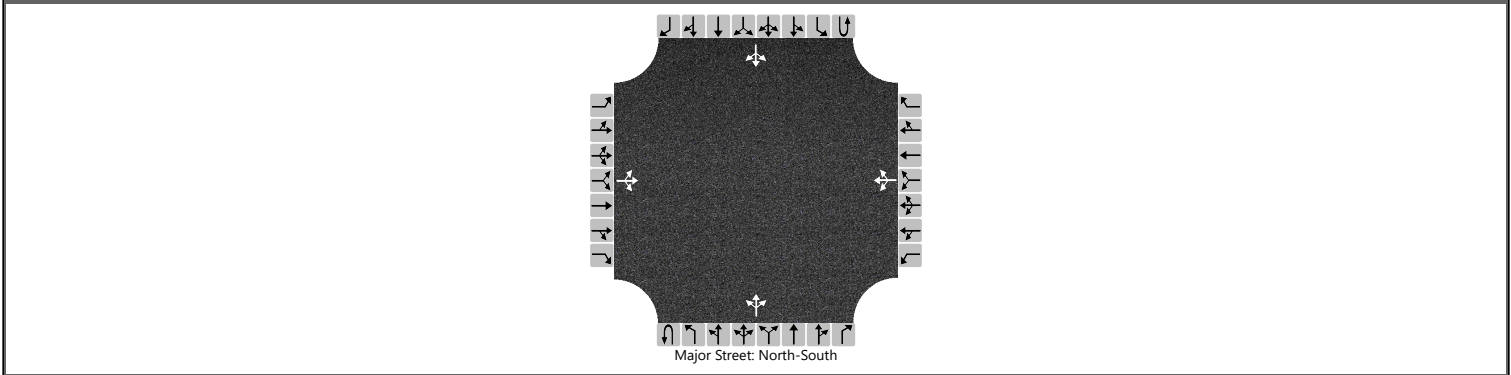
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			6			63				9				3		
Capacity, c (veh/h)			692			335				1204				1080		
v/c Ratio			0.01			0.19				0.01				0.00		
95% Queue Length, Q ₉₅ (veh)			0.0			0.7				0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			0.0			17.8										
Control Delay (s/veh)			10.2			18.2				8.0	0.1	0.1		8.3	0.0	0.0
Level of Service (LOS)			B			C				A	A	A		A	A	A
Approach Delay (s/veh)	10.2				18.2				0.2				0.1			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2027	North/South Street	57 St
Time Analyzed	PM Base + Bckgrnd	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	6		50	2	7		8	342	93		3	297	2
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

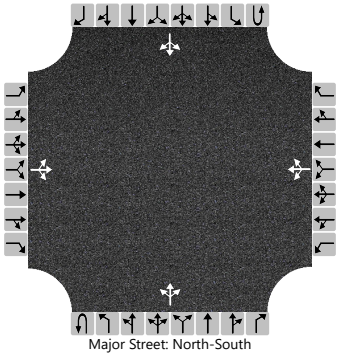
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			6			63				9				3		
Capacity, c (veh/h)			686			325				1197				1068		
v/c Ratio			0.01			0.20				0.01				0.00		
95% Queue Length, Q ₉₅ (veh)			0.0			0.7				0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			0.0			17.8										
Control Delay (s/veh)			10.3			18.8				8.0	0.1	0.1		8.4	0.0	0.0
Level of Service (LOS)			B			C				A	A	A		A	A	A
Approach Delay (s/veh)	10.3				18.8				0.2				0.1			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2027	North/South Street	57 St
Time Analyzed	PM Base + Bckgrnd + Site	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	6		61	2	8		8	342	110		5	297	2
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

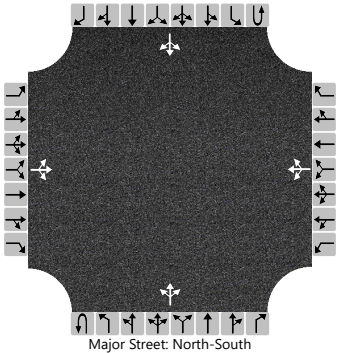
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			6			76			9				5			
Capacity, c (veh/h)			686			316			1197				1052			
v/c Ratio			0.01			0.24			0.01				0.01			
95% Queue Length, Q ₉₅ (veh)			0.0			0.9			0.0				0.0			
95% Queue Length, Q ₉₅ (ft)			0.0			22.9										
Control Delay (s/veh)			10.3			20.0			8.0	0.1	0.1		8.4	0.1	0.1	
Level of Service (LOS)			B			C			A	A	A		A	A	A	
Approach Delay (s/veh)	10.3			20.0			0.2			0.2						
Approach LOS	B			C			A						A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2032	North/South Street	57 St
Time Analyzed	AM Base	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		5	0	7		98	3	3		4	170	42		0	542	3
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

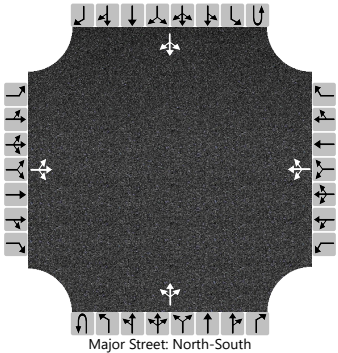
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			13			114				4				0		
Capacity, c (veh/h)			362			292				924				1327		
v/c Ratio			0.04			0.39				0.00				0.00		
95% Queue Length, Q ₉₅ (veh)			0.1			1.8				0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			2.5			45.7										
Control Delay (s/veh)			15.3			25.1				8.9	0.0	0.0		7.7	0.0	0.0
Level of Service (LOS)			C			D				A	A	A		A	A	A
Approach Delay (s/veh)	15.3			25.1			0.2			0.0			0.0			
Approach LOS	C			D			A			A			A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2032	North/South Street	57 St
Time Analyzed	AM Base + Bckgrnd + Site	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		5	0	7		119	3	4		4	174	48		1	553	3
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

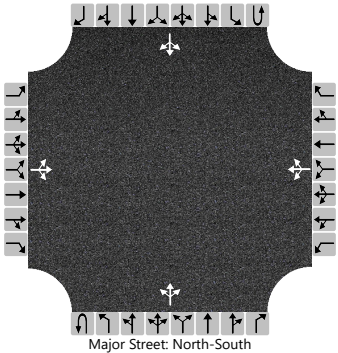
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			13			138				4				1		
Capacity, c (veh/h)			352			282				915				1315		
v/c Ratio			0.04			0.49				0.00				0.00		
95% Queue Length, Q ₉₅ (veh)			0.1			2.5				0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			2.5			63.5										
Control Delay (s/veh)			15.6			29.5				9.0	0.0	0.0		7.7	0.0	0.0
Level of Service (LOS)			C			D				A	A	A		A	A	A
Approach Delay (s/veh)	15.6				29.5				0.2				0.0			
Approach LOS	C				D				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2032	North/South Street	57 St
Time Analyzed	PM Base	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	6		55	2	7		9	361	101		3	317	2
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

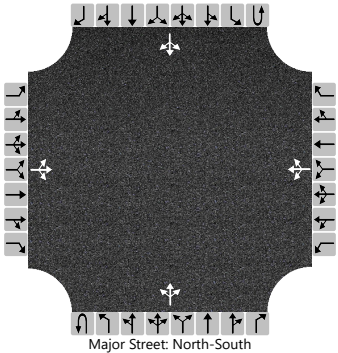
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			6			69				10				3		
Capacity, c (veh/h)			667			300				1175				1042		
v/c Ratio			0.01			0.23				0.01				0.00		
95% Queue Length, Q ₉₅ (veh)			0.0			0.9				0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			0.0			22.9										
Control Delay (s/veh)			10.5			20.5				8.1	0.1	0.1		8.5	0.0	0.0
Level of Service (LOS)			B			C				A	A	A		A	A	A
Approach Delay (s/veh)	10.5				20.5				0.2				0.1			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2032	North/South Street	57 St
Time Analyzed	PM Base + Bckgrnd + Site	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	6		66	2	8		9	373	118		5	324	2
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

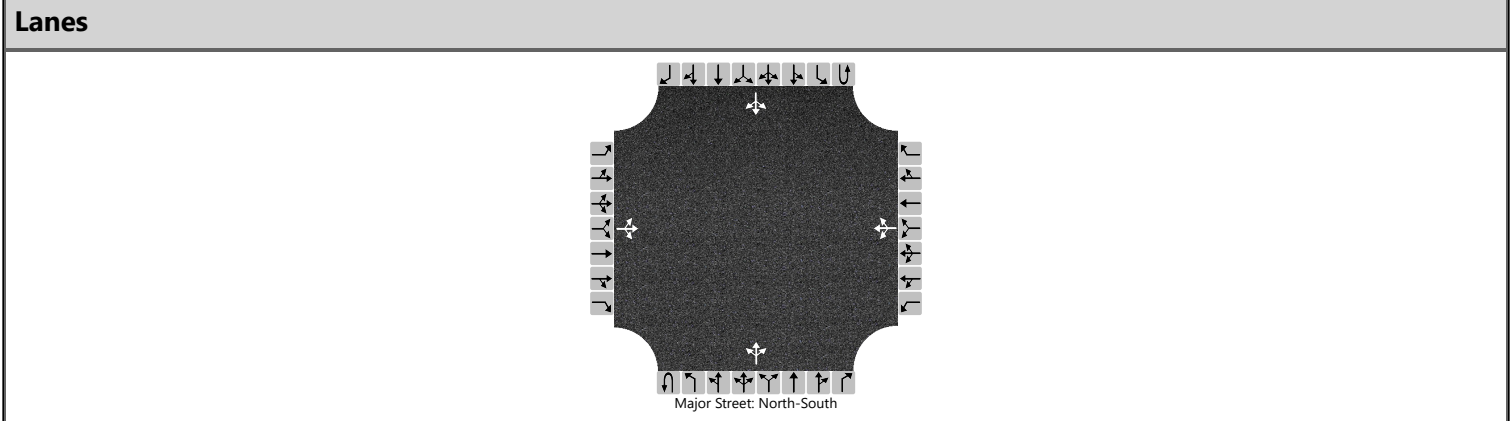
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			6			82				10				5		
Capacity, c (veh/h)			660			283				1167				1015		
v/c Ratio			0.01			0.29				0.01				0.01		
95% Queue Length, Q ₉₅ (veh)			0.0			1.2				0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			0.0			30.5										
Control Delay (s/veh)			10.5			22.8				8.1	0.1	0.1		8.6	0.1	0.1
Level of Service (LOS)			B			C				A	A	A		A	A	A
Approach Delay (s/veh)	10.5				22.8				0.2				0.2			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2037	North/South Street	57 St
Time Analyzed	AM Base	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		



Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		6	0	8		106	3	3		4	184	46		0	589	3
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

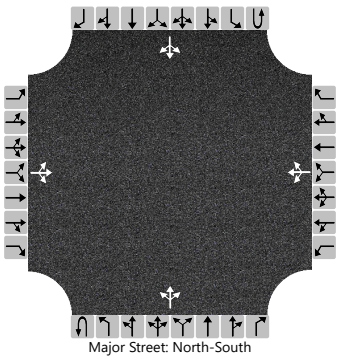
Critical and Follow-up Headways																
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)			15				123			4				0		
Capacity, c (veh/h)			328				261			884				1305		
v/c Ratio			0.05				0.47			0.00				0.00		
95% Queue Length, Q ₉₅ (veh)			0.1				2.4			0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			2.5				61.0									
Control Delay (s/veh)			16.5				30.6			9.1	0.1	0.1		7.8	0.0	0.0
Level of Service (LOS)			C				D			A	A	A		A	A	A
Approach Delay (s/veh)	16.5				30.6				0.2				0.0			
Approach LOS	C				D				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2037	North/South Street	57 St
Time Analyzed	AM Base + Bckgrnd + Site	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		6	0	8		127	3	4		4	188	52		1	600	3
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

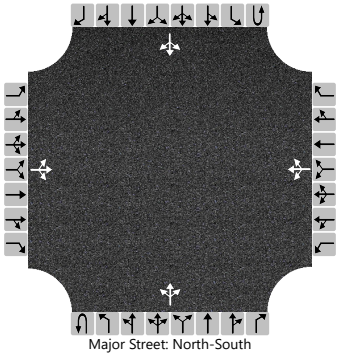
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			15				147			4				1		
Capacity, c (veh/h)			319				252			875				1293		
v/c Ratio			0.05				0.58			0.01				0.00		
95% Queue Length, Q ₉₅ (veh)			0.2				3.4			0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			5.1				86.4									
Control Delay (s/veh)			16.9				37.6			9.1	0.1	0.1		7.8	0.0	0.0
Level of Service (LOS)			C				E			A	A	A		A	A	A
Approach Delay (s/veh)	16.9				37.6				0.2				0.0			
Approach LOS	C				E				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2037	North/South Street	57 St
Time Analyzed	PM Base	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	7		60	2	8		9	392	110		3	344	2
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

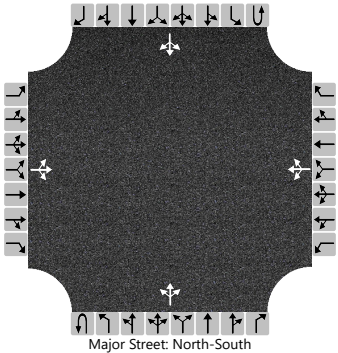
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			8			75			10				3			
Capacity, c (veh/h)			642			271			1146				1005			
v/c Ratio			0.01			0.28			0.01				0.00			
95% Queue Length, Q ₉₅ (veh)			0.0			1.1			0.0				0.0			
95% Queue Length, Q ₉₅ (ft)			0.0			27.9										
Control Delay (s/veh)			10.7			23.3			8.2	0.1	0.1		8.6	0.0	0.0	
Level of Service (LOS)			B			C			A	A	A		A	A	A	
Approach Delay (s/veh)	10.7				23.3				0.2				0.1			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	EC	Intersection	57 St & 48B Ave
Agency/Co.	CTS	Jurisdiction	Delta
Date Performed	5/16/2024	East/West Street	48B Ave
Analysis Year	2037	North/South Street	57 St
Time Analyzed	PM Base + Bckgrnd + Site	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	9259 - 5737 Ladner Trunk TIA		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	0	7		71	2	9		9	404	127		5	351	2
Percent Heavy Vehicles (%)		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.12	6.52	6.22		7.12	6.52	6.22		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32		3.52	4.02	3.32		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			8			88				10				5		
Capacity, c (veh/h)			636			256				1139				978		
v/c Ratio			0.01			0.34				0.01				0.01		
95% Queue Length, Q ₉₅ (veh)			0.0			1.5				0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			0.0			38.1										
Control Delay (s/veh)			10.7			26.3				8.2	0.1	0.1		8.7	0.1	0.1
Level of Service (LOS)			B			D				A	A	A		A	A	A
Approach Delay (s/veh)	10.7				26.3				0.2				0.2			
Approach LOS	B				D				A				A			

Appendix E

Swept Path Analysis

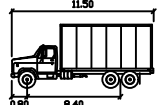
FOR SWEEP PATH
ASPECTS ONLY



4.93  0.73 2.93 Accord09 Width : 1.85 meters Track : 1.59 Lock to Lock Time : 6.0 Steering Angle : 35.0 LEGEND Front Tires Rear Tires Vehicle Body Conflict	<table><tr><th>REVISIONS</th><th>DESCRIPTION</th><th>DATE</th><th>BY</th></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>	REVISIONS	DESCRIPTION	DATE	BY																													CLS Traffic Engineering Specialists 101A – 1952 Kingsway Avenue Port Coquitlam, BC, Canada V3C 6C2 Tel: 604-936-6190 Fax: 604-936-6175	Sharma & Associates Inc. #1 - 13018 - 84th Avenue Surrey, BC V3W 1L2 5737 Ladner Trunk Road small passenger car exiting from carshare space in north lane	Stamp:	Scale: NTS Designed: J.L.L. Drawn: J.L.L. Reviewed: J.L.L.	CTS Permit to Practice CTS Project Number: 9259 Date: JANUARY 2025	Drawing No: 2 Revision No: 1
REVISIONS	DESCRIPTION	DATE	BY																																				

FOR SWEEP PATH
ASPECTS ONLY





11.50
8.40
0.80
HSU

Width
Track
Lock to Lock
Steering Angle

2.60
2.60
6.0
40.0

LEGEND

Front Tires
Rear Tires
Vehicle Body
Conflict

—
—
—
—

REVISIONS	DESCRIPTION	DATE	BY



CLS Traffic
Engineering
Specialists

101A - 1952 Kingsway Avenue
Port Coquitlam, BC, Canada V3C 6C2
Tel: 604-936-6190
Fax: 604-936-6175

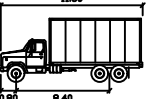
Sharma & Associates Inc.
#1 - 13018 - 84th Avenue
Surrey, BC V3W 1L2

5737 Ladner Trunk Road
HSU backing in to access solid
waste staging area

Stamp	Scale	CTS Permit to Practice	Drawing No.
	NTS		4
	Designed: J.L.L.		
	Drawn: J.L.L.	CTS Project Number: 9259	
	Reviewed: J.L.L.	Date: JANUARY 2025	Revision No: 1

FOR SWEEP PATH
ASPECTS ONLY



 HSU Width 11.50 Track 8.40 Lock to Lock Time 6.0 Steering Angle 40.0	LEGEND		<table border="1"><thead><tr><th>REVISIONS</th><th>DESCRIPTION</th><th>DATE</th><th>BY</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>	REVISIONS	DESCRIPTION	DATE	BY													 101A - 1952 Kingsway Avenue Port Coquitlam, BC, Canada V3C 6C2 Tel: 604-936-6190 Fax: 604-936-6175	Sharma & Associates Inc. #1 - 13018 - 84th Avenue Surrey, BC V3W 1L2		Stamp:	Scale: NTS	CTS Permit to Practice:	Drawing No: 5
	REVISIONS	DESCRIPTION		DATE	BY																					
Front Tires		<table border="1"><thead><tr><th>Front Tires</th><th>Rear Tires</th><th>Vehicle Body</th><th>Conflict</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>	Front Tires	Rear Tires	Vehicle Body	Conflict									Designed: J.L.L.	CTS Project Number: 9259	Revision No: 1									
Front Tires	Rear Tires		Vehicle Body	Conflict																						
Rear Tires		Drawn: J.L.L.																								
Vehicle Body		Reviewed: J.L.L.																								
Conflict		5737 Ladner Trunk Road HSU exiting site to 57A Street		Date: JANUARY 2025																						