Date: 23 October 2019
Our File No: 7130-01

BY EMAIL

Mr. Raghbir Gurm
1168620 BC Limited
13063 56 Ave
Surrey BC
V3X2Z3

Dear Mr. Gurm,

Re: Beachway 2 – Residential Development Traffic Impact Assessment
White Rock, BC

Creative Transportation Solutions Ltd. (CTS) is pleased to submit this ***DRAFT*** report summarising our work on the above study. CTS was retained by Mr. Raghbir Gurm on September 26th, 2019 to undertake a traffic impact study for a proposed residential townhouse and condominium development in the City of White Rock. The primary objectives of this study are as follows:

1. To undertake a traffic impact assessment of the development site;
2. To provide a rationale for the proposed 30% parking variance;
3. To review the swept path requirements; and,
4. To document the results in a report suitable for submission to the City of White Rock.

This report documents our analyses and findings.

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

1.0 BACKGROUND

1.1 The Site

1168620 BC Ltd is proposing to build a residential development, Beachway 2, at the following addresses in the City of White Rock, BC:

- 15704 North Bluff Road
- 15724 North Bluff Road
- 15728 North Bluff Road
- 15738 North Bluff Road
- 15748 North Bluff Road
- 15758 North Bluff Road
- 15770 North Bluff Road

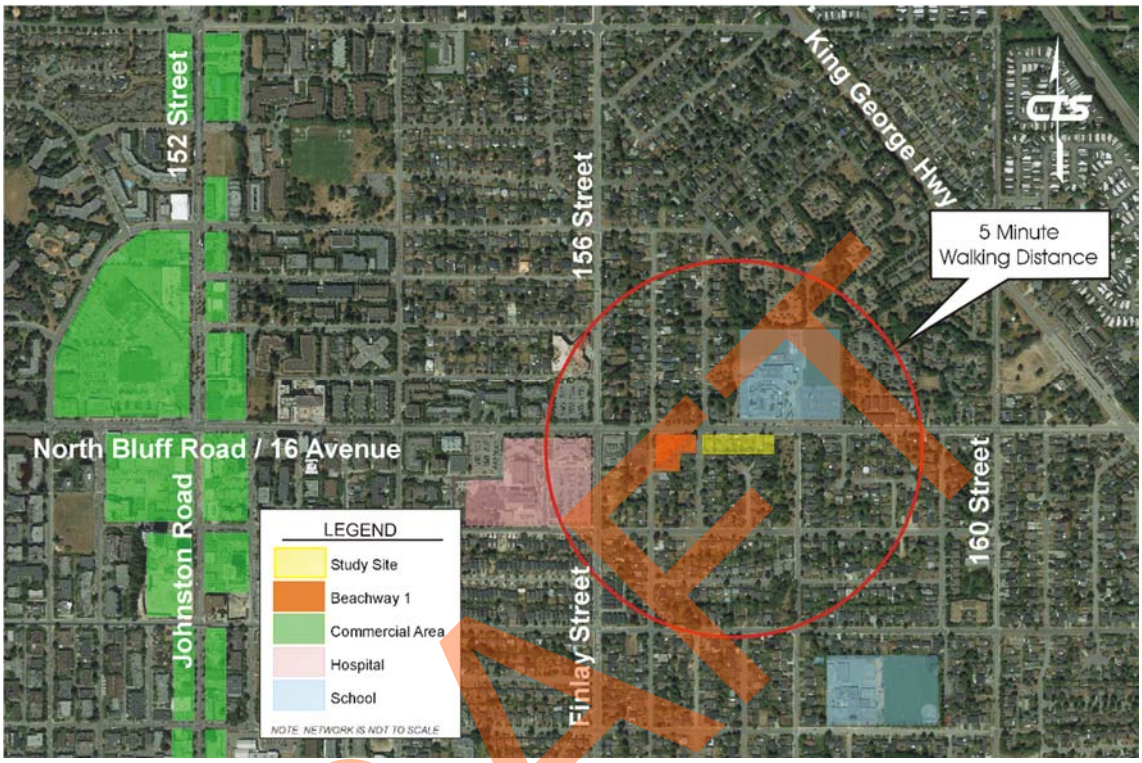
The current zoning is RS-1 (One Unit Residential Zone) and the site is located in the east side large-lot infill redevelopment area. The proposed development location is illustrated in **FIGURE 1** below.

The residential development is proposed to be rezoned as a comprehensive development and will have 34 city homes and 113 condominium units for a total of 147 dwelling units. Of the 147 units, 46 are designated as non-market units with seven (7) of them being townhouse units, and 39 of them being condominium units.

Access to the site is proposed via a driveway on Lee Street. For the purposes of this study, development was assumed to be completed and fully occupied by 2021.

The study area and the existing roadways are illustrated in **FIGURE 2**. The referenced site plan is included in **APPENDIX A**.

FIGURE 1
SITE CONTEXT



Beachway 1, an adjacent residential development highlighted in orange in **FIGURE 1** above, was examined in a separate traffic impact assessment and is attached as **APPENDIX B**. The study site of this report, Beachway 2, is highlighted in yellow in **FIGURE 1** above.

The 400 metre radius illustrated in **FIGURE 1** above represents a five minute walk from the site.

As illustrated in **FIGURE 1**, the site has excellent walking access to significant commercial and retail areas.

The following attractions and destinations are all approximately a five (5) to fifteen (15) minute walk from the study site:

- Semiahmoo Shopping Centre
- Semiahmoo Public Library
- Peace Arch Hospital
- Commercial / retail developments all along Johnston Road
- White Rock Centre transit exchange
- Earl Marriott Secondary School
- Peach Arch Elementary
- Kent Street Activity Centre
- Maccaud Park

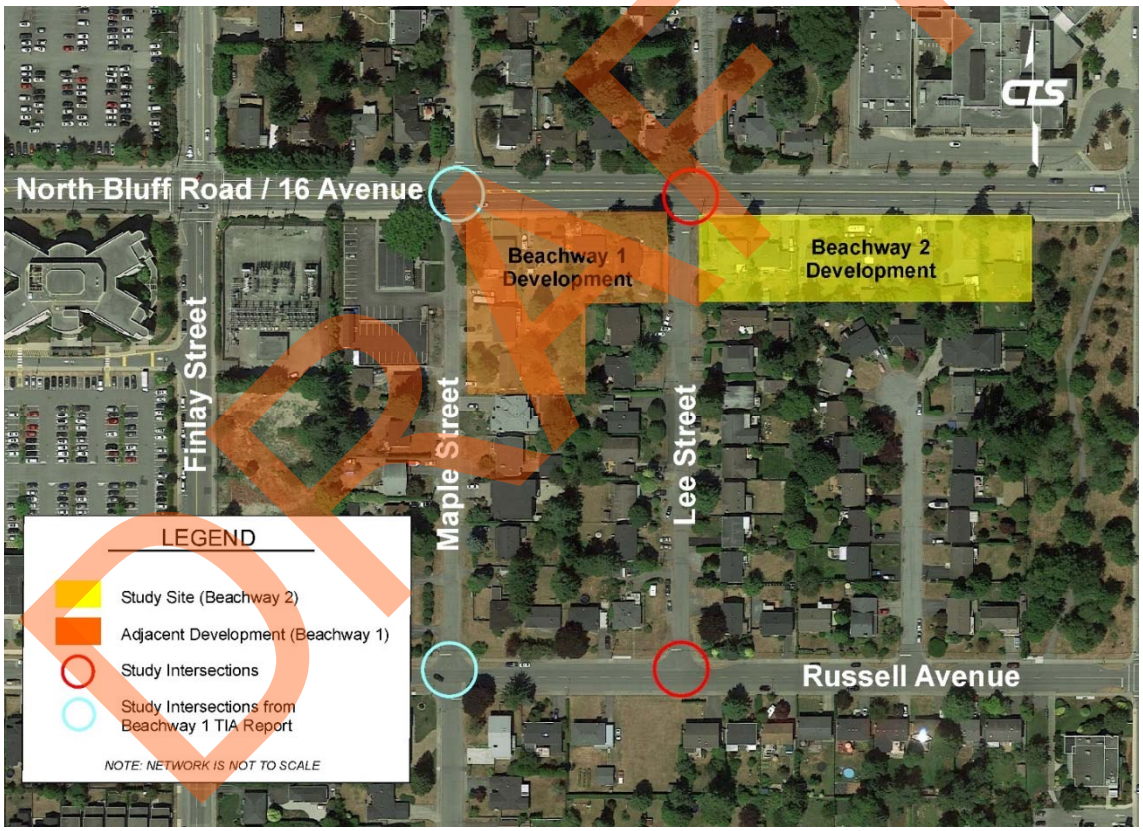
The study intersections analyzed within this traffic impact assessment include the following:

- Lee Street at North Bluff Road
- Lee Street at Russell Avenue

The following study intersections were counted and analyzed in the traffic impact assessment for Beachway 2 and may be referenced to in **APPENDIX B**:

- Maple Street at North Bluff Road
- Maple Street at Russell Avenue

FIGURE 2
STUDY AREA AND INTERSECTIONS



1.2 Site Visit/Road Network

A site visit was conducted in order to document current conditions. The following road network characteristics were confirmed.

North Bluff Road / 16th Avenue

- East-west arterial
- Centerline forms the municipal boundary between City of White Rock and City of Surrey.
- Four lanes.
- Truck Route.
- No Stopping on north side. 'Permit Parking Only' on south side
- Concrete curb and gutter along both sides of the road.
- Street lighting.

Russell Avenue

- East / west primary collector
- Two lanes – two through lanes with two parking lanes.
- 'Permit parking Only' on both sides
- Concrete curb and gutter along both sides of the road.
- Street lighting.

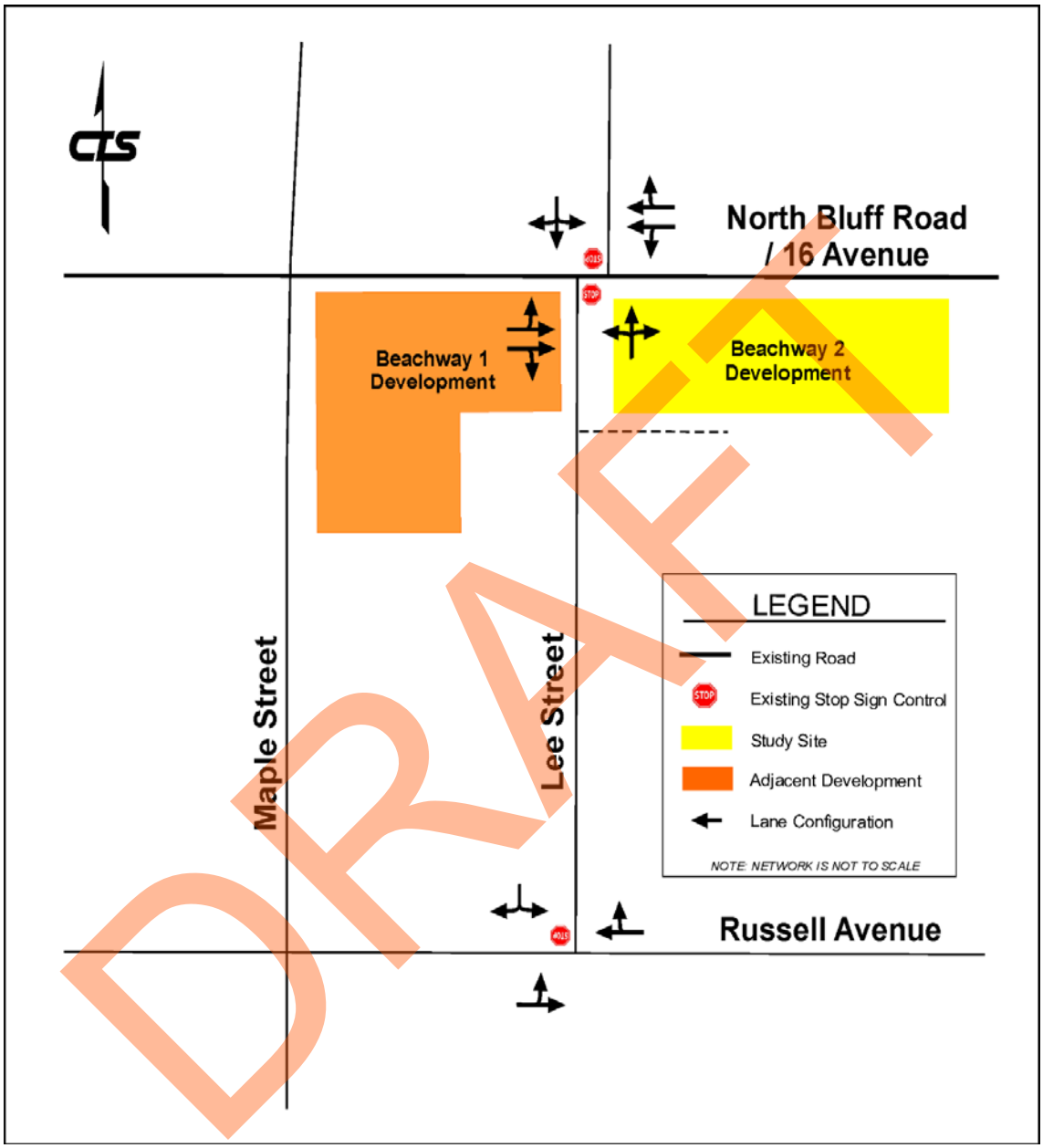
Lee Street

- North / south neighborhood local road.
- Two lanes.
- 'Permit parking Only' on both sides
- No curb or gutter.
- Street Lighting.

The laning configuration for the study intersections are illustrated in **FIGURE 3.**

It should be noted that due to the proximity of Peace Arch Hospital, on-street parking management is a key traffic management element for the City of White Rock.

FIGURE 3
LANING CONFIGURATION



1.3 Scope of Work

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 and the peak traffic times a residential development.

The following scenarios were used in this traffic impact assessment:

1. 2019 existing base traffic
2. 2021 future base traffic
3. 2026 future base traffic
4. 2021 future base traffic + proposed development traffic
5. 2026 future base traffic + proposed development traffic

2.0 BASE TRAFFIC VOLUMES

2.1 Existing Base Traffic Volumes

2019 Base Traffic Volumes

CTS conducted turning movement counts from 07:00 to 09:00, and 15:00 to 18:00 to document the typical weekday peak hour traffic volume for the following intersections on the following dates:

- Lee Street and North Bluff Road (Thursday, November 8th, 2018);
- Lee Street and Russell Avenue (Thursday, November 8th, 2018);

The traffic count data was summarized and reviewed to ensure data integrity and validity. The summarized traffic data sheets are included in **APPENDIX C.**

The 2018 base traffic volumes were factored up by a traffic volume growth rate of 2.0% to represent base year 2019 volumes.

From the collected data, the weekday morning peak hour was determined to occur from 7:45 to 8:45 and the afternoon peak hour was determined to occur from 15:00 to 16:00.

The 2019 base traffic volumes for the weekday morning and afternoon peak hours are illustrated in **FIGURE 4** and **FIGURE 5** respectively.

FIGURE 4
2019 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

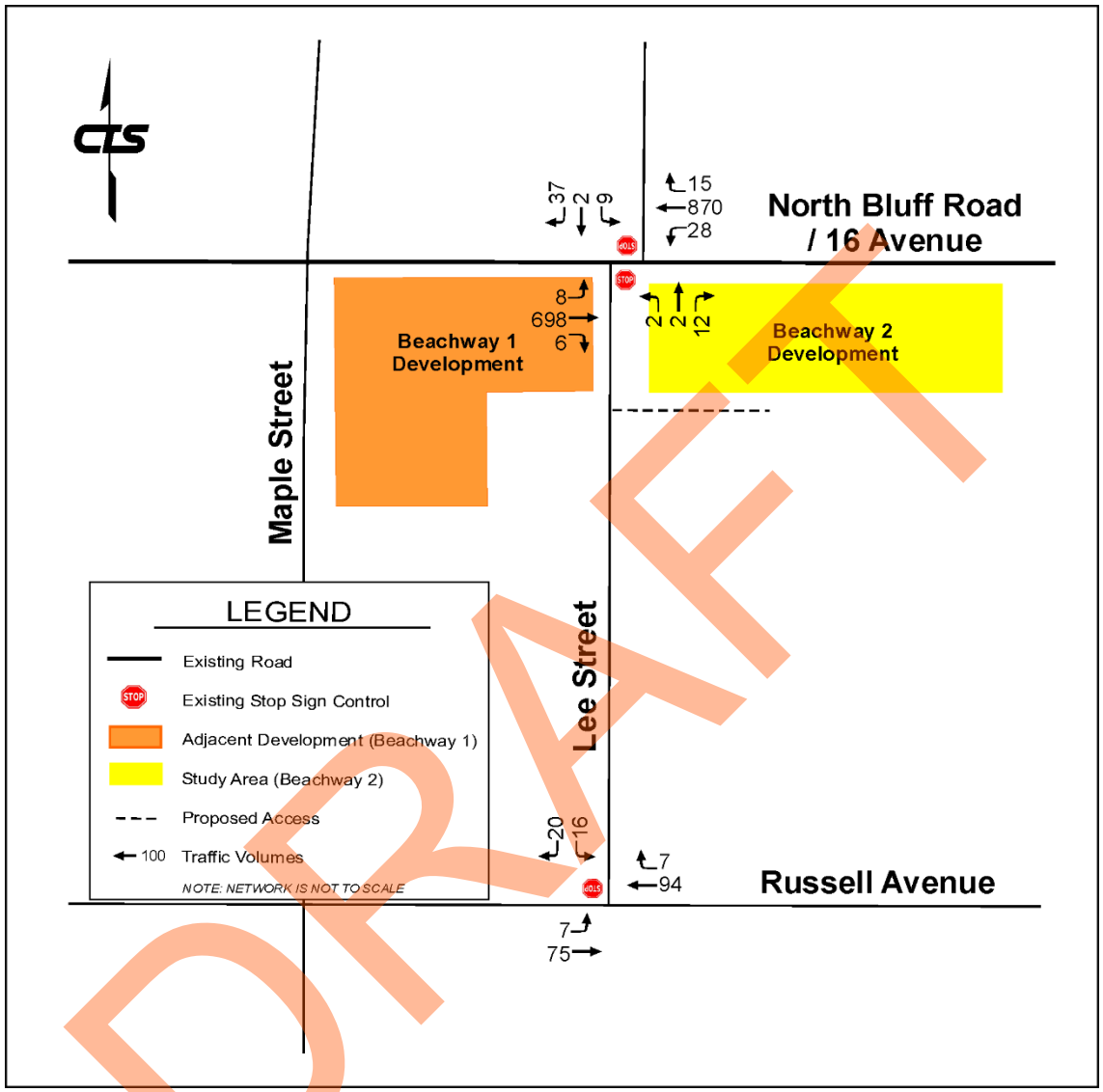
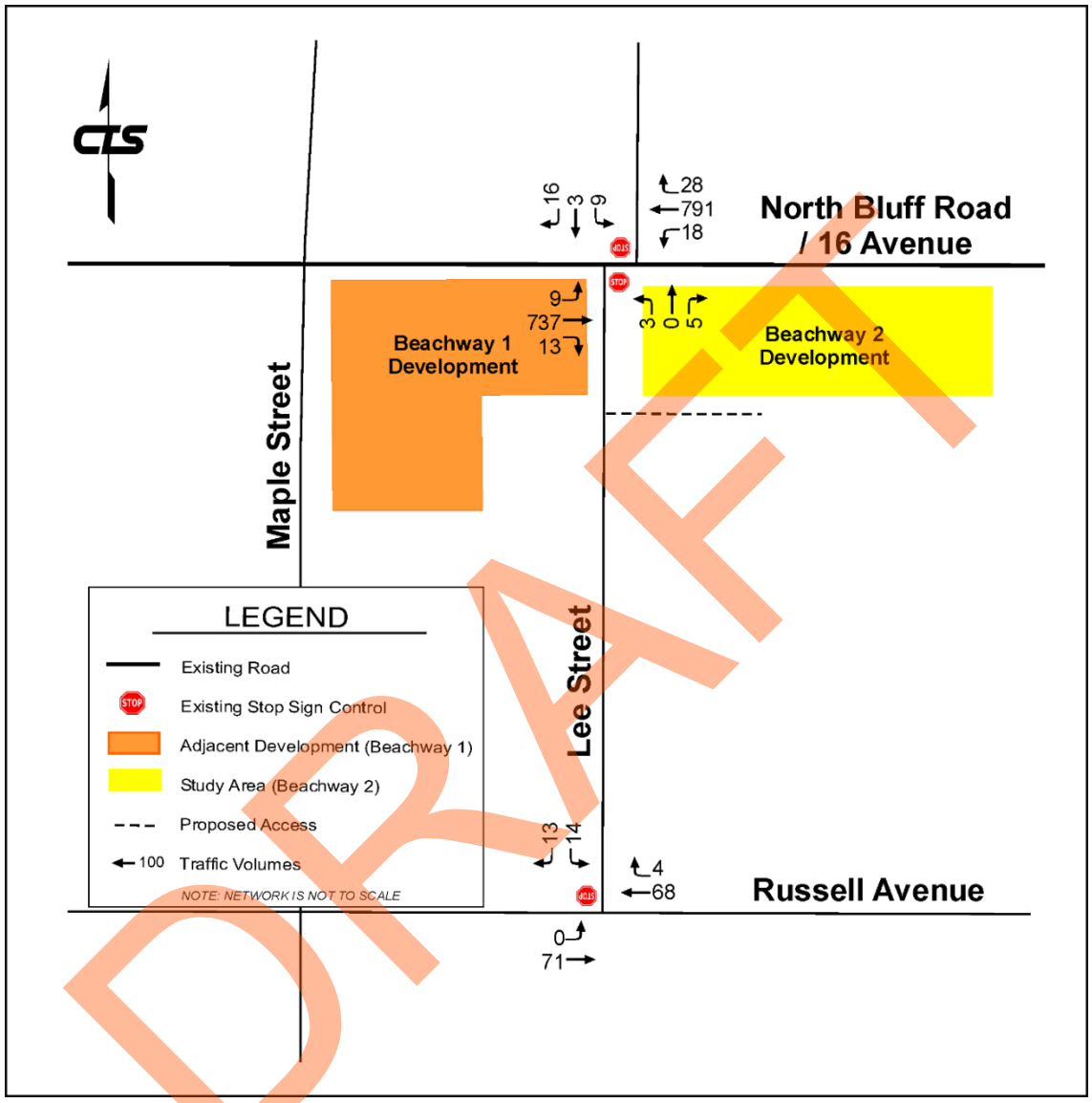


FIGURE 5
2019 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES



2.2 Future Base Traffic Volumes

The 2019 base volumes were factored up by a traffic volume growth rate of 2.0% to the 2021 and 2026 horizon years.

2021 Future Base Traffic Volumes

2021 is anticipated to be the year of full buildout for the proposed development. The 2018 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent base year 2021 volumes.

FIGURE 6 and FIGURE 7 illustrate the weekday morning and afternoon peak hour vehicle volumes, respectively.

2026 Future Base Traffic Volumes

2026 is ten years after the anticipated year of full buildout for the proposed development, and is a scenario requested by the City of White Rock. The 2019 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent base year 2026 volumes.

FIGURE 8 and FIGURE 9 illustrate the weekday morning and afternoon peak hour vehicle volumes, respectively.

FIGURE 6
2021 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

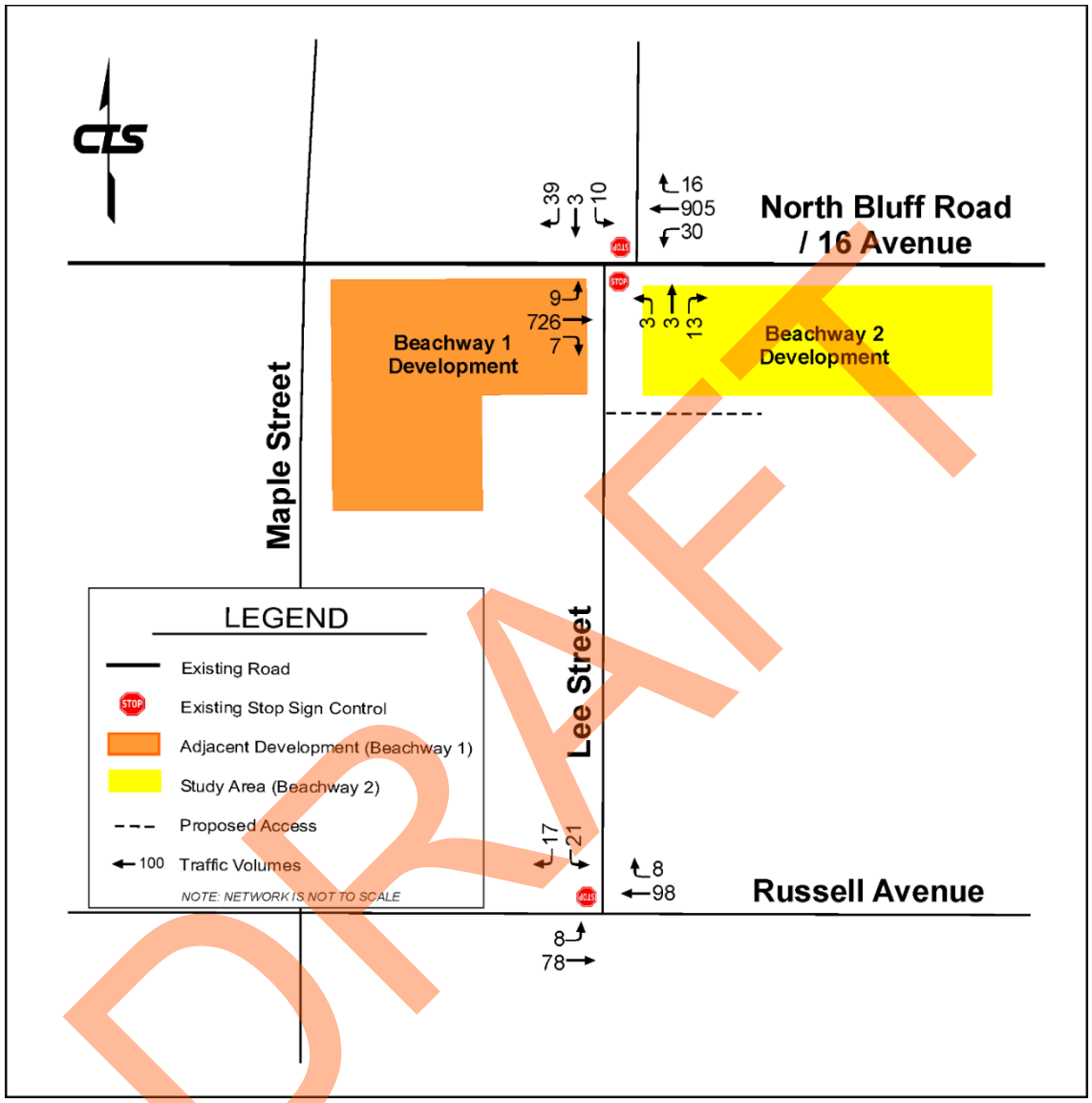


FIGURE 7
2021 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES

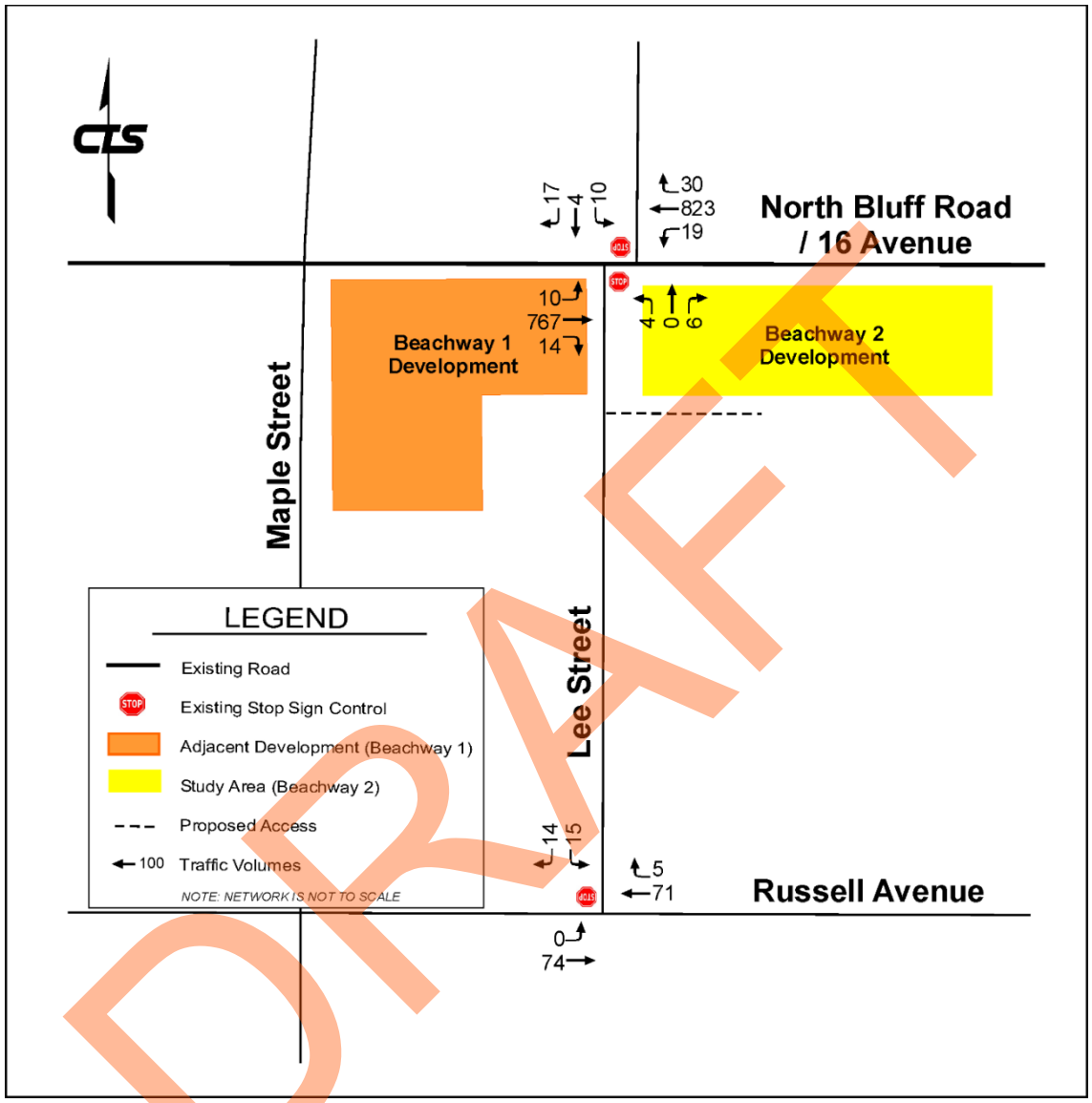


FIGURE 8
2026 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

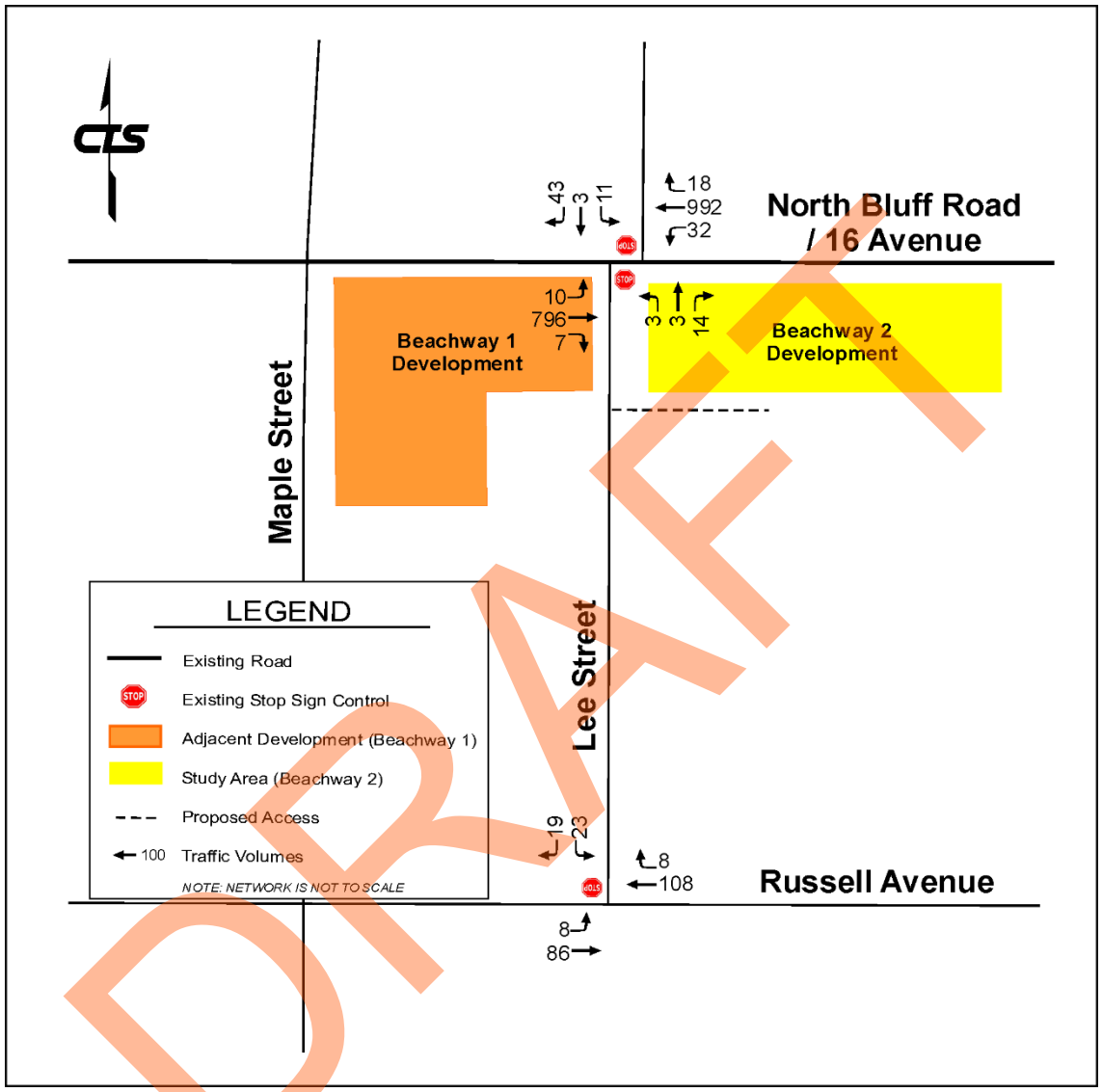
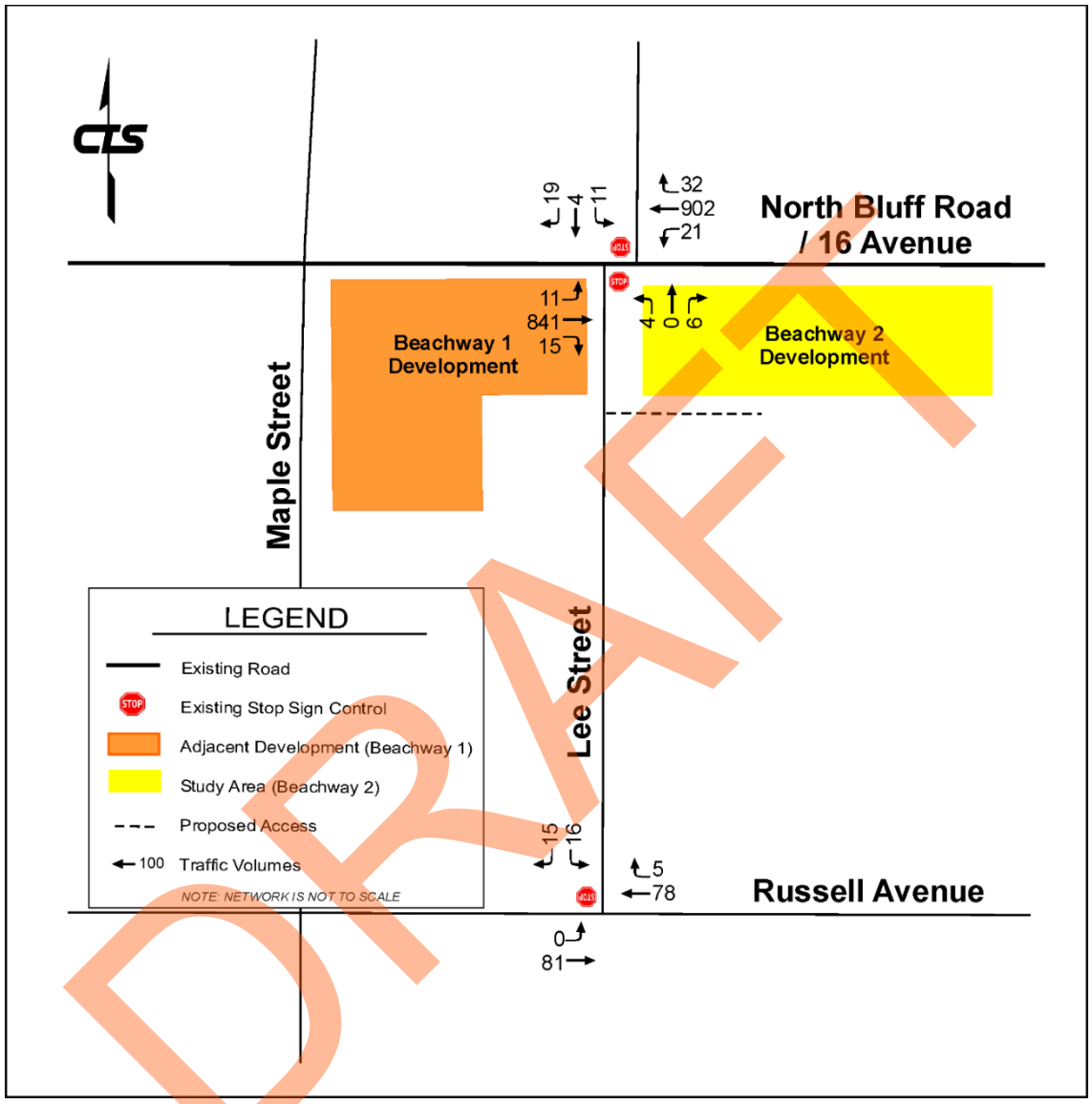


FIGURE 9
2026 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES



3.0 SITE TRAFFIC VOLUMES

3.1 Trip Generation

The published vehicle trip rates from *the Institute of Transportation Engineers (ITE) 10th Edition* were used to forecast the site generated traffic volumes. The proposed residential development consists of 34 townhouse units and 113 condominium units.

TABLE 1 summarizes the estimated site generated traffic for the existing apartment building as well as the forecast site generated traffic from the proposed development.

TABLE 1
SUMMARY OF 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	34	ITE 10th Edition - Code 220	Weekday Morning	0.46	23%	77%	3	13	16
				Weekday Afternoon	0.56	63%	37%	12	8	20
Multifamily Housing (Mid-Rise)	Dwelling Units	113	ITE 10th Edition - Code 220	Weekday Morning	0.36	26%	74%	10	31	41
				Weekday Afternoon	0.44	61%	39%	30	20	50
WEEKDAY MORNING PEAK HOUR TRAFFIC VOLUMES								**13**	**44**	**57**
WEEKDAY AFTERNOON PEAK HOUR TRAFFIC VOLUMES								**42**	**28**	**70**

Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have three or more levels (floors). The Vehicle Trip Generation Rate was selected using the General Urban/Suburban setting.

From **TABLE 1**, the proposed development is forecasted to generate a total of 57 vehicle trips (13 inbound, 44 outbound) during the weekday morning peak hour and 70 vehicle trips (42 inbound, 28 outbound) during the weekday afternoon peak hour. This is the equivalent of approximately one vehicle movement every 1.1 minutes during the weekday morning peak hour and one vehicle movement every 57 seconds during the weekday afternoon peak hour.

3.2 Trip Distribution

The trip distribution parameters for distributing site generated vehicle trips to / from the site were developed from existing traffic patterns entering and exiting the study area. The traffic volume assignment is summarized in **TABLE 2**.

TABLE 2
TRIP DISTRIBUTION VEHICLE VOLUMES
FOR SITE GENERATED TRAFFIC

From / To	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
North Bluff Road (W)	9	19	20	13
Lee St (N)	1	1	1	1
North Bluff Road (E)	1	20	17	12
Russell Ave (E)	1	2	2	1
Russell Ave (W)	1	2	2	1
TOTAL	**13**	**44**	**42**	**28**
	57		**70**	

The weekday morning and afternoon peak hour site generated traffic volumes of the proposed development for the build-out year of 2021 are illustrated in **FIGURE 10** and **FIGURE 11**.

FIGURE 10
WEEKDAY MORNING PEAK HOUR SITE TRAFFIC VOLUMES

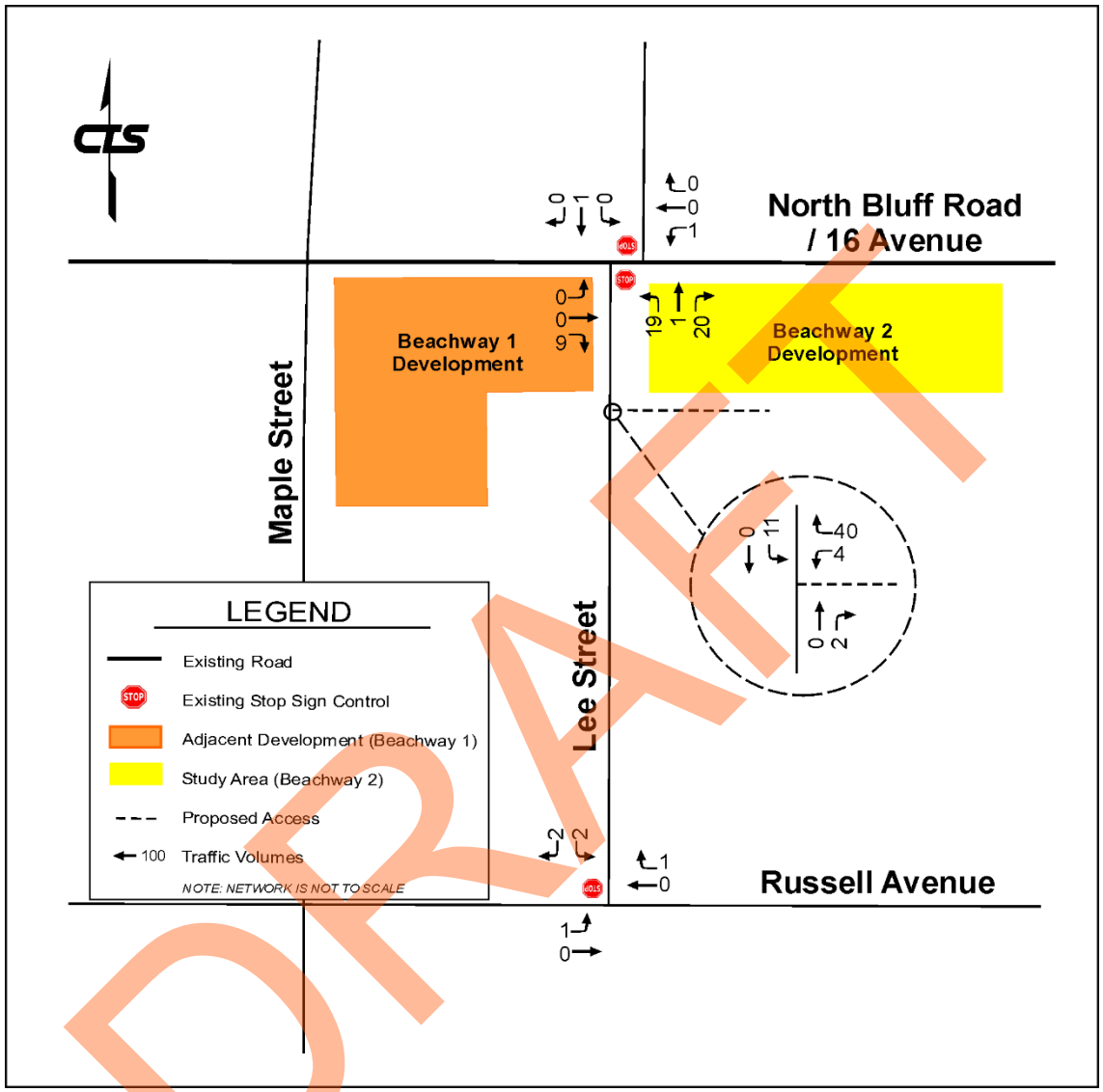
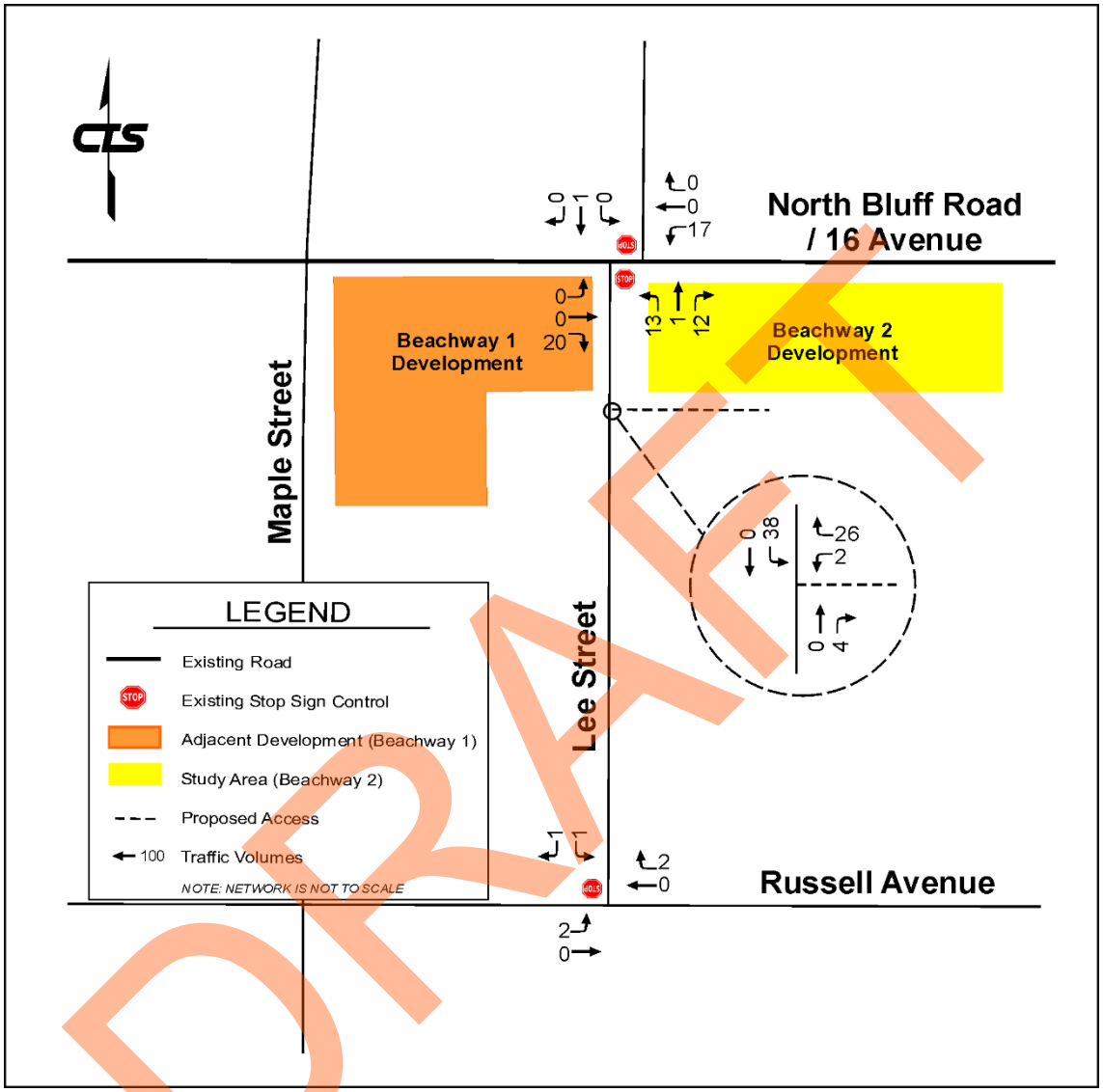


FIGURE 11
WEEKDAY AFTERNOON PEAK HOUR SITE TRAFFIC VOLUMES



4.0 BASE + SITE TRAFFIC VOLUMES

2021 Future Base + Site Traffic Volumes

For the purposes of this study, the proposed development is assumed to be fully built-out and occupied by the year 2021. The 2021 future base plus proposed development traffic volumes were calculated by first factoring up the 2019 base traffic volumes up by the approved volume growth rate of 2.0% per annum (simple-straight line) to the year 2021. Then, the forecast traffic generated by the proposed development were added to the 2021 base traffic volumes.

FIGURE 12 illustrates the total projected traffic for the 2021 weekday morning peak hour consisting of the future base plus the proposed development site generated traffic.

FIGURE 13 illustrates the total projected traffic for the 2021 weekday afternoon peak hour consisting of the future base plus the proposed development site generated traffic.

2026 Future Base + Site Traffic Volumes

For the purposes of this study, the proposed development is assumed to have been fully built-out and occupied for five years by the year 2026. The 2026 future base plus proposed development traffic volumes were calculated by first factoring up the 2019 base traffic volumes up by the approved volume growth rate of 2.0% per annum (simple-straight line) to the year 2026. Then, the forecast traffic generated by the proposed development were added to the 2026 base traffic volumes.

FIGURE 14 illustrates the total projected traffic for the 2026 weekday morning peak hour consisting of the future base plus the proposed development site generated traffic.

FIGURE 15 illustrates the total projected traffic for the 2026 weekday afternoon peak hour consisting of the future base plus the proposed development site generated traffic.

FIGURE 12
2021 WEEKDAY MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES

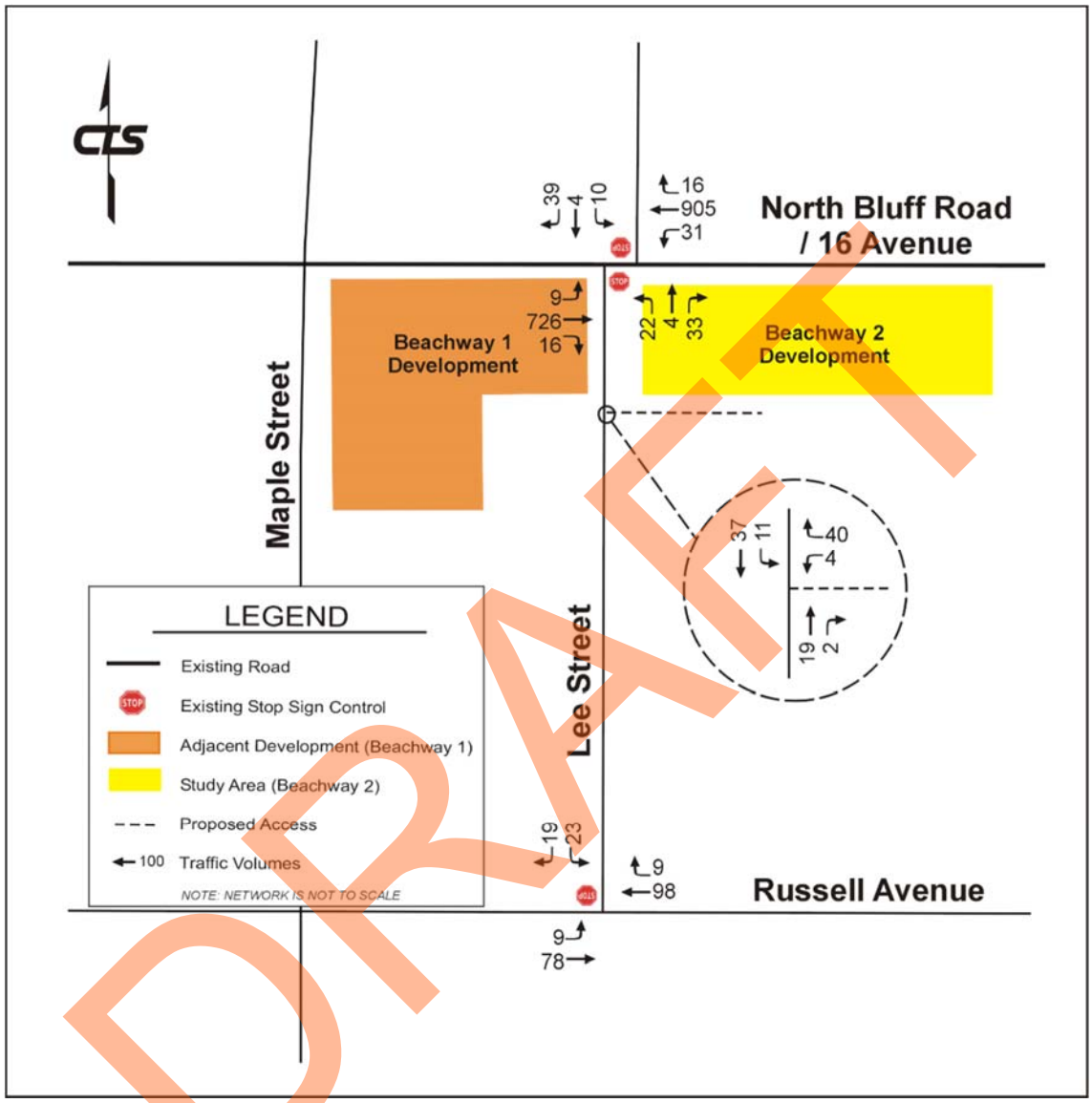


FIGURE 13
2021 WEEKDAY AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES

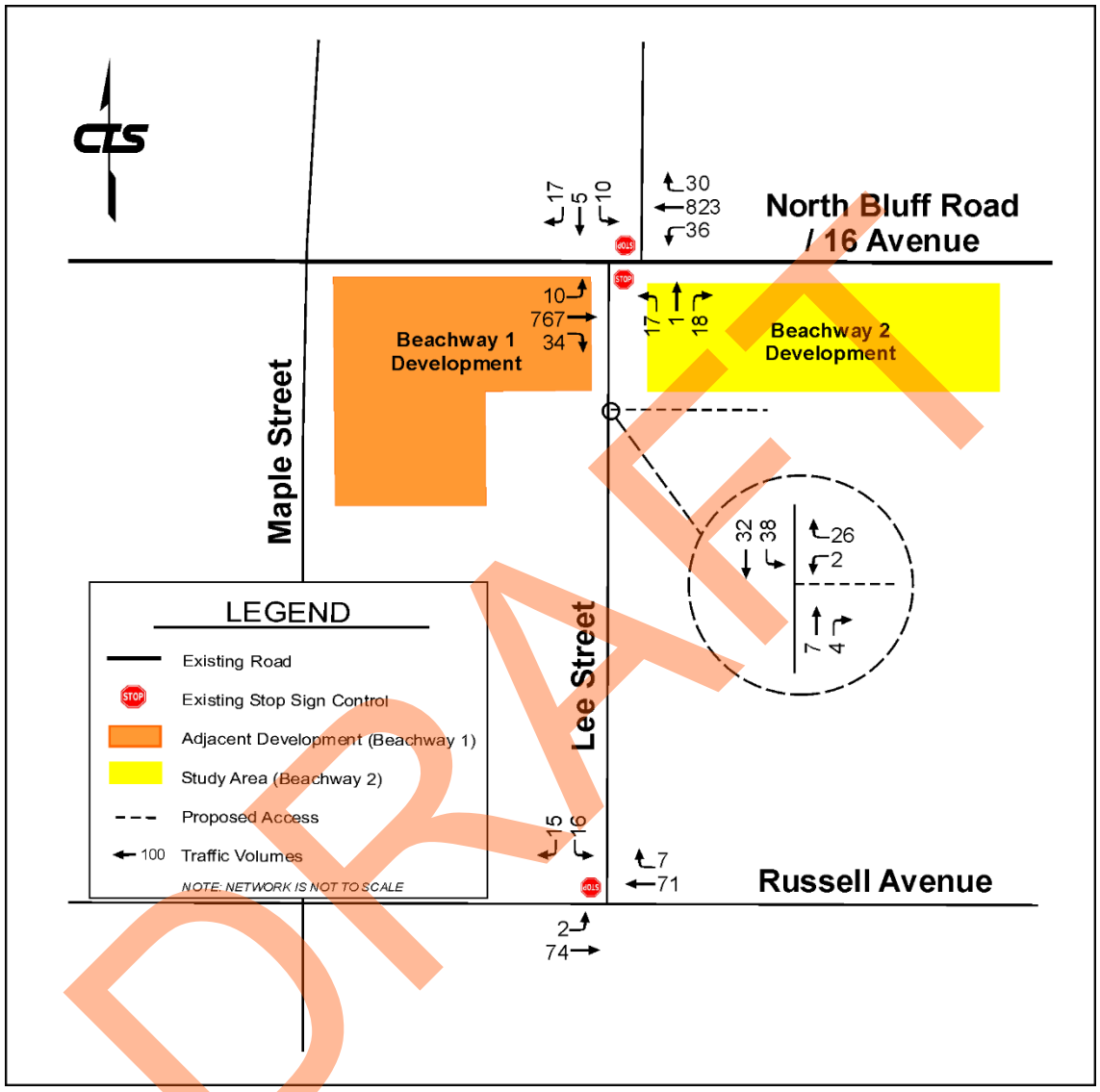


FIGURE 14
2026 WEEKDAY MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES

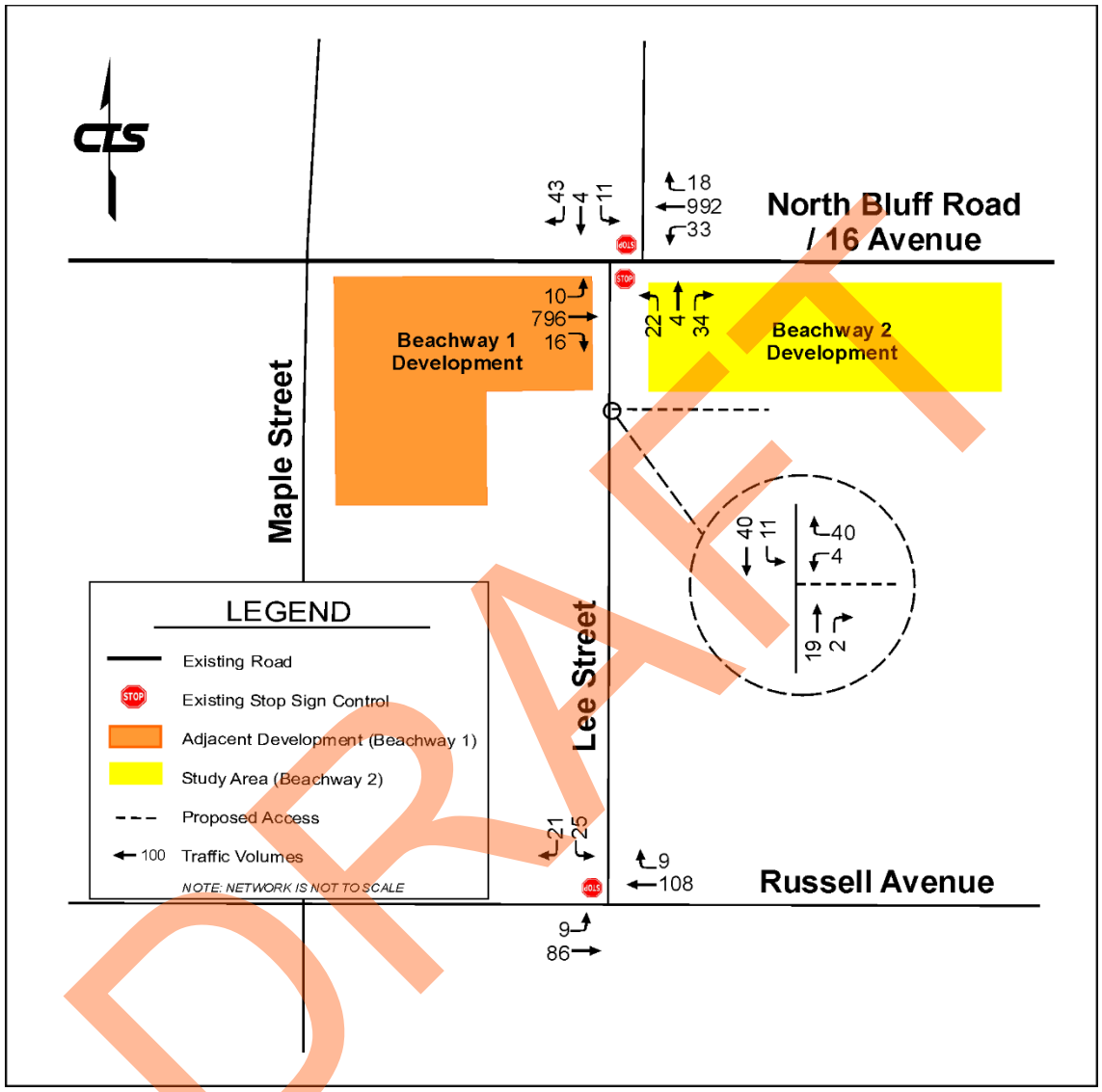
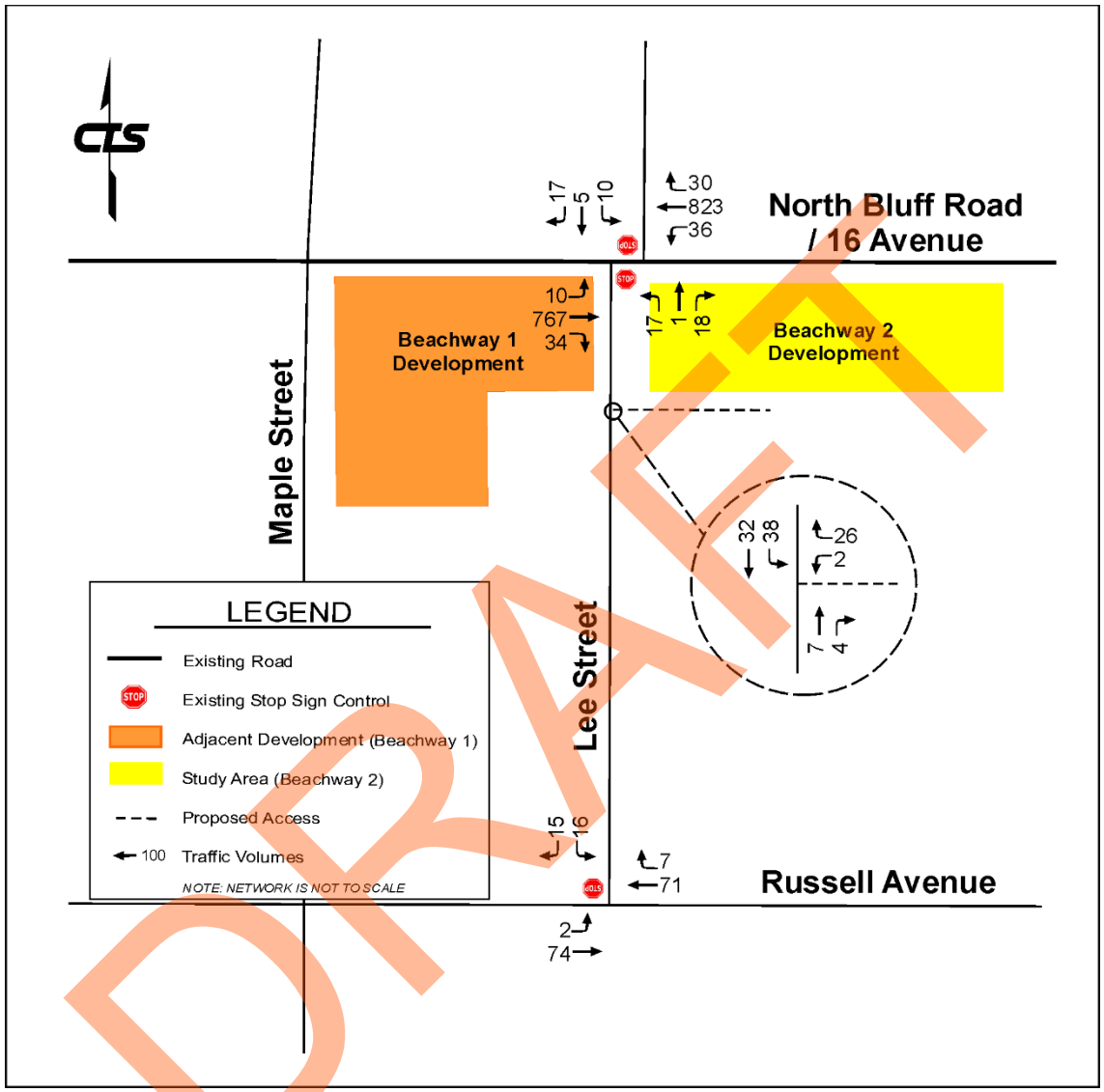


FIGURE 15
2026 WEEKDAY AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES



5.0 INTERSECTION CAPACITY ANALYSIS

5.1 Capacity Analysis

Capacity analysis was performed at each of the locations in order to determine the intersection levels of service (LOS) that is provided to motorists. The LOS for intersections and 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 "F" (Fail). See **TABLE 3.** A LOS of "F" (Fail) indicates that an intersection or movement is failing because the intersection or movement is over capacity and delays are considered excessive. A LOS of "D" during the critical peak hours is considered acceptable by many public agencies in large urban areas for overall intersection operation and a LOS of "E" or better is considered acceptable for left turn movements as it recognizes that the intersections normally perform much better the remaining 90% of the day.

TABLE 3
LEVEL OF SERVICE DESCRIPTIONS

Level of Service	Description
A	Excellent
B	Good
C	Fair
D	Poor
E	Very Poor
F	Fail

Highway Capacity Software (HCS 7.8.5) was used for the analysis of the unsignalized intersections.

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

- *Saturation flow rate* = 1,900 passenger cars/hour of green time/lane (pcphgpl)
- *Peak hour factor* (PHF) = 0.83 (weekday morning peak hour) and 0.85 (weekday afternoon peak hour) were the weighted average factors observed from the surveyed intersections.
- Heavy vehicle percentage for roads = 2%

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 available at all times 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 4 to **TABLE 6** summarizes and compares the main performance parameters of the intersection capacity analysis for the unsignalized 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.

This analysis does not include the effects of upstream signals. In addition, it is assumed that all of through movements travelling eastbound and westbound on North Bluff Road will experience the same delay as the eastbound and westbound left turn movements. Hence, the results of this analysis are more conservative. The capacity analysis worksheets with level of services for each individual movement are included in **APPENDIX D**.

TABLE 4
CAPACITY ANALYSIS FOR UNSIGNALIZED INTERSECTION
LEE ST AT NORTH BLUFF RD

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		
Lee Street (N/S) and North Bluff Road (E/W)	Weekday Morning Peak Hour	2019 Base	Volumes	8	698	6	28	870	15	2	2	12	9	2	37	B	NB and SB approaches are experiencing medium delays.
			Delay	10.7	10.7	0.0	10.6	10.6	0.0	33.0			35.4				
			95% Queue (m)	0.0	0.0	0.0	0.2	0.2	0.0	0.4			1.4				
		2021 Base	Volumes	9	726	7	30	905	16	3	3	13	10	3	39	B	NB and SB approaches are experiencing medium delays.
			Delay	11.0	11.0	0.0	10.8	10.8	0.0	46.6			48.7				
			95% Queue (m)	0.1	0.1	0.0	0.2	0.2	0.0	0.7			2.0				
		2026 Base	Volumes	10	796	7	32	992	18	3	3	14	11	3	43	B	NB and SB approaches are experiencing high delays.
			Delay	11.6	11.6	0.0	11.3	11.3	0.0	65.0			84.2				
			95% Queue (m)	0.1	0.1	0.0	0.2	0.2	0.0	1.1			3.2				
		2021 Base + Site	Volumes	9	726	16	31	905	16	22	4	33	10	4	39	C	NB and SB approaches are experiencing high delays.
			Delay	11.0	11.0	0.0	10.8	10.8	0.0	129.7			58.6				
			95% Queue (m)	0.1	0.1	0.1	0.2	0.2	0.0	4.2			58.6				
		2026 Base + Site	Volumes	10	796	16	33	992	18	22	4	34	11	4	43	C	NB and SB approaches are experiencing high delays.
			Delay	11.6	11.6	0.0	11.3	11.3	0.0	260.3			110.5				
			95% Queue (m)	0.1	0.1	0.0	0.2	0.2	0.0	5.7			3.8				
	Weekday Afternoon Peak Hour	2019 Base	Volumes	9	737	13	18	791	28	3	0	5	9	3	16	B	NB and SB approaches are experiencing medium delays.
			Delay	10.2	10.2	0.0	10.3	10.3	0.0	28.7			36.6				
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.2			0.8				
		2021 Base	Volumes	10	767	14	19	823	30	4	0	6	10	4	17	B	NB and SB approaches are experiencing medium delays.
			Delay	10.4	10.4	0.0	10.5	10.5	0.0	33.9			45.4				
			95% Queue (m)	0.1	0.1	0.0	0.1	0.1	0.0	0.3			1.1				
		2026 Base	Volumes	11	841	15	21	902	32	4	0	6	11	4	19	B	NB approach is experiencing medium delays. SB approach is experiencing high delays.
			Delay	10.9	10.9	0.0	10.9	10.9	0.0	44.1			64.8				
			95% Queue (m)	0.1	0.1	0.0	0.1	0.1	0.0	0.4			1.7				
		2021 Base + Site	Volumes	10	767	34	36	823	30	17	1	18	10	5	17	B	NB and SB approaches are experiencing high delays.
			Delay	10.4	10.4	0.0	10.8	10.8	0.0	68.8			59.5				
			95% Queue (m)	0.1	0.1	0.0	0.2	0.2	0.0	1.8			1.5				
		2026 Base + Site	Volumes	11	841	35	38	902	32	17	1	18	11	5	19	B	NB and SB approaches are experiencing high delays.
			Delay	10.9	10.9	0.0	11.3	11.3	0.0	114.5			93.0				
			95% Queue (m)	0.1	0.1	0.0	0.2	0.2	0.0	2.6			2.2				

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 4**, the following observations can be made:

Lee Street at North Bluff Road:

- During the weekday morning peak hour:
    - The intersection is forecast to operate at LOS B (Good) for the 2019, 2021, and 2026 base years. However, the northbound and southbound approaches are expected to experience medium delays for the 2019 and 2021 base years and high delays for the 2026 base year.
    - The intersection is forecast to operate at LOS C (Fair) for the 2021 and 2026 base + site years. However, the northbound and southbound approaches are expected to experience high delays for the 2021 and 2026 base + site years.

- During the weekday afternoon peak hour:
    - The intersection is forecast to operate at LOS B (Good) for all horizon years and scenarios. However, the northbound and southbound approaches are expected to experience medium delays for the 2019 and 2021 base years and high delays for the 2026 base, 2021 base + site, and 2026 base + site years.

TABLE 5
CAPACITY ANALYSIS FOR UNSIGNALIZED INTERSECTION
LEE ST AT RUSSELL AVE

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		
Lee Street (N/S) and Russell Avenue (E/W)	Weekday Morning Peak Hour	2019 Base	Volumes	7	75			94	7				20		16	A	Okay.
			Delay	7.5				0.0					9.7				
			95% Queue (m)	0.0				0.0					0.2				
		2021 Base	Volumes	8	78			98	8				21		17	A	Okay.
			Delay	7.5				0.0					9.8				
			95% Queue (m)	0.0				0.0					0.2				
		2026 Base	Volumes	8	86			108	8				23		19	A	Okay.
			Delay	7.6				0.0					9.9				
			95% Queue (m)	0.0				0.0					0.2				
		2021 Base + Site	Volumes	9	78			98	9				23		19	A	Okay.
			Delay	7.5				0.0					9.8				
			95% Queue (m)	0.0				0.0					0.2				
		2026 Base + Site	Volumes	9	86			108	9				25		21	A	Okay
			Delay	7.6				0.0					10.0				
			95% Queue (m)	0.0				0.0					0.2				
	Weekday Afternoon Peak Hour	2019 Base	Volumes	0	71			68	4				14		13	A	Okay.
			Delay	7.5				0.0					9.4				
			95% Queue (m)	0.0				0.0					0.1				
		2021 Base	Volumes	0	74			71	5				15		14	A	Okay.
			Delay	7.5				0.0					9.4				
			95% Queue (m)	0.0				0.0					0.1				
		2026 Base	Volumes	0	81			78	5				16		15	A	Okay.
			Delay	7.5				0.0					9.5				
			95% Queue (m)	0.0				0.0					0.1				
		2021 Base + Site	Volumes	2	74			71	7				16		15	A	Okay.
			Delay	7.5				0.0					9.5				
			95% Queue (m)	0.0				0.0					0.1				
		2026 Base + Site	Volumes	2	81			78	7				17		16	A	Okay
			Delay	7.5				0.0					9.6				
			95% Queue (m)	0.0				0.0					0.1				

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 5**, the following observations can be made:

George Lane at Russell Avenue:

- During the weekday morning peak hour:
  - The intersection is forecast to continue to operate at LOS A (Excellent) for all horizon years and scenarios.
- During the weekday afternoon peak hour:
  - The intersection is forecast to continue to operate at LOS A (Excellent) for all horizon years and scenarios.

TABLE 6
CAPACITY ANALYSIS FOR UNSIGNALIZED INTERSECTION
LEE ST AT SITE ACCESS

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		
Lee Street (N/S) & Site Access (E/W)	Weekday Morning Peak Hour	2021 Base + Site	Volumes				4		40		19	2	11	37		A	Okay
			Delay				8.7				0.0		7.3				
			95% Queue (m)				0.2				0.0		0.0				
		2026 Base + Site	Volumes				4		40		19	2	11	40		A	Okay
			Delay				8.7				0.0		7.3				
			95% Queue (m)				0.2				0.0		0.0				
	Weekday Afternoon Peak Hour	2021 Base + Site	Volumes				2		26		7	4	38	32		A	Okay
			Delay				8.6				0.0		7.3				
			95% Queue (m)				0.1				0.0		0.1				
		2026 Base + Site	Volumes				2		26		7	4	38	35		A	Okay
			Delay				8.6				0.0		7.3				
			95% Queue (m)				0.1				0.0		0.1				

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 6**, the following observations can be made:

Lee Street at Site Access

- During the weekday morning peak hour:
  - The intersection is forecast to continue to operate at LOS A (Excellent) for all horizon years and scenarios.
- During the weekday afternoon peak hour:
  - The intersection is forecast to continue to operate at LOS A (Excellent) for all horizon years and scenarios.

6.0 2045 LINK VOLUMES

The City of White Rock requested that estimates for the 2045 vehicle traffic volumes within the study network be made in order to provide a point of reference for the City of White Rock 2045 OCP.

As this scenario is 26 years into the future, it is difficult to accurately forecast vehicle volumes in the context of intersection analysis. Therefore, peak hour road link volumes were determined to provide an estimated magnitude of vehicle volumes.

FIGURE 16 and **FIGURE 17** show the estimated 2-way link volumes for the morning and afternoon peak hour based on an approved growth rate of 2.0% per annum (simple-straight line) factored up from the 2019 turning movement counts with the proposed site traffic included.

FIGURE 16
2045 WEEKDAY MORNING PEAK HOUR LINK VOLUMES

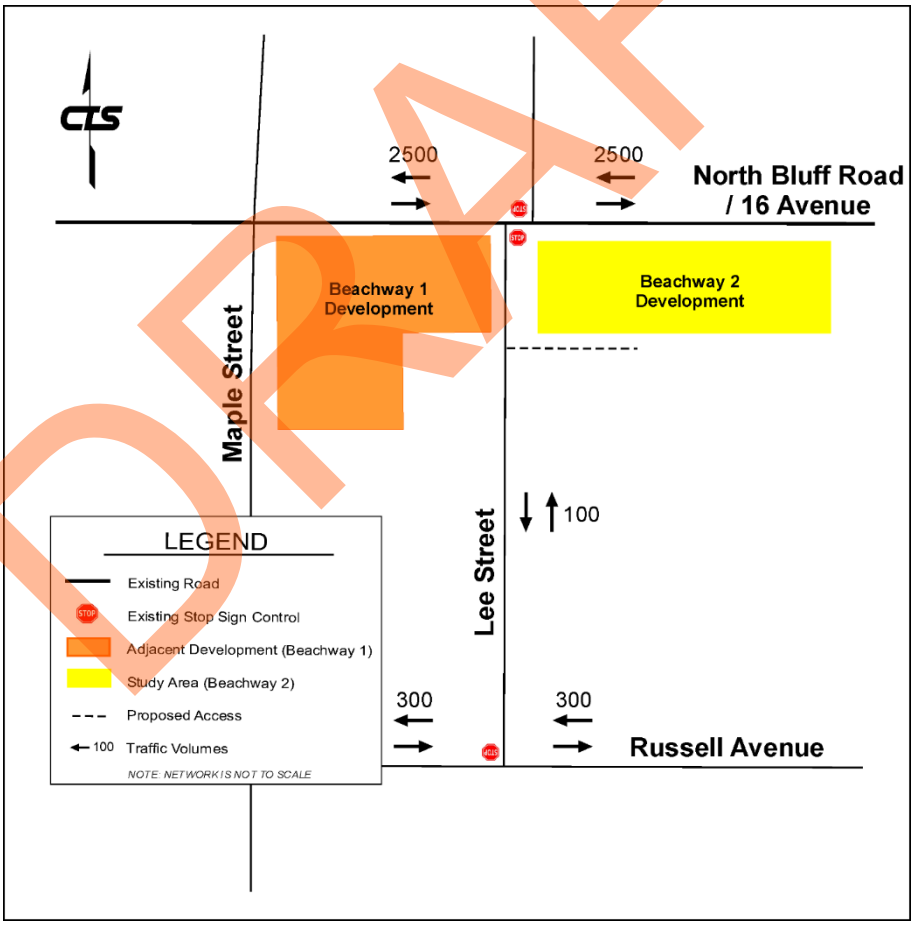
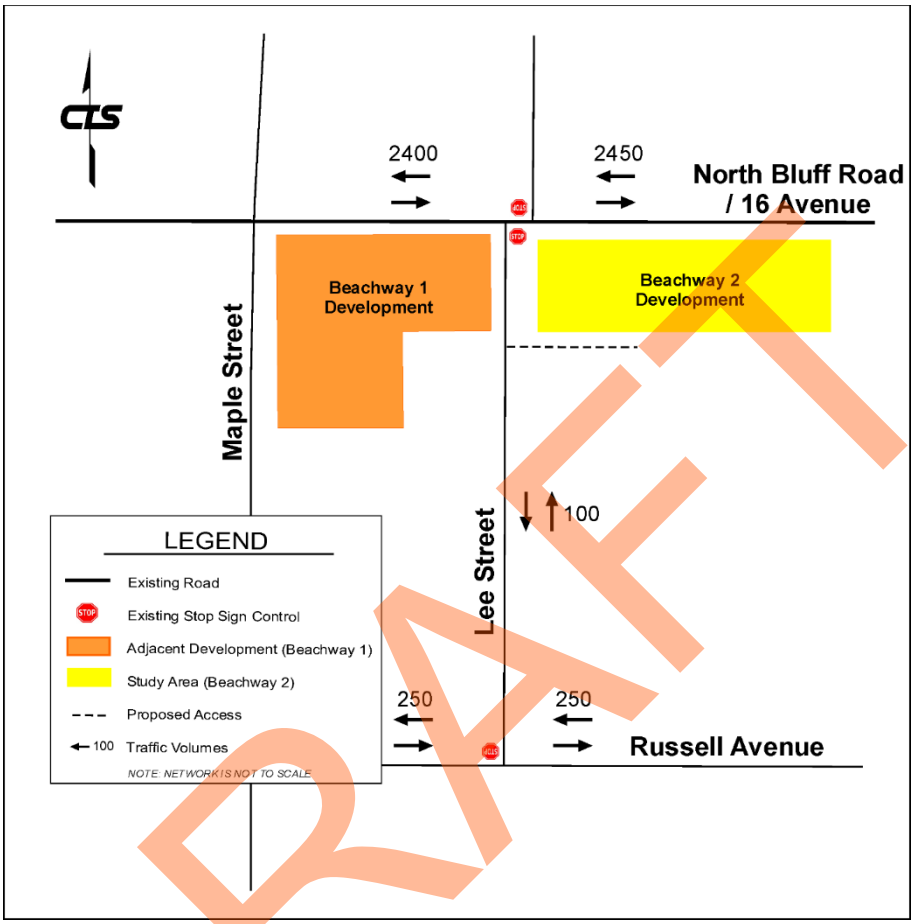


FIGURE 17
2045 WEEKDAY AFTERNOON PEAK HOUR LINK VOLUMES



In the morning peak hour, the estimated 2-way link volume on North Bluff Road, Lee Street, and Russell Avenue, are 2500, 100, and 300 vehicles, respectively.

In the afternoon peak hour, the estimated 2-way link volume on North Bluff Road, Lee Street, and Russell Avenue, are 2450, 100, and 250 vehicles, respectively.

As the theoretical capacity for North Bluff Road is 3200 vehicles per hour (two-way), the road network is deemed to have sufficient capacity for the forecasted traffic volumes in the year 2045.

7.0 TRANSPORTATION DEMAND MANAGEMENT

In support of the requested 30% parking variance, the proposed land uses, existing nearby amenities and infrastructure, and opportunities for alternative modes of travel were considered.

7.1 City of White Rock Policy

With reference to the City of White Rock 2045 OCP, Objective 11.2 is "to support rental housing and a range of non-market housing options and needs along the housing spectrum". Building 1 of the three buildings is proposed to be a non-market affordable rental development which aligns with the City's OCP objectives and a parking relaxation should be considered given Policy 11.2.1 g) recommends "reviewing parking requirements to determine the extent to which they can be relaxed for non-market and rental housing within walking distance of frequent transit service and / or commercial areas.

The proposed residential development is a 15 minute walk to Semiahmoo Shopping Centre and White Rock Centre transit exchange, which connects to Translink's Frequent Transit Network.

7.2 Adjacent Land Uses and Amenities

As previously noted in **Section 1.0**, the site is conveniently located near amenities and public transit. The following attractions and destinations are all approximately a five (5) to fifteen (15) minute walk from the study site:

- Semiahmoo Shopping Centre
- Semiahmoo Public Library
- Peace Arch Hospital
- Commercial / retail developments all along Johnston Road
- White Rock Centre transit exchange
- Earl Marriott Secondary School
- Peach Arch Elementary
- Kent Street Activity Centre
- Maccaud Park

7.3 Alternative Modes of Travel

The study area has good connectivity to transit, as well as cycling and pedestrian infrastructure. The alternative modes of travel are illustrated in **FIGURE 18** below.

FIGURE 18
ALTERNATIVE MODES OF TRAVEL WITHIN 400 METRES

Transit Network

The study area has good connectivity to transit with several options for regular busses and community shuttles. The White Rock Centre transit exchange, located at 152nd Street at North Bluff Road, is within a fifteen (15) minute walk from the site and 152nd Street is part of Translink's Frequent Transit Network.

The following bus route are within a five (5) minute walk from the proposed development:

- Route #375 White Rock South - Guildford – During peak travel times, this bus operates in half hour intervals. Bus stop is on North Bluff Road.

- Route #321 Surrey Central Station – Newton Exchange/White Rock Centre/White Rock South – During peak travel times, this bus operates in fifteen-minute intervals. Bus Stop is on North Bluff Road.

The following route is serviced on Russell Avenue to the south.

- Route #361 White Rock Centre - Ocean Park – During weekday peak travel times, this bus operates in half hour intervals. On the weekend peak travel times, this bus operates in one-hour intervals. Bus Stop is on Thrift Avenue.

The above bus routes can be used to connect to the nearby Frequent Transit Network at White Rock Centre, which provides connections to Surrey, Richmond, and Langley. Routes along the Frequent Transit Network have headway times of 15 minutes of better throughout the day, seven days a week.

The following routes are accessible just west of Finlay Street on either North Bluff Road or Russell Avenue. These bus stops are located adjacent to the Peach Arch Hospital, which is within a 5-minute walking distance of the proposed development.

- Route #360 Ocean Park - Peace Arch Hospital – During weekday peak travel times, this bus operates in half hour intervals. On the weekend peak travel times, this bus operates in one-hour intervals. Bus Stop is on Thrift Avenue, west of Finlay Street.

- Route #363 South Point - Peace Arch Hospital – During peak travel times, this bus operates in half hour intervals. Bus Stop is on Thrift Avenue, west of Finlay Street.

The bus stop locations within a 400 metre radius (or five (5) minute walking distance) are illustrated in **FIGURE 18** above.

The City of Surrey is in discussion with Translink to bring B-Line rapid bus service to North Bluff Road between Johnston Road and Finlay Street. The addition of a B-Line would upgrade this section of North Bluff Road to part of the Frequent Transit Network which has headway times of 15 minutes or better throughout the day, seven days a week.

Bicycle Network

According to the *City of White Rock Strategic Transportation Plan*:

- North Bluff Road is proposed in the future to be designated as a bicycle route;
- Finlay Street is currently designated as a shared use lane; and
- Thrift Avenue is currently designated as a shared use lane.

The proposed development is exceeding the bylaw requirement in its provision of 156 secured Class I parking spaces and 26 publically accessible bike share parking spaces within the proposed shared mobility hub, yielding a total of 182 bicycle parking spaces. This provision encourages residents and visitors to utilise the existing bicycle infrastructure in the study network.

The bicycle routes within the study area are illustrated in **FIGURE 18** above**.**

Pedestrian Network

It is noted in the *City of White Rock Strategic Transportation Plan,* that walking in the City is the most popular form of transportation aside from the use of motor vehicles. This is attributed to the dense and walkable built form within the City. With the City of White Rock Town Centre and Semiahmoo Town Centre being located within a 12-minute walk of the proposed development, there is significant opportunity for residents to take advantage of the pedestrian infrastructure that is offered.

The study area is well connected with sidewalks. All arterial and collector roads have a sidewalk on at least one side. Some local roads also have sidewalks on one side. Currently, there are no sidewalks on Maple Street or Lee Street.

The proposed development will be including enhanced sidewalks on the frontage and also a greenway through the property.

In consideration of the intended land use and the available nearby amenities and infrastructure, the proposed development is anticipated to have a good utilization of alternative modes of travel, particularly walking.

The existing sidewalks are illustrated in **FIGURE 18** above**.**

7.4 Transportation Demand Management Initiatives

7.4.1 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 initiatives may be considered:

- Directional signage within the lobby or at the main entrance for the nearest bus stops and estimated walking times to popular destinations

7.4.2 Bicycle Facilities and Initiatives

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

To encourage transportation by bicycling, the applicant has committed to providing the following initiatives:

- Residents will receive a welcome package containing transit and cycling information.
- A car and bike share hub
    - Public access will be granted by security code access via the Building 2 stairs and elevators.
    - Equipped with 26 bicycles and bicycle spaces will be located within the parkade on P1.
    - A bicycle wash station will be provided within the bicycle share hub located within parkade level 1.
- The bicycle space bylaw requirement of 176 bicycle spaces is exceeded via the provision of 182 bicycle spaces.
- All 156 secured Class I bicycle parking spaces and all 26 bicycle share spaces are conveniently located close to elevators within the parkade on P1.
- Gently sloped ramps leading up to the main entrance for cyclist comfort.

7.4.3 Transit Facilities and Initiatives

To encourage the use of public transit, the provision of the following initiatives may be considered:

- Directional signage within the lobby or at the main entrance for the nearest bus stops and estimated walking times to popular destinations.
- A pre-loaded compass card (e.g. $100) for each dwelling unit.
- Residents will receive a welcome package containing transit and cycling information.
- A live screen within the lobby displaying current bus route schedules

7.4.4 Vehicle Facilities and Initiatives

To encourage more sustainable transportation, the applicant has committed to providing the following initiatives:

- Electrical vehicle charing parking spaces
  - Four (4) non-market residential EV parking spaces
  - Two (2) non-market visitor EV parking spaces
  - 20 market residential EV parking spaces
- Car and bike share hub consisting of:
  - 17 EV car share parking spaces
    - 100% electric vehicle fleet
  - Public access will be granted by security code access via the Building 2 stairs and elevators.
  - Exit via the two vehicular gates in the parkade will be granted via the same access code

8.0 PARKING ANALYSIS

8.1 Parking Requirements and Provision

8.1.1 Vehicle Parking Requirements

The required parking rates and spaces for the proposed development are summarized in **TABLE 7** and are based on meetings the applicant has had with the City of White Rock.

TABLE 7
CITY OF WHITE ROCK VEHICLE PARKING SPACE REQUIREMENTS

Land Use Description	Parking Space Type	CoWR Required Parking Rate	# of Units	Parking Stalls Required
Non-Market Units	Residential Spaces	1 space per Dwelling Unit	46	46
Market Units	Residential Spaces	1.2 per Dwelling Unit	101	121
	Visitor Spaces	0.3 per Dwelling Unit		30
Total Required Parking Spaces				**198**

As shown in **TABLE 11** above, the total number of required parking spaces for the proposed development is 198 parking spaces. The proposed development is providing a total of 138 parking spaces as per the project summary page in **APPENDIX A**, resulting in a variance of 60 parking spaces, or 30.3%.

It should be noted that the City of White Rock visitor parking rate of 0.3 spaces per dwelling unit is higher than other municipalities' rate of 0.2 spaces per dwelling unit.

With reference to the Information Data sheet in **APPENDIX A**, the proposed development is providing 46 non-market residential parking spaces, two (2) non-market visitor parking spaces, 63 market residential parking spaces, 10 market visitor parking spaces, 12 market car share spaces, and 5 market visitor car share spaces, resulting in a total of 138 parking spaces.

With reference to the *City of White Rock Zoning Bylaw Section 4.17.1,* "a minimum of 1 of every 10 off-street parking spaces shall feature an energized outlet capable of providing Level 2 charging...[and] an additional 1 of every 10 off-street parking spaces shall feature roughed-in electric vehicle charging infrastructure, including an electrical outlet box located within 3 metres of the parking space". The proposed development will be exceeding the bylaw requirement in its provision of 43 electrical vehicle (EV) charging parking spaces – four (4) non-market EV parking spaces, two (2) non-market visitor EV parking spaces, 20 market EV parking spaces, and 17 EV car share parking spaces.

8.1.2 Car Share Provision

The proposed residential development is providing 17 electric vehicle car share spaces through the car and bicycle share hub located on P1 of the parkade as per the architectural drawings attached as **APPENDIX A**. While the City of White Rock does not have direction in the bylaw with regards to the provision of shared vehicles, the City of Surrey Zoning Bylaw 12000 states that the "required residential parking spaces may be reduced by 5 parking spaces for each shared vehicle that is provided for multiple unit residential buildings with underground parking on lots located within City Centre." Additionally, "required residential parking spaces may be reduced by 1 additional parking space for each shared vehicle parking space provided that features an energized outlet capable of providing Level 2 charging, as defined by SAE International's 11772 standard, as amended or higher, and where an electric vehicle and electric vehicle supply equipment are provided in accordance with the shared vehicle development permit requirements."

To summarize the above City of Surrey bylaw, five (5) parking spaces may be reduced for each car share space, plus one (1) additional parking space may be reduced for electric vehicle car share space, for a total ratio of one (1) electric vehicle car share space equating to six (6) regular parking spaces. Since the proposed residential development is providing 17 electric vehicle charging car share spaces, this is the City of Surrey bylaw equivalent of 102 regular parking spaces.

If the car share ratio of one (1) to six (6) parking spaces is applied, the proposed development is providing a bylaw equivalent of a total of 223 parking spaces, which is in excess of the City of White Rock requirement of 198 parking spaces.

8.1.3 Bicycle Parking Requirements

The required bicycle parking spaces for the proposed development are summarized in **TABLE 8** with reference to the *City of White Rock Zoning Bylaw Section 4: General Provisions & Regulations*.

TABLE 8
BYLAW BICYCLE PARKING SPACE REQUIREMENTS

Bylaw Land Use Classification	Bicycle Space Type	Required Bicycle Space Rate	# of Units	Bicycle Space Required
Table 4.16.3 - Apartment, Townhouse	Class I	1 per Dwelling Unit	147	147
	Class II	0.2 per Dwelling Unit		29
Total Required Parking Spaces				**176**

As summarized in **TABLE 8** above, the total number of required bicycle parking spaces for the proposed development is 176 bicycle parking spaces – 147 Class I parking spaces and 29 Class II parking spaces. The proposed development is exceeding the bylaw

requirement in its provision of 156 secured Class I bicycle parking spaces and 26 publically accessible bicycle share parking spaces within the proposed shared mobility hub, yielding a total of 182 bicycle parking spaces.

8.1.4 Loading Space Requirements

With reference to the *City of White Rock Zoning Bylaw Section 4.15.2,* "one (1) off-street loading space shall be provided for every apartment complex…Where the apartment complex…is provided in more than one principal building with separate elevators for each building, one (1) off-street loading space shall be provided for each principal building containing more than ten (10) dwelling units". **TABLE 9** below summarizes the bylaw requirement.

TABLE 9
BYLAW LOADING SPACE REQUIREMENTS

Bylaw Land Use Classification	Bylaw Required Loading Bay Rate	# of Buildings	Loading Bays Required
Residential	1 per Building	3	3
Total Required Loading Bays			**3**

The proposed development is providing one (1) loading space for the non-market dwelling units in building 1 and one (1) loading space for the market units in building 2 and 3. The proposed development is not able to provide a loading space exclusively for building 3 because of the City's request that no access be provided off of North Bluff Road.

8.2 Average Parking Demand

In order to consider the peak parking demand of the proposed development, the Institute of Transportation Engineers (ITE) Parking Generation Manual 5th Edition is referenced.

The parking generation manual contains observed data for common land uses, along with an average peak parking demand based on variables such as gross floor area, number of dwelling units, or number of bedrooms.

Lane Use Code 221 – Multifamily Housing (Mid-Rise), provides data that represents multifamily developments, that include apartments, townhouses, and condominiums located within the same building, and are between three and ten levels (floor). This land use describes the proposed market dwelling units in Building 2 and Building 3 of the proposed residential development.

Land Use Code 223 – Affordable Housing, provides data that represents all kinds of multifamily housing that is rented at below market rate. The land use describes the non-market affordable rental dwelling units in Building 1 of the proposed residential development.

For the parking demand analysis, CTS considered data only in the general urban/sub-urban scenario, and data according to the number of dwelling units.

General urban/sub-urban areas are associated with almost homogenous vehicle centered access. Although the proposed development is located in an area with good alternative transportation infrastructure, this setting is applied as it is more applicable than other settings, and will provide a conservative analysis.

TABLE 10 summarizes the average peak parking demand for each of the two considered land uses. It is noted that for both of these land uses, the peak period is between 10:00 PM and 5:00 AM, for a weekday.

TABLE 10
AVERAGE PEAK PARKING DEMAND

Land Use Description	Setting/Location	Period	Average Peak Period Parking Demand	Applicable To:	Number of Units	Average Peak Parking Demand
Land Use: 222 Multi Family (Mid-Rise)	General Urban/Suburban	Weekday	**1.31 Per Dwelling Unit**	Market Dwelling Units	101	132.3
Land Use: 223 Affordable Housing (Income Limits)	General Urban/Suburban	Weekday	**0.99 Per Dwelling Unit**	Non-Market Dwelling Units	46	45.5
				Total	147	178

As summarized in **TABLE 10** above, the average peak parking demand expected for mid-rise (market) land uses is 1.31 parked vehicles per dwelling unit, and for affordable (non-market) land uses is 0.99 parked vehicles per dwelling unit. The average peak parking demand for the proposed development is forecasted to be approximately 178 parked vehicles, which is 10% (or 20 parking spaces) lower than the City of White Rock parking requirements summarized previously in **TABLE 7**. This does not consider site specific conditions that may reduce parking demand, such local data trends, requirements for non-market rental, or available alternative modes of transportation.

8.3 Parking Supply in Metro Vancouver

The data collected as part of *The 2018 Regional Parking Study,* was also considered for its representation of local data. The key findings of this report emphasize that generally within the Metro Vancouver area, parking is typically oversupplied for strata sites in the range of 32 percent to 58 percent. For rental sites, the oversupply of parking ranges from 24 percent to 44 percent.

This study also provides some data specifically for non-market (affordable) rental units in the region. Data was observed at one site showing that for non-market rental units, a parking demand of 0.14 vehicles per dwelling unit was observed via a parkade facility survey. A household questionnaire style survey was conducted that received 28 responses for non-market rental units, which determined the number of parked vehicles per dwelling unit to be 0.43. Although these sample sizes are small, they are consistent

with the expectation for affordable rental units to generally have significantly less parking demand.

8.4 Parking Space Allocation

Based on the above analysis, it is determined that non-market (affordable) rental dwelling units require less than one parking space per unit. The site plan attached as **APPENDIX A** show that 46 residential parking spaces and 2 visitor parking spaces are being provided to the non-market dwelling units. The reallocation of half (or 23) of the non-market residential parking spaces and the two (2) non-market visitor parking spaces to the market dwelling units should be considered to aid in meeting the parking demand of the market dwelling units.

8.5 Parking Space Summary and Recommendation

Based on the above analysis, CTS recommends that the proposed residential development provide one (1) parking space for every two (2) non-market (affordable) rental dwelling units, one (1) parking spaces for every market dwelling unit, and 0.2 visitor parking spaces for every market dwelling. This would result in a provision of 23 non-market residential parking spaces, 101 market residential parking spaces, and 20 market visitor parking spaces, for a total of 144 parking spaces.

9.0 LOADING SWEPT PATH ANALYSIS

Two (2) loading bays are proposed to be provided accessed off Lee Street and the proposed east-west lane as per the architectural drawings included in **APPENDIX A**.

Swept path analysis was conducted to test the viability of the loading bays using an MSU-TAC as the design vehicle. This is a standard medium single unit vehicle described by the Transportation Association of Canada, and is what would typically be expected for basic deliveries or people moving in and out. It has an overall length of 10 metres and a width of 2.6 meters.

It is recommended that any vehicles using the loading bay always reverse in and drive forward out. This will be a safer combination of maneuvers as drivers will have clear vision while exiting, driving forward. Drivers will also have clear vision of the driveway and adjacent sidewalks before reversing in.

FIGURE 19 illustrates the MSU-TAC reversing into loading bay 1 without any conflicts.

FIGURE 20 illustrates the MSU-TAC exiting from loading bay 1 without any conflicts.

FIGURE 21 illustrates the MSU-TAC reversing into loading bay 2 without any conflicts. There is not sufficient space for the MSUTAC to turn-around on-site. Therefore, trucks should reverse into the east-west laneway, into loading bay 2, in order to forward exit.

FIGURE 22 illustrates the MSU-TAC exiting from loading bay 2 without any conflicts.

FIGURE 19
MSU ENTERING LOADING BAY 1

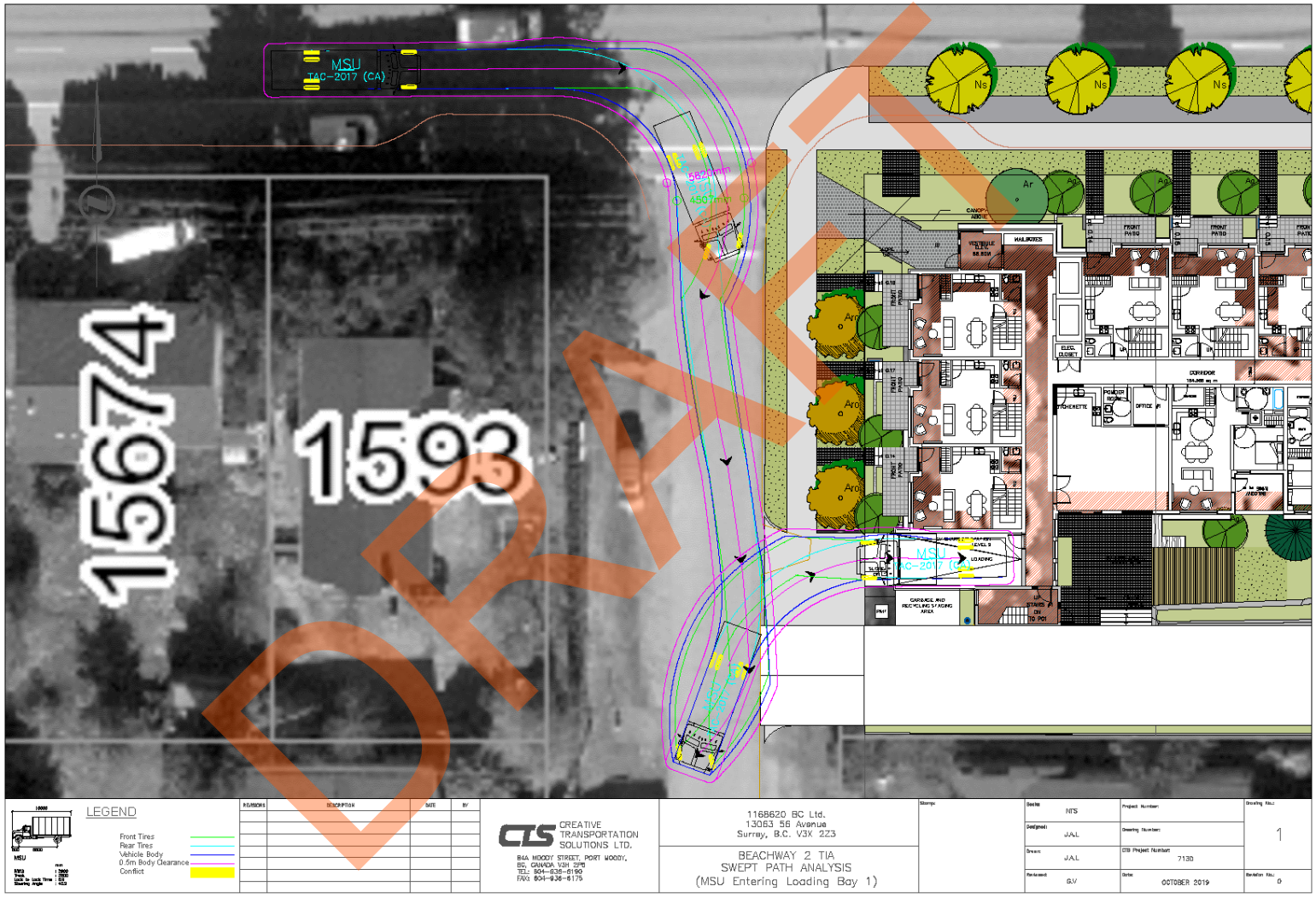


FIGURE 20
MSU EXITING LOADING BAY 1

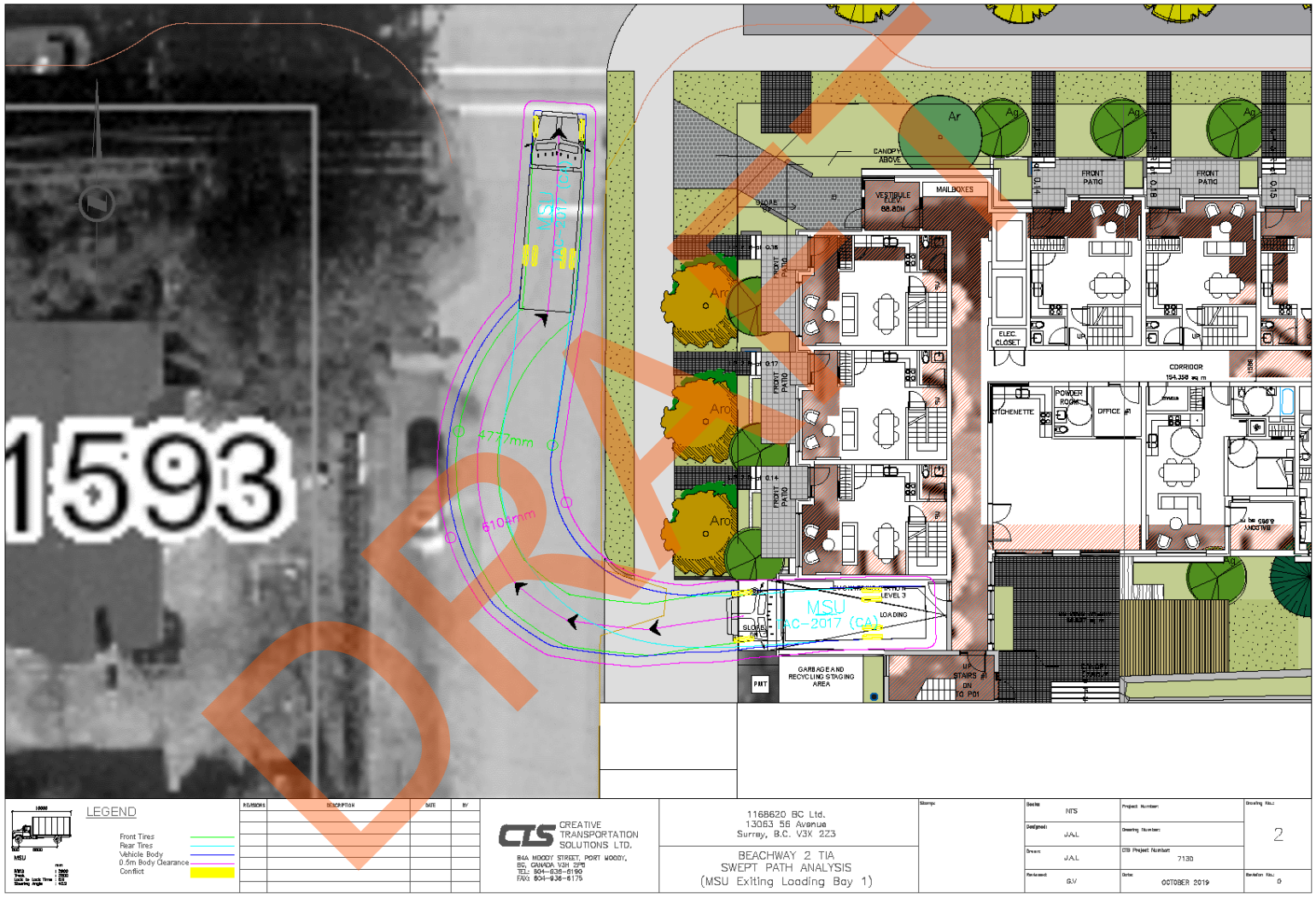


FIGURE 21
MSU ENTERING LOADING BAY 2

FIGURE 22
MSU EXITING LOADING BAY 2

10.0 CONCLUSIONS & RECOMMENDATIONS

10.1 Conclusions

1) 1168620 BC Ltd is proposing to build a residential development, Beachway 2, at 15704, 15724, 15728, 15738, 15748, 15758, 15770 North Bluff Road in the City of White Rock. The proposed development is to consist of 34 city homes and 113 condominium units for a total of 147 dwelling units. Of the 147 units, 46 are designated as non-market (affordable) rental units with seven (7) of them being city homes and 39 of them being condominium units.

2) CTS staff performed weekday traffic volume surveys on Thursday, November 8th, 2018 in order to document existing conditions. Future base traffic volumes were projected using a 2.0% annual traffic volumes growth rate (simple straight line) and then the proposed development traffic was superimposed on top to estimate future baseline conditions. The design hours of analysis were the weekday morning and afternoon peak hours.

3) Upon the full build-out, the overall development is forecasted to generate a total of 57 vehicle trips (13 inbound, 44 outbound) during the weekday morning peak hour and 70 vehicle trips (42 inbound, 28 outbound) during the weekday afternoon peak hour.

4) The capacity analysis for the unsignalized intersections and the site accesses determined that the road network can accommodate the projected increase in traffic volumes without any operational and/or geometrical improvements.

5) 2045 peak hour link volumes are estimated using collected turning movement counts. This is provided to give an estimated magnitude of vehicle volumes in the context of the City of White Rock 2045 OCP.

6) The City of White Rock parking requirements of 1 space per non-market dwelling unit and 1.5 spaces per market dwelling unit results in a total requirement of 198 parking spaces. The proposed residential development is providing 138 parking spaces, resulting in a 30% or 60 parking space variance.

7) In support of a 30% parking variance, reference was made to the intended land use, nearby amenities and infrastructure to encourage alternative modes of travel:

   - Proposed development will have 46 non-market (affordable) rental units
   - Within a 10-15 minute walk of Semiahmoo Shopping Centre and White Rock Centre where the Frequent Transit Network connects
   - Within a 5 minute walk of 5 different bus routes
   - Nearby destinations include Peach Arch Hospital, Earl Marriott Secondary School, Peach Arch Elementary School, Kent Street Activity Centre in Maccaud Park
   - Provision of a car and bike share hub on P1 of the parkade
   - Provision of 186 bicycle spaces, exceeding the 176 bicycle space bylaw requirement
   - Provision of a total of 43 electric vehicle charging parking spaces

- Proposed development will include enhanced sidewalks on the frontage and a greenway through the property.

8) The proposed loading bay was reviewed to assess its viability and impact on the adjacent road and curb. The swept path analysis shows that a design vehicle of a MSUTAC can be accommodated without any conflicts. Impacts on the adjacent road way can be minimized and truck turning maneuvering can be safer, if vehicles enter by reversing in while traveling northbound and by exiting forward to travel southbound.

10.2 Recommendations

Based on this transportation impact assessment, CTS recommends the following:

1) The applicant work with the City to ensure any improvements to the fronting sidewalks align with the City of White Rock *Strategic Transportation Plan;*

2) That the proposed residential development provide one (1) parking space for every two (2) non-market (affordable) rental dwelling units, one (1) parking spaces for every market dwelling unit, and 0.2 visitor parking spaces for every market dwelling. This would result in a provision of 23 non-market residential parking spaces, 101 market residential parking spaces, and 20 market visitor parking spaces, for a total of 144 parking spaces.

3) That trucks using the loading bay be instructed to reverse into the east-west lane, and forward exit out from the loading bay.

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.

Reviewed by:

Gary Vlieg, P.Eng.
Engineering Group Manager

Prepared by:

Jacqueline Lee, EIT
Junior Traffic Engineer

Attachment

Appendix A
Architectural Drawing

BEACHWAY 2 - ISSUED FOR DP APPLICATION

2019.10.24

STREET VIEW FROM NORTH BLUFF ROAD & LEE STREET INTERSECTION

STREET VIEW FROM NORTH BLUFF ROAD LOOKING SOUTH

PROJECT TEAM

ARCHITECTURAL:
URBAN ARTS ARCHITECTURE
#300-111 WATER STREET
VANCOUVER, BC V6B 1A7
604-683-5060
PARTNER-IN-CHARGE: SHELLEY CRAIG

TRAFFIC:
CREATIVE TRANSPORTATION SOLUTIONS LTD
84A MOODY STREET
PORT MOODY, BC V3H 2P5
604-936-6190
CONTACT: GARY VLIEG/JACQUELINE LEE

LANDSCAPE:
ETA LANDSCAPE ARCHITECTURE
1690 WEST 2ND AVENUE
VANCOUVER, BC V6J 1H4
604-683-1456
CONTACT: DARYL TYACKE

SURVEYOR:
H.Y. ASSOCIATES LAND SURVEYING LTD.
#200, 9126 - 152ND STREET
SURREY, B.C. V3R 4E7
604-583-1616
CONTACT: EUGENE WONG

ARBORIST:
VDZ+A
102-355 KINGSWAY
VANCOUVER, BC V5T 3J7
604-882-0024
CONTACT: KAYLEE KOZNIAK

GEOTECH:
GEOWEST ENGINEERING.
#200, 34425 - MCCONNELL ROAD
ABBOSTSFORD, B.C. V2S 7P1
604-852-9088
CONTACT: JOHN CARTER

DRAWING LIST

Urban arts
Architecture Urban Design

300-111 Water Street
Vancouver, BC
Canada.V6B 1A7
t: 604-683-5060
e: info@urban-arts.ca

SEAL:

Consultant Name

BEACHWAY

REV.	DATE	ISSUE
A	2019-10-23	Issued for DP Application

WR-NBR-2

BEACHWAY 2

Cover Page

A000

PLOT DATE: 2019.10.24	SCALE: NTS
DRAWN BY: OEM	CHECK BY: SC

SITE DATA:

CIVIC ADRESS: 15704 North Bluff Road, White Rock, BC (Lot 1), 15724 North Bluff Road, White Rock, BC (Lot 2)
15728 North Bluff Road, White Rock, BC (Lot Rem1),15738 North Bluff Road, White Rock, BC (Lot Rem2)
15748 North Bluff Road, White Rock, BC (Lot 305),15758 North Bluff Road, White Rock, BC (Lot 3)
15770 North Bluff Road, White Rock, BC (Lot 4)

LEGAL ADRESS: Lots 1 to 2, New Westminster District, Plan 18697; Lots Rem 1 & Rem 2, New Westminster District, Plan 13659
Lots 305, New Westminster District, Plan 35289; Lots 3 & 4 New Westminster District, Plan 17402

LOT AREA:	5,366.241 sq.m.	57761.684 sq ft	
LOT COVERAGE:	2,788.209 sq.m.	30012 sq ft	51.958%

DEVELOPMENT STATISTICS:

ZONING:
USES: Multi-Residential

	NON.MARKET	MARKET	TOTAL
NUMBER OF UNITS:	46	101	147
	(31.3%)	(68.7%)	(100%)

FAR SUMMARY:

	GROSS AREA SQ.M.	GROSS AREA SQ.FT. sq ft	FAR	RESIDENTIAL SQ.M.	RESIDENTIAL SQ.FT.	FAR
MAX. FAR	13,415.603 sq.m.	144,404.209 sq.ft.	2.5			
PROPOSED FAR:						
BUILDING #1 (NON-MARKET)	3,783.70 sq.m.	40,727.390 sq ft	0.705 FAR	2,918.26 sq.m.	31411.809 sq ft	0.544 FAR
BUILDING #2 (MARKET)	3,897.22 sq.m.	41,949.299 sq ft	0.726 FAR	3,321.59 sq.m.	35753.314 sq ft	0.619 FAR
BUILDING #3 (MARKET)	5,732.43 sq.m.	61,703.292 sq ft	1.068 FAR	4,699.92 sq.m.	50,918.9 sq.ft.	0.882 FAR
TOTAL:	13,413.4 sq.m.	144,380.0 sq.ft.	2.5 FAR	10,939.8 sq.m.	118,084.0 sq.ft.	2.044 FAR
EFFICIENCY (RESIDENTIAL/GROSS):	82%					

PROPOSED UNIT AREAS: (Refer to A004)

INDOOR AMENITY

BUILDING #1 (NON-MARKET)	54.17 sq.m.	583.049 sq ft
BUILDING #2 (MARKET)	49.24 sq.m.	530.006 sq ft
BUILDING #3 (MARKET)	163.05 sq.m.	1755.099 sq ft
TOTAL:	266.46 sq.m.	2,868.153 sq ft

PARKING:

PARKING AREA LEVEL 1	4,224 sq.m.	45464.657 sq ft
PARKING AREA LEVEL 2	1,057 sq.m.	11376.312 sq ft
TOTAL:	5,281 sq.m.	56,840.969 sq ft

PARKING SPACES REQUIRED:

NON-MARKET (1 per 46 units)	46
MARKET (1.2 per 101 units)	121.2
MARKET VISITORS (0.3 per 101 units)	30.3
TOTAL:	197.5

PARKING SPACES PROPOSED:

		RELAXATION RATIONALE	GRAND TOTAL
NON-MARKET	46	-	46
NON-MARKET VISITOR	2	-	2
MARKET	63	-	63
MARKET VISITOR	10	-	10
MARKET CAR SHARE	12	5 Parking Spaces = 1 car share	60
MARKET VISITOR CAR SHARE	5	5 Parking Spaces = 1 car share	25
TOTAL:	138		206

BIKES:

NON-MARKET (CLASS 1)	51	
MARKET (CLASS 1)	105	
MARKET BIKE SHARE	26	Added to relax the number of parking
TOTAL:	182	

UNIT DISTRIBUTION BY TYPE OF UNIT:

	2 BED TOWNHOUSE	3 BED TOWNHOUSE	1 BED APARTMENT	2 BED APARTMENT	TOP UNIT (3 BED)	TOP UNIT (2 BED)	TOP UNIT (1 BED)	STUDIO
BUILDING #1 (NON-MARKET)	6	1	31	8	0	0	0	0
BUILDING #2 (MARKET)	8	4	17	4	5	1	1	1
BUILDING #3 (MARKET)	6	9	16	23	6	0	0	0
TOTAL:	20	14	64	35	11	1	1	1
PERCENTAGE:	(13.6%)	(9.5%)	(43.5%)	(23.8%)	(7.5%)	(0.7%)	(0.7%)	(0.7%)

UNIT DISTRIBUTION BY BEDROOM:

	TOTAL	PERCENTAGE
ONE BEDROOM:	65	(44.2%)
TWO BEDROOMS:	56	(38.1%)
THREE BEDROOMS:	25	(17.0%)
STUDIO:	1	(0.7%)
Σ TOTAL UNITS:	147	

Urban Arts
Architecture Urban Design
300-111 Water Street
Vancouver, BC
Canada.V6B 1A7
t: 604-683-5060
e: info@urban-arts.ca

SEAL:

Consultant Name

BEACHWAY

REV.	DATE	ISSUE
A	2019-10-23	Issued for DP Application

WR-NBR-2

BEACHWAY 2

Information Data 1

A001

PLOT DATE: 2019.10.24	SCALE: NTS
DRAWN BY: OEM	CHECK BY: SC

FAR CALCULATION BUILDING #1

# OF BUILDING	# UNIT	TYPE UNIT	LEVEL OF UNIT	AREA OF UNIT SQ M	AREA OF UNIT SQ F
BUILDING #1 (NON-MARKET)					
	101	UNIT A (2 BED)	Level 1 B1	42.951 sq m	462.321 sq ft
	102	UNIT A (2 BED)	Level 1 B1	42.951 sq m	462.321 sq ft
	103	UNIT A (2 BED)	Level 1 B1	42.951 sq m	462.321 sq ft
	104	UNIT A (2 BED)	Level 1 B1	42.951 sq m	462.321 sq ft
	108	UNIT A (2 BED)	Level 1 B1	42.951 sq m	462.321 sq ft
	109	UNIT A (2 BED)	Level 1 B1	42.951 sq m	462.321 sq ft
			TOTAL:	257.706 sq m	2773.923 sq ft
	101	UNIT A (2 BED) 2ND FLOOR	Level 2 B1	34.889	375.543 sq ft
	102	UNIT A (2 BED) 2ND FLOOR	Level 2 B1	34.889	375.543 sq ft
	103	UNIT A (2 BED) 2ND FLOOR	Level 2 B1	34.889	375.543 sq ft
	104	UNIT A (2 BED) 2ND FLOOR	Level 2 B1	34.889	375.543 sq ft
	108	UNIT A (2 BED) 2ND FLOOR	Level 2 B1	34.889	375.543 sq ft
	109	UNIT A (2 BED) 2ND FLOOR	Level 2 B1	34.889	375.543 sq ft
TOTAL NUMBER OF UNITS:	6		TOTAL:	209.335 sq m	2253.26 sq ft
	107	UNIT A1 (3 BED) 1ST FLOOR	Level 1 B1	42.951	462.321 sq ft
	107	UNIT A1 (3 BED) 2ND FLOOR	Level 2 B1	52.617	566.36 sq ft
TOTAL NUMBER OF UNITS:	1		TOTAL:	95.568 sq m	1028.681 sq ft
	106	UNIT B (1 BED)	Level 1 B1	57.033	613.901 sq ft
	202	UNIT B (1 BED)	Level 2 B1	57.033	613.901 sq ft
	203	UNIT B (1 BED)	Level 2 B1	57.033	613.901 sq ft
	301	UNIT B (1 BED)	Level 3 B1	57.033	613.901 sq ft
	302	UNIT B (1 BED)	Level 3 B1	57.033	613.901 sq ft
	303	UNIT B (1 BED)	Level 3 B1	57.033	613.901 sq ft
	305	UNIT B (1 BED)	Level 3 B1	57.033	613.901 sq ft
	306	UNIT B (1 BED)	Level 3 B1	57.033	613.901 sq ft
	307	UNIT B (1 BED)	Level 3 B1	57.033	613.901 sq ft
	308	UNIT B (1 BED)	Level 3 B1	57.033	613.901 sq ft
	309	UNIT B (1 BED)	Level 3 B1	57.033	613.901 sq ft
	401	UNIT B (1 BED)	Level 4 B1	57.033	613.901 sq ft
	402	UNIT B (1 BED)	Level 4 B1	57.033	613.901 sq ft
	403	UNIT B (1 BED)	Level 4 B1	57.033	613.901 sq ft
	405	UNIT B (1 BED)	Level 4 B1	57.033	613.901 sq ft
	406	UNIT B (1 BED)	Level 4 B1	57.033	613.901 sq ft
	407	UNIT B (1 BED)	Level 4 B1	57.033	613.901 sq ft
	408	UNIT B (1 BED)	Level 4 B1	57.033	613.901 sq ft
	409	UNIT B (1 BED)	Level 4 B1	57.033	613.901 sq ft
	501	UNIT B (1 BED)	Level 5 B1	57.033	613.901 sq ft
	502	UNIT B (1 BED)	Level 5 B1	57.033	613.901 sq ft
	503	UNIT B (1 BED)	Level 5 B1	57.033	613.901 sq ft
	505	UNIT B (1 BED)	Level 5 B1	57.033	613.901 sq ft
	506	UNIT B (1 BED)	Level 5 B1	57.033	613.901 sq ft
	507	UNIT B (1 BED)	Level 5 B1	57.033	613.901 sq ft
	508	UNIT B (1 BED)	Level 5 B1	57.033	613.901 sq ft
	509	UNIT B (1 BED)	Level 5 B1	57.033	613.901 sq ft
	601	UNIT B (1 BED)	Level 6 B1	57.033	613.901 sq ft
	602	UNIT B (1 BED)	Level 6 B1	57.033	613.901 sq ft
	603	UNIT B (1 BED)	Level 6 B1	57.033	613.901 sq ft
	605	UNIT B (1 BED)	Level 6 B1	57.033	613.901 sq ft
TOTAL NUMBER OF UNITS:	31		TOTAL:	1768.034 sq m	19030.937 sq ft
	105	TYPE C2 (2BED)	Level 1 B1	78.585	845.876 sq ft
	201	UNIT C (2 BED)	Level 2 B1	71.206	766.453 sq ft
	304	UNIT C (2 BED)	Level 3 B1	71.206	766.453 sq ft
	404	UNIT C (2 BED)	Level 4 B1	71.206	766.453 sq ft
	504	UNIT C (2 BED)	Level 5 B1	71.206	766.453 sq ft
	604	UNIT C (2 BED)	Level 6 B1	71.206	766.453 sq ft
TOTAL NUMBER OF UNITS:	6		TOTAL:	434.614 sq m	4678.141 sq ft
	606	UNIT D (2 BED)	Level 6 B1	76.5	823.433 sq ft
	607	UNIT D (2 BED)	Level 6 B1	76.5	823.433 sq ft
TOTAL NUMBER OF UNITS:	2		TOTAL:	152.999 sq m	1646.867 sq ft
Σ TOTAL NUMBER OF UNITS:	46				
	100-A	CIRCULATION LEVEL 1	Level 1 B1	186.994 sq m	2012.779 sq ft
	200	CIRCULATION LEVEL 2	Level 2 B1	124.268 sq m	1337.607 sq ft
	300	CIRCULATION	Level 3 B1	124.015 sq m	1334.89 sq ft
	400	CIRCULATION	Level 4 B1	124.015 sq m	1334.89 sq ft
	500	CIRCULATION	Level 5 B1	124.015 sq m	1334.89 sq ft
	600	CIRCULATION LEVEL 06	Level 6 B1	127.972 sq m	1377.475 sq ft
			TOTAL:	811.28 sq m	8732.532 sq ft
	100-B	INDOOR AMENITY	Level 1 B1	54.167 sq m	583.049 sq ft
			TOTAL:	54.167 sq m	583.049 sq ft
			Σ TOTAL AREA:	**3783.702 sq m**	40727.39 sq ft
			GROSS FLOOR AREA:	3783.702 sq m	40727.39 sq ft
			GROSS FLOOR FAR:	0.71	0.71
			RESIDENTIAL FLOOR AREA:	2918.255 sq m	31411.809 sq ft
			GROSS RESIDENTIAL FLOOR FAR (LOTS 1& 2):	0.54	0.54

FAR CALCULATION BUILDING #2

# OF BUILDING	# UNIT	TYPE UNIT	LEVEL OF UNIT	AREA OF UNIT SQ M	AREA OF UNIT SQ F
BUILDING #2 (MARKET)					
	101A	TYPE 2A (2BED)	Level 1 B2	49.11 sq m	528.619 sq ft
	102A	TYPE 2A3 (2BED)	Level 1 B2	50.862 sq m	547.47 sq ft
	103A	TYPE 2A3 (2BED)	Level 1 B2	50.862 sq m	547.47 sq ft
	108A	TYPE 2A3 (2BED)	Level 1 B2	50.862 sq m	547.47 sq ft
	109A	TYPE 2A3 (2BED)	Level 1 B2	50.862 sq m	547.47 sq ft
	110A	TYPE 2A (2BED)	Level 1 B2	49.11 sq m	528.619 sq ft
	111A	TYPE 2A (2BED)	Level 1 B2	49.11 sq m	528.619 sq ft
	112A	TYPE 2A (2BED)	Level 1 B2	49.11 sq m	528.619 sq ft
			TOTAL:	399.888 sq m	4304.356 sq ft
	101A	TYPE 2A2	Level 2 B2	54.705 sq m	588.84 sq ft
	102A	TYPE 2A3 LEVEL 2	Level 2 B2	46.15 sq m	496.757 sq ft
	103A	TYPE 2A (LEVEL 2)	Level 2 B2	44.919 sq m	483.501 sq ft
	108A	TYPE 2A (LEVEL 2)	Level 2 B2	44.919 sq m	483.501 sq ft
	109A	TYPE 2A (LEVEL 2)	Level 2 B2	44.919 sq m	483.501 sq ft
	110A	TYPE 2A (LEVEL 2)	Level 2 B2	44.919 sq m	483.501 sq ft
	111A	TYPE 2A (LEVEL 2)	Level 2 B2	44.919 sq m	483.501 sq ft
	112A	TYPE 2A (LEVEL 2)	Level 2 B2	44.919 sq m	483.501 sq ft
TOTAL NUMBER OF UNITS:	8		TOTAL:	370.368 sq m	3986.6 sq ft
	104A	TYPE 2A2 (2BED+MEZZ)	Level 1 B2	50.862 sq m	547.47 sq ft
	105A	TYPE 2A1 (2BED+MEZZ)	Level 1 B2	50.862 sq m	547.47 sq ft
	106A	TYPE 2A2 (2BED+MEZZ)	Level 1 B2	50.862 sq m	547.47 sq ft
	107A	TYPE 2A2 (2BED+MEZZ)	Level 1 B2	50.862 sq m	547.47 sq ft
			TOTAL:	203.447 sq m	2189.879 sq ft
	105A	TYPE 2A1 MEZZANINE	Level 1.5 B2	17.904 sq m	192.717 sq ft
	107A	TYPE 2A2 MEZZANINE	Level 1.5 B2	17.48 sq m	188.158 sq ft
	106A	TYPE 2A2 MEZZANINE	Level 1.5 B2	17.48 sq m	188.158 sq ft
	104A	TYPE 2A2 MEZZANINE	Level 1.5 B2	17.48 sq m	188.158 sq ft
			TOTAL:	70.345 sq m	757.19 sq ft
	105A	TYPE 2A1 LEVEL 2	Level 2 B2	65.233 sq m	702.159 sq ft
	106A	TYPE 2A2 LEVEL 2	Level 2 B2	44.919 sq m	483.501 sq ft
	107A	TYPE 2A2 LEVEL 2	Level 2 B2	44.919 sq m	483.501 sq ft
	104A	TYPE 2A2 LEVEL 2	Level 2 B2	44.919 sq m	483.501 sq ft
TOTAL NUMBER OF UNITS:	4		TOTAL:	199.989 sq m	2152.66 sq ft
	302A	TYPE 2B (1 BED TYP.)	Level 3 B2	54.44 sq m	585.986 sq ft
	303A	TYPE 2B (1 BED TYP.)	Level 3 B2	54.44 sq m	585.986 sq ft
	304A	TYPE 2B1 (1BED & DEN)	Level 3 B2	71.767 sq m	772.49 sq ft
	305A	TYPE 2B (1 BED TYP.)	Level 3 B2	54.44 sq m	585.986 sq ft
	306A	TYPE 2B (1 BED TYP.)	Level 3 B2	54.44 sq m	585.986 sq ft
	307A	TYPE 2B (1 BED TYP.)	Level 3 B2	54.44 sq m	585.986 sq ft
	308A	TYPE 2C (1 BED)	Level 3 B2	42.981 sq m	462.643 sq ft
	402A	TYPE 2B (1 BED TYP.)	Level 4 B2	54.44 sq m	585.986 sq ft
	403A	TYPE 2B (1 BED TYP.)	Level 4 B2	54.44 sq m	585.986 sq ft
	404A	TYPE 2B2 (1 BED+DEN)	Level 4 B2	70.755 sq m	761.601 sq ft
	405A	TYPE 2B (1 BED TYP.)	Level 4 B2	54.44 sq m	585.986 sq ft
	406A	TYPE 2B (1 BED TYP.)	Level 4 B2	54.44 sq m	585.986 sq ft
	407A	TYPE 2B (1 BED TYP.)	Level 4 B2	54.44 sq m	585.986 sq ft
	408A	TYPE 2C (1 BED)	Level 4 B2	42.981 sq m	462.643 sq ft
	507A	TYPE 2B (1 BED TYP.)	Level 5 B2	54.44 sq m	585.986 sq ft
	508A	TYPE 2B (1 BED TYP.)	Level 5 B2	54.44 sq m	585.986 sq ft
	509A	TYPE 2B (1 BED TYP.)	Level 5 B2	54.44 sq m	585.986 sq ft
TOTAL NUMBER OF UNITS:	17		TOTAL:	936.204 sq m	10077.202 sq ft
	301A	TYPE 2D (2BED)	Level 3 B2	70.666	760.639 sq ft
	309A	TYPE 2E (2BED)	Level 3 B2	84.629	910.942 sq ft
	401A	TYPE 2D (2BED)	Level 4 B2	70.666	760.639 sq ft
	409A	TYPE 2E (2BED)	Level 4 B2	84.629	910.942 sq ft
TOTAL NUMBER OF UNITS:	4		TOTAL:	310.59 sq m	3343.163 sq ft
	502A	TYPE 2F1 (3BED)	Level 5 B2	46.241	497.736 sq ft
	502A	TYPE 2F LEVEL 2	Level 6 B2	73.012	785.892 sq ft
	503A	TYPE 2F	Level 5 B2	45.008	484.465 sq ft
	503A	TYPE 2F LEVEL 2	Level 6 B2	73.012	785.892 sq ft
	504A	TYPE 2F	Level 5 B2	45.008	484.465 sq ft
	504A	TYPE 2F LEVEL 2	Level 6 B2	73.012	785.892 sq ft
	505A	TYPE 2F	Level 5 B2	45.008	484.465 sq ft
	505A	TYPE 2F LEVEL 2	Level 6 B2	73.012	785.892 sq ft
	511A	TYPE 2J (3BED)	Level 5 B2	62.927	677.339 sq ft
	511A	TYPE 2J LEVEL 2	Level 6 B2	62.855	676.566 sq ft
TOTAL NUMBER OF UNITS:	5		TOTAL:	599.095 sq m	6448.602 sq ft
	501A	TYPE 2H (2BED)	Level 5 B2	42.226	454.512 sq ft
	501A	TYPE 2H LEVEL 2	Level 6 B2	69.928	752.698 sq ft
	508A	TYPE 2I (1BED)	Level 5 B2	32.296	347.63 sq ft
	506A	TYPE 2I LEVEL 2	Level 6 B2	47.501	511.294 sq ft
TOTAL NUMBER OF UNITS:	2		TOTAL:	191.95 sq m	2066.133 sq ft
	510A	TYPE 2C1 (STUDIO)	Level 5 B2	39.719	427.529 sq ft
TOTAL NUMBER OF UNITS:	1		TOTAL:	39.719 sq m	427.529 sq ft
Σ TOTAL NUMBER OF UNITS:	41				
	100A	LEVEL01 B2 CIRCULATION	Level 1 B2	99.874 sq m	1075.036 sq ft
	200A	LEVEL02 B2 CIRCULATION	Level 2 B2	40.726 sq m	438.373 sq ft
	300A	LEVEL03 B2 CIRCULATION	Level 3 B2	125.236 sq m	1348.004 sq ft
	400A	LEVEL 04 B2 CIRCULATION	Level 4 B2	125.033 sq m	1345.845 sq ft
	500A	LEVEL 5 B2 CIRCULATION	Level 5 B2	135.518 sq m	1458.701 sq ft
			TOTAL:	526.387 sq m	5665.979 sq ft
	100B	LEVEL 1 GUEST ROOM	Level 1 B2	34.753 sq m	374.074 sq ft
	100B	GUEST ROOM MEZZ	Level 1.5 B2	14.487 sq m	155.932 sq ft
			TOTAL:	49.239 sq m	530.006 sq ft
			Σ TOTAL AREA:	**3897.221 sq m**	41949.299 sq ft
			GROSS FLOOR AREA:	3897.221 sq m	41949.299 sq ft
			GROSS FLOOR FAR:	0.73	0.73
			RESIDENTIAL FLOOR AREA:	3321.595 sq m	35753.314 sq ft
			GROSS RESSIDENTIAL FLOOR FAR:	0.62	0.62

FAR CALCULATION BUILDING #3

# OF BUILDING	# UNIT	TYPE UNIT	LEVEL OF UNIT	AREA OF UNIT SQ M	AREA OF UNIT SQ F
BUILDING #3 (MARKET)					
	101B	TYPE 3A1 (2BED)	Level 1 B3	43.811 sq m	471.582 sq ft
	102B	TYPE 3A1 (2BED)	Level 1 B3	43.811 sq m	471.582 sq ft
	103B	TYPE 3A1 (2BED)	Level 1 B3	43.811 sq m	471.582 sq ft
	104B	TYPE 3A1 (2BED)	Level 1 B3	43.811 sq m	471.582 sq ft
	105B	TYPE 3A1 (2BED)	Level 1 B3	43.811 sq m	471.582 sq ft
	106B	TYPE 3A4 (2BED)	Level 1 B3	49.11 sq m	528.619 sq ft
			TOTAL:	268.168 sq m	2886.529 sq ft
	101B	TYPE 3A1 LEVEL 2	Level 2 B3	40.131	431.965 sq ft
	102B	TYPE 3A1 LEVEL 2	Level 2 B3	40.131	431.965 sq ft
	103B	TYPE 3A1 LEVEL 2	Level 2 B3	40.131	431.965 sq ft
	104B	TYPE 3A1 LEVEL 2	Level 2 B3	40.131	431.965 sq ft
	105B	TYPE 3A1 LEVEL 2	Level 2 B3	40.131	431.965 sq ft
	106B	TYPE 3A4 LEVEL 2 (2BED)	Level 2 B3	45.43	489.002 sq ft
TOTAL NUMBER OF UNITS:	6		TOTAL:	246.084 sq m	2648.826 sq ft
	107B	TYPE 3A3 (2 BED+MEZZ)	Level 1 B3	49.11	528.619 sq ft
	108B	TYPE 3A (2BED+MEZZ)	Level 1 B3	50.862	547.47 sq ft
	109B	TYPE 3A (2BED+MEZZ)	Level 1 B3	50.862	547.47 sq ft
	110B	TYPE 3A (2BED+MEZZ)	Level 1 B3	50.862	547.47 sq ft
	111B	TYPE 3A (2BED+MEZZ)	Level 1 B3	50.862	547.47 sq ft
	112B	TYPE 3A2 (2BED+MEZZ)	Level 1 B3	42.816	460.869 sq ft
	113B	TYPE 3A2 (2BED+MEZZ)	Level 1 B3	42.816	460.869 sq ft
	114B	TYPE 3A (2BED+MEZZ)	Level 1 B3	50.862	547.47 sq ft
	115B	TYPE 3A (2BED+MEZZ)	Level 1 B3	50.862	547.47 sq ft
			TOTAL:	439.913 sq m	4735.175 sq ft
	107B	TYPE 3A MEZZANINE	Level 1.5 B3	17.66	190.085 sq ft
	108B	TYPE 3A MEZZANINE	Level 1.5 B3	17.66	190.085 sq ft
	109B	TYPE 3A MEZZANINE	Level 1.5 B3	17.66	190.085 sq ft
	110B	TYPE 3A MEZZANINE	Level 1.5 B3	17.66	190.085 sq ft
	111B	TYPE 3A MEZZANINE	Level 1.5 B3	17.66	190.085 sq ft
	112B	TYPE 3A2 MEZZANINE	Level 1.5 B3	16.032	172.57 sq ft
	113B	TYPE 3A2 MEZZANINE	Level 1.5 B3	16.032	172.57 sq ft
	114B	TYPE 3A MEZZANINE	Level 1.5 B3	17.66	190.085 sq ft
	115B	TYPE 3A MEZZANINE	Level 1.5 B3	17.66	190.085 sq ft
			TOTAL:	155.681 sq m	1675.737 sq ft
	107B	TYPE 3A LEVEL 2	Level 2 B3	45.43	489.002 sq ft
	108B	TYPE 3A LEVEL 2	Level 2 B3	45.43	489.002 sq ft
	109B	TYPE 3A LEVEL 2	Level 2 B3	45.43	489.002 sq ft
	110B	TYPE 3A LEVEL 2	Level 2 B3	45.43	489.002 sq ft
	111B	TYPE 3A LEVEL 2	Level 2 B3	45.43	489.002 sq ft
	112B	TYPE 3A2 LEVEL 2	Level 2 B3	37.941	408.396 sq ft
	113B	TYPE 3A2 LEVEL 2	Level 2 B3	37.941	408.396 sq ft
	114B	TYPE 3A LEVEL 2	Level 2 B3	45.43	489.002 sq ft
	115B	TYPE 3A LEVEL 2	Level 2 B3	45.43	489.002 sq ft
TOTAL NUMBER OF UNITS:	9		TOTAL:	393.891 sq m	4239.806 sq ft
	201B	TYPE 3K (1BED+DEN)	Level 2 B3	81.985	882.48 sq ft
	202B	TYPE 3B (1BED)	Level 2 B3	54.438	585.969 sq ft
	302B	TYPE 3B (1BED)	Level 3 B3	54.438	585.969 sq ft
	303B	TYPE 3B (1BED)	Level 3 B3	54.438	585.969 sq ft
	304B	TYPE 3B (1BED)	Level 3 B3	54.438	585.969 sq ft
	307B	TYPE 3B (1BED)	Level 3 B3	54.438	585.969 sq ft
	310B	TYPE 3B (1BED)	Level 3 B3	54.438	585.969 sq ft
	312B	TYPE 3B (1BED)	Level 3 B3	54.438	585.969 sq ft
	402B	TYPE 3B (1BED)	Level 4 B3	54.438	585.969 sq ft
	403B	TYPE 3B (1BED)	Level 4 B3	54.438	585.969 sq ft
	404B	TYPE 3B (1BED)	Level 4 B3	54.438	585.969 sq ft
	407B	TYPE 3B (1BED)	Level 4 B3	54.438	585.969 sq ft
	410B	TYPE 3B (1BED)	Level 4 B3	54.438	585.969 sq ft
	412B	TYPE 3B (1BED)	Level 4 B3	54.438	585.969 sq ft
	502B	TYPE 3B (1BED)	Level 5 B3	54.438	585.969 sq ft
	602B	TYPE 3B (1BED)	Level 6 B3	54.438	585.969 sq ft
TOTAL NUMBER OF UNITS:	16		TOTAL:	898.561 sq m	9672.016 sq ft
	203B	TYPE 3H (2BED)	Level 2 B3	64.493	694.196 sq ft
	301B	TYPE 3H2 (2BED)	Level 3 B3	68.154	733.604 sq ft
	305B	TYPE 3I (2BED)	Level 3 B3	72.672	782.238 sq ft
	306B	TYPE 3D (2BED)	Level 3 B3	73.22	788.13 sq ft
	308B	TYPE 3H1 (2BED)	Level 3 B3	66.279	713.424 sq ft
	309B	TYPE 3H1 (2BED)	Level 3 B3	66.279	713.424 sq ft
	311B	TYPE 3J (2BED)	Level 3 B3	87.14	937.965 sq ft
	313B	TYPE 3H (2BED)	Level 3 B3	64.493	694.196 sq ft
	401B	TYPE 3H2 (2BED)	Level 4 B3	68.154	733.604 sq ft
	405B	TYPE 3I (2BED)	Level 4 B3	72.672	782.238 sq ft
	406B	TYPE 3D (2BED)	Level 4 B3	73.22	788.13 sq ft
	408B	TYPE 3H1 (2BED)	Level 4 B3	66.279	713.424 sq ft
	409B	TYPE 3H1 (2BED)	Level 4 B3	66.279	713.424 sq ft
	411B	TYPE 3J (2BED)	Level 4 B3	87.14	937.965 sq ft
	413B	TYPE 3H (2BED)	Level 4 B3	64.493	694.196 sq ft
	507B	TYPE 3J (2BED)	Level 5 B3	87.14	937.965 sq ft
	601B	TYPE 3F (2BED)	Level 6 B3	79.706	857.949 sq ft
	603B	TYPE 3F (2BED)	Level 6 B3	79.706	857.949 sq ft
	604B	TYPE 3F3 (2BED)	Level 6 B3	77.441	833.568 sq ft
	605B	TYPE 3F4 (2BED)	Level 6 B3	76.644	824.985 sq ft
	606B	TYPE 3F2 (2BED)	Level 6 B3	78.33	843.134 sq ft
	607B	TYPE 3J (2BED)	Level 6 B3	87.14	937.965 sq ft
	608B	TYPE 3F1 (2BED)	Level 6 B3	76.957	828.357 sq ft
TOTAL NUMBER OF UNITS:	23		TOTAL:	1704.032 sq m	18342.032 sq ft
	501B	TYPE 3E (3BED)	Level 5 B3	101.017	1087.342 sq ft
	503B	TYPE 3E2 (3BED)	Level 5 B3	98.657	1061.934 sq ft
	504B	TYPE 3E2 (3BED)	Level 5 B3	98.657	1061.934 sq ft
	505B	TYPE 3E3 (3BED)	Level 5 B3	96.012	1033.46 sq ft
	506B	TYPE 3E4 (3BED)	Level 5 B3	103.058	1109.302 sq ft
	508B	TYPE 3E1 (3BED)	Level 5 B3	96.187	1035.343 sq ft
	6		TOTAL:	593.587 sq m	6389.316 sq ft
Σ TOTAL NUMBERS OF UNITS:	60				
	100B-A	LEVEL 1 B3 CIRCULATION	Level 1 B3	173.778 sq m	1870.531 sq ft
	200B	LEVEL 2 B3 CIRCULATION	Level 2 B3	125.729 sq m	1353.33 sq ft
	300B	LEVEL 3&4 CIRCULATION	Level 3 B3	145.907 sq m	1570.527 sq ft
	400B	LEVEL 3&4 CIRCULATION	Level 4 B3	145.907 sq m	1570.527 sq ft
	500B	LEVEL 5 B3 CIRCULATION	Level 5 B3	154.495 sq m	1662.97 sq ft
	600B	LEVEL 6 B3 CIRCULATION	Level 6 B3	123.642 sq m	1330.873 sq ft
			TOTAL:	869.458 sq m	9358.756 sq ft
	100B-B	LEVEL 1 B3 AMENITY	Level 1 B3	163.054 sq m	1755.099 sq ft
			TOTAL:	163.054 sq m	1755.099 sq ft
			Σ TOTAL AREA:	**5732.429 sq m**	61703.292 sq ft
			GROSS FLOOR AREA:	5732.429 sq m	61703.292 sq ft
			GROSS FLOOR FAR:	1.07	1.07
			RESIDENTIAL FLOOR AREA:	4699.917 sq m	50589.437 sq ft
			GROSS FLOOR RESIDENTIAL FAR:	0.88	0.88

Urban arts
Architecture Urban Design
300-111 Water Street
Vancouver, BC
Canada.V6B 1A7
t: 604-683-5060
e: info@urban-arts.ca

SEAL:

NOTES:

Consultant Name

BEACHWAY

REV.	DATE	ISSUE
A	2019-10-23	Issued for DP Application

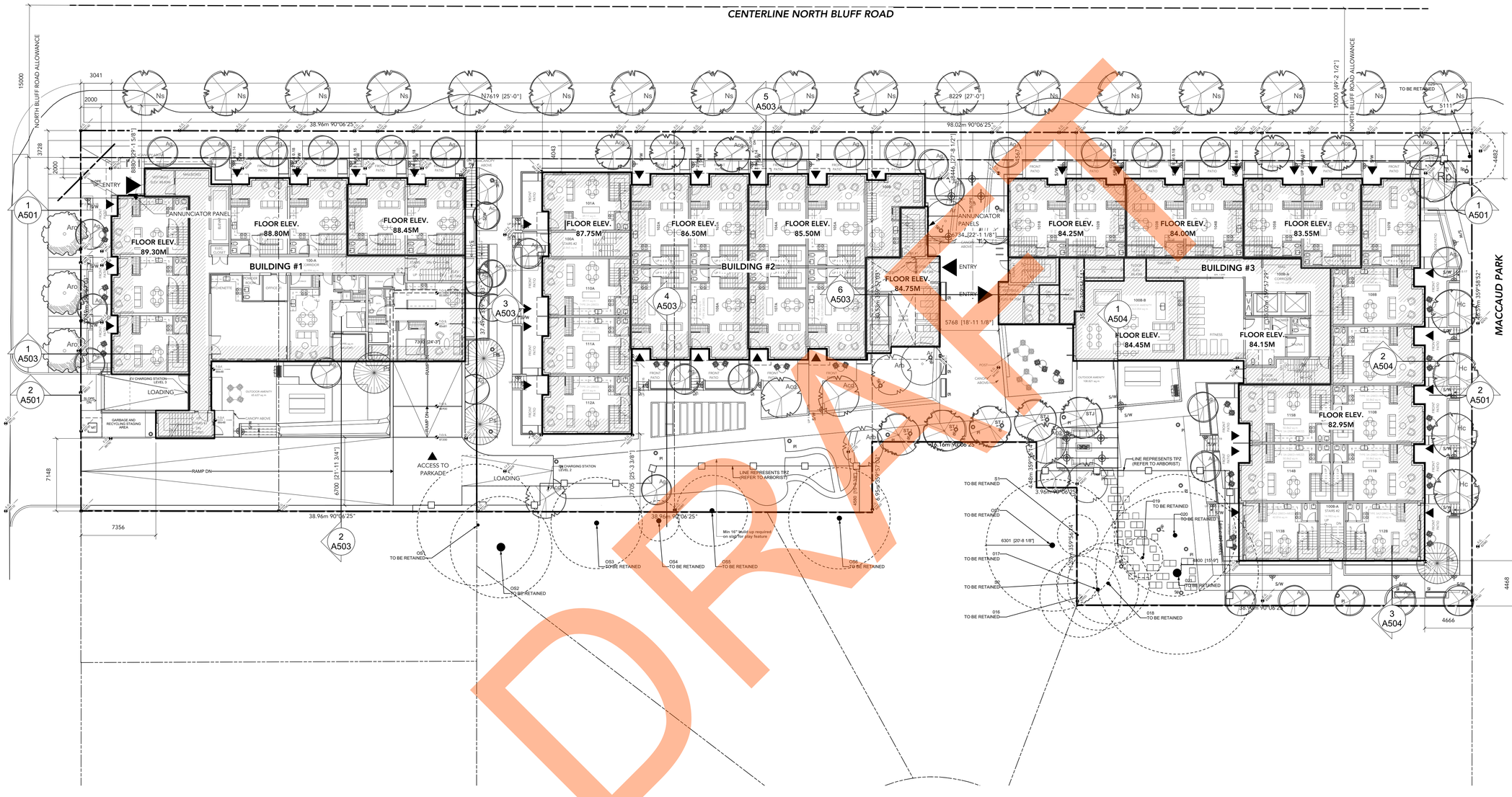
WR-NBR-2

BEACHWAY 2

Information Data 2 FAR per building

A002

PLOT DATE: 2019.10.24	SCALE: NTS
DRAWN BY: OEM	CHECK BY: SC



TREE LEGEND:

- TREES TO BE RETAINED*
- TREE BARRIER PROTECTION*
- TRUNK SIZE AND LOCATION*

(REFER TO ARBORIST REPORT)

GRADING LEGEND:

- E.G. — EXISTING GRADE*
- P.G. — PROPOSED GRADE
- T.O.S. — TOP OF SLAB
- F.F.E. — FINISHED FLOOR ELEVATION

*(REFER TO SURVEY PLAN)
ALL ELEVATIONS IN MILLIMETRES*

0 10 20 M

N

Urban Arts
Architecture Urban Design

300-111 Water Street
Vancouver, BC
Canada.V6B 1A7
t: 604-683-5060
e: info@urban-arts.ca

SEAL:

NOTES:

Consultant Name

BEACHWAY

REV.	DATE	ISSUE
A	2019-10-23	Issued for DP Application

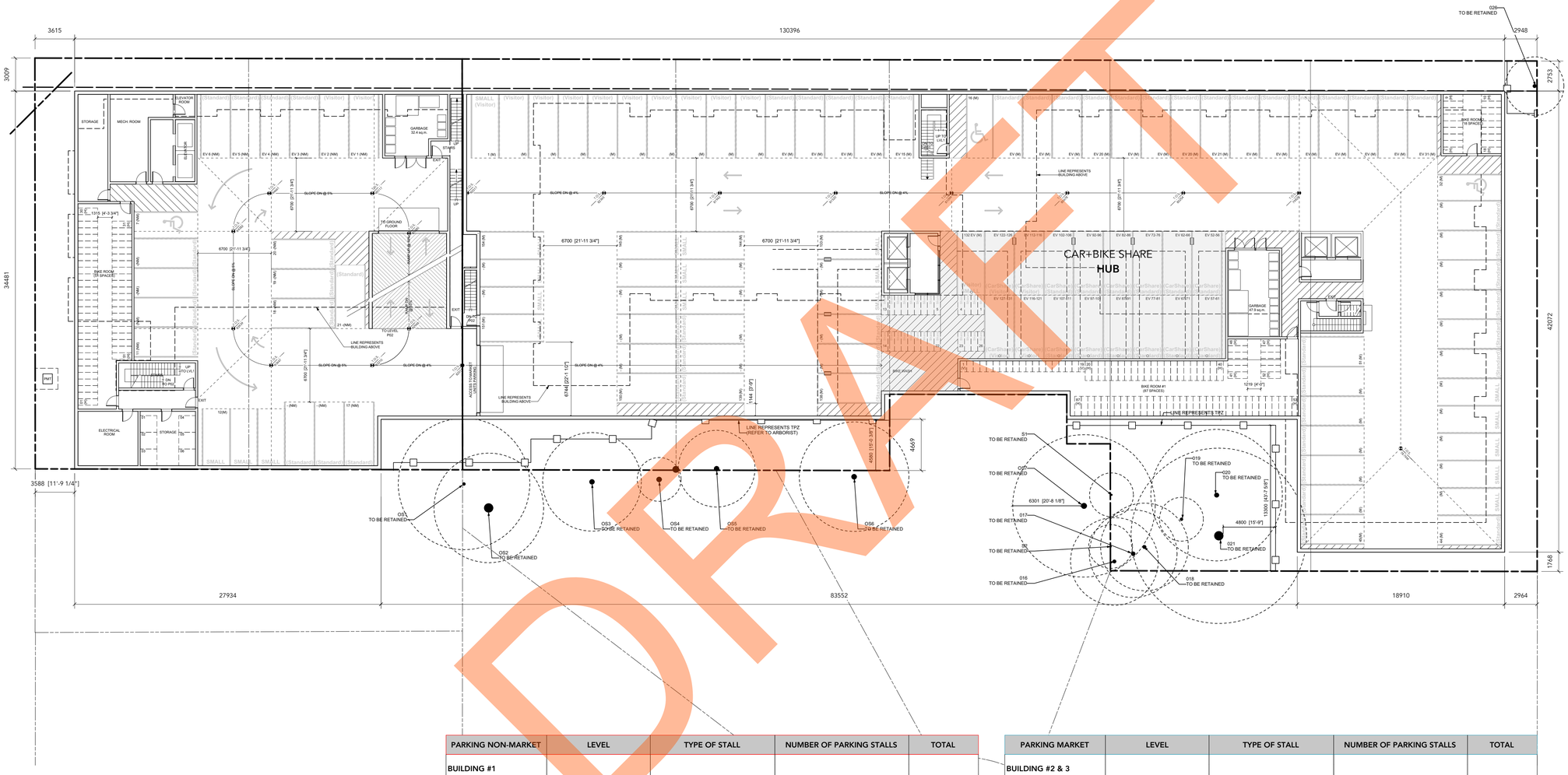
WR-NBR-2

BEACHWAY 2

Site Plan

A101

PLOT DATE: 2019.10.24	SCALE: 1:200
DRAWN BY: OEM	CHECK BY: SC



TREE LEGEND:

TREES TO BE RETAINED*

TREE BARRIER PROTECTION*

TRUNK SIZE AND LOCATION*

**(REFER TO ARBORIST REPORT)*

GRADING LEGEND:

E.G. EXISTING GRADE*

P.G. PROPOSED GRADE

T.O.S. TOP OF SLAB

F.F.E. FINISHED FLOOR ELEVATION

**(REFER TO SURVEY PLAN)*
ALL ELEVATIONS IN MILLIMETRES

0 10 20 M

N

PARKING NON-MARKET	LEVEL	TYPE OF STALL	NUMBER OF PARKING STALLS	TOTAL
BUILDING #1				
	PARKADE LEVEL 01			
		STANDARD SPACE (2.7X5.8)	17	
		SMALL SPACE (2.5X5.8)	0	
		SMALL SPACE (2.5X5.2)	3	
		HANDICAPPED SPACE (4.0X5.8)	1	
		TOTAL		21
	PARKADE LEVEL 02			
		STANDARD SPACE	17	
		SMALL SPACE (2.5 X 5.8)	6	
		SMALL SPACE (2.5X5.2)	4	
		HANDICAPPED SPACE	0	
		TOTAL		27
		Σ TOTAL SPACES:		**48**

PARKING MARKET	LEVEL	TYPE OF STALL	NUMBER OF PARKING STALLS	TOTAL
BUILDING #2 & 3				
	PARKADE LEVEL 01			
		STANDARD SPACE (2.7X5.8)	52	
		SMALL SPACE (2.5X5.8)	19	
		SMALL SPACE (2.5X5.2)	0	
		HANDICAPPED SPACE (4.0X5.8)	2	
		CAR SHARE STANDARD	16	
		CAR SHARE SMALL (2.5X5.8)	1	
		Σ TOTAL SPACES:		90

Urban Arts
Architecture Urban Design
300-111 Water Street
Vancouver, BC
Canada.V6B 1A7
t: 604-683-5060
e: info@urban-arts.ca

SEAL:

NOTES:

Consultant Name

BEACHWAY

REV.	DATE	ISSUE
A	2019-10-23	Issued for DP Application

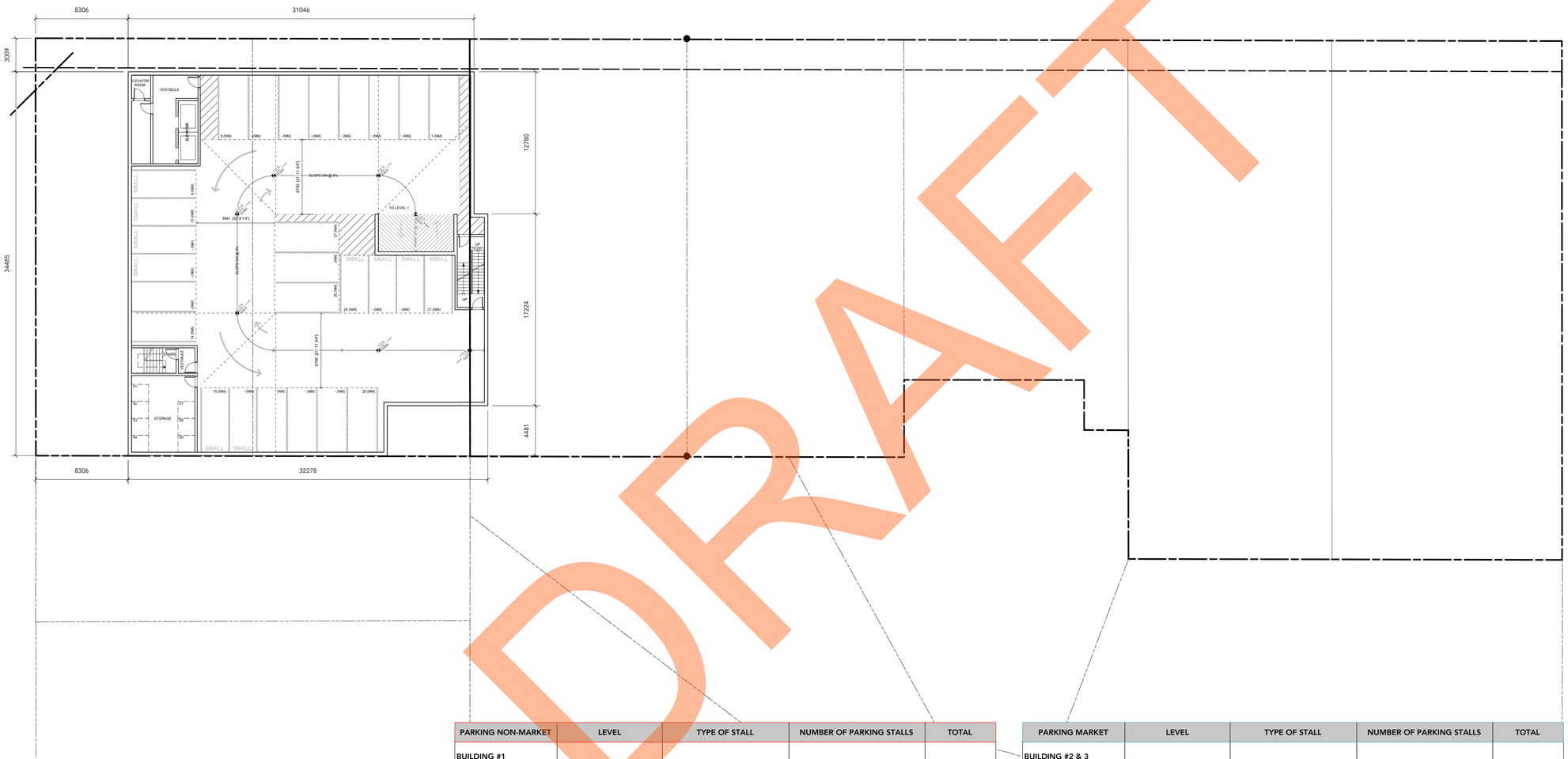
WR-NBR-2

BEACHWAY 2

Parkade LVL 01

A102

PLOT DATE: 2019.10.24	SCALE: 1:200
DRAWN BY: OEM	CHECK BY: SC



GRADING LEGEND:

- E.G. — EXISTING GRADE*
- P.G. — PROPOSED GRADE
- T.O.S. — TOP OF SLAB
- F.F.E. — FINISHED FLOOR ELEVATION

*(REFER TO SURVEY PLAN)
ALL ELEVATIONS IN MILLIMETRES

0 10 20 M N

PARKING NON-MARKET	LEVEL	TYPE OF STALL	NUMBER OF PARKING STALLS	TOTAL
BUILDING #1				
	PARKADE LEVEL 01			
		STANDARD SPACE (2.7X5.8)	17	
		SMALL SPACE (2.5X5.8)	0	
		SMALL SPACE (2.5X5.2)	3	
		HANDICAPPED SPACE (4.0X5.8)	1	
		TOTAL		21
	PARKADE LEVEL 02			
		STANDARD SPACE	17	
		SMALL SPACE (2.5 X 5.8)	6	
		SMALL SPACE (2.5X5.2)	4	
		HANDICAPPED SPACE	0	
		TOTAL		27
		Σ TOTAL SPACES:		**48**

PARKING MARKET	LEVEL	TYPE OF STALL	NUMBER OF PARKING STALLS	TOTAL
BUILDING #2 & 3				
	PARKADE LEVEL 01			
		STANDARD SPACE (2.7X5.8)	52	
		SMALL SPACE (2.5X5.8)	19	
		SMALL SPACE (2.5X5.2)	0	
		HANDICAPPED SPACE (4.0X5.8)	2	
		CAR SHARE STANDARD	16	
		CAR SHARE SMALL (2.5X5.8)	1	
		Σ TOTAL SPACES:		90

Urban Arts
Architecture Urban Design
300-111 Water Street
Vancouver, BC
Canada.V6B 1A7
t: 604-683-5060
e: info@urban-arts.ca

SEAL:

NOTES:

The Contractor shall check and verify all dimensions and report any discrepancies before proceeding.

Do not scale drawings.

Consultant Name

BEACHWAY

REV.	DATE	ISSUE
A	2019-10-23	Issued for DP Application

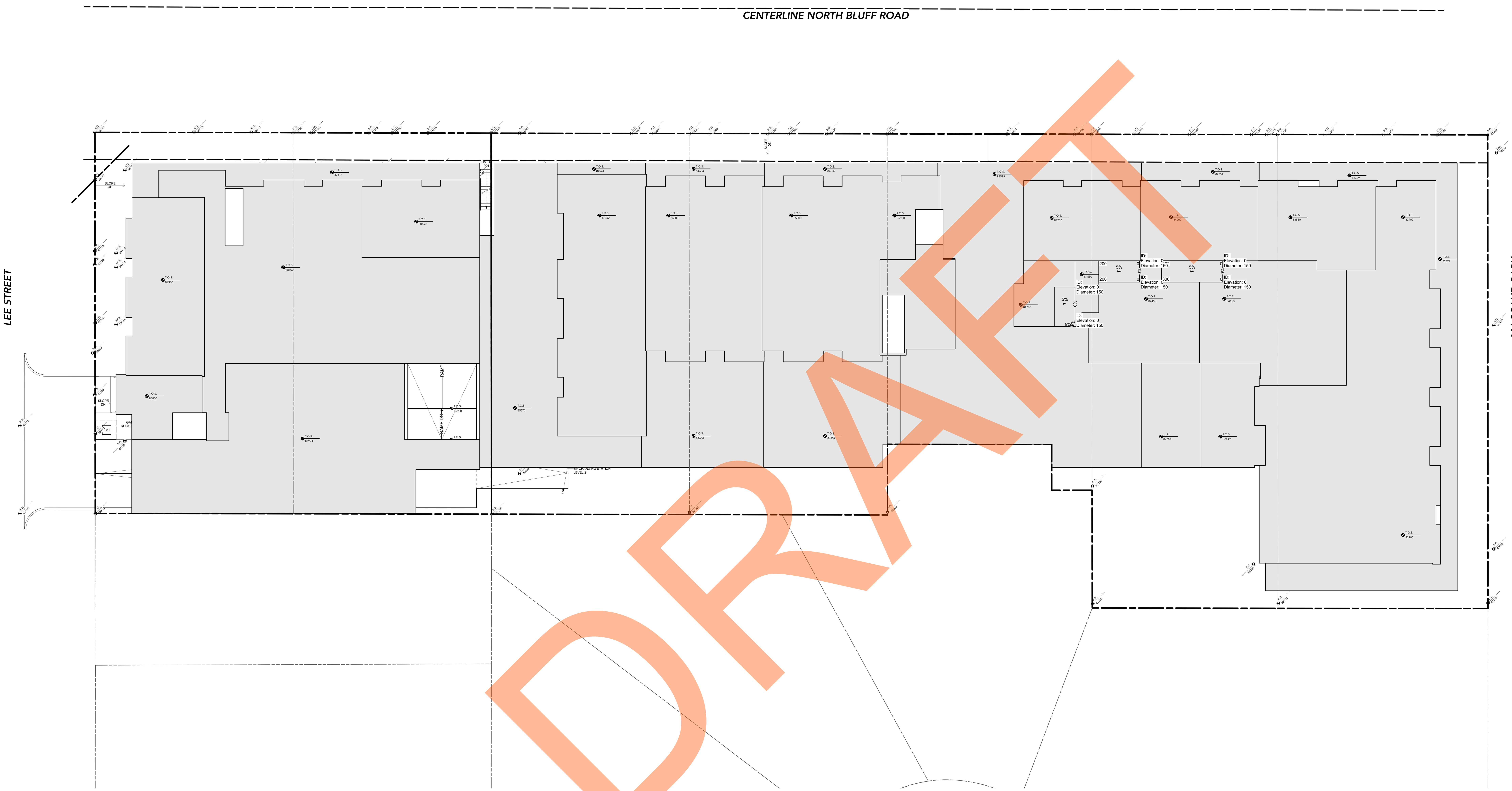
WR-NBR-2

BEACHWAY 2

Parkade LVL 02.0

A103

PLOT DATE: 2019.10.24	SCALE: 1:200
DRAWN BY: OEM	CHECK BY: SC



GRADING LEGEND:

- E.G. — EXISTING GRADE*
- P.G. — PROPOSED GRADE
- T.O.S. — TOP OF SLAB
- F.F.E. — FINISHED FLOOR ELEVATION

**(REFER TO SURVEY PLAN)*
ALL ELEVATIONS IN MILLIMETRES

0 10 20 M

N

Urban Arts
Architecture Urban Design

300-111 Water Street
Vancouver, BC
Canada.V6B 1A7
t: 604-683-5060
e: info@urban-arts.ca

SEAL:

NOTES:

The Contractor shall check and verify all dimensions and report any discrepancies before proceeding.

Do not scale drawings.

Consultant Name

BEACHWAY

REV.	DATE	ISSUE
A	2019-10-23	Issued for DP Application

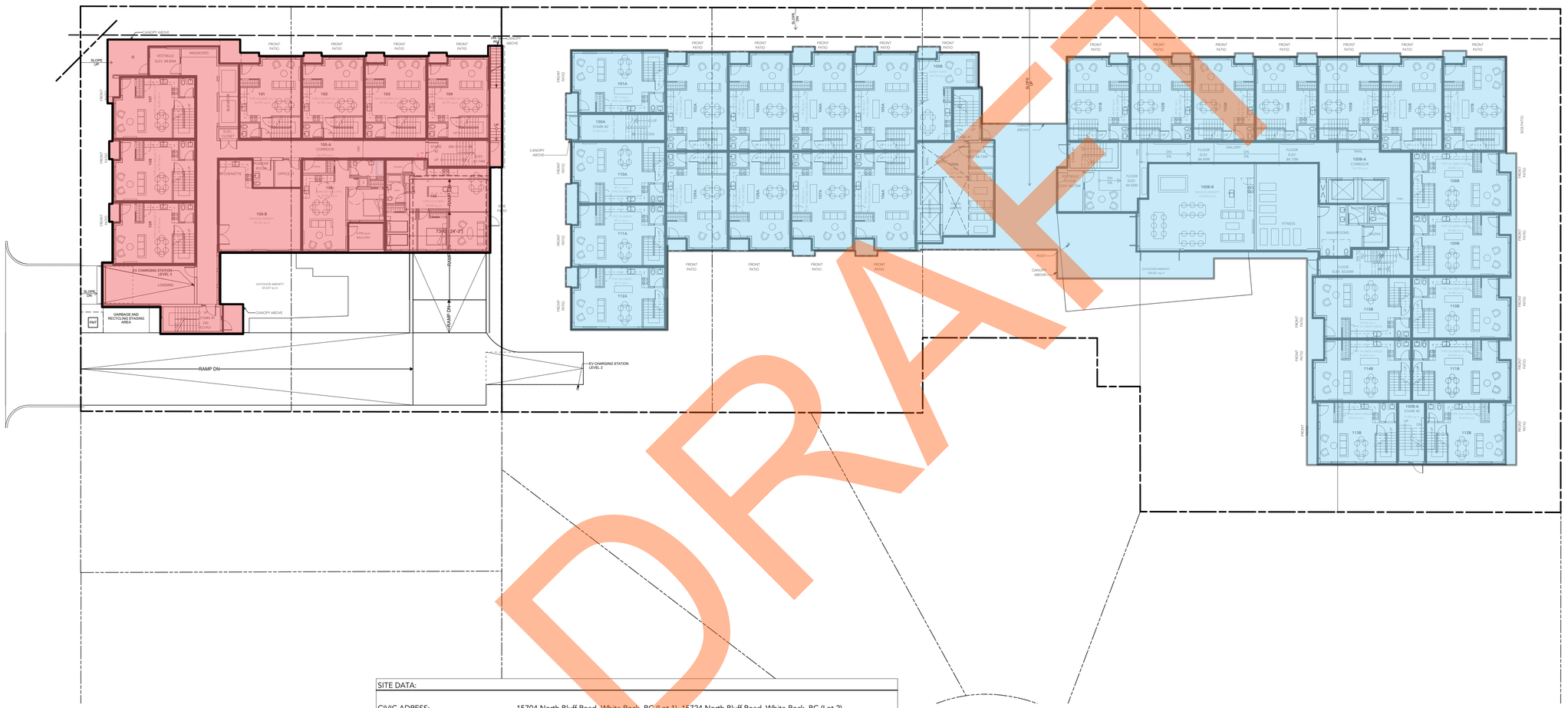
WR-NBR-2

BEACHWAY 2

Preliminary slab plan

A105

PLOT DATE: 2019.10.24	SCALE: 1:200
DRAWN BY: OEM	CHECK BY: SC



SITE DATA:			
CIVIC ADRESS:	15704 North Bluff Road, White Rock, BC (Lot 1), 15724 North Bluff Road, White Rock, BC (Lot 2) 15728 North Bluff Road, White Rock, BC (Lot Rem1),15738 North Bluff Road, White Rock, BC (Lot Rem2) 15748 North Bluff Road, White Rock, BC (Lot 305),15758 North Bluff Road, White Rock, BC (Lot 3) 15770 North Bluff Road, White Rock, BC (Lot 4)		
LEGAL ADRESS:	Lots 1 to 2, New Westminster District, Plan 18697; Lots Rem 1 & Rem 2, New Westminster District, Plan 13659 Lots 305, New Westminster District, Plan 35289; Lots 3 & 4 New Westminster District, Plan 17402		
LOT AREA:	5,366.241 sq.m.	57761.684 sq ft	
LOT COVERAGE:			
BUILDING 1	747.368 sq.m.	8044.6 sq ft	13.927%
BUILDING 2&3	2,040.840 sq.m.	21967.4 sq ft	38.031%
TOTAL:	2,788.209 sq.m.	30012 sq ft	51.958%

Urban Arts
Architecture Urban Design
300-111 Water Street
Vancouver, BC
Canada.V6B 1A7
t: 604-683-5060
e: info@urban-arts.ca

SEAL:

NOTES:

Consultant Name

BEACHWAY

REV.	DATE	ISSUE
A	2019-10-23	Issued for DP Application

WR-NBR-2

BEACHWAY 2

Site Plan Coverage

A106

PLOT DATE: 2019.10.24	SCALE: 1:200
DRAWN BY: OEM	CHECK BY: SC

Appendix B
Beachway 1 Draft Traffic Impact Assessment

Date: 19 December 2018
Our File No: 5935-01

BY EMAIL

Mr. Raghbir Gurm
1168620 BC Limited
13063 56 Ave
Surrey BC
V3X2Z3

Dear Mr. Gurm,

Re: Traffic Impact Assessment Study – Beachway Residential Development
White Rock, BC

Creative Transportation Solutions Ltd. (CTS) is pleased to submit this ***DRAFT*** report summarising our work on the above study. CTS was retained by **Mr. Raghbir Gurm** on 9 October 2018 to undertake a traffic impact study for a residential townhouse and condominium development at Maple Street, Lee Street, and North Bluff Road in the City of White Rock, BC. The primary objectives of this study are as follows:

1. To conduct a traffic impact assessment of the proposed development; and,
2. To document the analyses, findings and recommendations in a report that satisfies that requirements of the City of White Rock.

This report documents our analyses and findings.

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

1.0 BACKGROUND

1.1 The Site

It is being proposed to build a residential development at the following addresses in White Rock, BC:

- 15654 North Bluff Road
- 15664 North Bluff Road
- 15674 North Bluff Road
- 1593 Lee Street
- 1580 Maple Street
- 1570 Maple Street

The current zoning is RS-1 (One Unit Residential Zone) and the site is located in the east side large-lot infill redevelopment area (Please see **FIGURE 1)**. The development area is noted in the City of White Rock OCP as a potential affordable market housing. A section of the property is noted as suitable for Small Lot & Street-Front Townhouse, and the remaining section is noted as suitable for Multi-Unit Residential (Low Density)..

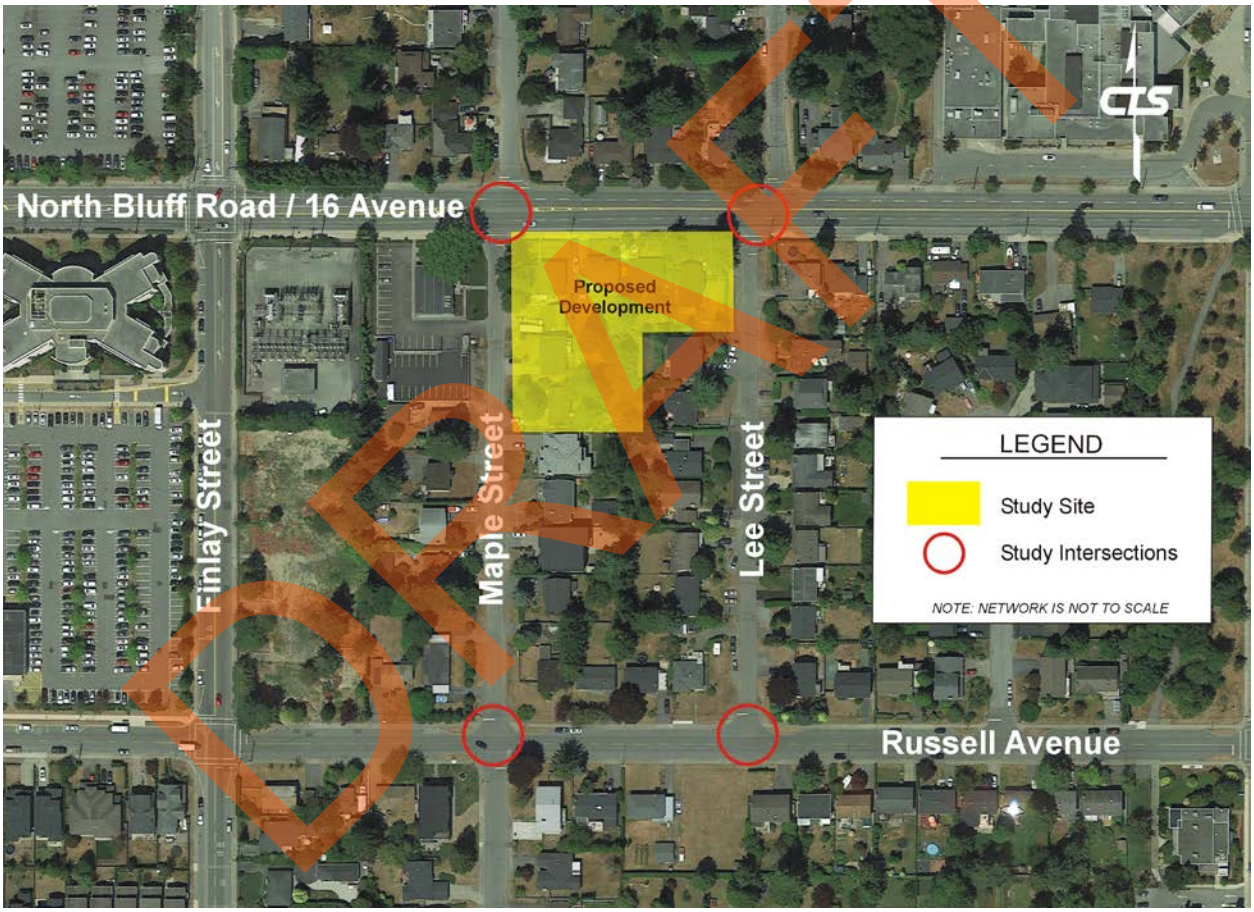
FIGURE 1
SITE CONTEXT

The residential development is proposed to be rezoned as a comprehensive development and will have 14 townhouse units and 76 condominium units for a total of 90 dwelling units. 25 of the condominium units will be non-market rental.

Access to the site is proposed via a driveway on Maple Street and a driveway on Lee Street. For the purposes of this study, development was assumed to be completed and fully occupied by 2020.

The study area and the existing roadways are illustrated in **FIGURE 2**. The referenced site plan is included in **APPENDIX A**.

FIGURE 2
STUDY AREA AND INTERSECTIONS



1.2 Site Visit / Road Network

A site visit was conducted in order to document current conditions. The following road network characteristics were confirmed.

North Bluff Road / 16th Avenue
- East-west arterial
- Centerline forms the municipal boundary between City of White Rock and City of Surrey.
- Four lanes.
- Truck Route.
- No Stopping on north side. 'Permit Parking Only' on south side
- Concrete curb and gutter along both sides of the road.
- Street lighting.

Russell Avenue
- East / west primary collector
- Two lanes – two through lanes with two parking lanes.
- 'Permit parking Only' on both sides
- Concrete curb and gutter along both sides of the road.
- Street lighting.

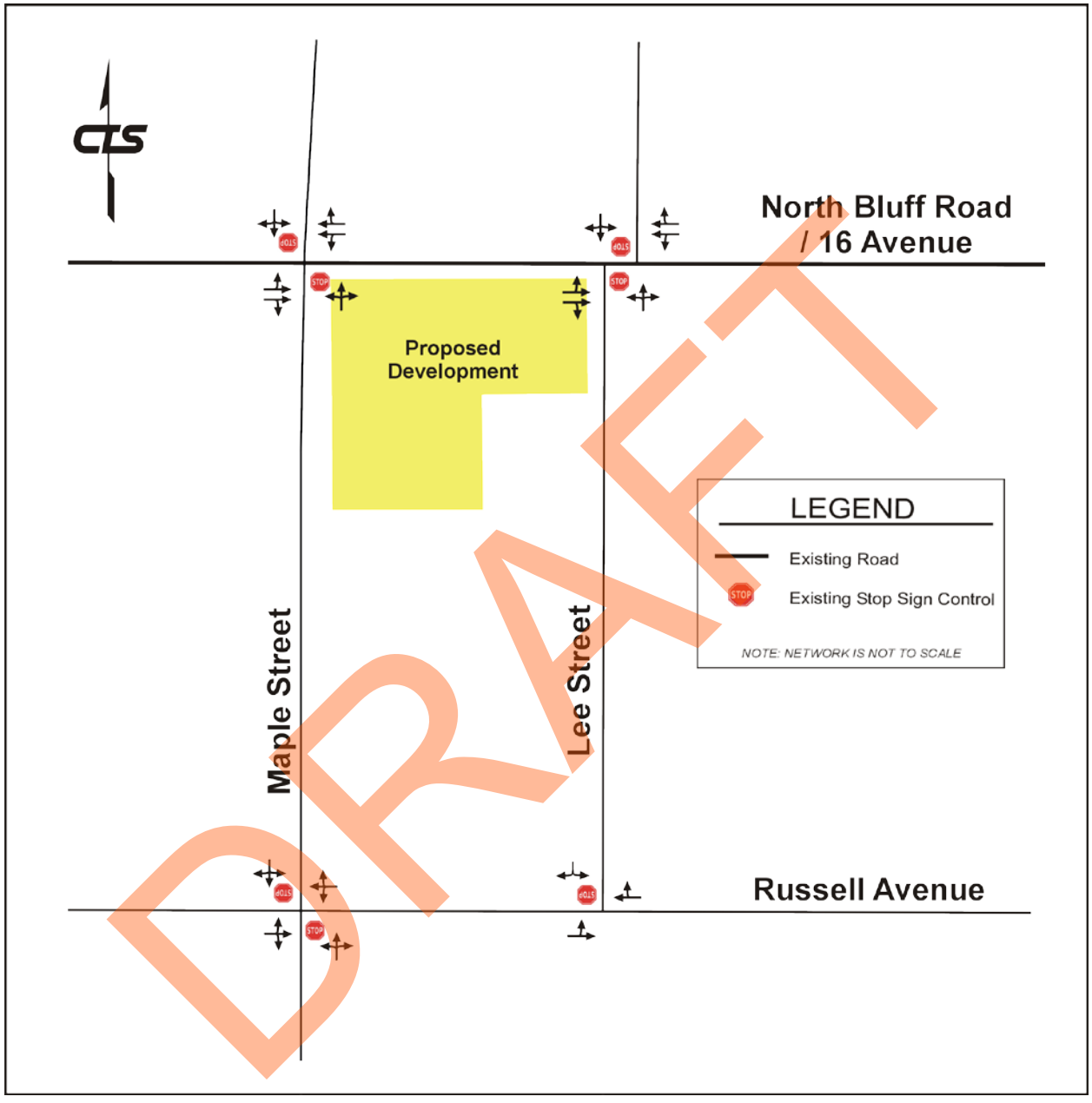
Lee Street
- North / south neighborhood local road.
- Two lanes.
- 'Permit parking Only' on both sides
- No curb or gutter.
- Street Lighting.

Maple Street
- North / south neighborhood local road.
- Two lanes.
- 'Permit parking Only' on both sides
- No curb or gutter.
- Street Lighting.

The laning configuration for the study intersections are illustrated in **FIGURE 3.**

It should be noted that due to the proximity of Peace Arch Hospital, on-street parking management is a key traffic management element for the City of White Rock.

FIGURE 3
LANING CONFIGURATION



1.3 Scope of Work

CTS selected the weekday morning and afternoon peak hours as the design hours of analysis for this study as they represent the peak trip generation period for a residential development.

The following scenarios were used in this traffic impact assessment:

1. 2018 (i.e. existing base)
2. 2020 (future base)
3. 2030 (future base)
4. 2020 (future base + site generated)
5. 2030 (future base + site generated)

2.0 BASE TRAFFIC VOLUMES

2018 Base Traffic Volumes

CTS conducted turning movement counts from 07:00 to 09:00, and 15:00 to 18:00 to document the typical weekday peak hour traffic volume for the following intersections on the following dates:

- Lee Street and North Bluff Road (Thursday, November 8th, 2018);
- Lee Street and Russell Avenue (Thursday, November 8th, 2018);
- Maple Street and North Bluff Road (Friday, September 22th, 2017); and
- Maple Street and Russell Avenue (Friday, September 22th, 2017)

The traffic count data was summarized and reviewed to ensure data integrity and validity. The summarized traffic data sheets are included in **APPENDIX B.**

The 2017 base traffic volumes were factored up by a traffic volume growth rate of 2.0% to represent base year 2018 volumes.

From the collected data, the weekday morning peak hour was determined to occur from 7:45 to 8:45 and the afternoon peak hour was determined to occur from 15:00 to 16:00.

The 2018 base traffic volumes for the weekday morning and afternoon peak hours are illustrated in **FIGURE 4** and **FIGURE 5** respectively.

2020 Future Base Traffic Volumes

2020 is anticipated to be the year of full buildout for the proposed development. The 2018 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent base year 2020 volumes.

FIGURE 6 and FIGURE 7 illustrate the weekday morning and afternoon peak hour vehicle volumes, respectively.

2030 Future Base Traffic Volumes

2030 is ten years after the anticipated year of full buildout for the proposed development, and is a scenario requested by the City of White Rock. The 2018 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent base year 2030 volumes.

FIGURE 8 and FIGURE 9 illustrate the weekday morning and afternoon peak hour vehicle volumes, respectively.

FIGURE 4
2018 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

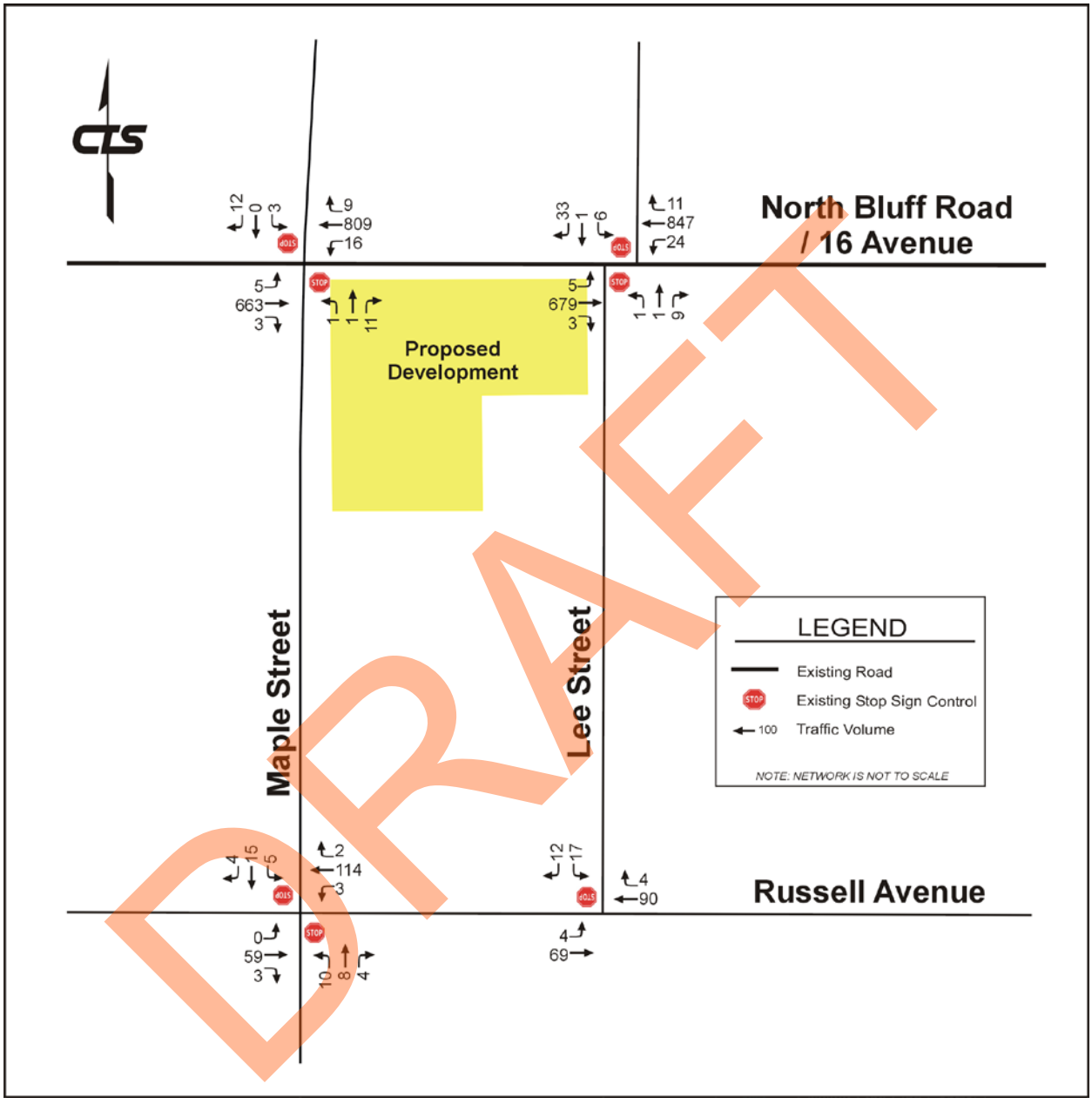


FIGURE 5
2018 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES

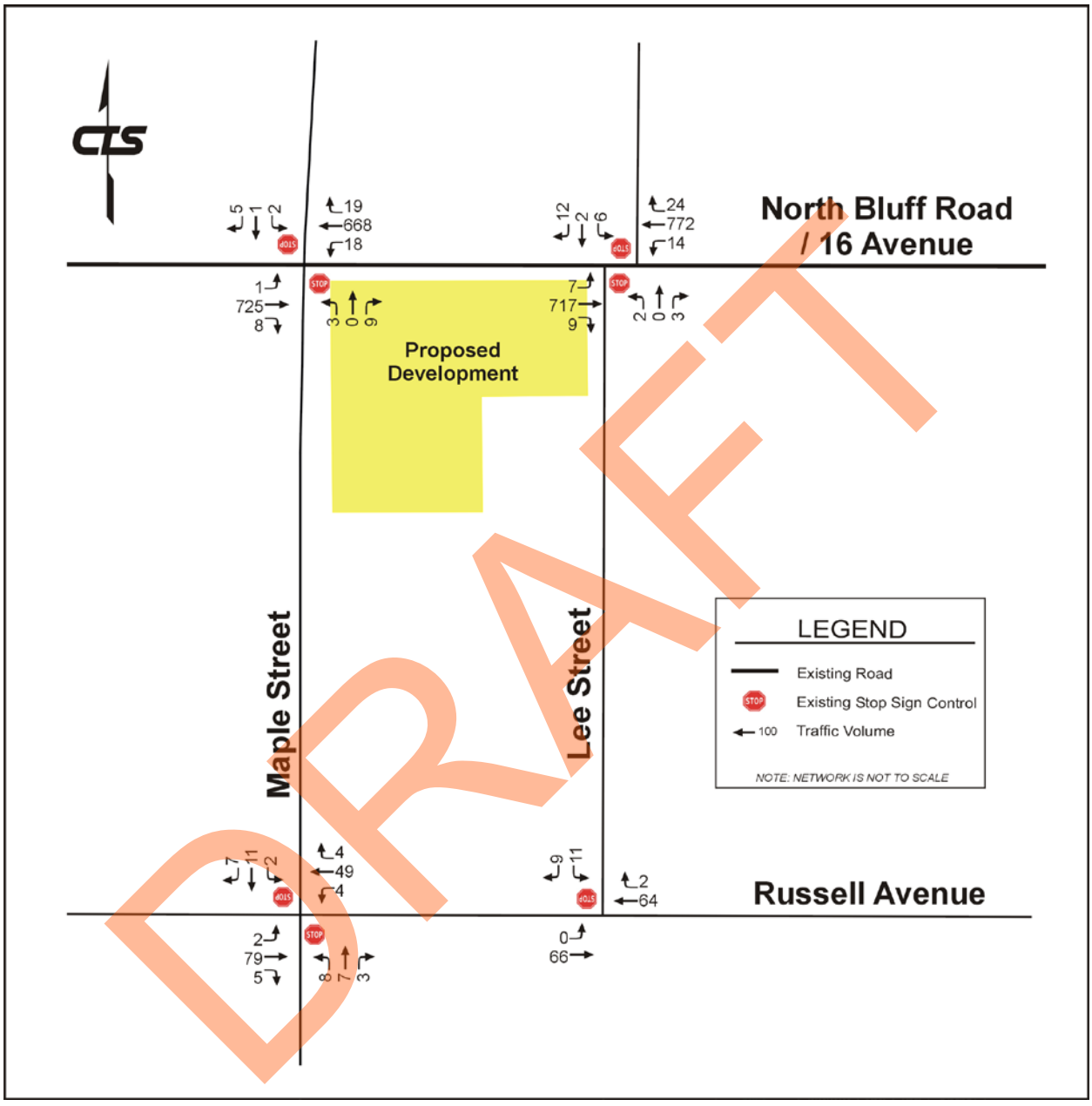


FIGURE 6
2020 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

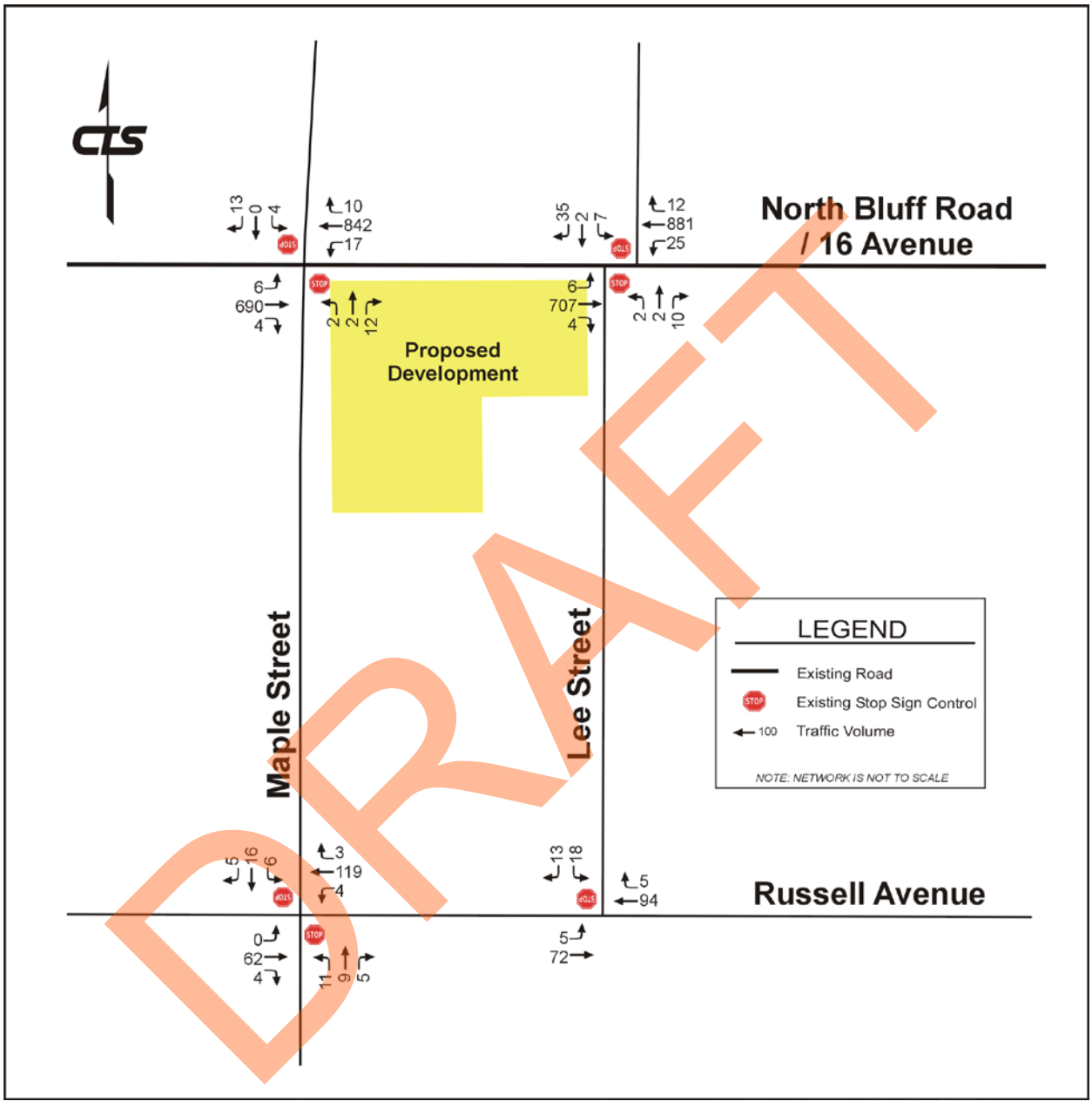


FIGURE 7
2020 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES

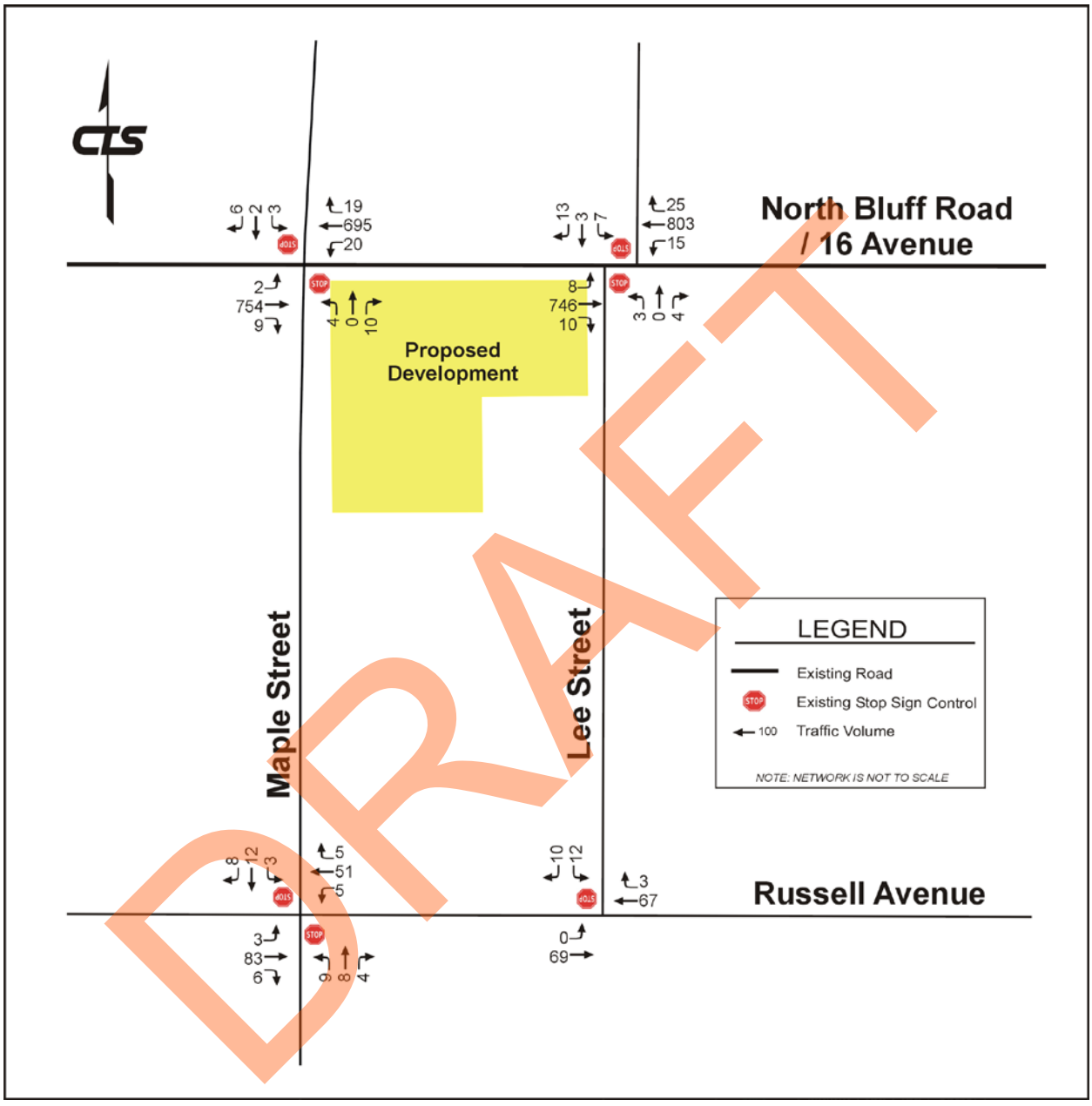


FIGURE 8
2030 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES

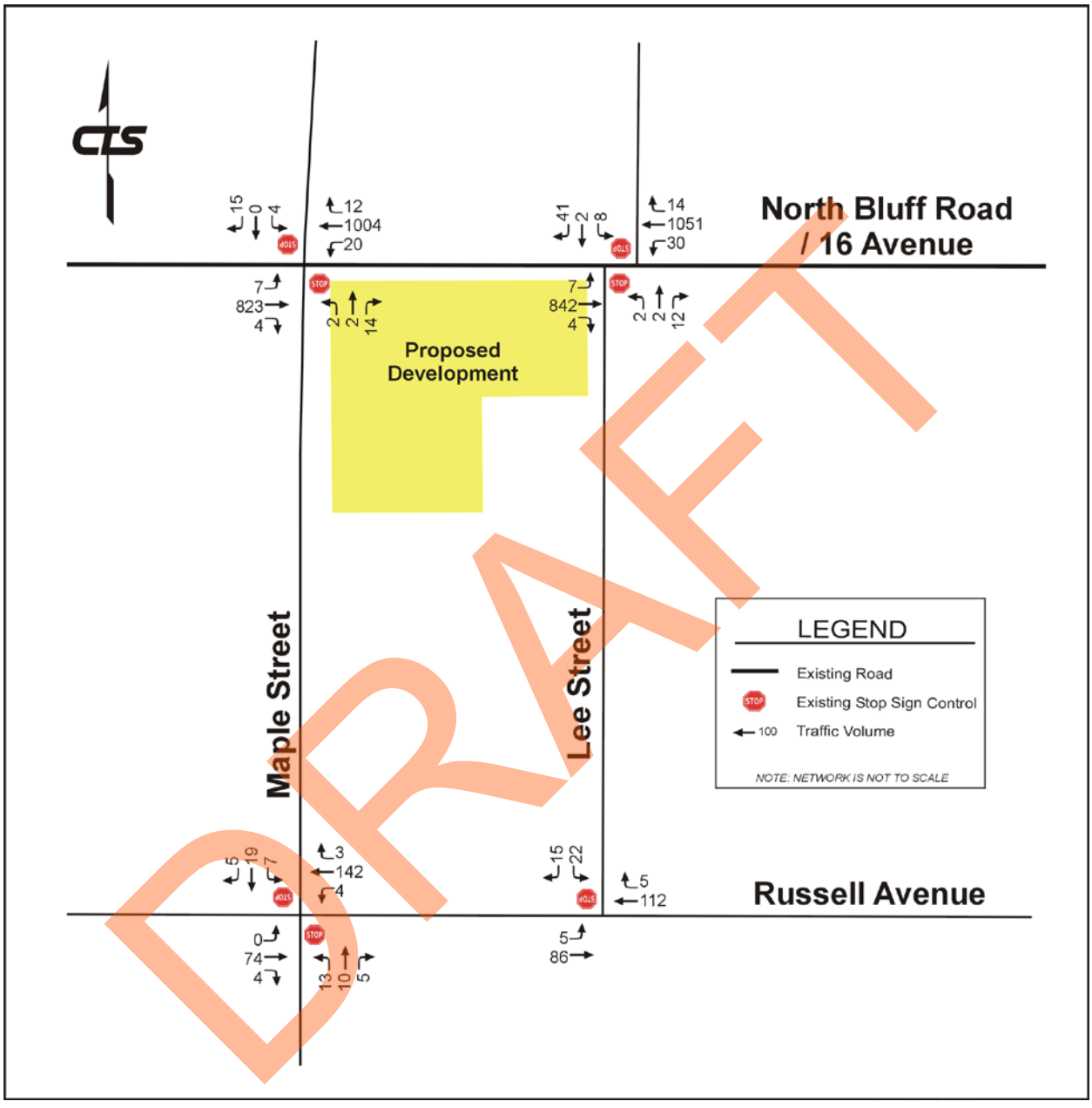
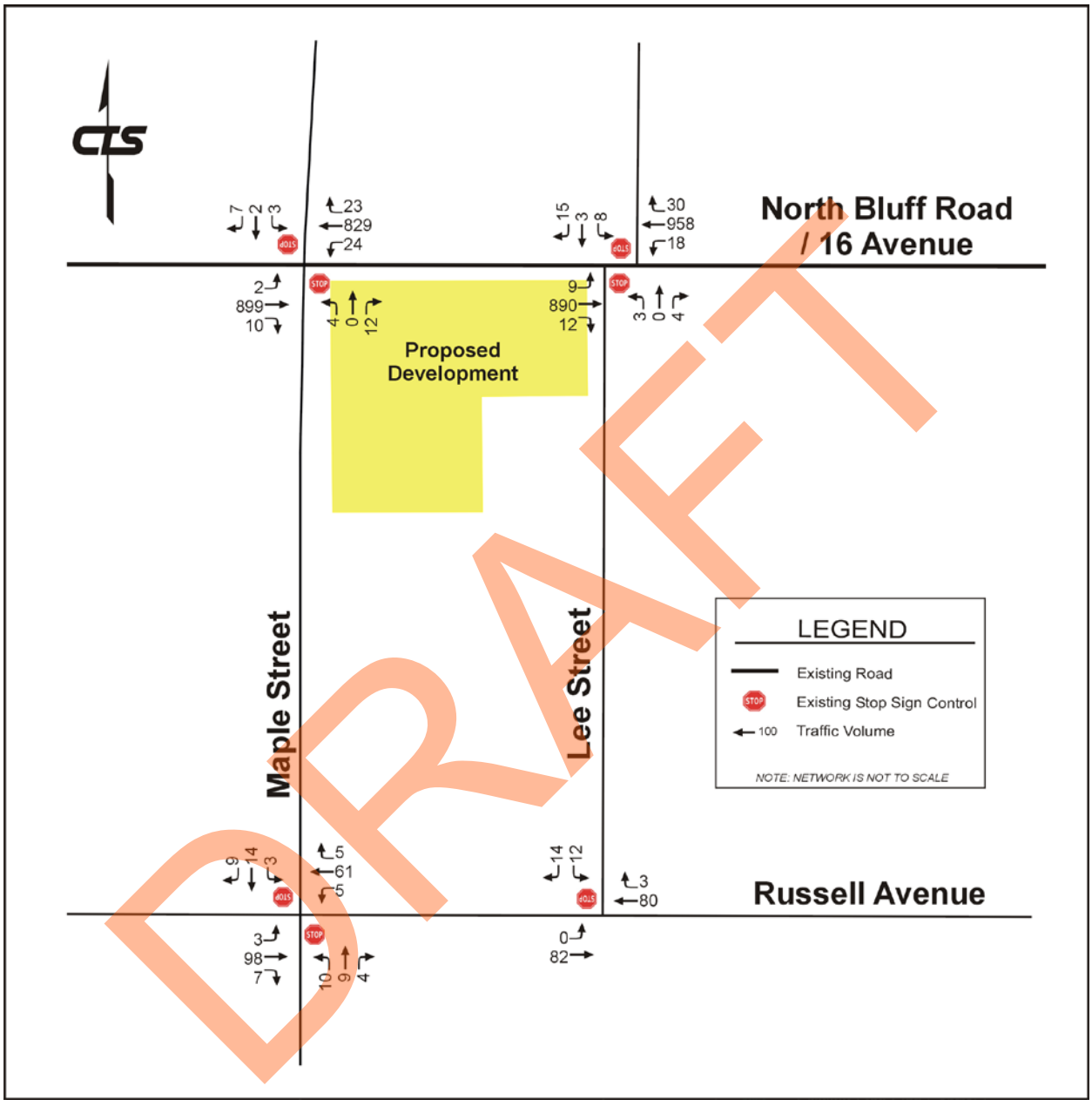


FIGURE 9
2030 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES



3.0 SITE TRAFFIC VOLUMES

3.1 Trip Generation

The published vehicle trip rates from *the Institute of Transportation Engineers (ITE) 10th Edition* were used to forecast the site generated traffic volumes. **TABLE 1** summarizes the forecast site generated traffic for the proposed residential development.

TABLE 1
SUMMARY OF SITE GENERATED TRAFFIC

Land Use	Peak Hour	Trip Generation Variable	Scope of Development	Vehicle Trip Generation Rate	Trip Rate Source	Directional Split		Peak Hour Volumes (vph)		
						% in	% out	in	out	total
Multifamily Housing (Mid-Rise) Townhomes	Morning Peak	Dwelling Units	14.00	0.36	ITE 10th Edition - Code 221	26%	74%	1	4	5
	Afternoon Peak			0.44		61%	39%	3	3	6
Multifamily Housing (Mid-Rise) Condominium	Morning Peak	Dwelling Units	76.00	0.36	ITE 10th Edition - Code 221	26%	74%	7	21	28
	Afternoon Peak			0.44		61%	39%	20	14	34
Total	Morning Peak Hour					26%	74%	8	25	33
	Afternoon Peak Hour					61%	39%	23	17	40

Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and 10 levels (floors). The Vehicle Trip Generation Rate was selected using the General Urban/Suburban setting.

From **TABLE 1**, the site is forecasted to generate a total of 33 vehicle trips (8 inbound, and 25 outbound) during the weekday morning peak hour and 40 vehicle trips (23 inbound and 17 outbound) during the weekday afternoon peak hour.

The morning peak hour volume is equivalent to 1 vehicle movement approximately every 2.8 minutes. The afternoon peak hour volume is equivalent to 1 vehicle movement approximately every 1.5 minutes.

For reference, the Ministry of Transportation and Infrastructure threshold for undertaking traffic impact assessments is site vehicle trip generation in excess of 100 vehicle trips in any hour.

3.2 Trip Distribution

The trip distribution parameters for distributing site generated vehicle trips to / from the site were developed from existing traffic patterns entering and exiting the study area for the afternoon peak hour. The traffic volume assignment is summarized in **TABLE 2**.

TABLE 2
TRIP DISTRIBUTION VEHICLE VOLUMES
FOR SITE GENERATED TRAFFIC

FROM / TO	WEEKDAY AM PEAK HOUR		WEEKDAY PM PEAK HOUR	
	INBOUND	OUTBOUND	INBOUND	OUTBOUND
Lee St (N)	0	0	0	0
Maple St (N)	0	0	0	0
Maple St (S)	0	0	0	0
North Bluff Rd (E)	4	10	11	8
North Bluff Rd (W)	4	12	10	7
Russell Ave (E)	0	1	1	1
Russell Ave (W)	0	2	1	1
TOTAL	**8**	**25**	**23**	**17**
	33		**40**	

3.3 Traffic Assignment

The additional vehicle trips generated from the development were subsequently assigned to the road network using the trip distribution parameters in **TABLE 2**. **FIGURE 10** and **FIGURE 11** illustrate the site generated traffic volumes on the road network for the weekday morning and afternoon peak hours.

It is noted that the access off of Maple Street is for parking for the townhouses, and access off of Lee Street is for parking in the condominiums. Driveway usage is based on the proportional trip generation of each of these land uses as previously noted in **TABLE 1**.

FIGURE 10
SITE TRAFFIC VOLUMES FOR THE WEEKDAY MORNING PEAK HOUR

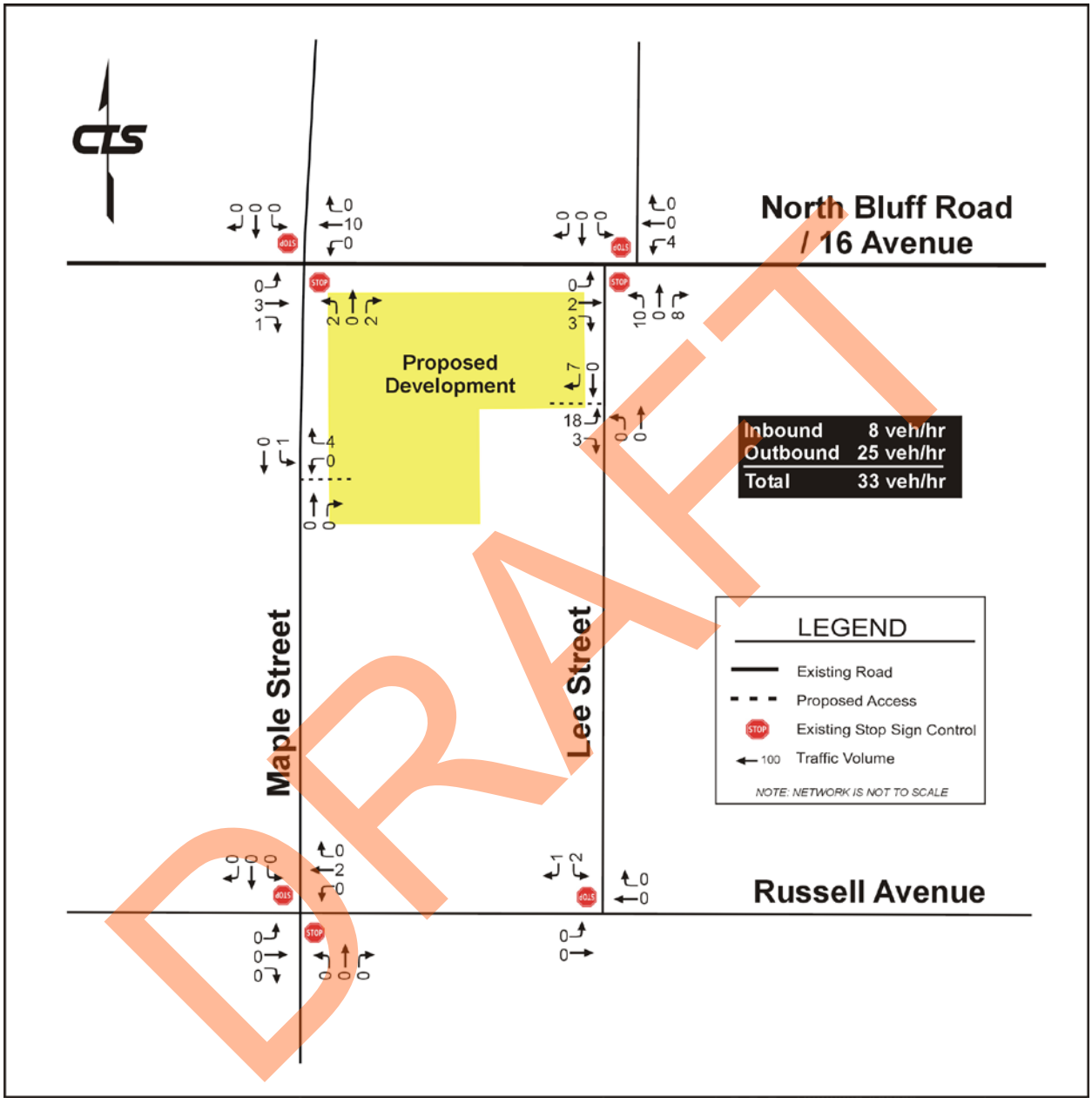
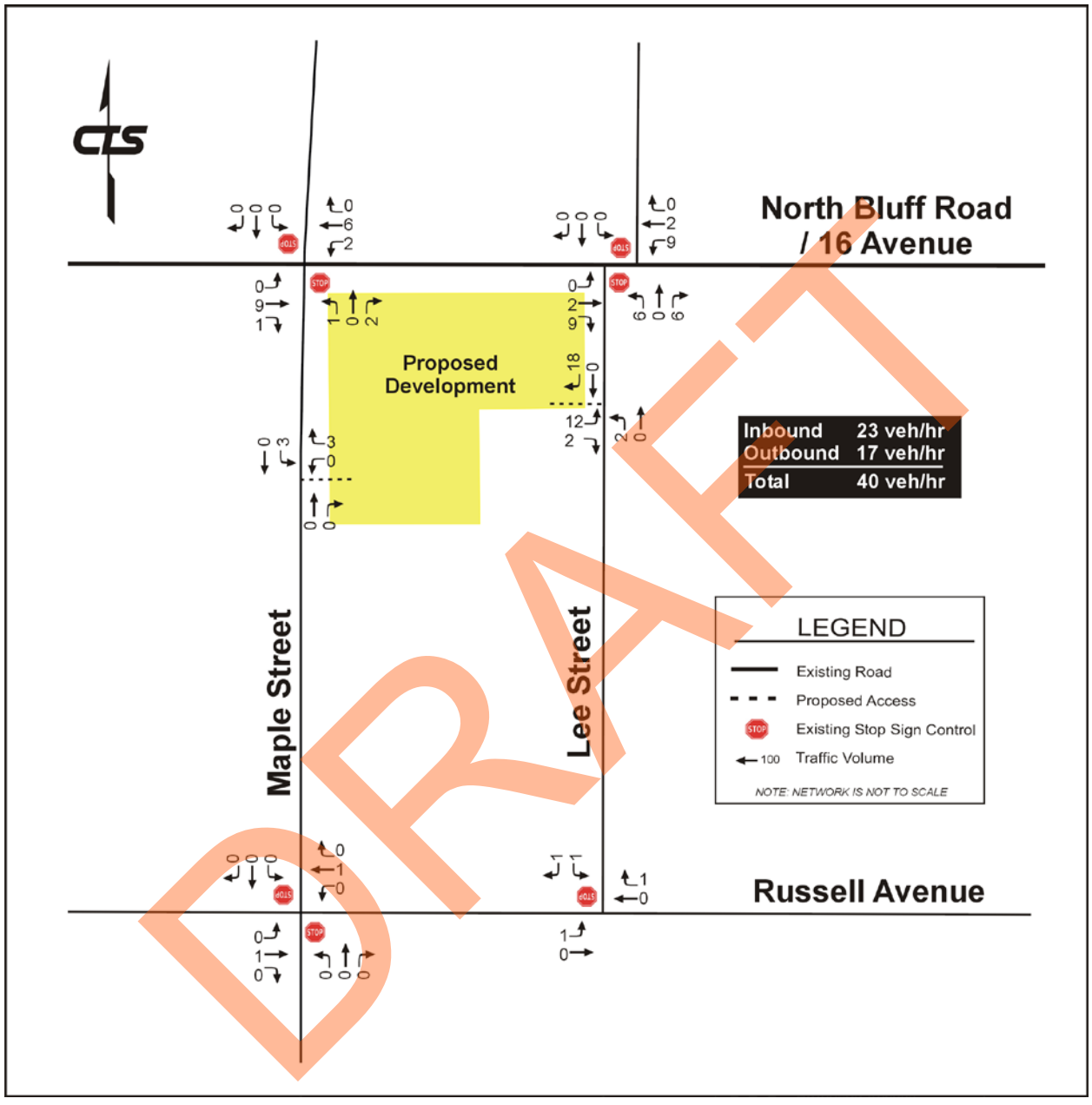


FIGURE 11
SITE TRAFFIC VOLUMES FOR THE WEEKDAY AFTERNOON PEAK HOUR



4.0 TOTAL PROJECTED TRAFFIC VOLUMES

FIGURE 12 illustrates the total projected traffic for the year 2020 weekday morning peak hour consisting of both future base and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 10** onto **FIGURE 6**.

FIGURE 13 illustrates the total projected traffic for the year 2020 weekday afternoon peak hour consisting of both future base and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 11** onto **FIGURE 7**.

FIGURE 14 illustrates the total projected traffic for the year 2030 weekday morning peak hour consisting of both future base and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 10** onto **Figure 8.**

FIGURE 15 illustrates the total projected traffic for the year 2030 weekday afternoon peak hour consisting of both future base and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 11** onto **Figure 9.**

FIGURE 12
2020 MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES

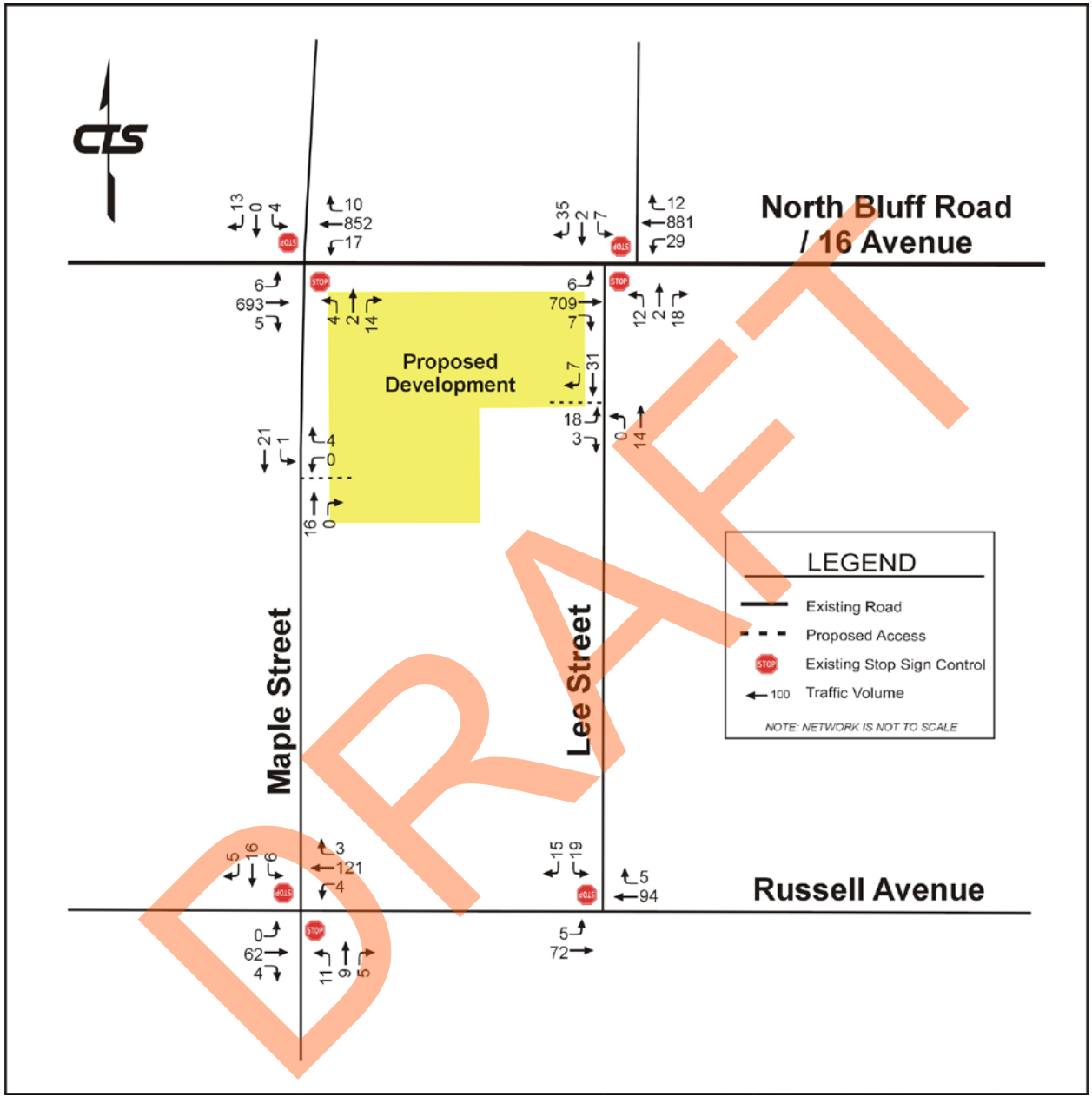


FIGURE 13
2020 AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES

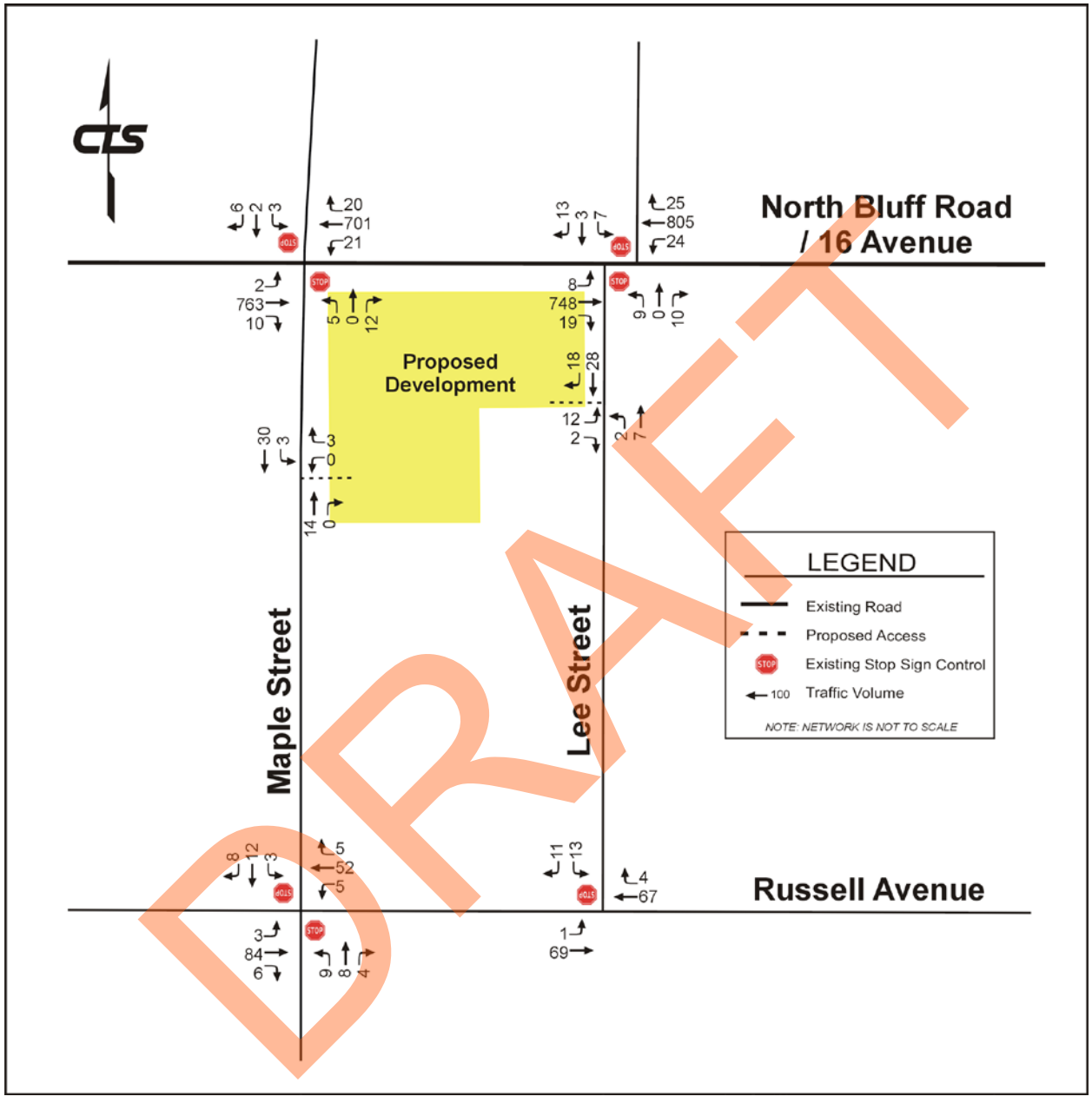


FIGURE 14
2030 MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES

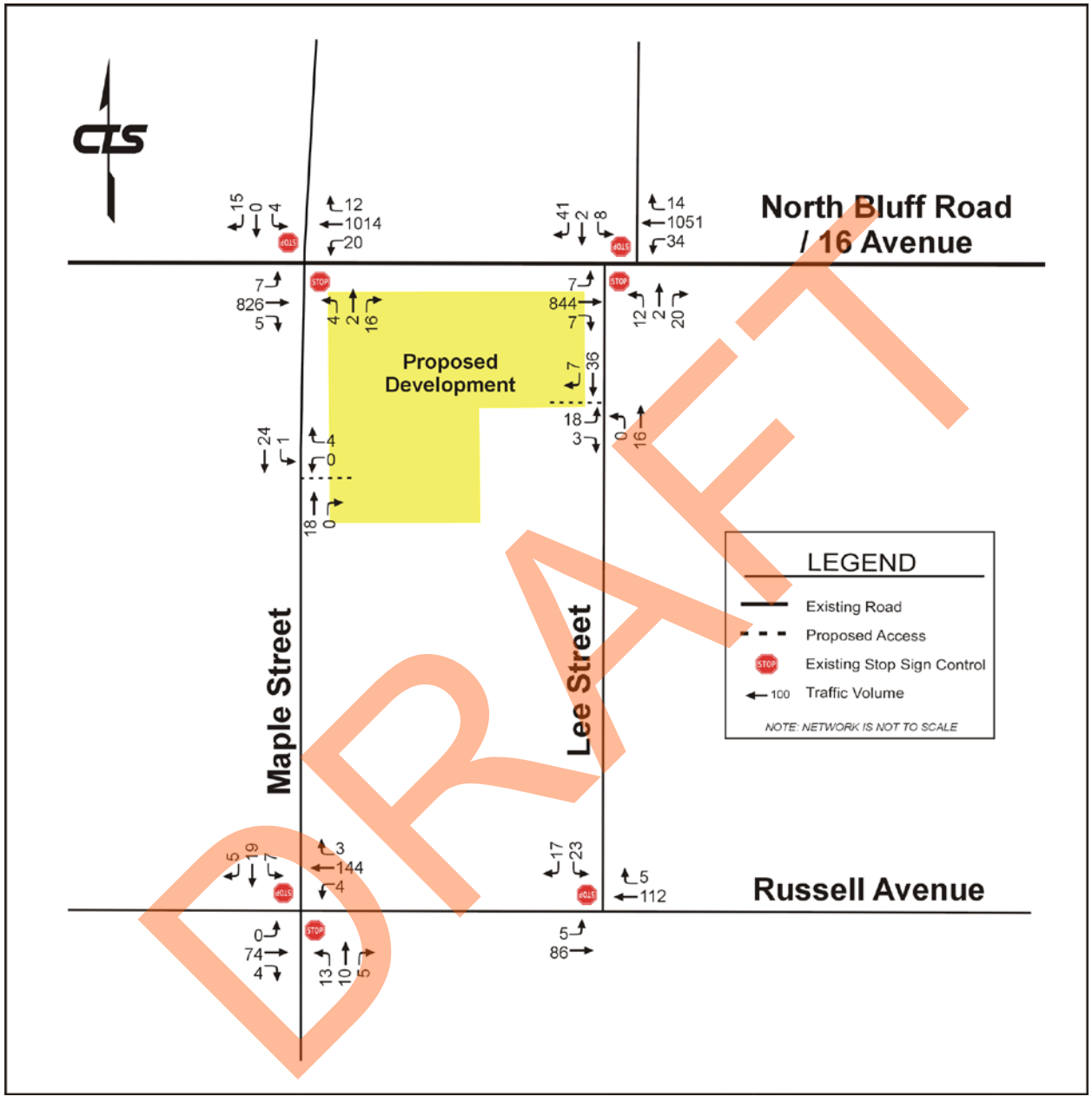
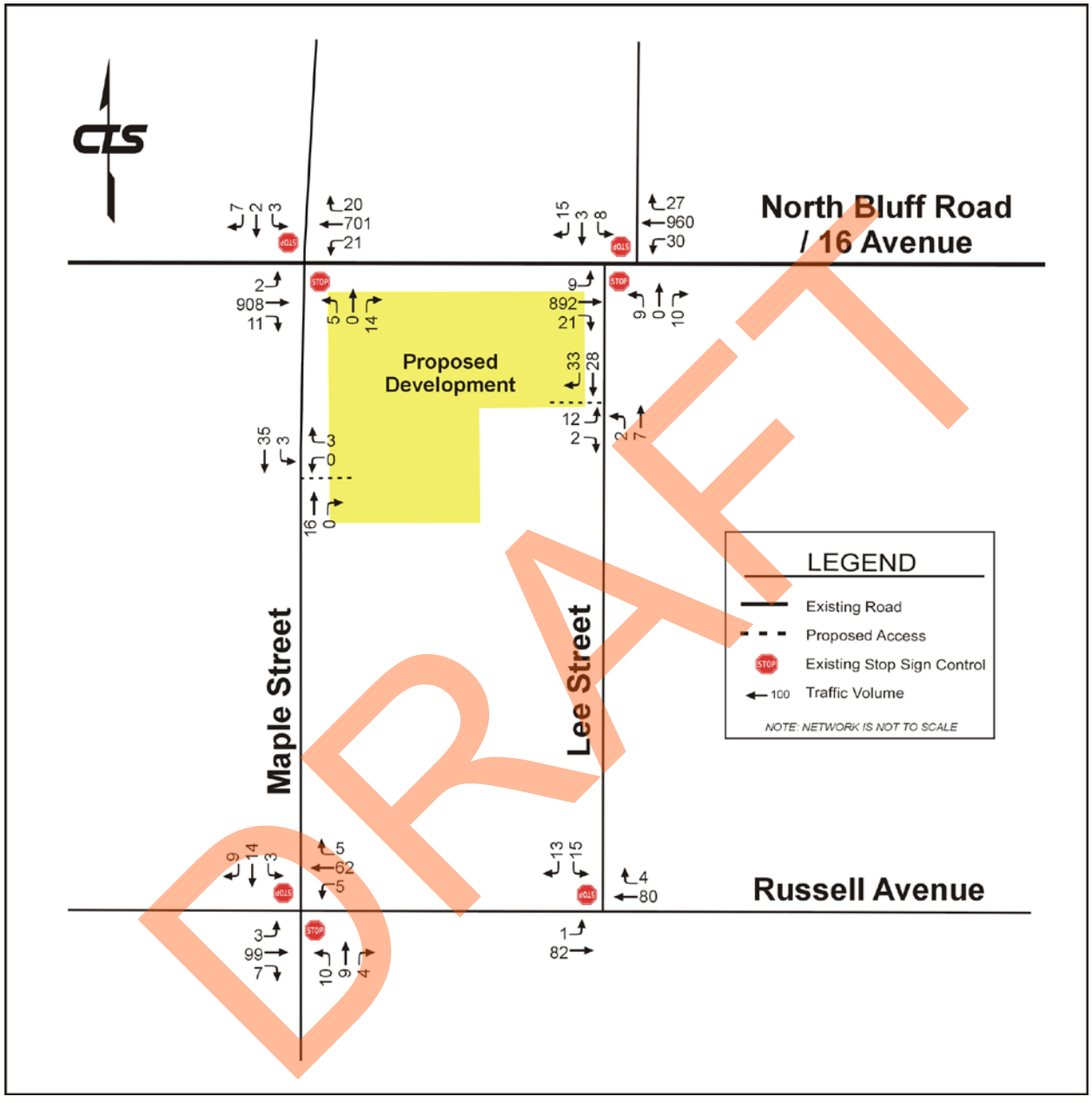


FIGURE 15
2030 AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES



5.0 TRAFFIC ENGINEERING ANALYSIS

5.1 Capacity Analysis

Capacity analysis was performed at each of the locations in order to determine the intersection levels of service (LOS) that is provided to motorists. The LOS for intersections and 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 "F" (Fail). See **Table 3.** A LOS of "F" (Fail) indicates that an intersection or movement is failing because the intersection or movement is over capacity and delays are excessive. A LOS of "D" during the critical peak hours is considered acceptable by many public agencies in large urban areas for overall intersection operation and a LOS of "E" or better is considered acceptable for left turn movements as it recognizes that the intersections normally perform much better the remaining 90% of the day.

TABLE 3
LEVEL OF SERVICE DESCRIPTIONS

Level of Service	Description
A	Excellent
B	Good
C	Fair
D	Poor
E	Very Poor
F	Fail

Highway Capacity Software (HCS 7) was used for the analysis of the unsignalized intersections.

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

- *Saturation flow rate* = 1,900 passenger cars/hour of green time/lane (pcphgpl)
- *Peak hour factor* (PHF) = 0.80 (morning peak) and 0.91 (afternoon peak), which is the average factor observed from the surveyed intersections on North Bluff Road.
- Heavy vehicle percentage for roads = 2%

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 available at all times and no lost times are experienced.

Peak Hour Factor is a measure of traffic demand fluctuation within the analysis hour.

TABLE 4 summarizes and compares the main performance parameters of the intersection capacity analysis for unsignalized 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.

Wherever necessary, attempts at improvements have been made to maintain intersection and approach movement level of service standards for each of the post-development scenarios. The capacity analysis worksheets with level of services for each individual movement are included in **APPENDIX C**.

This analysis does not include the effects of upstream signals. In addition, it is assumed that all of through movements travelling eastbound and westbound on North Bluff Road will experience the same delay as the eastbound and westbound left turn movements. The results of this analysis are more conservative.

TABLE 4
CAPACITY ANALYSIS FOR UNSIGNALIZED INTERSECTIONS

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		
Maple Street (N/S) and North Bluff Road (E/W)	Weekday Morning Peak Hour	2018 Base	Volumes	5	663	3	16	809	9	1	1	11	3	0	12	B	Okay.
			Delay	11.1	11.1	0.0	9.7	9.7	0.0	19.6			24.8				
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.1	0.2			0.3				
		2020 Base	Volumes	6	690	4	17	842	10	2	2	12	4	0	13	B	Northbound and southbound approach will experience medium delay
			Delay	11.4	11.4	0.0	9.9	9.9	0.0	28.0			30.1				
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.4			0.4				
		2030 Base	Volumes	7	823	4	20	1004	12	2	2	14	4	0	15	B	Northbound and southbound approach will experience medium delay
			Delay	12.7	12.7	0.0	10.7	10.7	0.0	43.2			47.4				
			95% Queue (m)	0.1	0.1	0.0	0.1	0.1	0.0	0.7			0.8				
		2020 Base + Site	Volumes	6	693	5	17	852	10	4	2	14	4	0	13	B	Northbound and southbound approach will experience medium delay
			Delay	11.5	11.5	0.0	9.9	9.9	0.0	30.7			30.9				
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.5			0.4				
		2030 Base+ Site	Volumes	7	826	5	20	1014	12	4	2	16	4	0	15	B	Northbound approach will experience high delays. Southbound approach will experience medium delay
			Delay	12.8	12.8	0.0	10.7	10.7	0.0	50.2			49.0				
			95% Queue (m)	0.1	0.1	0.0	0.1	0.1	0.0	1.0			0.8				
	Weekday Afternoon Peak Hour	2018 Base	Volumes	1	725	8	18	668	19	3	0	9	2	1	5	A	Okay.
			Delay	9.4	9.4	0.0	9.6	9.6	0.0	17.3			21.5				
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.1			0.1				
		2020 Base	Volumes	2	754	9	19	695	20	4	0	10	3	2	6	A	Southbound approach will experience medium delay
			Delay	9.6	9.6	0.0	9.8	9.8	0.0	19.5			26.3				
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.2			0.2				
		2030 Base	Volumes	2	899	10	23	829	24	4	0	12	3	2	7	B	Southbound approach will experience medium delay
			Delay	10.2	10.2	0.0	10.5	10.5	0.0	24.6			36.2				
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.3			0.3				
		2020 Base + Site	Volumes	2	763	10	21	701	20	5	0	12	3	2	6	A	Southbound approach will experience medium delay
			Delay	9.6	9.6	0.0	9.8	9.8	0.0	20.3			27.0				
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.2			0.2				
		2030 Base+ Site	Volumes	2	908	11	25	835	24	5	0	14	3	2	7	B	Northbound and southbound approach will experience medium delay
			Delay	10.2	10.2	0.0	10.6	10.6	0.0	26.3			37.4				
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.4			0.3				

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)

TABLE 4 CONTINUED
CAPACITY ANALYSIS FOR UNSIGNALIZED INTERSECTIONS

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		
Maple Street (N/S) and Russell Avenue (E/W)	Weekday Morning Peak Hour	2018 Base	Volumes	0	59	3	3	114	2	10	8	4	5	15	4		
			Delay	7.6			7.4			10.4			10.6			A	Okay.
			95% Queue (m)	0.0			0.0			0.1			0.1				
		2020 Base	Volumes	0	62	4	4	119	3	11	9	5	6	16	5		
			Delay	7.6			7.4			10.5			10.7			A	Okay.
			95% Queue (m)	0.0			0.0			0.1			0.2				
		2030 Base	Volumes	0	74	4	4	142	3	13	10	5	7	19	5		
			Delay	7.6			7.4			10.9			11.1			A	Okay.
			95% Queue (m)	0.0			0.0			0.2			0.2				
		2020 Base + Site	Volumes	0	62	4	4	121	3	11	9	5	6	16	5		
			Delay	7.6			7.4			10.5			10.7			A	Okay.
			95% Queue (m)	0.0			0.0			0.1			0.2				
		2030 Base+ Site	Volumes	0	74	4	4	144	3	13	10	5	7	19	5		
			Delay	7.6			7.4			10.9			11.1			A	Okay
			95% Queue (m)	0.0			0.0			0.2			0.2				
	Weekday Afternoon Peak Hour	2018 Base	Volumes	2	79	5	4	49	4	8	7	3	2	11	7		
			Delay	7.4			7.4			9.9			9.8			A	Okay.
			95% Queue (m)	0.0			0.0			0.1			0.1				
		2020 Base	Volumes	3	83	6	5	51	5	9	8	4	3	12	8		
			Delay	7.4			7.4			10.0			9.8			A	Okay.
			95% Queue (m)	0.0			0.0			0.1			0.1				
		2030 Base	Volumes	3	98	7	5	61	5	10	9	4	3	14	9		
			Delay	7.4			7.5			10.2			10.0			A	Okay.
			95% Queue (m)	0.0			0.0			0.1			0.1				
		2020 Base + Site	Volumes	3	84	6	5	52	5	9	8	4	3	12	8		
			Delay	7.4			7.4			10.0			9.9			A	Okay.
			95% Queue (m)	0.0			0.0			0.1			0.1				
		2030 Base+ Site	Volumes	3	99	7	5	62	5	10	9	4	3	14	9		
			Delay	7.4			7.5			10.3			10.0			A	Okay
			95% Queue (m)	0.0			0.0			0.1			0.1				
Lee Street (N/S) and North Bluff Road (E/W)	Weekday Morning Peak Hour	2018 Base	Volumes	5	679	3	24	847	11	1	1	9	6	1	33		
			Delay	11.5	11.5	0.0	9.9	9.9	0.0	24.0			31.6			B	Southbound approach will experience medium delay
			95% Queue (m)	0.0	0.0	0.0	1.0	1.0	0.0	0.2			0.9				
		2020 Base	Volumes	6	707	4	25	881	12	2	2	10	7	2	35		
			Delay	11.8	11.8	0.0	10.1	10.1	0.0	36.6			42.9			B	Northbound and southbound approach will experience medium delay
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.4			1.6				
		2030 Base	Volumes	7	842	4	30	1051	14	2	2	12	8	2	41		
			Delay	13.2	13.2	0.0	11.0	11.0	0.0	66.4			118.9			B	Northbound and southbound approach will experience high delay
			95% Queue (m)	0.1	0.1	0.0	0.2	0.2	0.0	0.9			3.7				
		2020 Base + Site	Volumes	6	709	7	29	881	12	12	2	18	7	2	35		
			Delay	11.8	11.8	0.0	10.2	10.2	0.0	57.8			45.1			B	Northbound approach will experience high delays. Southbound approach will experience medium delay
			95% Queue (m)	0.0	0.0	0.0	0.2	0.2	0.0	1.5			1.6				
		2030 Base+ Site	Volumes	7	844	7	34	1051	14	12	2	20	8	2	41		
			Delay	13.2	13.2	0.0	11.1	11.1	0.0	164.8			133.1			C	Northbound and southbound approach will experience high delay
			95% Queue (m)	0.1	0.1	0.0	0.2	0.2	0.0	3.2			3.9				
	Weekday Afternoon Peak Hour	2018 Base	Volumes	7	717	9	14	772	24	2	0	3	6	2	12		
			Delay	10.1	10.1	0.0	9.5	9.5	0.0	21.8			27.4			A	Southbound approach will experience medium delay
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.1			0.4				
		2020 Base	Volumes	8	746	10	15	803	25	3	0	4	7	3	13		
			Delay	10.3	10.3	0.0	9.7	9.7	0.0	24.7			32.6			B	Southbound approach will experience medium delay
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.1			0.6				
		2030 Base	Volumes	9	890	12	18	958	30	3	0	4	8	3	15		
			Delay	11.2	11.2	0.0	10.4	10.4	0.0	36.3			53.1			B	Northbound approach will experience medium delays. Southbound approach will experience high delay
			95% Queue (m)	0.1	0.1	0.0	0.1	0.1	0.0	0.2			1.0				
		2020 Base + Site	Volumes	8	748	19	24	805	25	9	0	10	7	3	13		
			Delay	10.3	10.3	0.0	9.8	9.8	0.0	29.5			34.6			B	Northbound and southbound approach will experience medium delay
			95% Queue (m)	0.0	0.0	0.0	0.1	0.1	0.0	0.4			0.6				
		2030 Base+ Site	Volumes	9	892	21	27	960	30	9	0	10	8	3	15		
			Delay	11.2	11.2	0.0	10.5	10.5	0.0	47.4			58.2			B	Northbound approach will experience medium delays. Southbound approach will experience high delay
			95% Queue (m)	0.1	0.1	0.0	0.1	0.1	0.0	0.7			1.1				

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)

TABLE 4 CONTINUED
CAPACITY ANALYSIS FOR UNSIGNALIZED INTERSECTIONS

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		
Lee Street (N/S) and Russell Avenue (E/W)	Weekday Morning Peak Hour	2018 Base	Volumes	4	69			90	4				17		12		
			Delay	7.5				0.0					9.6			A	Okay.
			95% Queue (m)	0.0				0.0					0.1				
		2020 Base	Volumes	5	72			94	5				18		13		
			Delay	7.5				0.0					9.7			A	Okay.
			95% Queue (m)	0.0				0.0					0.2				
		2030 Base	Volumes	5	86			112	5				22		15		
			Delay	7.6				0.0					10.0			A	Okay.
			95% Queue (m)	0.0				0.0					0.2				
		2020 Base + Site	Volumes	5	72			94	5				19		15		
			Delay	7.5				0.0					9.7			A	Okay.
			95% Queue (m)	0.0				0.0					0.2				
		2030 Base+ Site	Volumes	5	86			112	5				23		17		
			Delay	7.6				0.0					10.0			A	Okay
			95% Queue (m)	0.0				0.0					0.2				
	Weekday Afternoon Peak Hour	2018 Base	Volumes	0	66			64	2				11		9		
			Delay	7.4				0.0					9.2			A	Okay.
			95% Queue (m)	0.0				0.0					0.1				
		2020 Base	Volumes	0	69			67	3				12		10		
			Delay	7.4				0.0					9.3			A	Okay.
			95% Queue (m)	0.0				0.0					0.1				
		2030 Base	Volumes	0	82			80	3				14		12		
			Delay	7.5				0.0					9.4		9.4	A	Okay.
			95% Queue (m)	0.0				0.0					0.1		0.1		
		2020 Base + Site	Volumes	1	69			67	4				13		11		
			Delay	7.4				0.0					9.3		9.3	A	Okay.
			95% Queue (m)	0.0				0.0					0.1		0.1		
		2030 Base+ Site	Volumes	1	82			80	4				15		13		
			Delay	7.5				0.0					9.5		9.5	A	Okay
			95% Queue (m)	0.0				0.0					0.1		0.1		
Maple Street (N/S) & Site Access (E/W)	Weekday Morning Peak Hour	2020 Base + Site	Volumes				0	0	4		16	0	1	21			
			Delay				8.4	0.0	8.4		0.0	0.0	7.3	7.3		A	Okay.
			95% Queue (m)				0.0	0.0	0.0		0.0	0.0	0.0	0.0			
		2030 Base+ Site	Volumes				0	0	4		18	0	1	24			
			Delay				8.4	0.0	8.4		0.0	0.0	7.3	7.3		A	Okay
			95% Queue (m)				0.0	0.0	0.0		0.0	0.0	0.0	0.0			
	Weekday Afternoon Peak Hour	2020 Base + Site	Volumes				0	0	3		14	0	3	30			
			Delay				8.4	0.0	8.4		0.0	0.0	7.3	7.3		A	Okay
			95% Queue (m)				0.0	0.0	0.0		0.0	0.0	0.0	0.0			
		2030 Base+ Site	Volumes				0	0	3		16	0	3	35			
			Delay				8.4	0.0	8.4		0.0	0.0	7.3	7.3		A	Okay
			95% Queue (m)				0.0	0.0	0.0		0.0	0.0	0.0	0.0			
Lee Street (N/S) & Site Access (E/W)	Weekday Morning Peak Hour	2020 Base + Site	Volumes	18	0	3				0	14			31	7		
			Delay	8.9	0.0	8.9				7.3	7.3			0.0	0.0	A	Okay
			95% Queue (m)	0.0	0.0	0.0				0.0	0.0			0.0	0.0		
		2030 Base+ Site	Volumes	18	0	3				0	16			36	7		
			Delay	8.9	0.0	8.9				7.3	7.3			0.0	0.0	A	Okay
			95% Queue (m)	0.0	0.0	0.0				0.0	0.0			0.0	0.0		
	Weekday Afternoon Peak Hour	2020 Base + Site	Volumes	12	0	2				2	7			28	18		
			Delay	8.8	0.0	8.8				7.3	7.3			0.0	0.0	A	Okay
			95% Queue (m)	0.0	0.0	0.0				0.0	0.0			0.0	0.0		
		2030 Base+ Site	Volumes	12	0	2				2	7			33	18		
			Delay	8.8	0.0	8.8				7.3	7.3			0.0	0.0	A	Okay
			95% Queue (m)	0.0	0.0	0.0				0.0	0.0			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)

From **TABLE 4**, the following observations can be made:

Maple & North Bluff Road

- In the morning peak hour this intersection is forecasted to operate at a LOS B (Good) for all horizon years and scenarios. Starting at the 2020 Base scenario, the northbound approach and southbound approach will experience medium delays. In the 2030 Base + Site scenario, the northbound approach and southbound approach will experience high and medium delays.

- In the afternoon peak hour this intersection is forecasted to operate at a LOS A (Excellent) and LOS B (Good) for all horizon years and scenarios. In the 2020 Base scenario, the southbound approach will experience medium delays. In the 2030 Base + Site scenario, the northbound approach and southbound approach will experience medium delays.

- Note that the northbound and southbound approaches will experience medium and high delays primarily due to the northbound and southbound approach through and left turn movements. The analysis assumes a consistent trip distribution using the existing and observed turning movements. It is expected that as vehicle volumes continue to grow on the major street, North Bluff Road, making through and left movements from the side street will be less desirable during the peak periods. It is anticipated that traffic seeking to make these movements will find alternative routes.

- No operational and/or geometrical improvements are recommended for this location.

Maple Street & Russell Avenue

- In the morning and afternoon peak hour this intersection is forecasted to operate at a LOS A (Excellent) for all horizon years and scenarios. No operational or capacity issues were identified.

- No operational and/or geometrical improvements are recommended for this location.

Lee Street & North Bluff Road

- In the morning peak hour this intersection is forecasted to operate at LOS B (Good) or LOS C (Fair) for all horizon years and scenarios. Starting in the 2020 Base scenario, the northbound approach and southbound approach will experience medium delays. In the 2030 Base + Site scenario, the northbound approach and southbound approach will experience high delays.

- In the afternoon peak hour this intersection is forecasted to operate at LOS A (Excellent) or LOS B (Good) for all horizon years and scenarios. In the 2018 Base scenario, the southbound approach will experience medium delays. In the

2030 Base + Site scenario, the northbound approach and southbound approach will experience medium and high delays.

- Note that the northbound and southbound approaches will experience medium and high delays primarily due to the northbound and southbound approach through and left turn movements. The analysis assumes a consistent trip distribution using the existing turning movements. It is expected that as vehicle volumes continue to grow on the major street, North Bluff Road, making through and left movements from the side street will be less desirable during the peak periods. It is anticipated that traffic seeking to make these movements will find alternative routes.

- No operational and/or geometrical improvements are recommended for this location.

Lee Street & Russell Avenue

- In the morning and afternoon peak hour this intersection is forecasted to operate at a LOS A (Excellent) for all horizon years and scenarios. No operational or capacity issues were identified.

- No operational and/or geometrical improvements are recommended for this location.

Maple Street & Site Access

- In the morning and afternoon peak hour this intersection is forecasted to operate at a LOS A (Excellent) for all horizon years and scenarios. No operational or capacity issues were identified.

- No operational and/or geometrical improvements are recommended for this location.

Lee Street & Site Access

- In the morning and afternoon peak hour this intersection is forecasted to operate at a LOS A (Excellent) for all horizon years and scenarios. No operational or capacity issues were identified.

- No operational and/or geometrical improvements are recommended for this location.

6.0 2045 LINK VOLUMES

It was requested by the City of White Rock that vehicle link volumes for the year 2045 be considered as part of this Traffic Impact Assessment Study. This is to provide vehicle volume information, relative to the City of White Rock 2045 OCP.

This scenario is 25 years post buildout of the proposed development. It is difficult to accurately forecast vehicle volumes, in the context of intersection analysis. For this reason, peak hour link volumes are determined, to provide an estimated magnitude of vehicle volumes. **FIGURE 16** and **FIGURE 17** show the estimated 2-way link volumes for the morning peak hour and afternoon peak hour.

FIGURE 16
2045 ESTIMATED VEHICLE LINK VOLUMES FOR MORNING PEAK HOUR

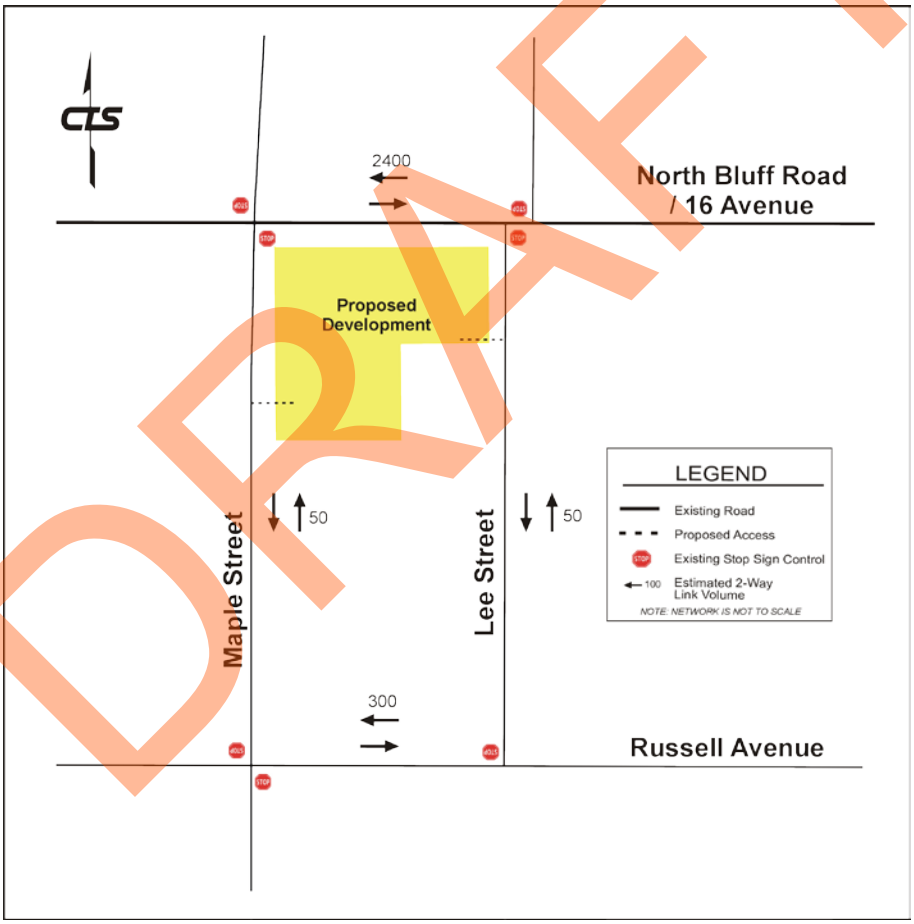
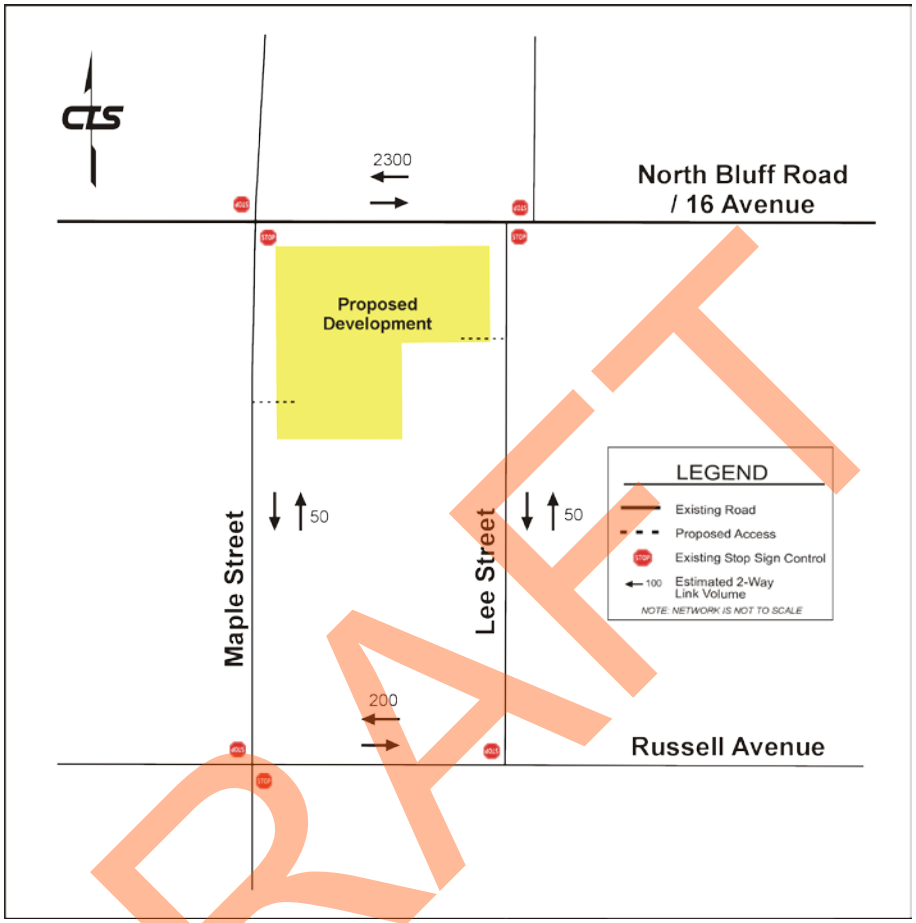


FIGURE 17
2045 ESTIMATED VEHICLE LINK VOLUMES FOR AFTERNOON PEAK HOUR



In the morning peak hour, the estimated 2-way link volume on North Bluff Road, Maple Street, Lee Street, and Russell Avenue, are 2400, 50, 50, and 300 vehicles, respectively.

In the afternoon peak hour, the estimated 2-way link volume on North Bluff Road, Maple Street, Lee Street, and Russell Avenue, are 2300, 50, 50, and 200 vehicles, respectively.

It should be noted that the theoretical capacity for North Bluff Road is 3200 vehicles per hour (two-way).

7.0 PARKING REVIEW

7.1 Parking Requirements

The required parking spaces are summarized in **TABLE 5** with reference to the *City of White Rock Zoning Bylaw Section 4: General Provisions & Regulations*. The unit descriptions and numbers are based on information provided on architectural drawings.

TABLE 5
VEHICLE PARKING REQUIREMENTS FOR PROPOSED DEVLEOPMENT

Land Use Description	Land Use Bylaw Classification	Required Parking Rate	# of Units	Parking Stalls Required
Townhouse	Townhouse	2 per Dwelling Unit	14.0	28
Condominium	Apartment	1.5 per Dwelling Unit	76.0	114
Total			**90.0**	**142**

The total required amount of parking for the entire development is 142 vehicle parking spaces. The proposed development is planned to provide a total of 129 vehicle parking spaces. It is noted that the townhouse parking is arranged as tandem parking. A parking variance of 10% or 13 parking spaces is required.

The required bicycle parking is noted as 1 Class I bicycle parking space per unit, and 0.2 Class II bicycle parking spaces per unit. The proposed development will be meeting this requirement by providing a total of 90 Class I and 18 Class II bicycle parking spaces.

In addition to these requirements, it is also noted that electric vehicle charging stations are required for any new multi-unit residential developments *(4.17.1)*. It is noted that a minimum of 1 of every 10 off-street parking spaces shall feature an energized outlet capable of providing Level 2 charging and in addition, that 1 of every 10 off-street parking spaces shall feature roughed-in electric vehicle charging infrastructure. The proposed development will be providing this for the condominium units.

7.2 Parking Variance

In support of a 10% parking variance, the proposed land uses, existing nearby amenities and infrastructure, and opportunities for alternative modes of travel are considered.

Objective 11.2 of the City of White Rock 2045 OCP notes its policy that new non-market housing be supported by reviewing parking requirements for relaxation, when they are within walking distance of frequent transit service and/or commercial areas. The proposed development will be providing 25 non-market units.

As noted previously in **FIGURE 1**, the Semiahmoo Shopping Centre is within a 10-15 minute walking distance from the proposed development. Also within a 10-15 minute walking distance, at White Rock Centre, is a connection to the Frequent Transit Network along 152nd Street. Within a 5 minute walking distance of the proposed development, are bus stops with routes that operate in fifteen minute and half hour intervals.

Other nearby destinations of note include the Peach Arch Hospital, Earl Marriott Secondary School, Peach Arch Elementary School, and the Kent Street Activity Centre in Maccaud Park which is home to the Kent Street Seniors Activity groups.

The study area has good connectivity to transit, as well as cycling and pedestrian infrastructure. The below summarizes these alternative modes of travel:

Transit Network

The proposed development is well connected to transit with options for regular busses and community shuttles. The site is serviced by the following routes:

- Route #375 White Rock South - Guildford – During peak travel times, this bus operates in half hour intervals. Bus stop is on North Bluff Road.

- Route #321 Surrey Central Station – Newton Exchange/White Rock Centre/White Rock South – During peak travel times, this bus operates in fifteen-minute intervals. Bus Stop is on North Bluff Road.

- Route #361 White Rock Centre - Ocean Park – During weekday peak travel times, this bus operates in half hour intervals. On the weekend peak travel times, this bus operates in one-hour intervals. Bus Stop is on Thrift Avenue.

The above bus routes can be used to connect to the nearby Frequent Transit Network at White Rock Centre.

- Route #360 Ocean Park - Peace Arch Hospital – During weekday peak travel times, this bus operates in half hour intervals. On the weekend peak travel times, this bus operates in one-hour intervals. Bus Stop is on Thrift Avenue, west of Finlay Street.

- Route #363 South Point - Peace Arch Hospital – During peak travel times, this bus operates in half hour intervals. Bus Stop is on Thrift Avenue, west of Finlay Street.

Bus stop locations are illustrated in **FIGURE 4.**

Bicycle Network

According to the *City of White Rock Strategic Transportation Plan*:

- North Bluff Road is proposed in the future to be designated as a bicycle route;
- Finlay Street is currently designated as a shared use lane; and
- Thrift Avenue is currently designated as a shared use lane.

The proposed development will be providing 90 Class I and 18 Class II bicycle parking spaces, which will help to facilitate this mode of travel for residents or visitors.

The bicycle routes within the study area are illustrated in **FIGURE 4.**

Pedestrian Network

The study area is well connected with sidewalks. All arterial and collector roads have a sidewalk on at least one side. Some local roads also have sidewalks on one side. Currently, there are no sidewalks on Maple Street or Lee Street.

The proposed development will be including enhanced sidewalks on the frontage and also a greenway through the property.

The existing sidewalks are illustrated in **FIGURE 18.**

FIGURE 18
ALTERNATIVE MODES OF TRAVEL

In consideration of the intended land use and the available nearby amenities and infrastructure to encourage alternative modes of travel, it is expected that the proposed number of off-street vehicle parking stalls is sufficient to fully support the development.

8.0 LOADING SWEPT PATH ANALYSIS

A loading bay is proposed to be provided on Maple Street and is shown in the Architectural Drawings included in **APPENDIX A**.

In order to assess the viability of the proposed loading bay, a swept path analysis was conducted to determine the impact on the adjacent road and curb.

The design vehicle used is the MSU-TAC. This is a standard medium single unit vehicle described by the Transportation Association of Canada, and is what would typically be expected for basic deliveries or people moving in and out. It has an overall length of 10 metres and a width of 2.6 meters.

It is recommended that any vehicles using the loading bay always reverse in and drive forward out. This will be a safer combination of maneuvers as drivers will have clear vision while exiting, driving forward. Drivers will also have clear vision of the driveway and adjacent sidewalks before reversing in.

Reversing into the loading bay from the northbound lane is preferred, as it will have a lower overall impact on vehicle traffic on Maple Street. The swept path of a truck travelling northbound, entering the loading bay, is illustrated in **FIGURE 19**.

When a truck is exiting the loading bay, it is recommended that it travel southbound. As a left turn maneuver, it is already expected to cross both lanes. The truck is able to comfortably wait for a safe gap in traffic to exit. This is preferred over making a right turn, and requiring a wider turn that may not be expected. **FIGURE 20** illustrates an MSU exiting the loading bay and travelling southbound.

FIGURE 19
MSU INGRESSING TRAVELLING NORTHBOUND

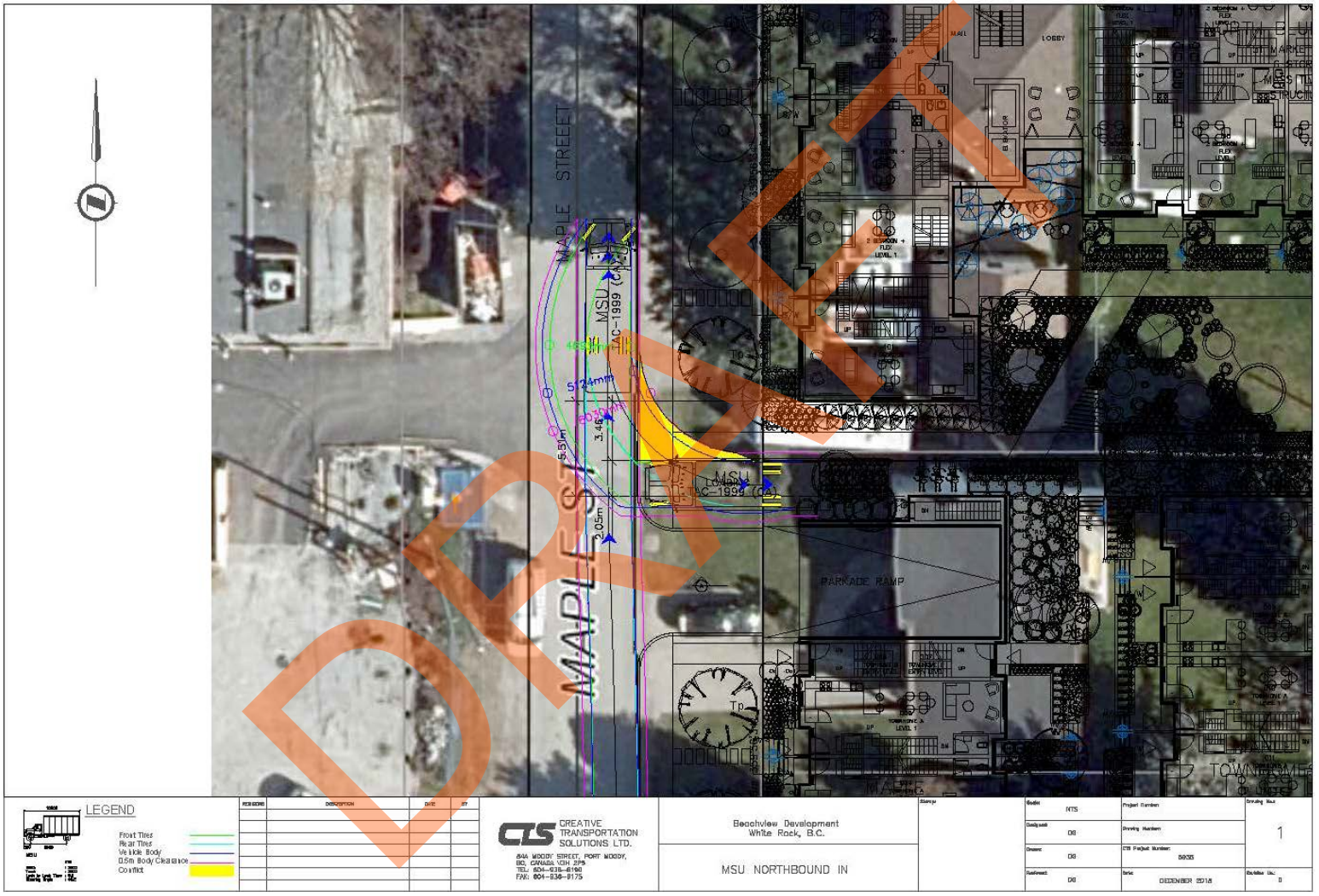
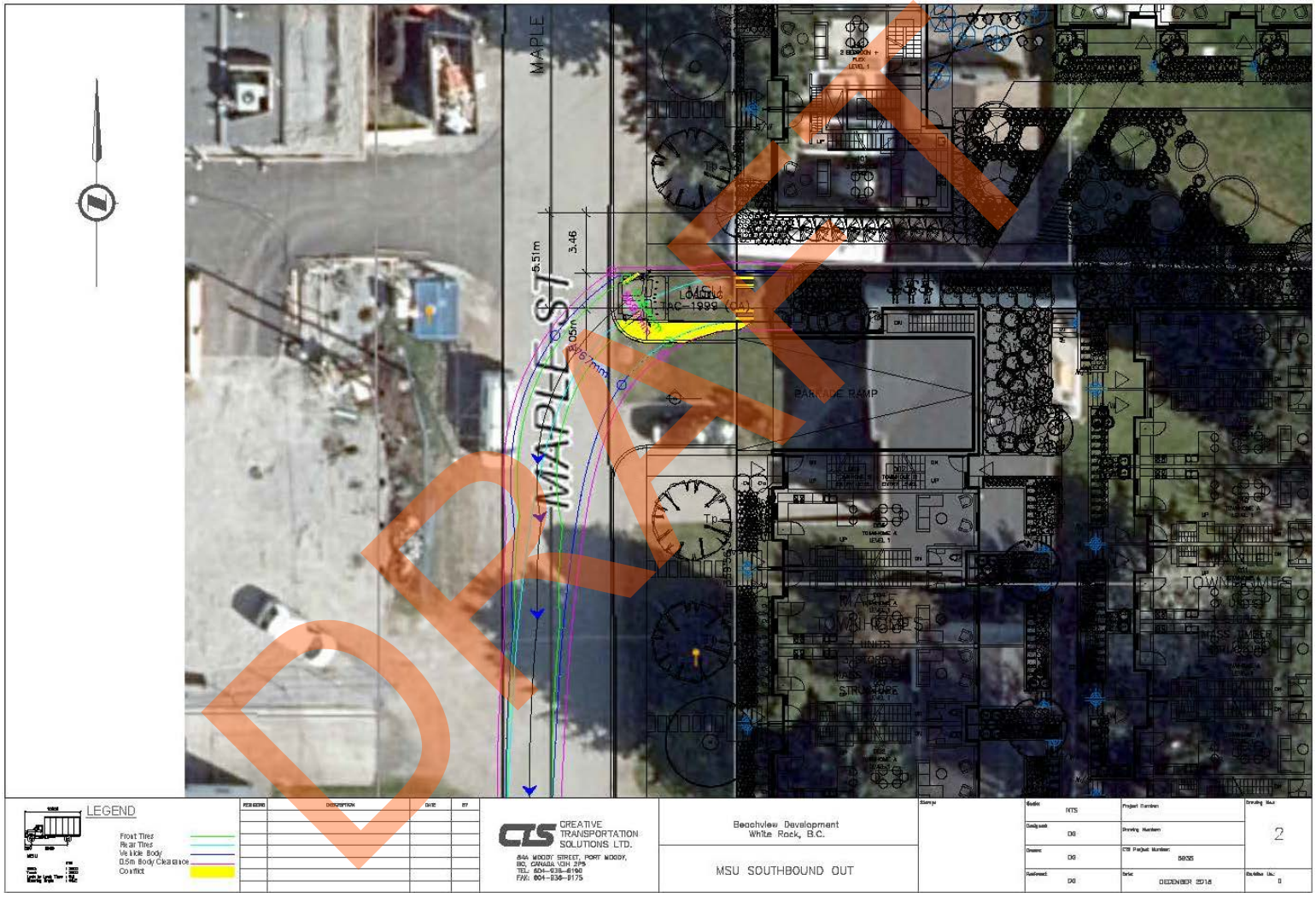


FIGURE 21
MSU EGRESSING TRAVELLING SOUTHBOUND



The swept path analysis shows that a design vehicle of a MSUTAC can be accommodated with some widening at the throat of the proposed loading zone.

The truck turning manoeuvres illustrated are one- and two-point turns that are not expected to require a lot of time to complete.

Based on the 2020 Base + Site vehicle volumes forecasted for Maple Street, the two-way vehicle volume is 42 vehicles in the morning peak hour, and 50 vehicles in the afternoon peak hour. This is equivalent to one vehicle every 1.4 minutes in the morning peak hour, and one vehicle every 1.2 minutes in the afternoon peak hour. Both turning maneuvers to enter and exit the loading bay require the northbound and southbound lanes on Maple Street, however, gaps in traffic are not expected to be difficult to find.

Impacts on the adjacent road way can be minimized, and truck turning maneuvering can be safer, if vehicles enter by reversing in while traveling northbound and by exiting forward to travel southbound.

9.0 CONCLUSIONS & RECOMMENDATIONS

9.1 Conclusions

1) The proposed development is to be located at 15654, 15664, 15674 North Bluff Road, 1593 Lee Street, and 1580, 1570 Maple Street, in the City of White Rock. The residential development is proposed to be rezoned as a comprehensive development consisting of 14 townhouse units and 76 condominium units for a total of 90 dwelling units. 25 of the condominium units will be non-market rental.

2) CTS staff performed weekday traffic volume surveys on Friday, 22 September 2017 and on Thursday 22 November 2018 in order to document existing conditions. Future base traffic volumes were projected using a 2.0% annual traffic volumes growth rate (simple straight line) and then the proposed development traffic was superimposed on top to estimate future baseline conditions. The design hours of analysis were the weekday morning and afternoon peak hours.

3) Upon the full build-out, the overall development is forecasted to generate a total of 33 vehicle trips (8 inbound, and 25 outbound) during the morning peak hour and a total of 40 vehicle trips (23 inbound, and 17 outbound) during the afternoon peak hour.

4) The capacity analysis for the unsignalized intersections and the site accesses determined that the road network can accommodate the projected increase in traffic volumes without any operational and/or geometrical improvements.

5) 2045 peak hour link volumes are estimated using collected turning movement counts. This is provided to give an estimated magnitude of vehicle volumes in the context of the City of White Rock 2045 OCP.

6) As per the City of White Rock Zoning Bylaw, for a development with 14 townhomes and 76 condominium units, the overall required parking is 142 stalls. The proposed development is providing 129 vehicle parking spaces and will require a parking variance of 10% or 13 parking spaces.

7) In support of a 10% parking variance, reference was made to the intended land use, nearby amenities and infrastructure to encourage alternative modes of travel:

   - Proposed development will have 25 non-market units
   - Within a 10-15 minute walk of Semiahmoo Shopping Centre and White Rock Centre where the Frequent Transit Network connects
   - Within a 5 minute walk of 5 different bus routes
   - Nearby destinations include Peach Arch Hospital, Earl Marriott Secondary School, Peach Arch Elementary School, Kent Street Activity Centre in Maccaud Park
   - Providing 90 Class I and 18 Class II bicycle parking spaces
   - Proposed development will include enhanced sidewalks on the frontage and a greenway through the property.

8) The proposed loading bay was reviewed to assess its viability and impact on the adjacent road and curb. The swept path analysis shows that a design vehicle of a MSUTAC can be accommodated with some widening at the throat of the proposed loading zone. Impacts on the adjacent road way can be minimized and truck turning maneuvering can be safer, if vehicles enter by reversing in while traveling northbound and by exiting forward to travel southbound.

9.2 Recommendations

It is recommended that the development consider the following transportation related item for the benefit of the development as well as that of the surrounding community.

1) The developer work with the City to ensure any improvements to the fronting sidewalks align with the City of White Rock *Strategic Transportation Plan;*

2) That the City grant a vehicle parking variance of 10% or 13 vehicle parking stalls, based on the supporting information provided in this report;

3) The driveway for the proposed loading zone throat be widened as noted in this report, to accommodate for a MSUTAC design vehicle;

4) That trucks using the loading bay be instructed to enter from the northbound lane via reversing in, and exit to the southbound lane by driving forward out.

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.

Reviewed by:

Gary Vlieg, P.Eng.
Engineering Group Manager

Prepared by:

Dominique Bram Guevarra, EIT
Junior Traffic Engineer

Attachment

Appendix A
Architectural Drawing

NORTH BLUFF ROAD LEGAL CENTERLINE

NORTH BLUFF ROAD

MAPLE STREEET

LEE STREEET

North Bluff Road Allowance

2.13m

6.00m

2.10m

15.0m

1.03m

1.7m

77.91m 90°0'0"

NORTH BLUFF FLATS
51 MARKET UNITS
6 STOREY
MASS TIMBER
STRUCTURE

LEE FLATS
25 MARKET UNITS
6 STOREY
MASS TIMBER
STRUCTURE

PARKADE RAMP

36.57m 359°56'34"

36.98m 359°56'37"

5.51m

3.46

2.05m

LOADING

38.96m 90°04'51"

6m

PARKADE RAMP

MAPLE
TOWNHOMES
7 UNITS
3 STOREY
MASS TIMBER
STRUCTURE

MAPLE
TOWNHOMES
7 UNITS
3 STOREY
MASS TIMBER
STRUCTURE

37.29m 359°56'34"

37.12m 359°56'35"

EXISTING SINGLE
FAMILY HOME

EXISTING SINGLE
FAMILY HOME

2.12m

38.96m 89°49'48"

2.06m

4.11

0 10 20 M

N

BEACHWAY

Urban Arts
Architecture * Urban Design
300 - 111 Water Street
Vancouver BC, Canada, V6B 1A7
604.683.5060
info@urban-arts.ca

issued for DP
2018.10.15

Beachway
White Rock, BC

SITE PLAN

A010

Appendix B
Turning Movement Counts

156a St - Maple St & 16 Ave

Friday, September 22, 2017

Vehicle Classification Summary

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Sunny

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	2,264	52				**2,316**
	%	97.8%	2.2%				**100.0%**
Midday (00:00 - 00:00)	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	4,006	24				**4,030**
	%	99.4%	0.6%				**100.0%**
Total (5 Hours)	**Volume**	**6,270**	**76**				**6,346**
	%	**98.8%**	**1.2%**				**100.0%**

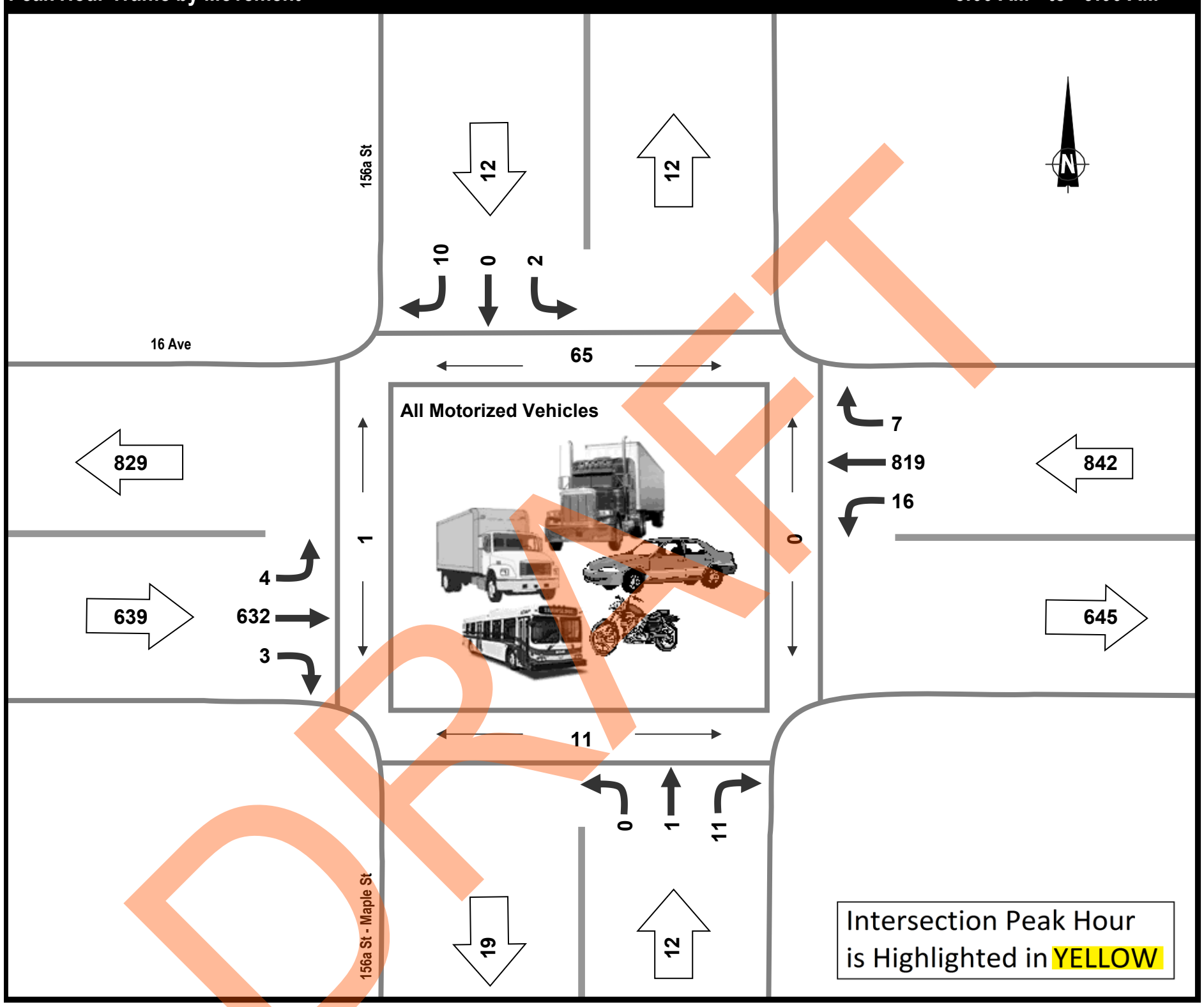
156a St - Maple St & 16 Ave

Friday, September 22, 2017

Morning Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Sunny
Vehicle Class: All Motorized Vehicles

Peak Hour Traffic by Movement 8:00 AM to 9:00 AM



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**	**0**	**10**	**0**	**1**	**11**	**4**	**632**	**3**	**16**	**819**	**7**	**65**	**11**	**1**	**0**	**1,505**
PHF	0.50	0.00	0.63	0.00	0.25	0.34	0.50	0.73	0.75	0.57	0.78	0.35	0.56	0.55	0.25	0.00	0.75
Peak 15 X 4	4	0	16	0	4	32	8	864	4	28	1,044	20	116	20	4	0	2,016
Average Hour	3	1	8	1	1	9	4	529	3	8	589	5	42	8	2	0	1,161
Survey Total	5	1	16	1	2	18	7	1,058	5	16	1,178	9	84	15	3	0	2,316
7:00	2	0	0	0	0	0	0	96	1	0	69	0	2	0	0	0	168
7:15	0	0	1	0	1	2	1	99	0	0	82	0	2	1	0	0	186
7:30	0	1	2	0	0	4	0	111	0	0	78	0	7	2	0	0	196
7:45	1	0	3	1	0	1	2	120	1	0	130	2	8	1	2	0	261
8:00	1	0	3	0	0	1	1	140	1	4	184	0	19	3	1	0	335
8:15	1	0	4	0	0	8	2	216	0	7	261	5	29	5	0	0	504
8:30	0	0	2	0	1	1	0	174	1	5	218	2	14	0	0	0	404
8:45	0	0	1	0	0	1	1	102	1	0	156	0	3	3	0	0	262

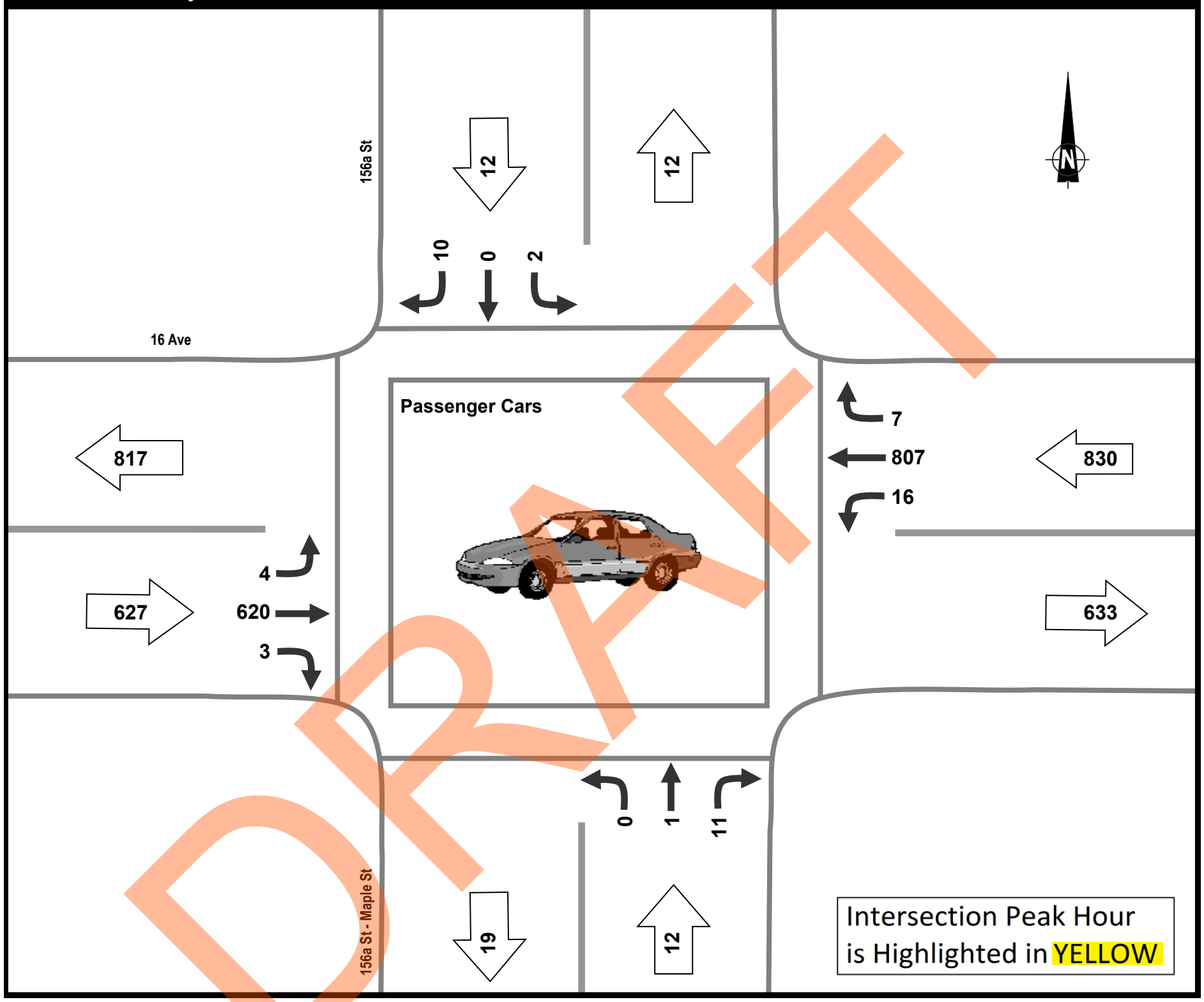
156a St - Maple St & 16 Ave

Friday, September 22, 2017

Morning Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Sunny
Vehicle Class: Passenger Cars

Peak Hour Traffic by Movement 8:00 AM to 9:00 AM



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**	**0**	**10**	**0**	**1**	**11**	**4**	**620**	**3**	**16**	**807**	**7**					**1,481**
PHF	0.50	0.00	0.63	0.00	0.25	0.34	0.50	0.72	0.75	0.57	0.79	0.35					0.75
Peak 15 X 4	4	0	16	0	4	32	8	856	4	28	1,020	20					1,984
Average Hour	3	1	8	1	1	9	4	515	3	8	577	5					1,135
Survey Total	5	1	16	1	2	18	7	1,030	5	16	1,154	9					2,264
7:00	2	0	0	0	0	0	0	93	1	0	68	0					164
7:15	0	0	1	0	1	2	1	97	0	0	78	0					180
7:30	0	1	2	0	0	4	0	104	0	0	76	0					187
7:45	1	0	3	1	0	1	2	116	1	0	125	2					252
8:00	1	0	3	0	0	1	1	137	1	4	182	0					330
8:15	1	0	4	0	0	8	2	214	0	7	255	5					496
8:30	0	0	2	0	1	1	0	170	1	5	216	2					398
8:45	0	0	1	0	0	1	1	99	1	0	154	0					257

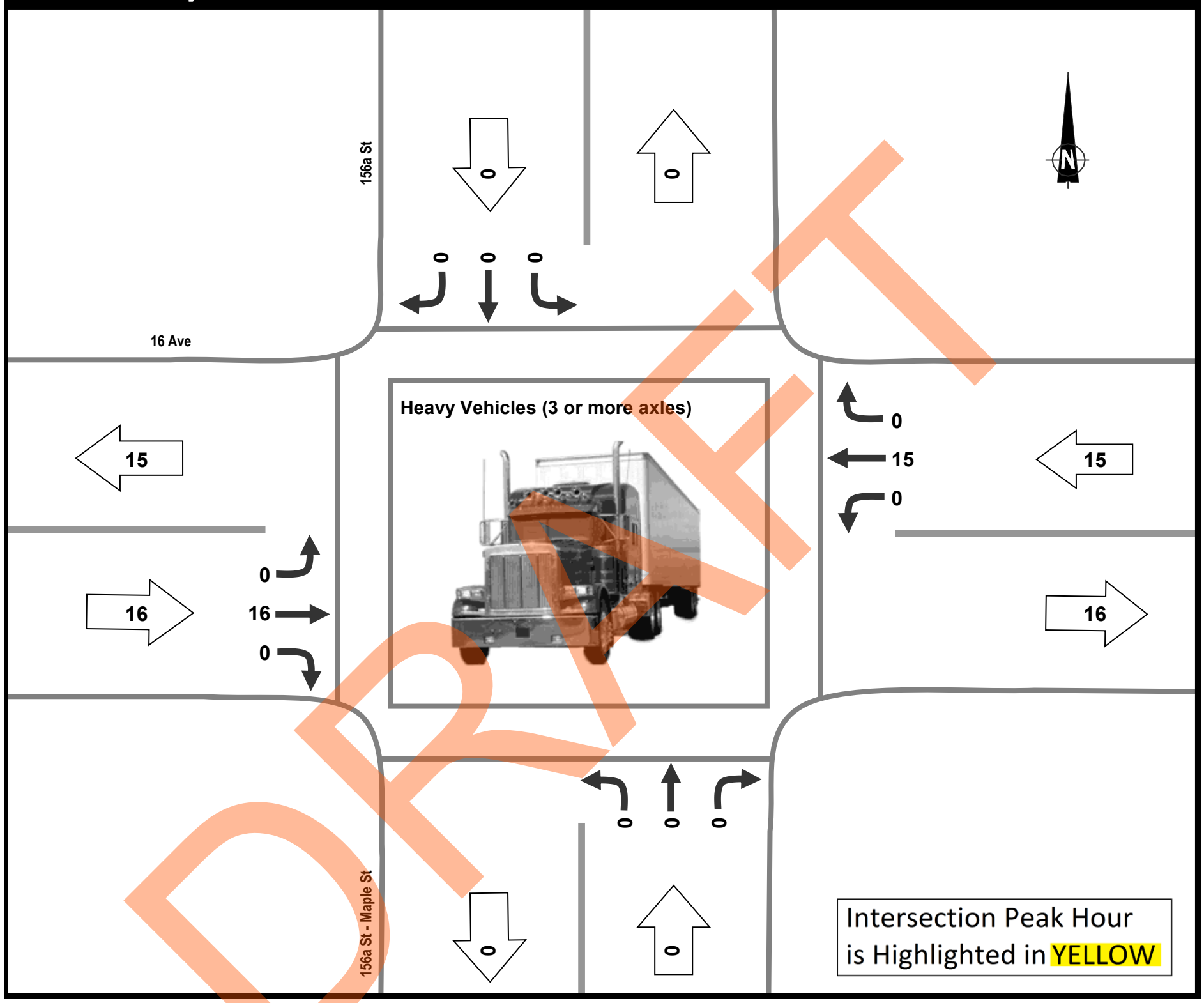
156a St - Maple St & 16 Ave

Friday, September 22, 2017

Morning Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Sunny
Vehicle Class: Heavy Vehicles (3 or more axles)

Peak Hour Traffic by Movement 7:30 AM to 8:30 AM



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	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**0**	**15**	**0**					**31**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.63	0.00					0.86
Peak 15 X 4	0	0	0	0	0	0	0	28	0	0	24	0					36
Average Hour	0	0	0	0	0	0	0	14	0	0	12	0					26
Survey Total	0	0	0	0	0	0	0	28	0	0	24	0					52
7:00	0	0	0	0	0	0	0	3	0	0	1	0					4
7:15	0	0	0	0	0	0	0	2	0	0	4	0					6
7:30	0	0	0	0	0	0	0	7	0	0	2	0					9
7:45	0	0	0	0	0	0	0	4	0	0	5	0					9
8:00	0	0	0	0	0	0	0	3	0	0	2	0					5
8:15	0	0	0	0	0	0	0	2	0	0	6	0					8
8:30	0	0	0	0	0	0	0	4	0	0	2	0					6
8:45	0	0	0	0	0	0	0	3	0	0	2	0					5

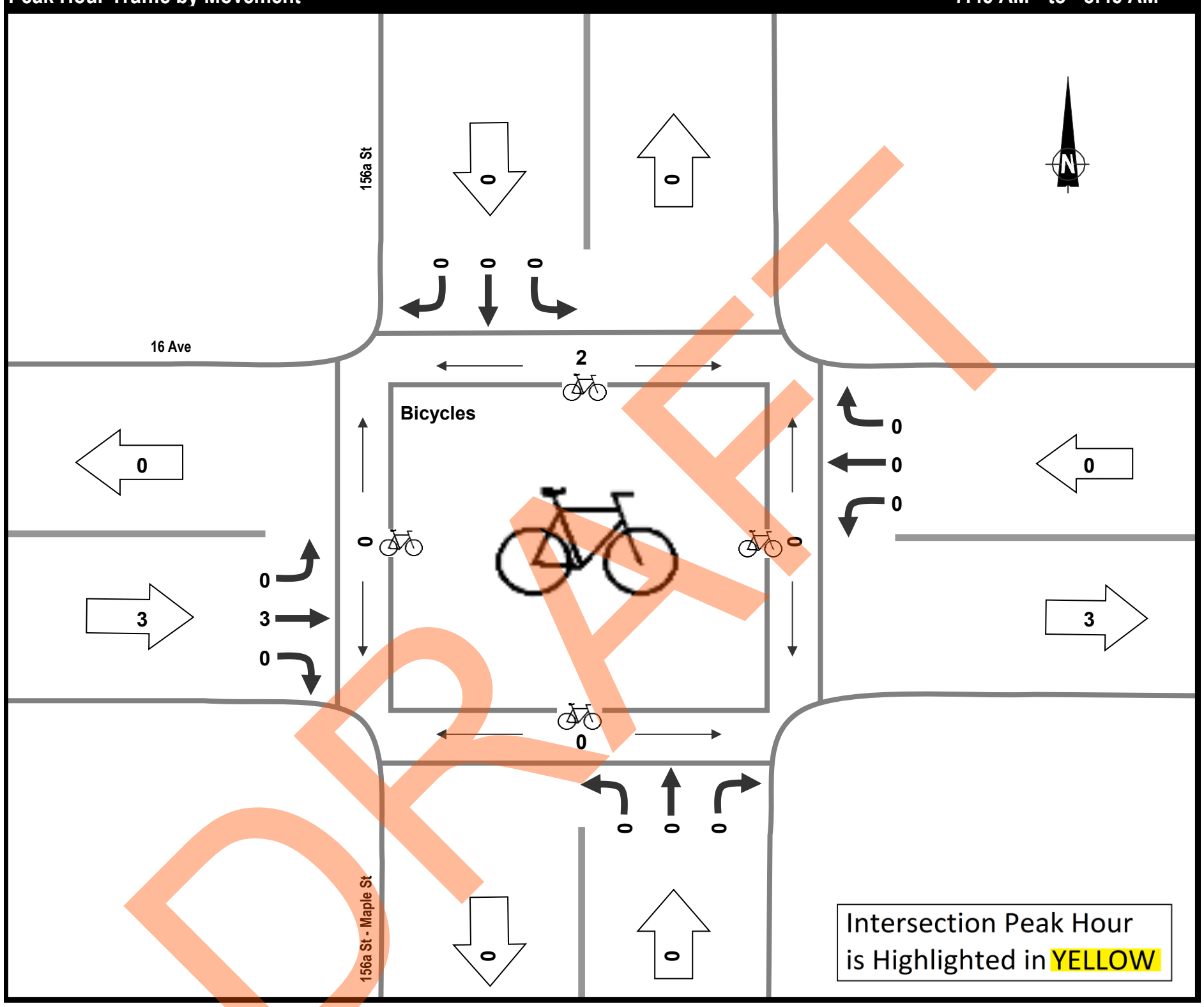
156a St - Maple St & 16 Ave

Friday, September 22, 2017

Morning Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Sunny
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**5**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.31
Peak 15 X 4	0	0	0	0	0	0	0	8	0	0	0	0	8	0	0	0	16
Average Hour	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	3
Survey Total	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0	5
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
8:30	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	4
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

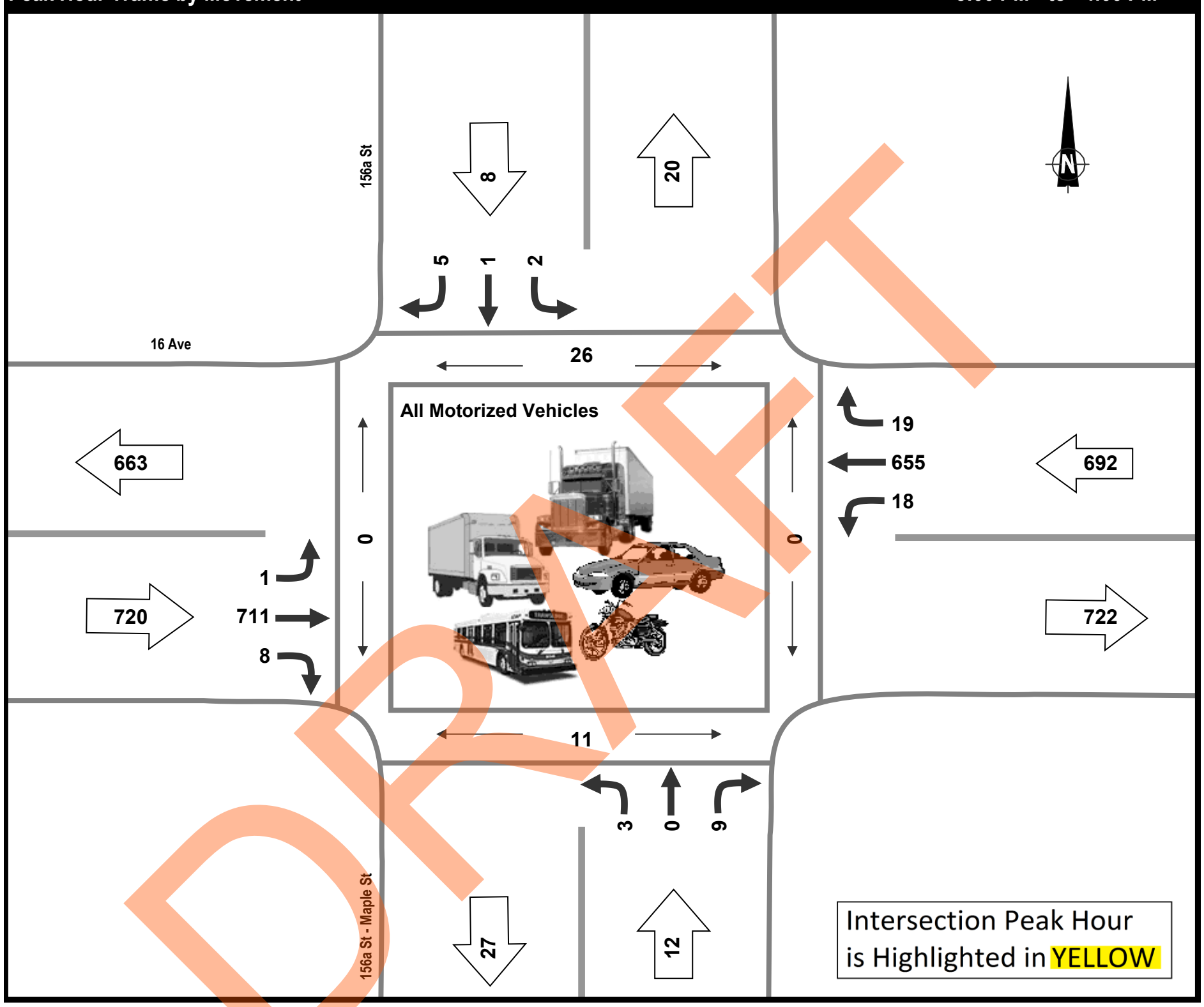
156a St - Maple St & 16 Ave

Friday, September 22, 2017

Afternoon Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Sunny
Vehicle Class: All Motorized Vehicles

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	**2**	**1**	**5**	**3**	**0**	**9**	**1**	**711**	**8**	**18**	**655**	**19**	**26**	**11**	**0**	**0**	**1,432**
PHF	0.50	0.25	0.42	0.38	0.00	0.56	0.25	0.88	0.67	0.75	0.94	0.37	0.50	0.69	0.00	0.00	0.95
Peak 15 X 4	4	4	12	8	0	16	4	812	12	24	700	52	52	16	0	0	1,512
Average Hour	2	1	5	2	2	8	4	649	5	13	641	11	13	9	0	0	1,343
Survey Total	6	2	15	7	5	24	11	1,948	16	40	1,922	34	38	26	1	1	4,030
15:00	0	0	2	0	0	2	0	203	2	4	163	2	13	3	0	0	378
15:15	1	0	0	1	0	4	0	159	2	5	175	13	7	1	0	0	360
15:30	0	1	3	0	0	0	1	180	3	3	162	3	4	3	0	0	356
15:45	1	0	0	2	0	3	0	169	1	6	155	1	2	4	0	0	338
16:00	0	0	0	2	0	2	0	177	0	1	150	1	1	3	0	0	333
16:15	0	0	2	0	0	4	2	165	0	2	192	4	6	1	0	0	371
16:30	1	0	0	0	2	2	1	195	1	0	170	1	3	1	0	0	373
16:45	0	0	2	0	1	2	1	156	1	6	144	4	1	0	0	0	317
17:00	0	0	4	0	0	2	2	176	2	6	131	1	1	1	0	0	324
17:15	1	0	0	0	0	1	1	122	2	3	165	1	0	4	1	0	296
17:30	0	0	2	0	0	0	2	124	0	1	161	3	0	0	0	1	293
17:45	2	1	0	2	2	2	1	122	2	3	154	0	0	5	0	0	291

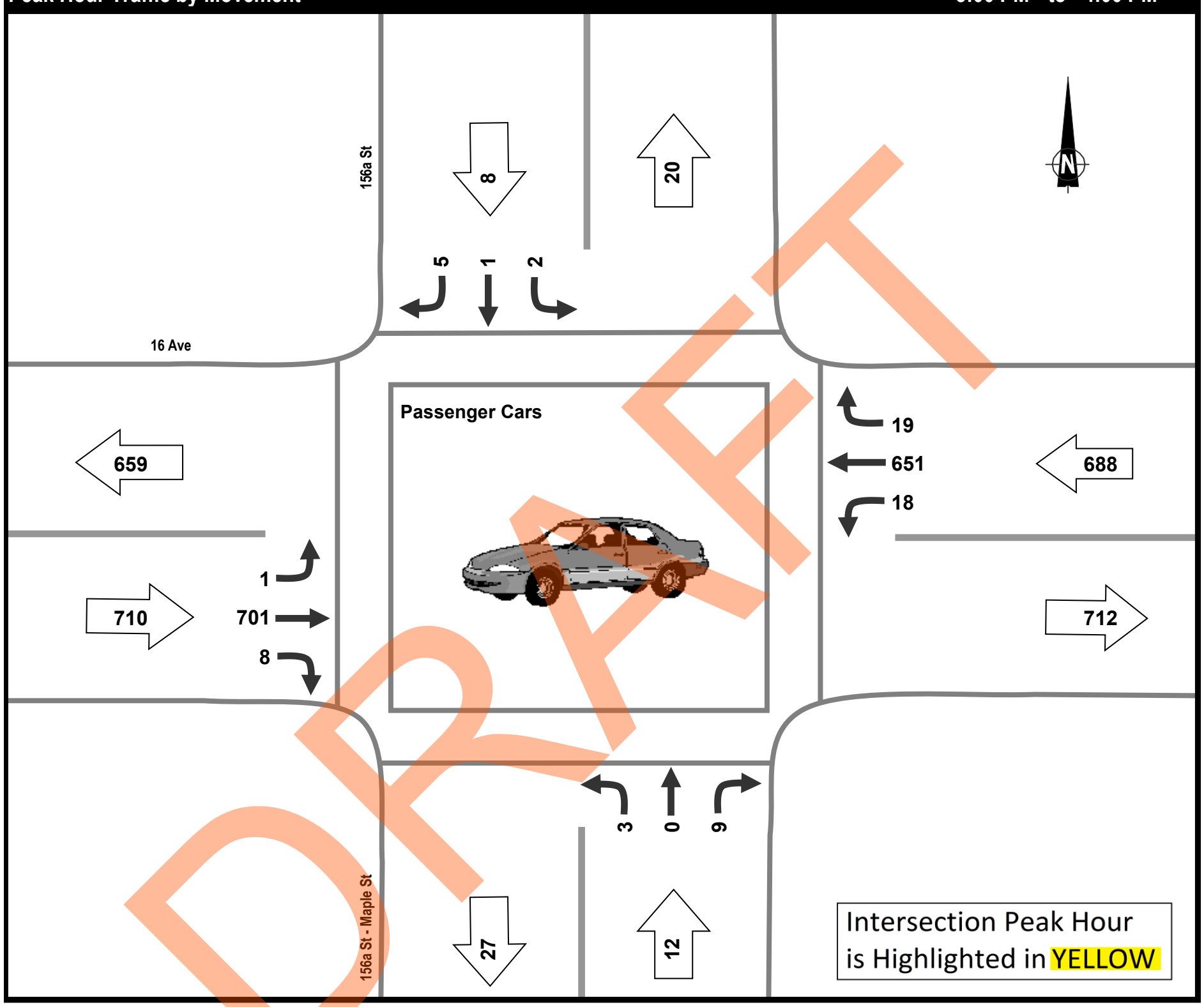
156a St - Maple St & 16 Ave

Friday, September 22, 2017

Afternoon Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Sunny
Vehicle Class: Passenger Cars

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	**2**	**1**	**5**	**3**	**0**	**9**	**1**	**701**	**8**	**18**	**651**	**19**					**1,418**
PHF	0.50	0.25	0.42	0.38	0.00	0.56	0.25	0.88	0.67	0.75	0.93	0.37					0.95
Peak 15 X 4	4	4	12	8	0	16	4	800	12	24	700	52					1,488
Average Hour	2	1	5	2	2	8	4	645	5	13	637	11					1,335
Survey Total	6	2	15	7	5	24	11	1,935	16	40	1,911	34					4,006
15:00	0	0	2	0	0	2	0	200	2	4	160	2					372
15:15	1	0	0	1	0	4	0	156	2	5	175	13					357
15:30	0	1	3	0	0	0	1	178	3	3	161	3					353
15:45	1	0	0	2	0	3	0	167	1	6	155	1					336
16:00	0	0	0	2	0	2	0	176	0	1	149	1					331
16:15	0	0	2	0	0	4	2	165	0	2	192	4					371
16:30	1	0	0	0	2	2	1	195	1	0	170	1					373
16:45	0	0	2	0	1	2	1	156	1	6	143	4					316
17:00	0	0	4	0	0	2	2	176	2	6	130	1					323
17:15	1	0	0	0	0	1	1	122	2	3	163	1					294
17:30	0	0	2	0	0	0	2	123	0	1	160	3					291
17:45	2	1	0	2	2	2	1	121	2	3	153	0					289

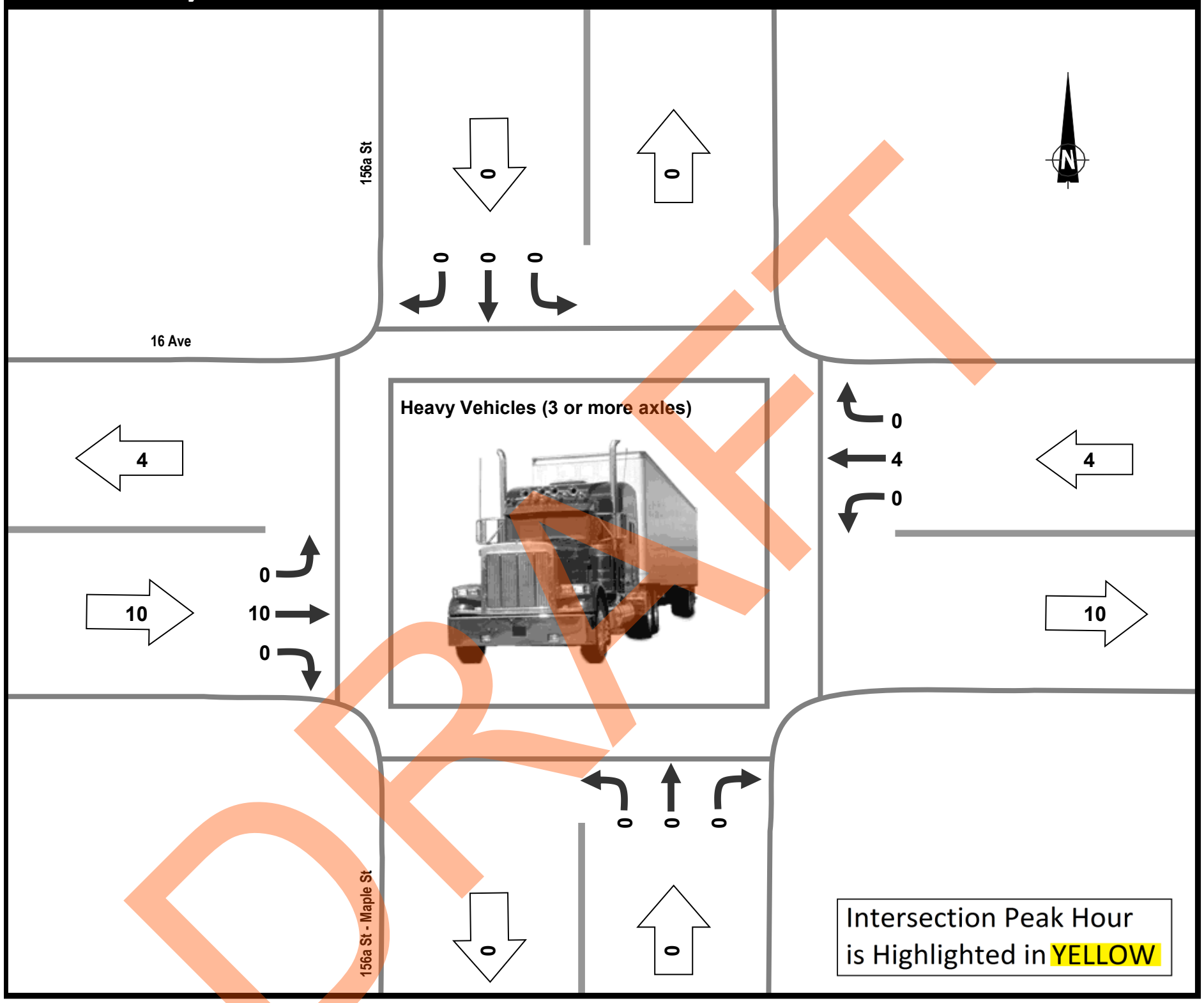
156a St - Maple St & 16 Ave

Friday, September 22, 2017

Afternoon Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Sunny
Vehicle Class: Heavy Vehicles (3 or more axles)

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	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**4**	**0**					**14**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.00	0.00	0.33	0.00					0.58
Peak 15 X 4	0	0	0	0	0	0	0	12	0	0	12	0					24
Average Hour	0	0	0	0	0	0	0	4	0	0	4	0					8
Survey Total	0	0	0	0	0	0	0	13	0	0	11	0					24
15:00	0	0	0	0	0	0	0	3	0	0	3	0					6
15:15	0	0	0	0	0	0	0	3	0	0	0	0					3
15:30	0	0	0	0	0	0	0	2	0	0	1	0					3
15:45	0	0	0	0	0	0	0	2	0	0	0	0					2
16:00	0	0	0	0	0	0	0	1	0	0	1	0					2
16:15	0	0	0	0	0	0	0	0	0	0	0	0					0
16:30	0	0	0	0	0	0	0	0	0	0	0	0					0
16:45	0	0	0	0	0	0	0	0	0	0	1	0					1
17:00	0	0	0	0	0	0	0	0	0	0	1	0					1
17:15	0	0	0	0	0	0	0	0	0	0	2	0					2
17:30	0	0	0	0	0	0	0	1	0	0	1	0					2
17:45	0	0	0	0	0	0	0	1	0	0	1	0					2

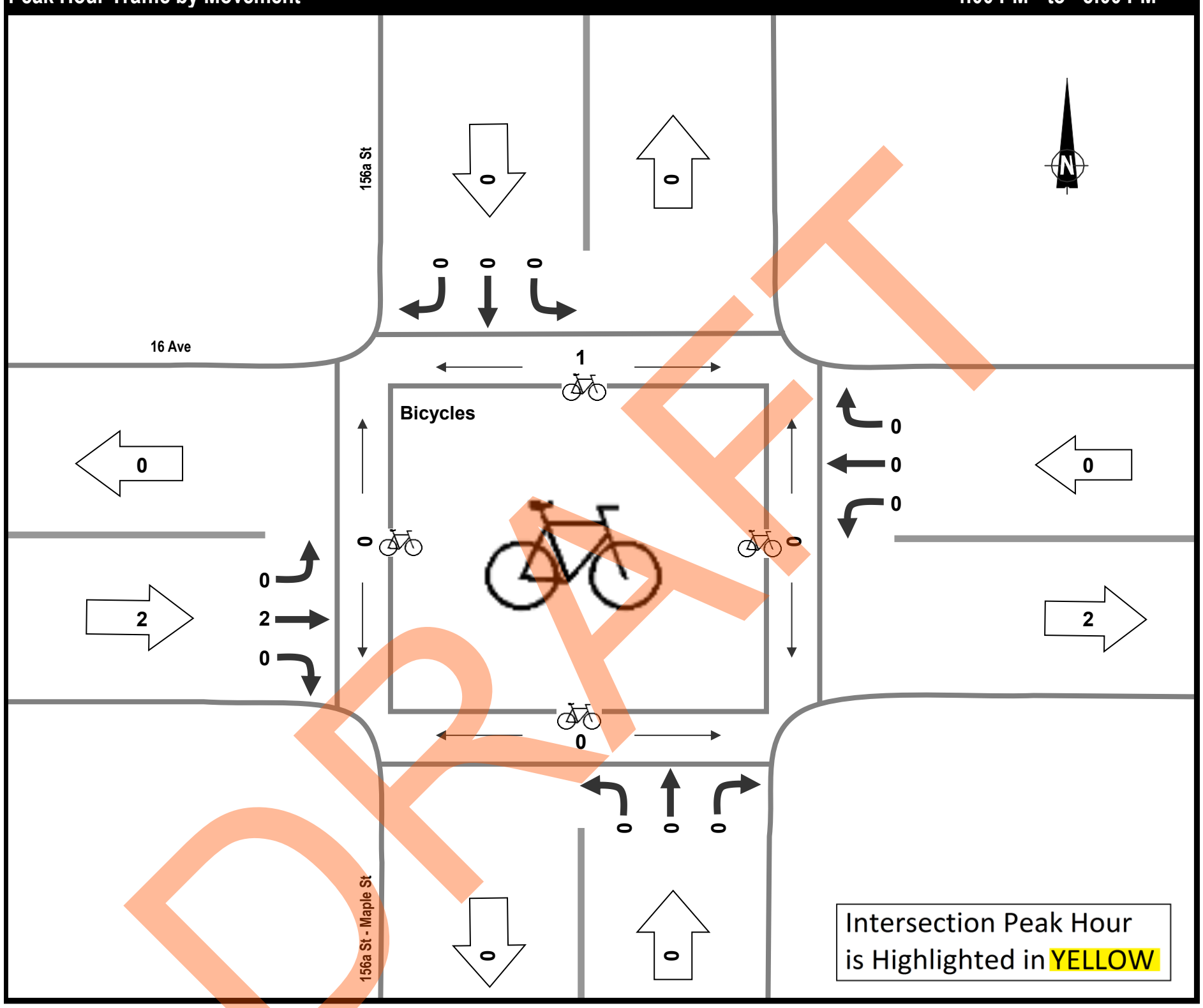
156a St - Maple St & 16 Ave

Friday, September 22, 2017

Afternoon Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Sunny
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 4:00 PM to 5:00 PM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.38
Peak 15 X 4	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	8
Average Hour	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Survey Total	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	4
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	2
16:45	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Lee St & North Bluff Rd

Thursday, November 08, 2018

Vehicle Classification Summary

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy

Time Period	Entering Intersection	Vehicle Classification					**Total**
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	2,538	34				**2,572**
	%	98.7%	1.3%				**100.0%**
Midday	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	4,528	17				**4,545**
	%	99.6%	0.4%				**100.0%**
Total (5 Hours)	**Volume**	**7,066**	**51**				**7,117**
	%	**99.3%**	**0.7%**				**100.0%**

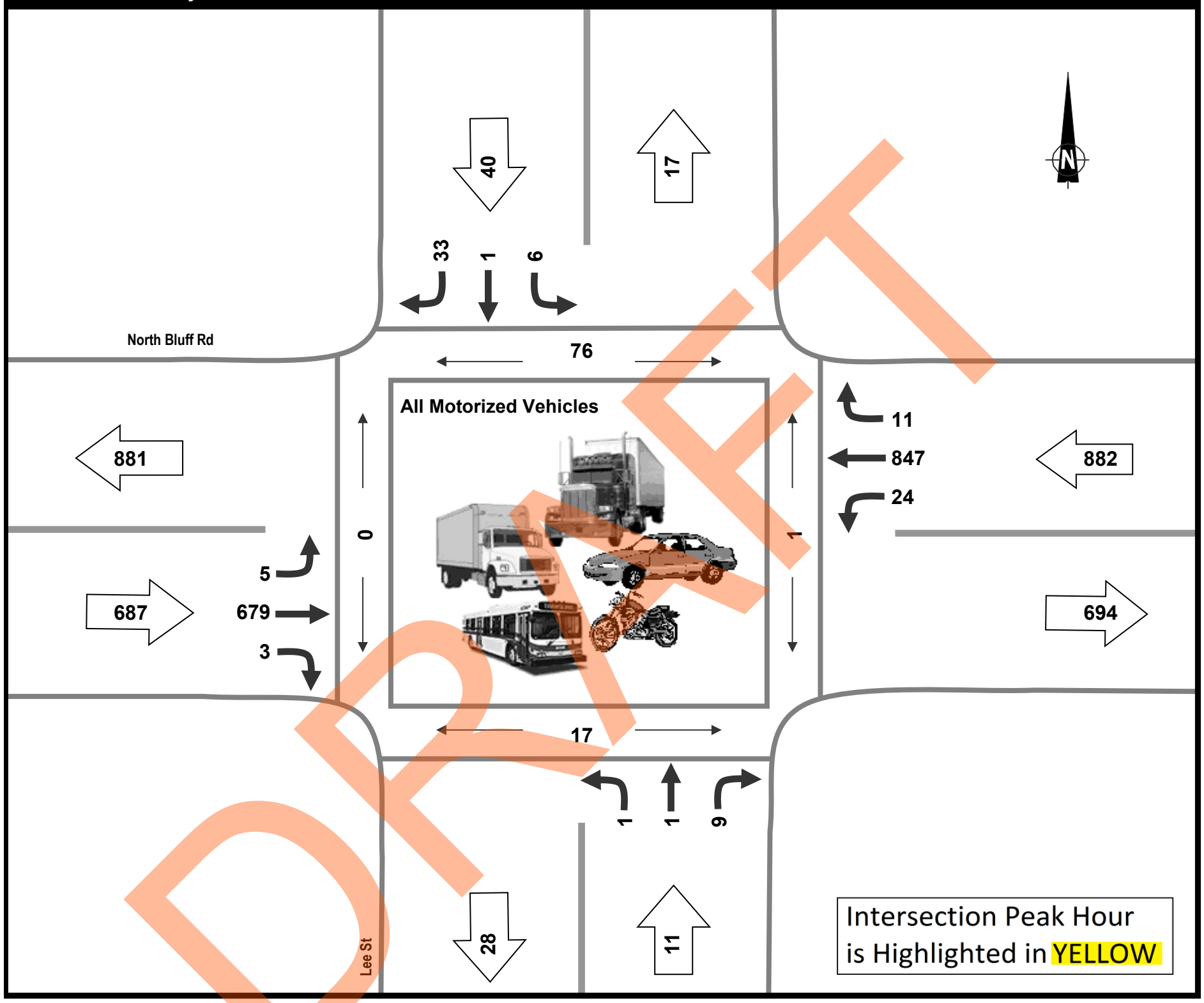
Lee St & North Bluff Rd

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: All Motorized Vehicles

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



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	**6**	**1**	**33**	**1**	**1**	**9**	**5**	**679**	**3**	**24**	**847**	**11**	**76**	**17**	**0**	**1**	**1,620**
PHF	0.50	0.25	0.52	0.25	0.25	0.56	0.42	0.91	0.75	0.60	0.81	0.55	0.61	0.39	0.00	0.25	0.85
Peak 15 X 4	12	4	64	4	4	16	12	744	4	40	1,040	20	124	44	0	4	1,916
Average Hour	11	1	21	1	1	5	3	565	3	13	660	6	48	11	0	1	1,290
Survey Total	21	1	41	1	1	10	5	1,130	5	26	1,319	12	95	21	0	1	2,572
7:00	2	0	2	0	0	0	0	99	0	0	86	0	0	0	0	0	189
7:15	4	0	2	0	0	0	0	89	0	1	94	0	1	0	0	0	190
7:30	6	0	1	0	0	1	0	137	0	0	120	1	1	4	0	0	266
7:45	2	0	2	0	0	0	0	160	0	2	162	1	8	2	0	0	329
8:00	1	0	6	1	0	2	1	181	1	5	189	5	13	3	0	1	392
8:15	0	1	16	0	0	3	3	186	1	7	260	2	31	11	0	0	479
8:30	3	0	9	0	1	4	1	152	1	10	236	3	24	1	0	0	420
8:45	3	0	3	0	0	0	0	126	2	1	172	0	17	0	0	0	307

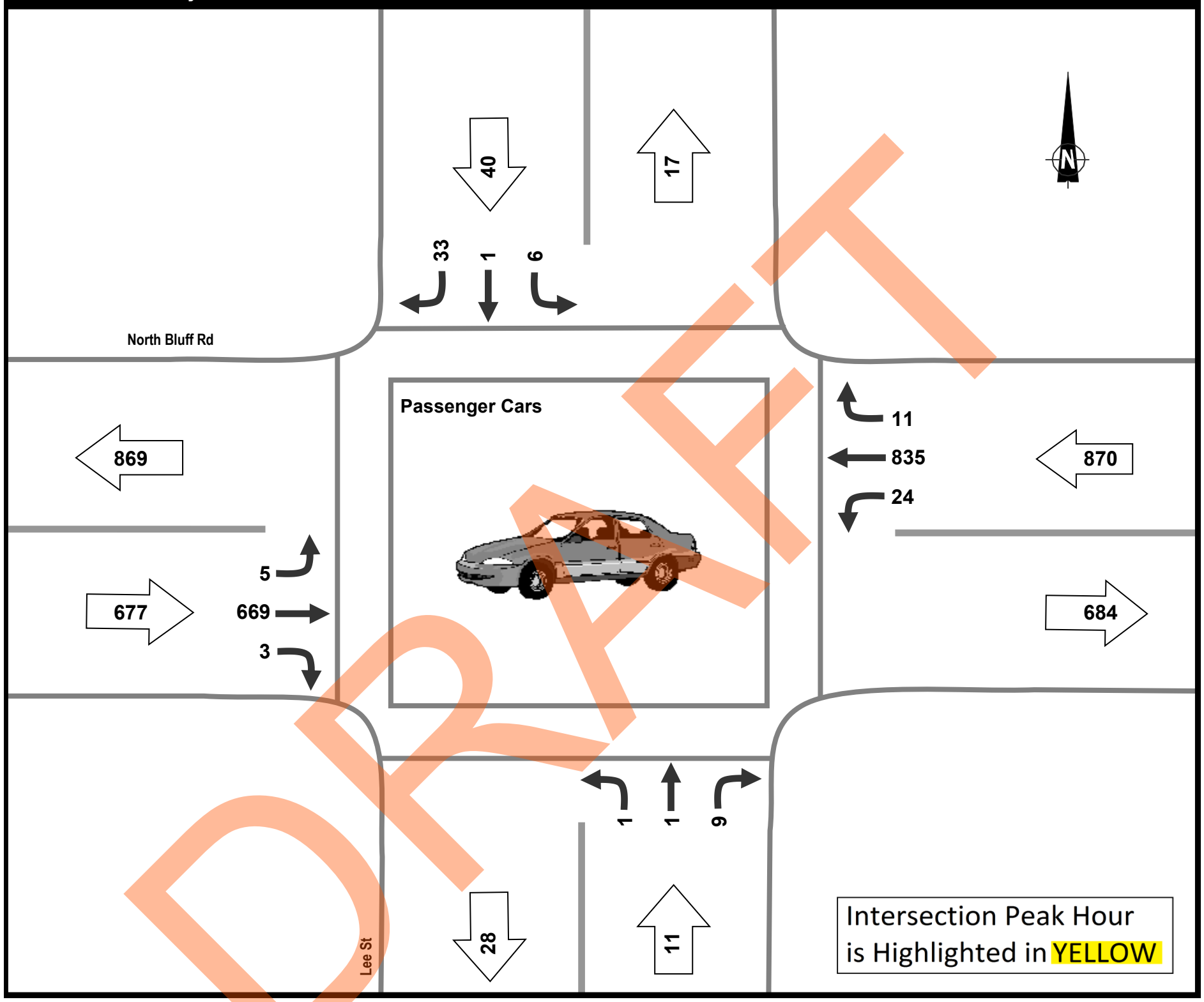
Lee St & North Bluff Rd

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Passenger Cars

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



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	**6**	**1**	**33**	**1**	**1**	**9**	**5**	**669**	**3**	**24**	**835**	**11**					**1,598**
PHF	0.50	0.25	0.52	0.25	0.25	0.56	0.42	0.92	0.75	0.60	0.81	0.55					0.84
Peak 15 X 4	12	4	64	4	4	16	12	728	4	40	1,036	20					1,896
Average Hour	11	1	21	1	1	5	3	560	3	13	648	6					1,273
Survey Total	21	1	41	1	1	10	5	1,119	5	26	1,296	12					2,538
7:00	2	0	2	0	0	0	0	99	0	0	81	0					184
7:15	4	0	2	0	0	0	0	89	0	1	93	0					189
7:30	6	0	1	0	0	1	0	136	0	0	116	1					261
7:45	2	0	2	0	0	0	0	159	0	2	158	1					324
8:00	1	0	6	1	0	2	1	180	1	5	186	5					388
8:15	0	1	16	0	0	3	3	182	1	7	259	2					474
8:30	3	0	9	0	1	4	1	148	1	10	232	3					412
8:45	3	0	3	0	0	0	0	126	2	1	171	0					306

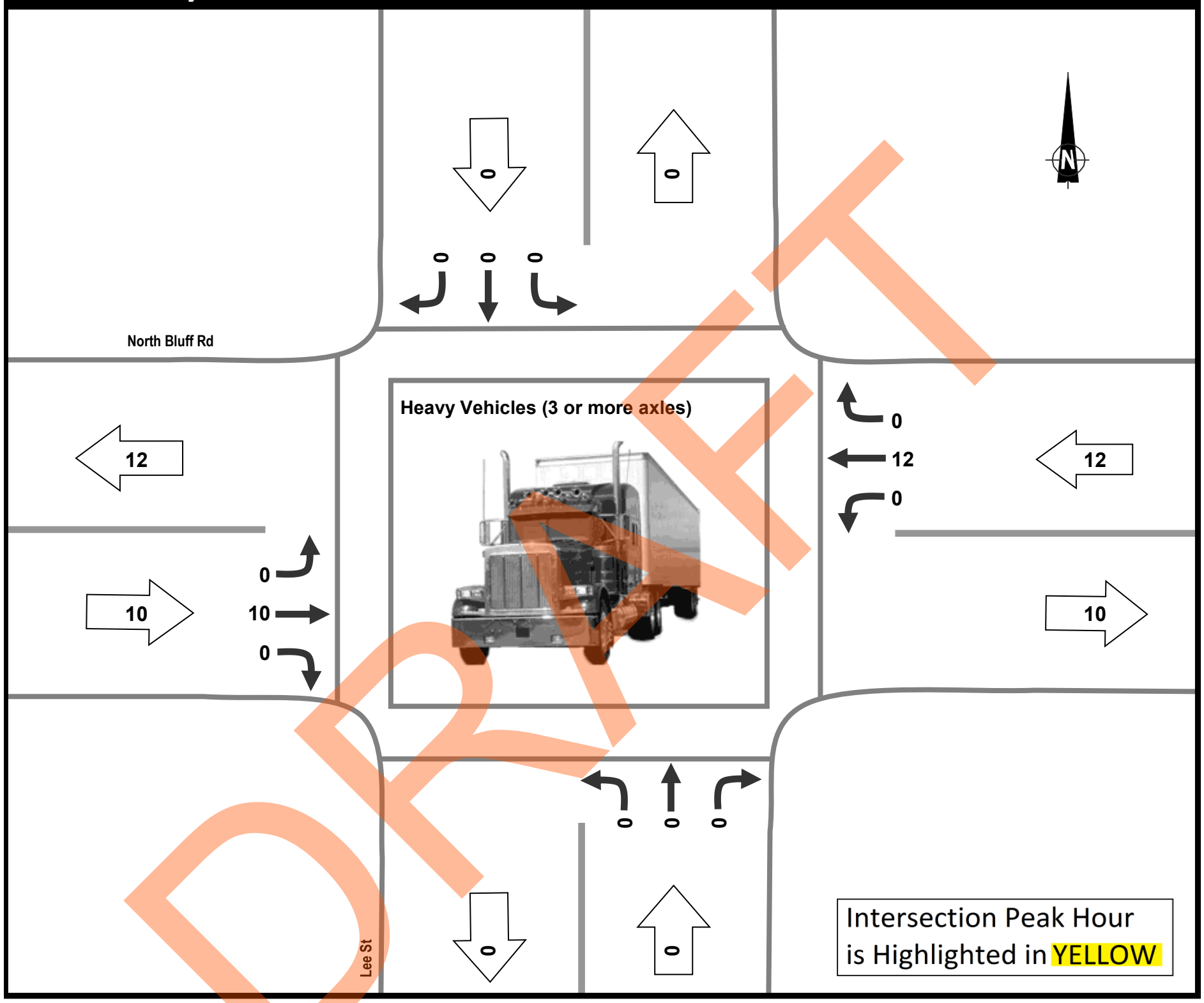
Lee St & North Bluff Rd

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Heavy Vehicles (3 or more axles)

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



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	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**12**	**0**					**22**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.75	0.00					0.69
Peak 15 X 4	0	0	0	0	0	0	0	16	0	0	16	0					32
Average Hour	0	0	0	0	0	0	0	6	0	0	12	0					18
Survey Total	0	0	0	0	0	0	0	11	0	0	23	0					34
7:00	0	0	0	0	0	0	0	0	0	0	5	0					5
7:15	0	0	0	0	0	0	0	0	0	0	1	0					1
7:30	0	0	0	0	0	0	0	1	0	0	4	0					5
7:45	0	0	0	0	0	0	0	1	0	0	4	0					5
8:00	0	0	0	0	0	0	0	1	0	0	3	0					4
8:15	0	0	0	0	0	0	0	4	0	0	1	0					5
8:30	0	0	0	0	0	0	0	4	0	0	4	0					8
8:45	0	0	0	0	0	0	0	0	0	0	1	0					1

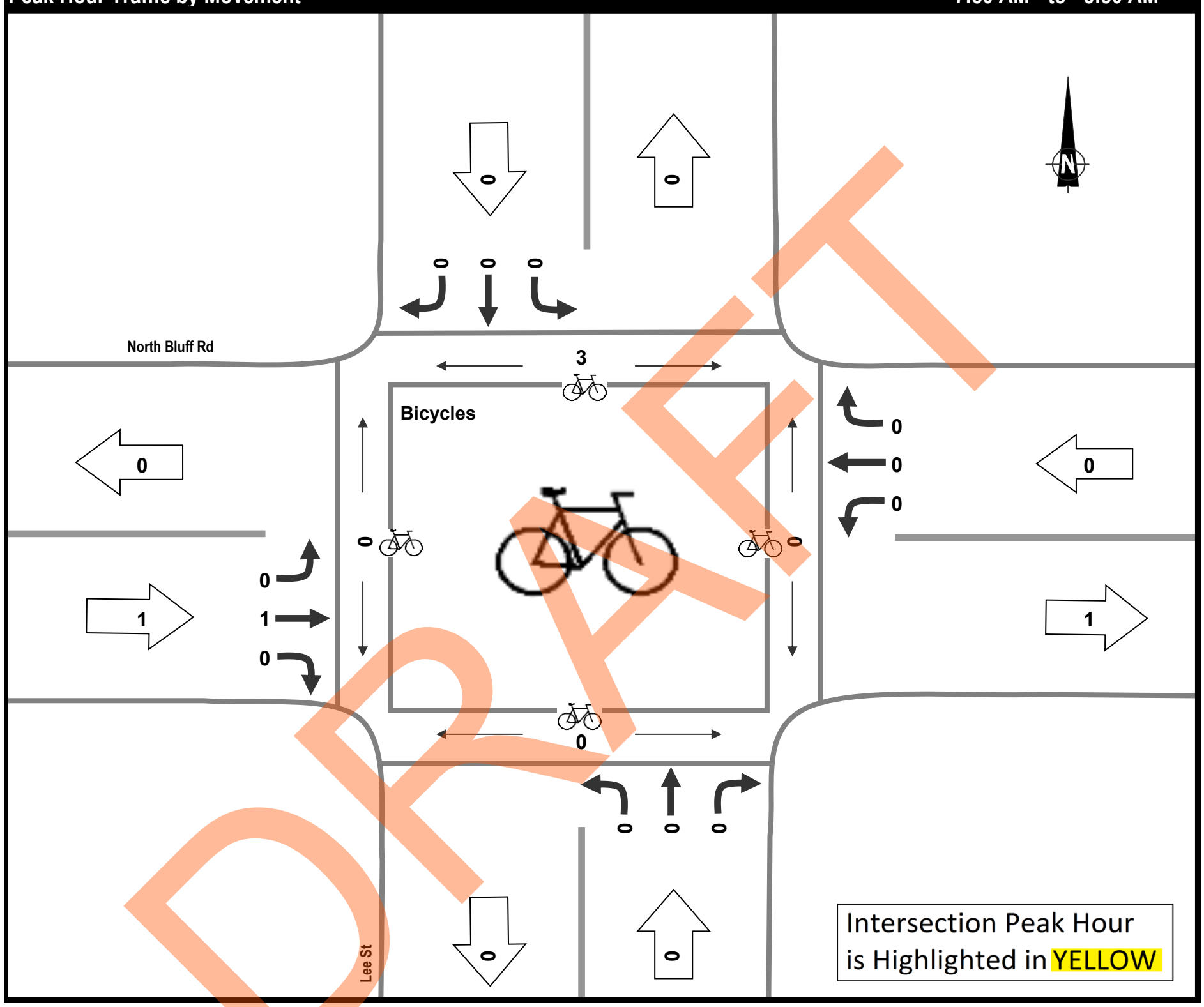
Lee St & North Bluff Rd

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 7:30 AM to 8:30 AM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**4**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.50
Peak 15 X 4	0	0	0	0	0	0	0	4	0	0	0	0	8	0	0	0	8
Average Hour	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	3
Survey Total	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	5
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:45	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
8:30	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

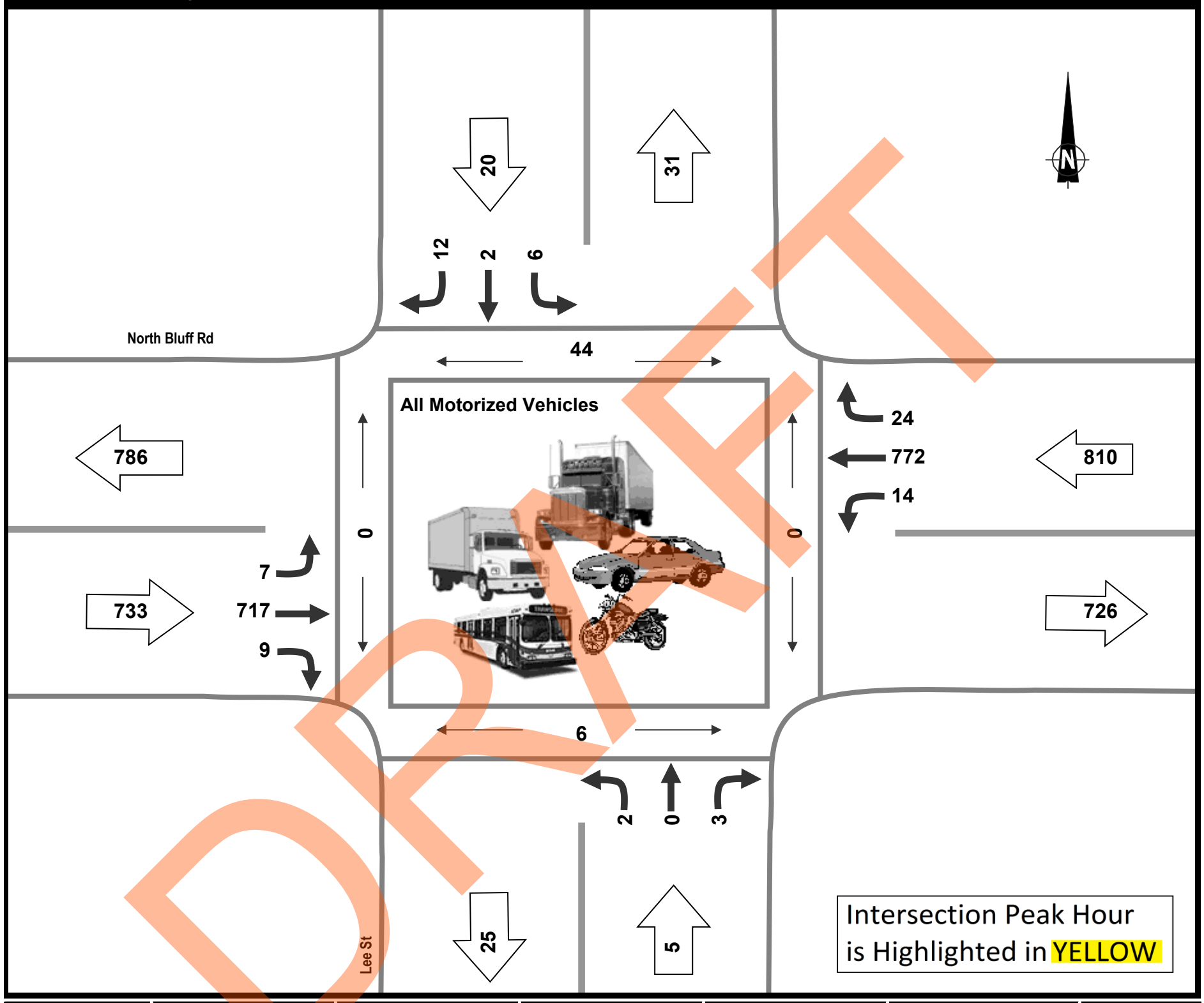
Lee St & North Bluff Rd

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: All Motorized Vehicles

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	**6**	**2**	**12**	**2**	**0**	**3**	**7**	**717**	**9**	**14**	**772**	**24**	**44**	**6**	**0**	**0**	**1,568**
PHF	0.38	0.25	0.50	0.25	0.00	0.38	0.29	0.86	0.75	0.50	0.94	0.75	0.58	0.50	0.00	0.00	0.88
Peak 15 X 4	16	8	24	8	0	8	24	836	12	28	820	32	76	12	0	0	1,788
Average Hour	9	1	9	3	0	2	6	702	5	9	752	17	20	5	0	0	1,515
Survey Total	26	3	27	8	1	7	18	2,105	15	28	2,257	50	60	15	0	1	4,545
15:00	1	2	6	2	0	2	6	209	2	7	202	8	19	3	0	0	447
15:15	1	0	2	0	0	0	0	163	3	2	194	6	13	3	0	0	371
15:30	0	0	2	0	0	0	0	186	2	3	171	8	5	0	0	0	372
15:45	4	0	2	0	0	1	1	159	2	2	205	2	7	0	0	0	378
16:00	1	0	2	2	0	0	0	195	2	1	186	1	0	1	0	0	390
16:15	2	0	1	0	0	0	2	181	0	3	181	2	5	2	0	1	372
16:30	4	1	2	0	0	1	2	188	0	3	169	2	0	0	0	0	372
16:45	3	0	2	1	0	1	3	184	1	0	212	5	3	0	0	0	412
17:00	2	0	2	1	0	0	0	206	2	2	186	6	2	0	0	0	407
17:15	2	0	2	0	1	2	2	153	1	1	203	1	4	1	0	0	368
17:30	3	0	2	1	0	0	0	147	0	1	171	4	1	1	0	0	329
17:45	3	0	2	1	0	0	2	134	0	3	177	5	1	4	0	0	327

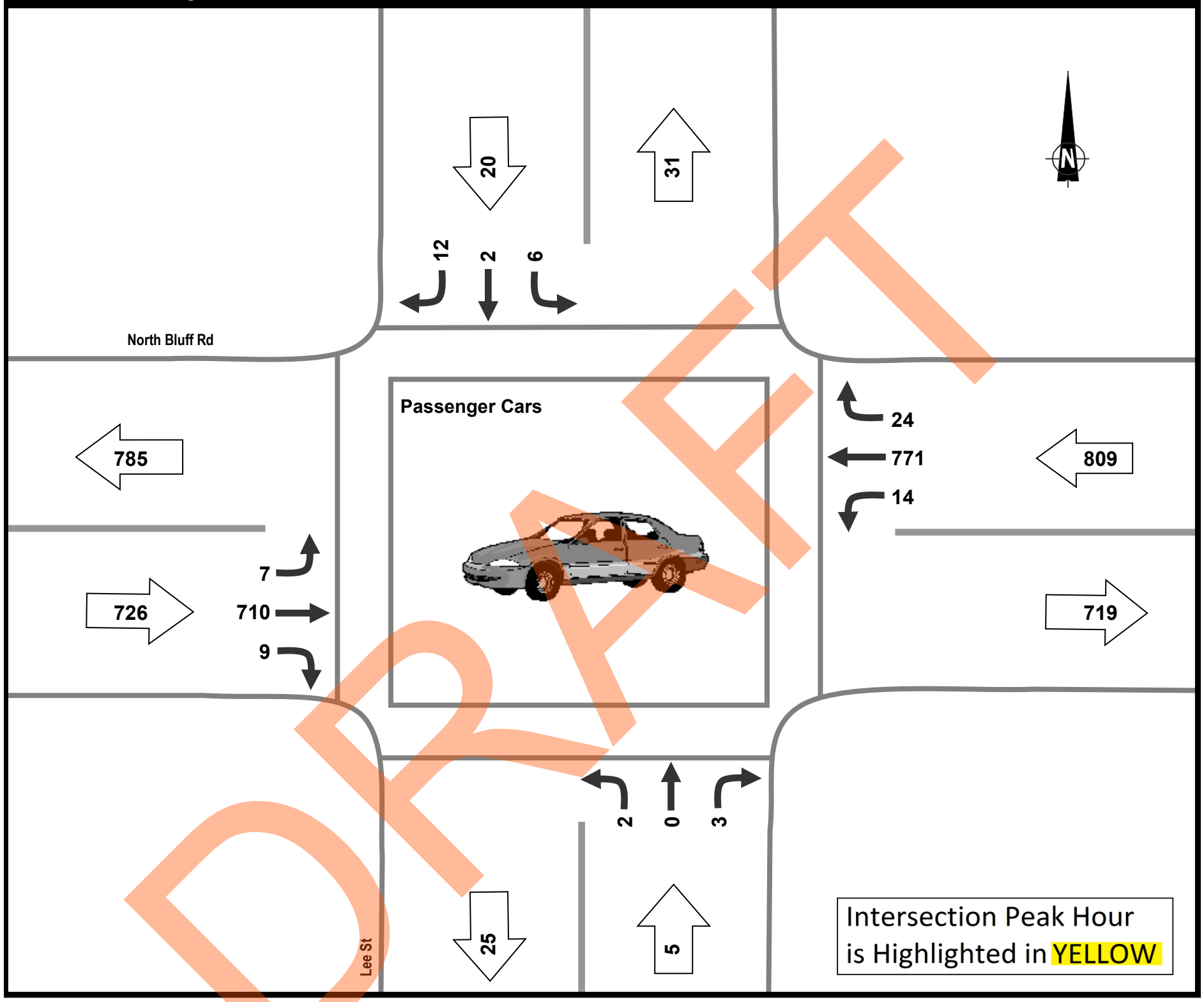
Lee St & North Bluff Rd

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Passenger Cars

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	**6**	**2**	**12**	**2**	**0**	**3**	**7**	**710**	**9**	**14**	**771**	**24**					**1,560**
PHF	0.38	0.25	0.50	0.25	0.00	0.38	0.29	0.85	0.75	0.50	0.94	0.75					0.87
Peak 15 X 4	16	8	24	8	0	8	24	832	12	28	820	32					1,784
Average Hour	9	1	9	3	0	2	6	698	5	9	751	17					1,510
Survey Total	26	3	27	8	1	7	18	2,093	15	28	2,252	50					4,528
15:00	1	2	6	2	0	2	6	208	2	7	202	8					446
15:15	1	0	2	0	0	0	0	160	3	2	193	6					367
15:30	0	0	2	0	0	0	0	183	2	3	171	8					369
15:45	4	0	2	0	0	1	1	159	2	2	205	2					378
16:00	1	0	2	2	0	0	0	195	2	1	182	1					386
16:15	2	0	1	0	0	0	2	180	0	3	181	2					371
16:30	4	1	2	0	0	1	2	187	0	3	169	2					371
16:45	3	0	2	1	0	1	3	184	1	0	212	5					412
17:00	2	0	2	1	0	0	0	204	2	2	186	6					405
17:15	2	0	2	0	1	2	2	153	1	1	203	1					368
17:30	3	0	2	1	0	0	0	146	0	1	171	4					328
17:45	3	0	2	1	0	0	2	134	0	3	177	5					327

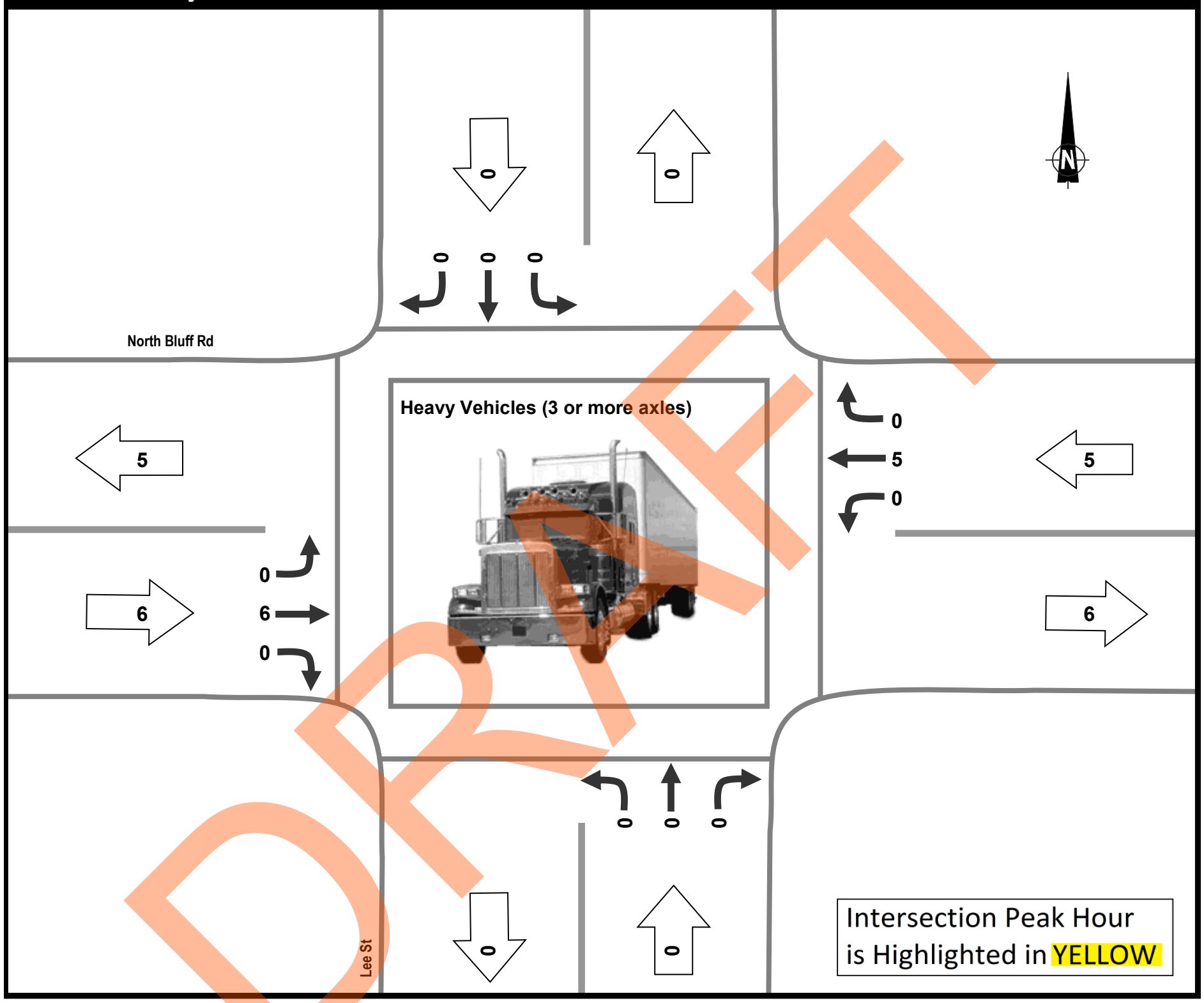
Lee St & North Bluff Rd

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Heavy Vehicles (3 or more axles)

Peak Hour Traffic by Movement 3:15 PM to 4:15 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	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**5**	**0**					**11**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.31	0.00					0.69
Peak 15 X 4	0	0	0	0	0	0	0	12	0	0	16	0					16
Average Hour	0	0	0	0	0	0	0	4	0	0	2	0					6
Survey Total	0	0	0	0	0	0	0	12	0	0	5	0					17
15:00	0	0	0	0	0	0	0	1	0	0	0	0					1
15:15	0	0	0	0	0	0	0	3	0	0	1	0					4
15:30	0	0	0	0	0	0	0	3	0	0	0	0					3
15:45	0	0	0	0	0	0	0	0	0	0	0	0					0
16:00	0	0	0	0	0	0	0	0	0	0	4	0					4
16:15	0	0	0	0	0	0	0	1	0	0	0	0					1
16:30	0	0	0	0	0	0	0	1	0	0	0	0					1
16:45	0	0	0	0	0	0	0	0	0	0	0	0					0
17:00	0	0	0	0	0	0	0	2	0	0	0	0					2
17:15	0	0	0	0	0	0	0	0	0	0	0	0					0
17:30	0	0	0	0	0	0	0	1	0	0	0	0					1
17:45	0	0	0	0	0	0	0	0	0	0	0	0					0

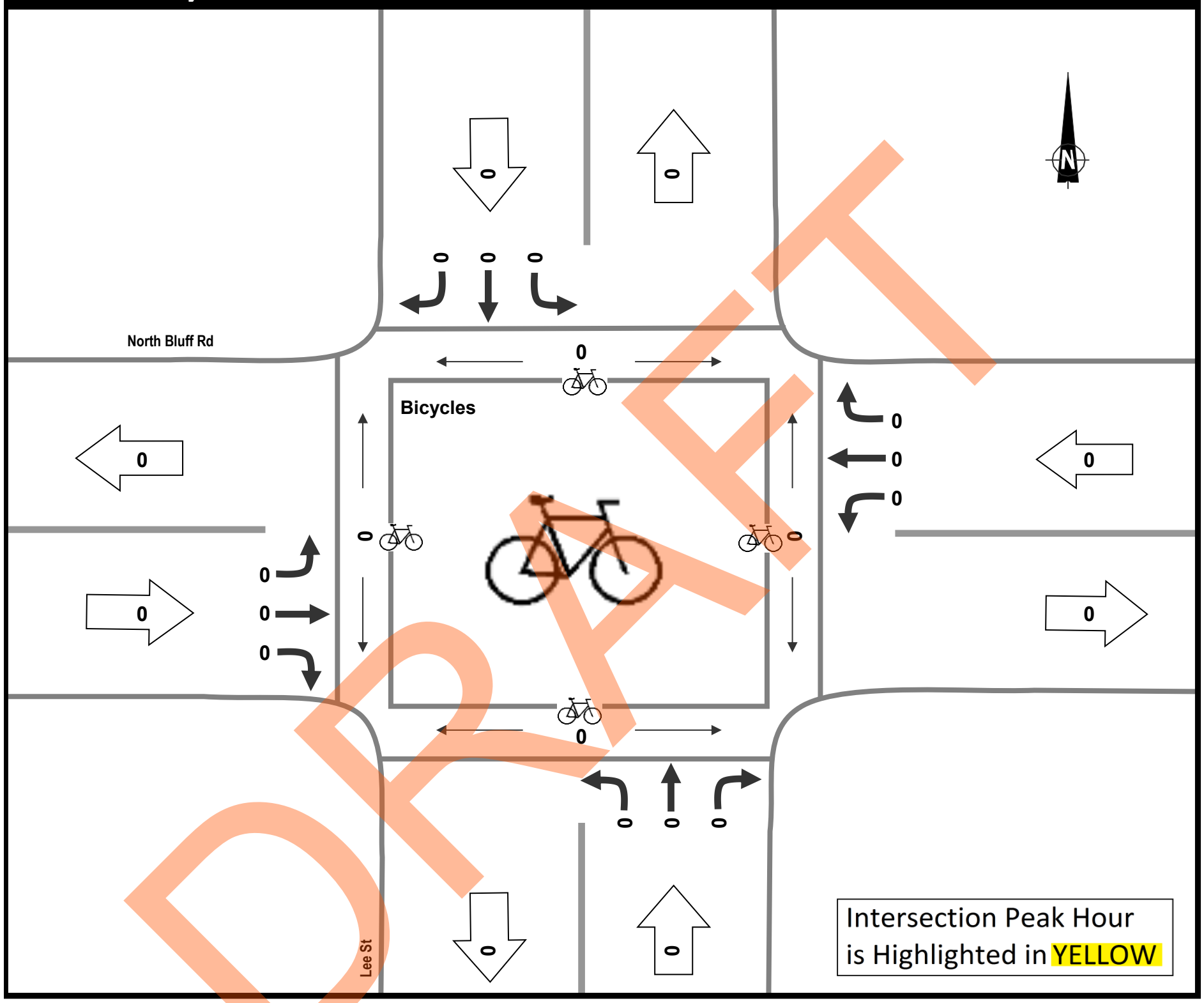
Lee St & North Bluff Rd

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 3:00 PM to 4:00 PM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Peak 15 X 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Survey Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Lee St & Russell Ave

Thursday, November 08, 2018

Vehicle Classification Summary

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy

Time Period	Entering Intersection	Vehicle Classification					**Total**
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	259	3				**262**
	%	98.9%	1.1%				**100.0%**
Midday	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	374	3				**377**
	%	99.2%	0.8%				**100.0%**
Total (5 Hours)	**Volume**	**633**	**6**				**639**
	%	**99.1%**	**0.9%**				**100.0%**

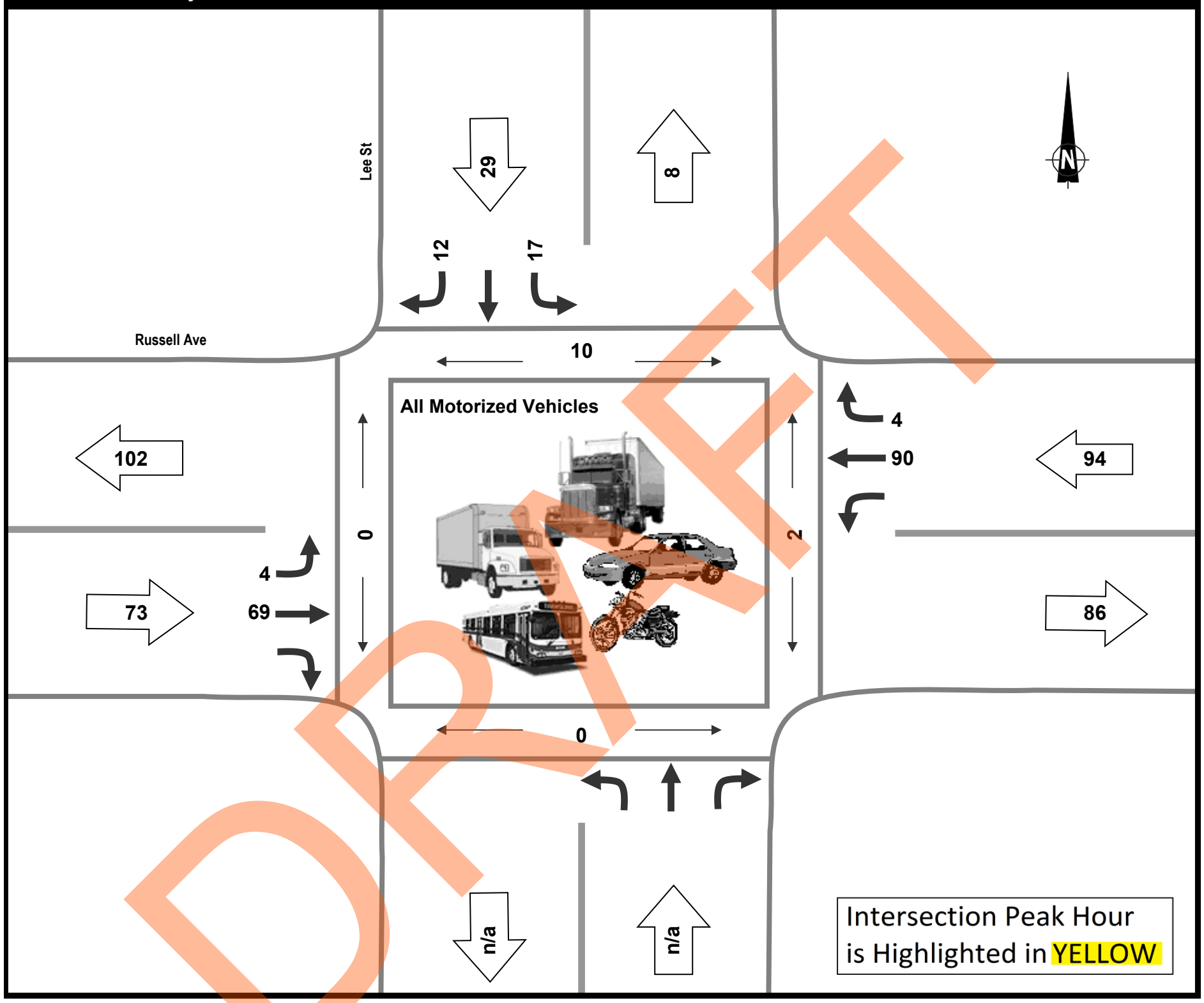
Lee St & Russell Ave

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: All Motorized Vehicles

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



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	**17**		**12**				**4**	**69**			**90**	**4**	**10**	**0**	**0**	**2**	**196**
PHF	0.61		0.60				0.50	0.69			0.56	0.50	0.36	0.00	0.00	0.25	0.63
Peak 15 X 4	28		20				8	100			160	8	28	0	0	8	312
Average Hour	10		8				3	49			60	3	6	0	0	1	133
Survey Total	19		15				5	98			120	5	11	0	0	2	262
7:00	0		0				0	6			3	0	0	0	0	0	9
7:15	0		1				0	13			5	0	0	0	0	0	19
7:30	0		1				1	6			7	0	0	0	0	0	15
7:45	0		1				0	13			18	0	3	0	0	0	32
8:00	4		5				1	13			15	0	0	0	0	0	38
8:15	6		4				1	25			40	2	7	0	0	0	78
8:30	7		2				2	18			17	2	0	0	0	2	48
8:45	2		1				0	4			15	1	1	0	0	0	23

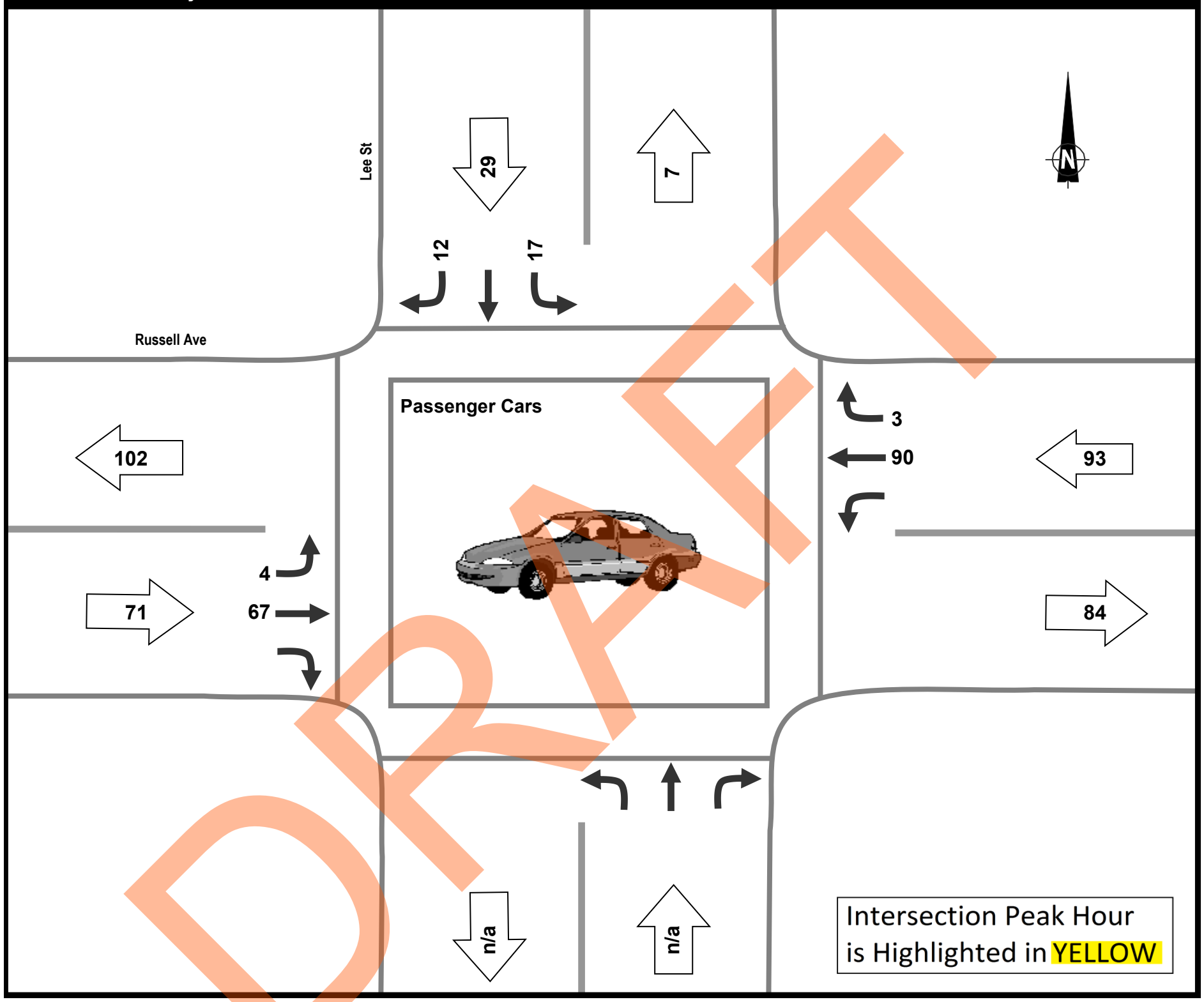
Lee St & Russell Ave

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Passenger Cars

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



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	**17**		**12**				**4**	**67**			**90**	**3**					**193**
PHF	0.61		0.60				0.50	0.70			0.56	0.38					0.63
Peak 15 X 4	28		20				8	96			160	8					304
Average Hour	10		8				3	48			60	2					131
Survey Total	19		15				5	96			120	4					259
7:00	0		0				0	6			3	0					9
7:15	0		1				0	13			5	0					19
7:30	0		1				1	6			7	0					15
7:45	0		1				0	13			18	0					32
8:00	4		5				1	12			15	0					37
8:15	6		4				1	24			40	1					76
8:30	7		2				2	18			17	2					48
8:45	2		1				0	4			15	1					23

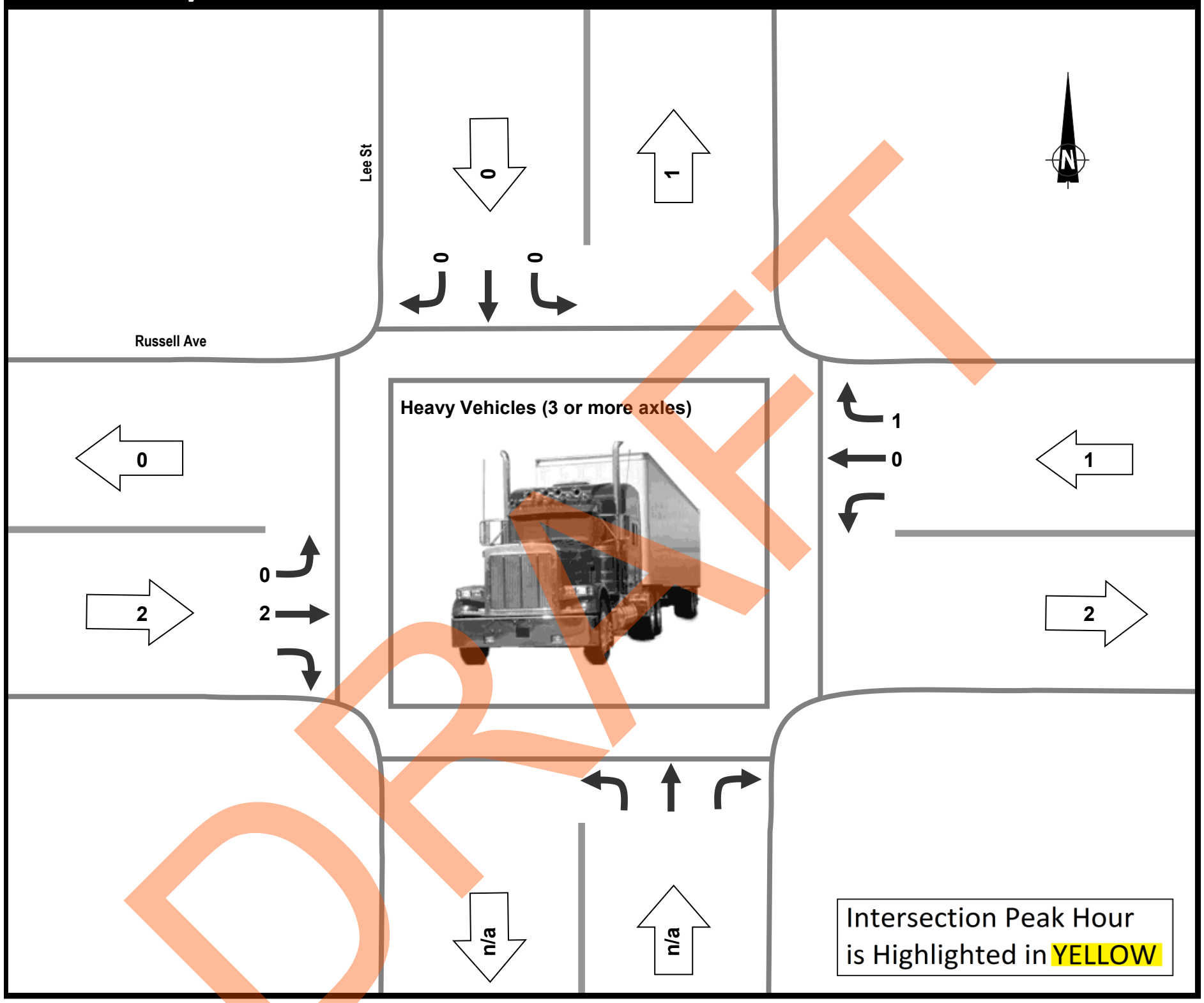
Lee St & Russell Ave

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Heavy Vehicles (3 or more axles)

Peak Hour Traffic by Movement 7:30 AM to 8:30 AM



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	**0**		**0**				**0**	**2**			**0**	**1**					**3**
PHF	0.00		0.00				0.00	0.50			0.00	0.25					0.38
Peak 15 X 4	0		0				0	4			0	4					8
Average Hour	0		0				0	1			0	1					2
Survey Total	0		0				0	2			0	1					3
7:00	0		0				0	0			0	0					0
7:15	0		0				0	0			0	0					0
7:30	0		0				0	0			0	0					0
7:45	0		0				0	0			0	0					0
8:00	0		0				0	1			0	0					1
8:15	0		0				0	1			0	1					2
8:30	0		0				0	0			0	0					0
8:45	0		0				0	0			0	0					0

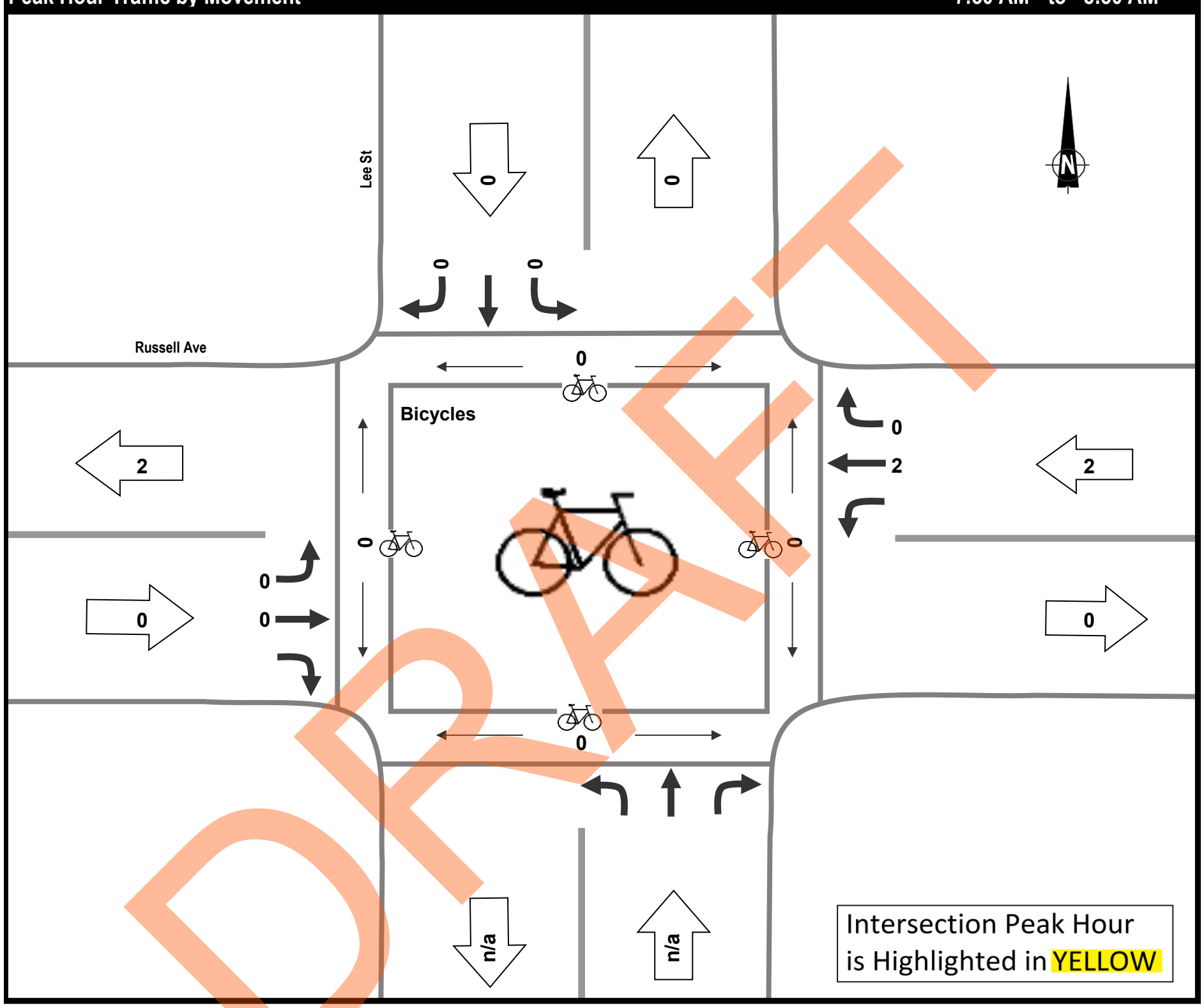
Lee St & Russell Ave

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 7:30 AM to 8:30 AM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**		**0**				**0**	**0**			**2**	**0**	**0**	**0**	**0**	**0**	**2**
PHF	0.00		0.00				0.00	0.00			0.50	0.00	0.00	0.00	0.00	0.00	0.50
Peak 15 X 4	0		0				0	0			4	0	0	0	0	0	4
Average Hour	0		0				0	0			1	0	0	0	0	0	1
Survey Total	0		0				0	0			2	0	0	0	0	0	2
7:00	0		0				0	0			0	0	0	0	0	0	0
7:15	0		0				0	0			0	0	0	0	0	0	0
7:30	0		0				0	0			0	0	0	0	0	0	0
7:45	0		0				0	0			0	0	0	0	0	0	0
8:00	0		0				0	0			1	0	0	0	0	0	1
8:15	0		0				0	0			1	0	0	0	0	0	1
8:30	0		0				0	0			0	0	0	0	0	0	0
8:45	0		0				0	0			0	0	0	0	0	0	0

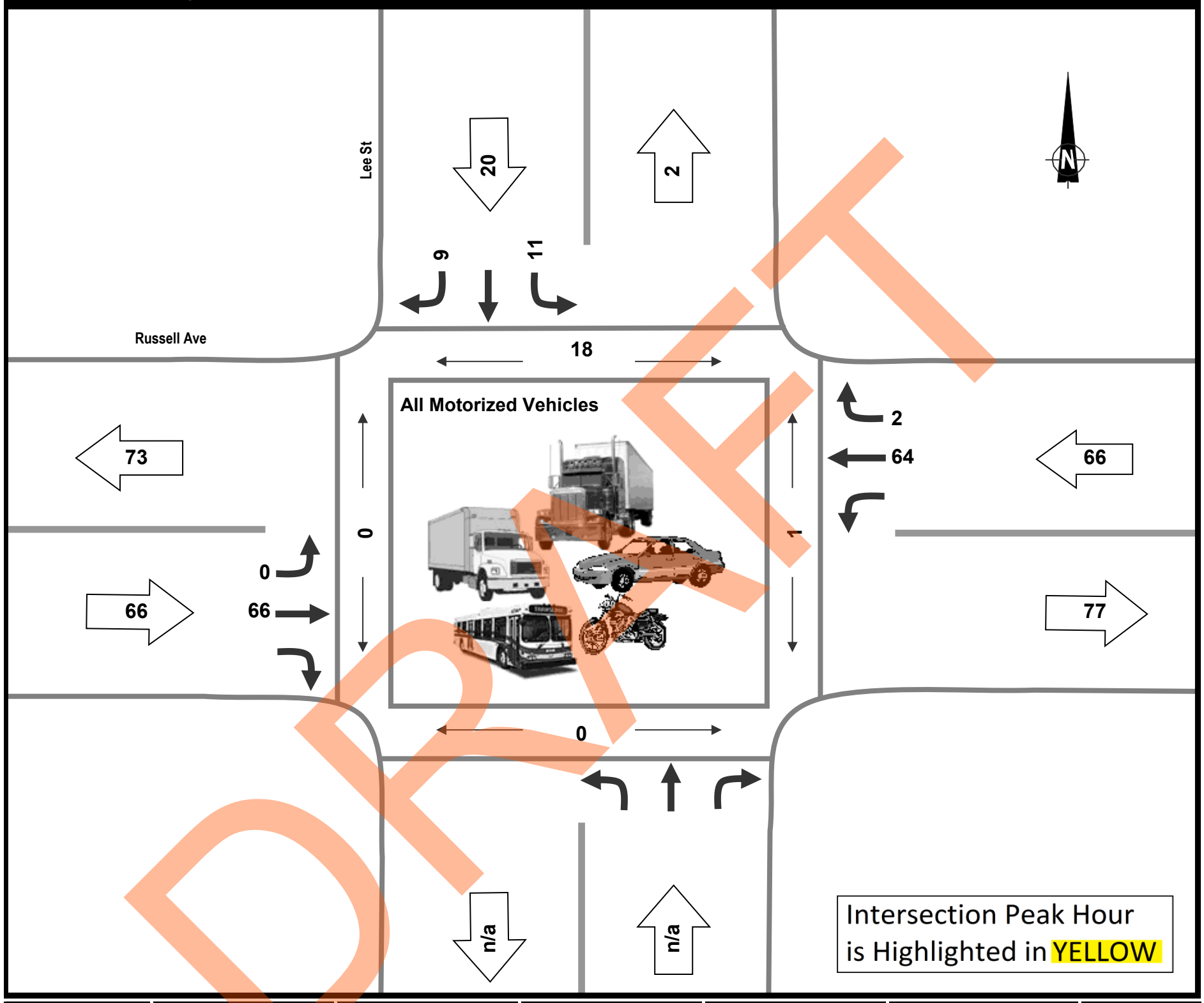
Lee St & Russell Ave

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: All Motorized Vehicles

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	**11**		**9**				**0**	**66**			**64**	**2**	**18**	**0**	**0**	**1**	**152**
PHF	0.46		0.75				0.00	0.87			0.57	0.50	0.45	0.00	0.00	0.25	0.69
Peak 15 X 4	24		12				0	76			112	4	40	0	0	4	220
Average Hour	5		8				2	59			50	2	9	0	1	0	126
Survey Total	15		23				7	176			150	6	27	0	3	1	377
15:00	6		2				0	18			28	1	10	0	0	0	55
15:15	0		2				0	13			11	1	3	0	0	1	27
15:30	3		3				0	16			14	0	5	0	0	0	36
15:45	2		2				0	19			11	0	0	0	0	0	34
16:00	1		0				1	14			17	1	2	0	0	0	34
16:15	0		3				1	16			19	0	1	0	0	0	39
16:30	1		4				1	13			15	0	0	0	0	0	34
16:45	1		0				2	14			5	0	0	0	0	0	22
17:00	1		2				0	20			7	0	0	0	0	0	30
17:15	0		2				1	11			13	2	4	0	0	0	29
17:30	0		0				0	16			5	0	1	0	0	0	21
17:45	0		3				1	6			5	1	1	0	3	0	16

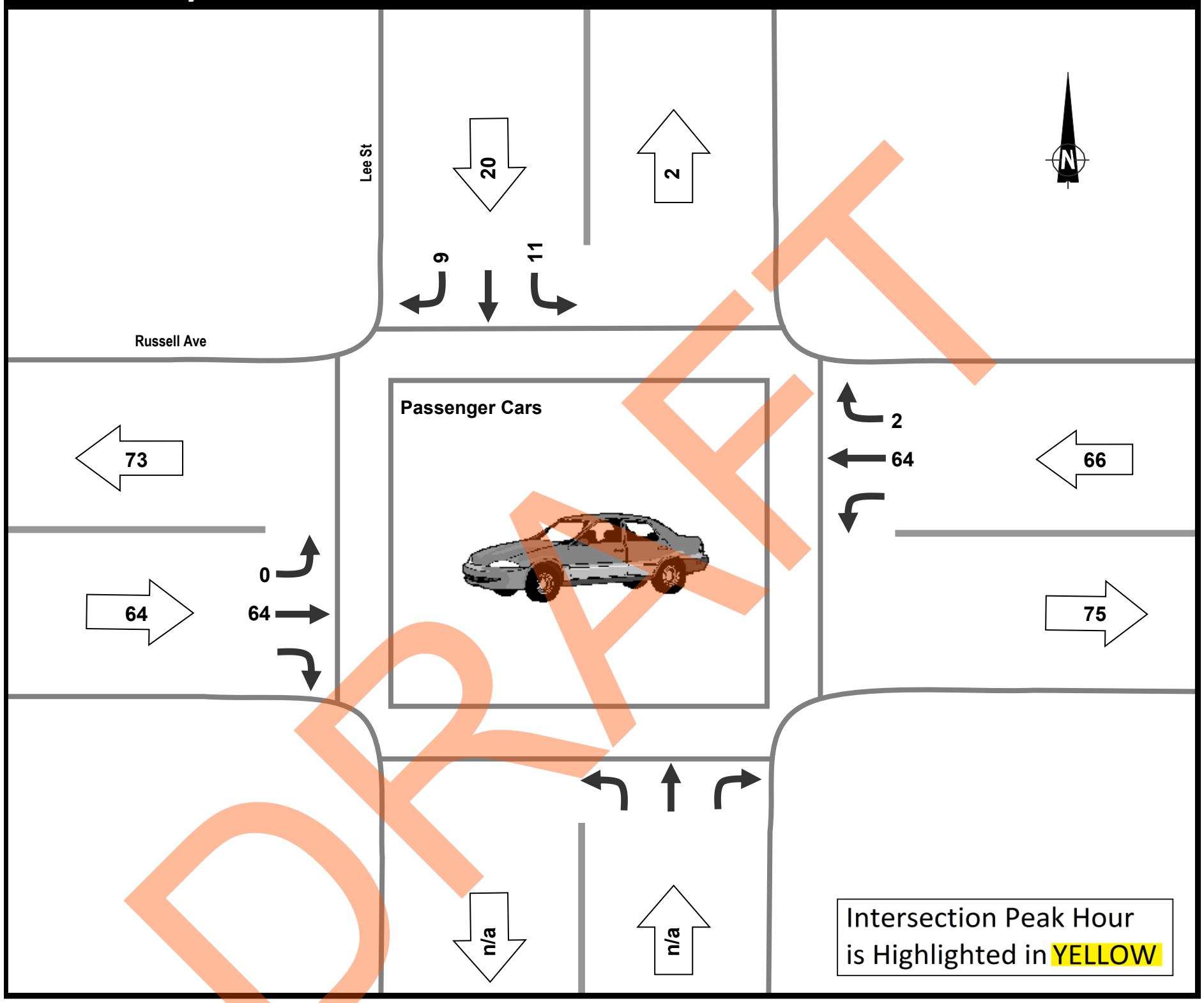
Lee St & Russell Ave

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Passenger Cars

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	**11**		**9**				**0**	**64**			**64**	**2**					**150**
PHF	0.46		0.75				0.00	0.84			0.57	0.50					0.71
Peak 15 X 4	24		12				0	76			112	4					212
Average Hour	5		8				2	58			50	2					125
Survey Total	15		23				7	173			150	6					374
15:00	6		2				0	16			28	1					53
15:15	0		2				0	13			11	1					27
15:30	3		3				0	16			14	0					36
15:45	2		2				0	19			11	0					34
16:00	1		0				1	14			17	1					34
16:15	0		3				1	16			19	0					39
16:30	1		4				1	13			15	0					34
16:45	1		0				2	13			5	0					21
17:00	1		2				0	20			7	0					30
17:15	0		2				1	11			13	2					29
17:30	0		0				0	16			5	0					21
17:45	0		3				1	6			5	1					16

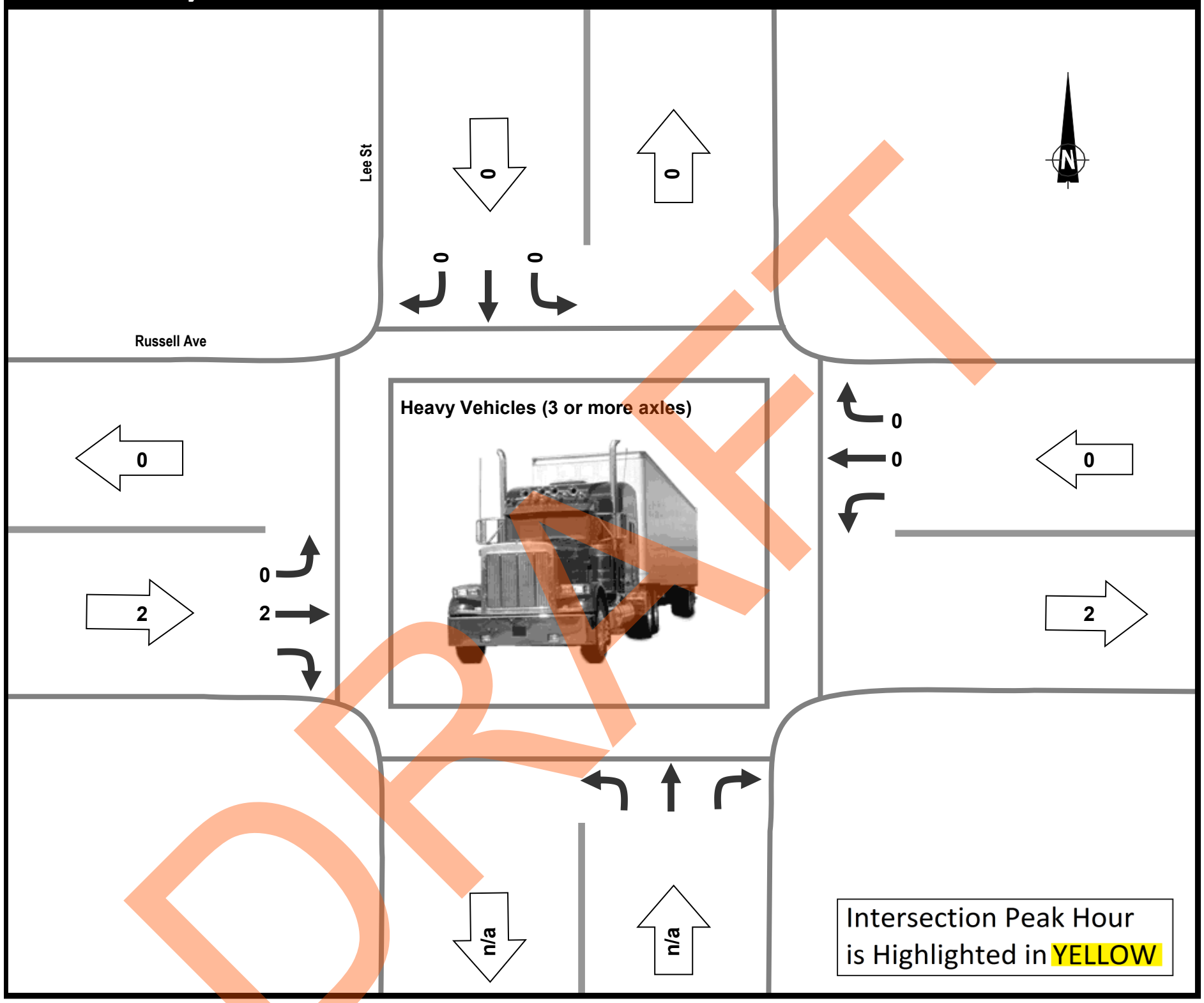
Lee St & Russell Ave

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Heavy Vehicles (3 or more axles)

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	**0**		**0**				**0**	**2**			**0**	**0**					**2**
PHF	0.00		0.00				0.00	0.25			0.00	0.00					0.25
Peak 15 X 4	0		0				0	8			0	0					8
Average Hour	0		0				0	1			0	0					1
Survey Total	0		0				0	3			0	0					3
15:00	0		0				0	2			0	0					2
15:15	0		0				0	0			0	0					0
15:30	0		0				0	0			0	0					0
15:45	0		0				0	0			0	0					0
16:00	0		0				0	0			0	0					0
16:15	0		0				0	0			0	0					0
16:30	0		0				0	0			0	0					0
16:45	0		0				0	1			0	0					1
17:00	0		0				0	0			0	0					0
17:15	0		0				0	0			0	0					0
17:30	0		0				0	0			0	0					0
17:45	0		0				0	0			0	0					0

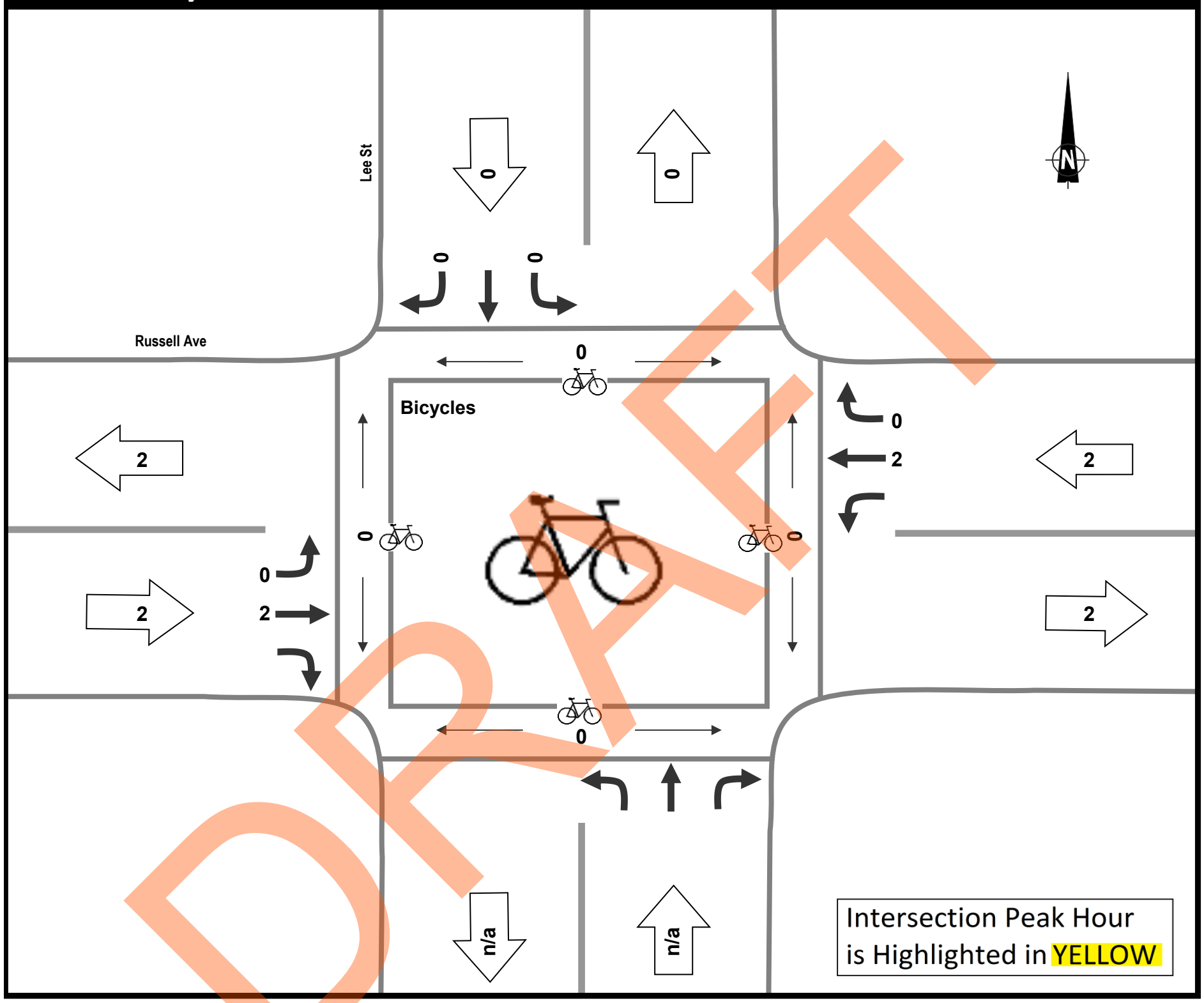
Lee St & Russell Ave

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 4:30 PM to 5:30 PM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**		**0**				**0**	**2**			**2**	**0**	**0**	**0**	**0**	**0**	**4**
PHF	0.00		0.00				0.00	0.50			0.50	0.00	0.00	0.00	0.00	0.00	0.50
Peak 15 X 4	0		0				0	4			4	0	0	0	0	0	8
Average Hour	0		0				0	1			1	0	0	0	0	0	2
Survey Total	0		0				0	4			2	0	0	0	0	0	6
15:00	0		0				0	0			0	0	0	0	0	0	0
15:15	0		0				0	0			0	0	0	0	0	0	0
15:30	0		0				0	0			0	0	0	0	0	0	0
15:45	0		0				0	2			0	0	0	0	0	0	2
16:00	0		0				0	0			0	0	0	0	0	0	0
16:15	0		0				0	0			0	0	0	0	0	0	0
16:30	0		0				0	0			0	0	0	0	0	0	0
16:45	0		0				0	0			1	0	0	0	0	0	1
17:00	0		0				0	1			1	0	0	0	0	0	2
17:15	0		0				0	1			0	0	0	0	0	0	1
17:30	0		0				0	0			0	0	0	0	0	0	0
17:45	0		0				0	0			0	0	0	0	0	0	0

Maple St & Russell Ave

Friday, September 22, 2017

Vehicle Classification Summary

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Cloudy

Time Period	Entering Intersection	Vehicle Classification					Total
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	316	0				**316**
	%	100.0%	0.0%				**100.0%**
Midday (00:00 - 00:00)	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	448	0				**448**
	%	100.0%	0.0%				**100.0%**
Total (5 Hours)	**Volume**	**764**	**0**				**764**
	%	**100.0%**	**0.0%**				**100.0%**

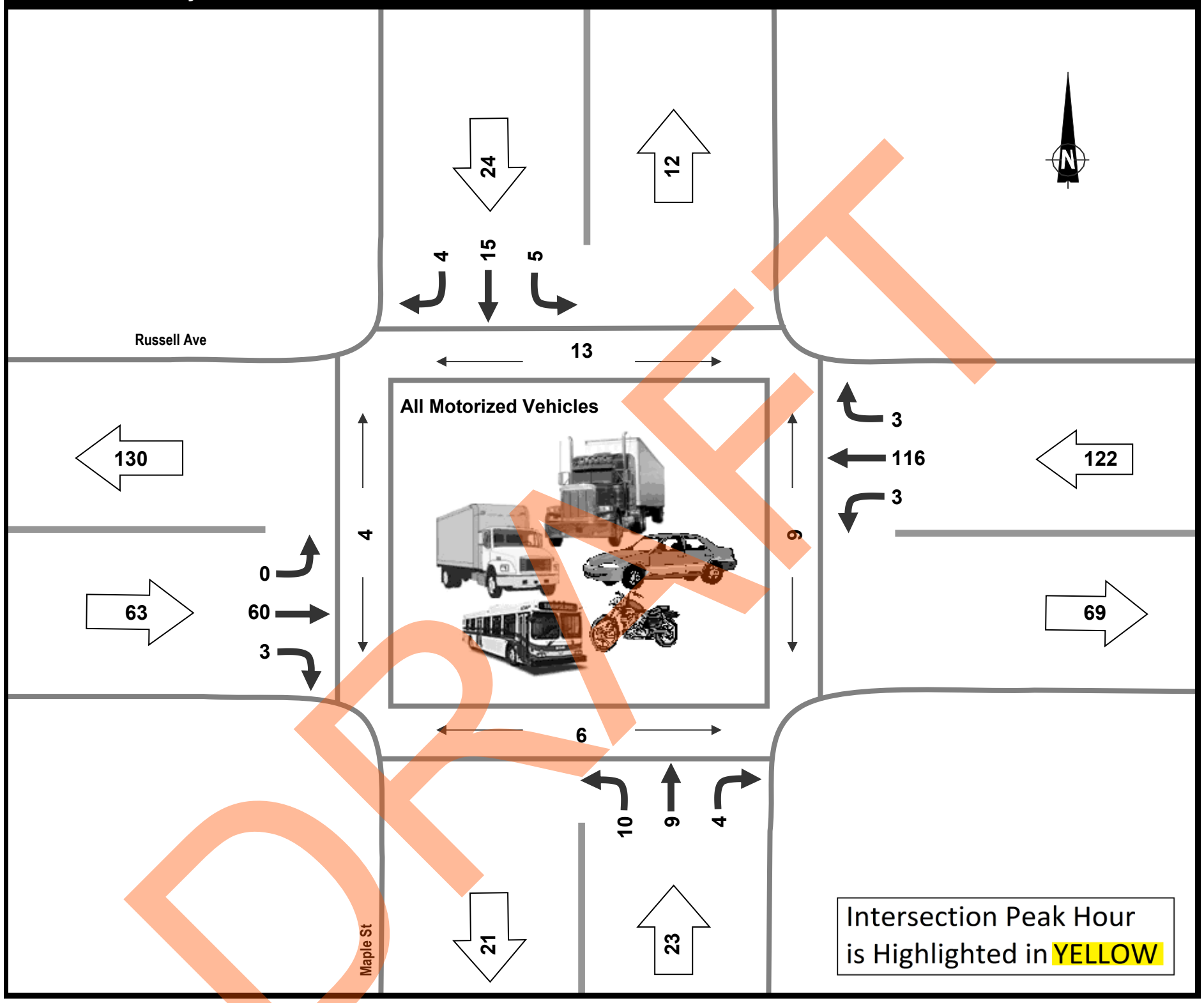
Maple St & Russell Ave

Friday, September 22, 2017

Morning Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Cloudy
Vehicle Class: All Motorized Vehicles

Peak Hour Traffic by Movement 8:00 AM to 9:00 AM



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	**5**	**15**	**4**	**10**	**9**	**4**	**0**	**60**	**3**	**3**	**116**	**3**	**13**	**6**	**4**	**9**	**232**
PHF	0.63	0.42	0.33	0.50	0.45	0.50	0.00	0.63	0.75	0.38	0.55	0.75	0.65	0.50	0.33	0.38	0.59
Peak 15 X 4	8	36	12	20	20	8	0	96	4	8	212	4	20	12	12	24	396
Average Hour	3	9	2	9	9	3	0	46	3	3	72	2	9	4	4	5	161
Survey Total	5	18	4	17	17	5	0	92	5	5	144	4	17	8	7	10	316
7:00	0	1	0	1	1	1	0	8	1	0	1	0	0	1	0	0	14
7:15	0	0	0	3	2	0	0	2	0	0	7	1	1	1	0	1	15
7:30	0	1	0	2	5	0	0	10	0	2	11	0	0	0	0	0	31
7:45	0	1	0	1	0	0	0	12	1	0	9	0	3	0	3	0	24
8:00	2	1	3	0	1	2	0	9	1	0	19	0	3	3	0	1	38
8:15	2	4	1	5	5	2	0	24	0	2	53	1	5	2	3	6	99
8:30	1	9	0	4	2	0	0	13	1	1	31	1	2	1	1	1	63
8:45	0	1	0	1	1	0	0	14	1	0	13	1	3	0	0	1	32

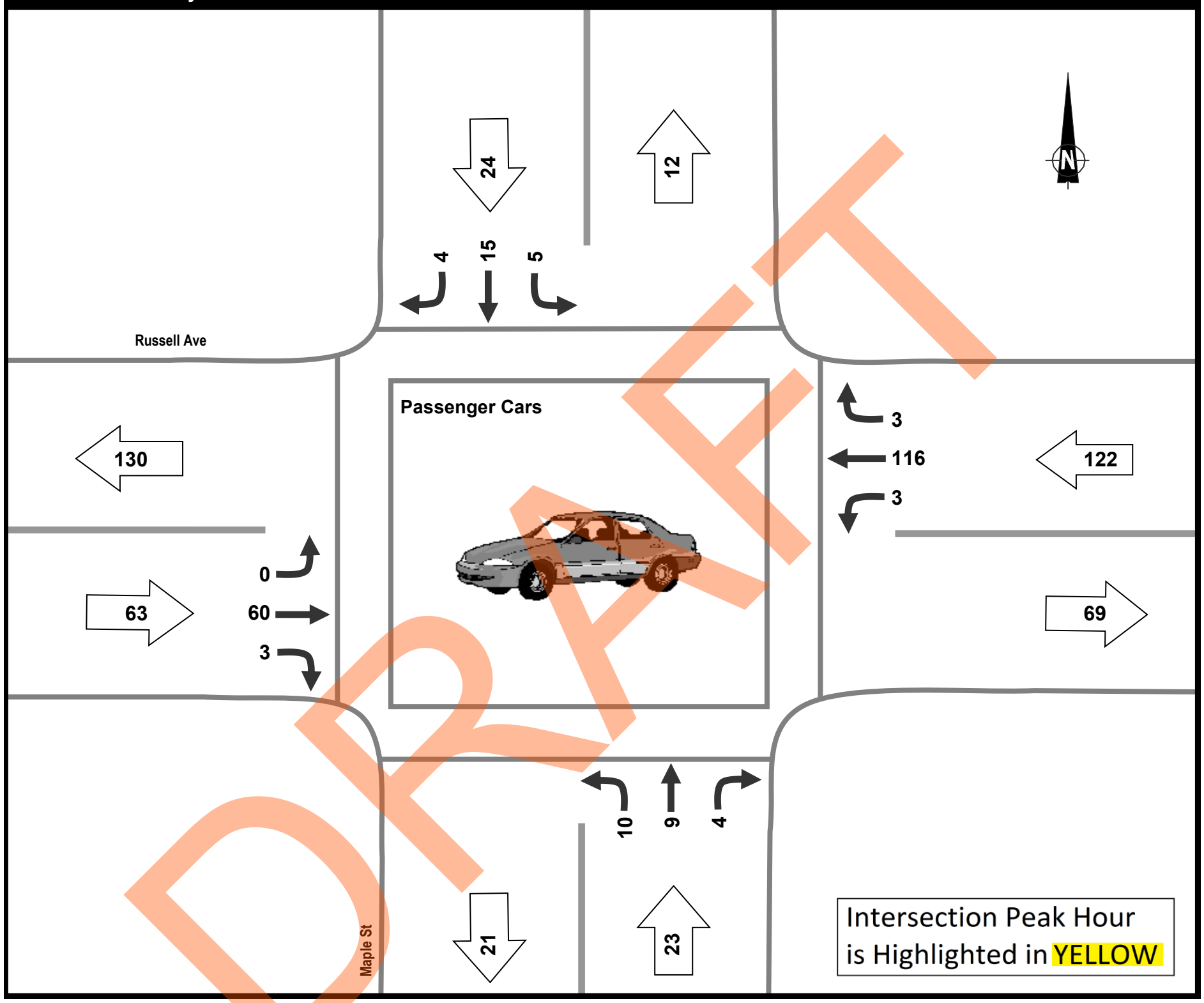
Maple St & Russell Ave

Friday, September 22, 2017

Morning Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Cloudy
Vehicle Class: Passenger Cars

Peak Hour Traffic by Movement 8:00 AM to 9:00 AM



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	**5**	**15**	**4**	**10**	**9**	**4**	**0**	**60**	**3**	**3**	**116**	**3**					**232**
PHF	0.63	0.42	0.33	0.50	0.45	0.50	0.00	0.63	0.75	0.38	0.55	0.75					0.59
Peak 15 X 4	8	36	12	20	20	8	0	96	4	8	212	4					396
Average Hour	3	9	2	9	9	3	0	46	3	3	72	2					161
Survey Total	5	18	4	17	17	5	0	92	5	5	144	4					316
7:00	0	1	0	1	1	1	0	8	1	0	1	0					14
7:15	0	0	0	3	2	0	0	2	0	0	7	1					15
7:30	0	1	0	2	5	0	0	10	0	2	11	0					31
7:45	0	1	0	1	0	0	0	12	1	0	9	0					24
8:00	2	1	3	0	1	2	0	9	1	0	19	0					38
8:15	2	4	1	5	5	2	0	24	0	2	53	1					99
8:30	1	9	0	4	2	0	0	13	1	1	31	1					63
8:45	0	1	0	1	1	0	0	14	1	0	13	1					32

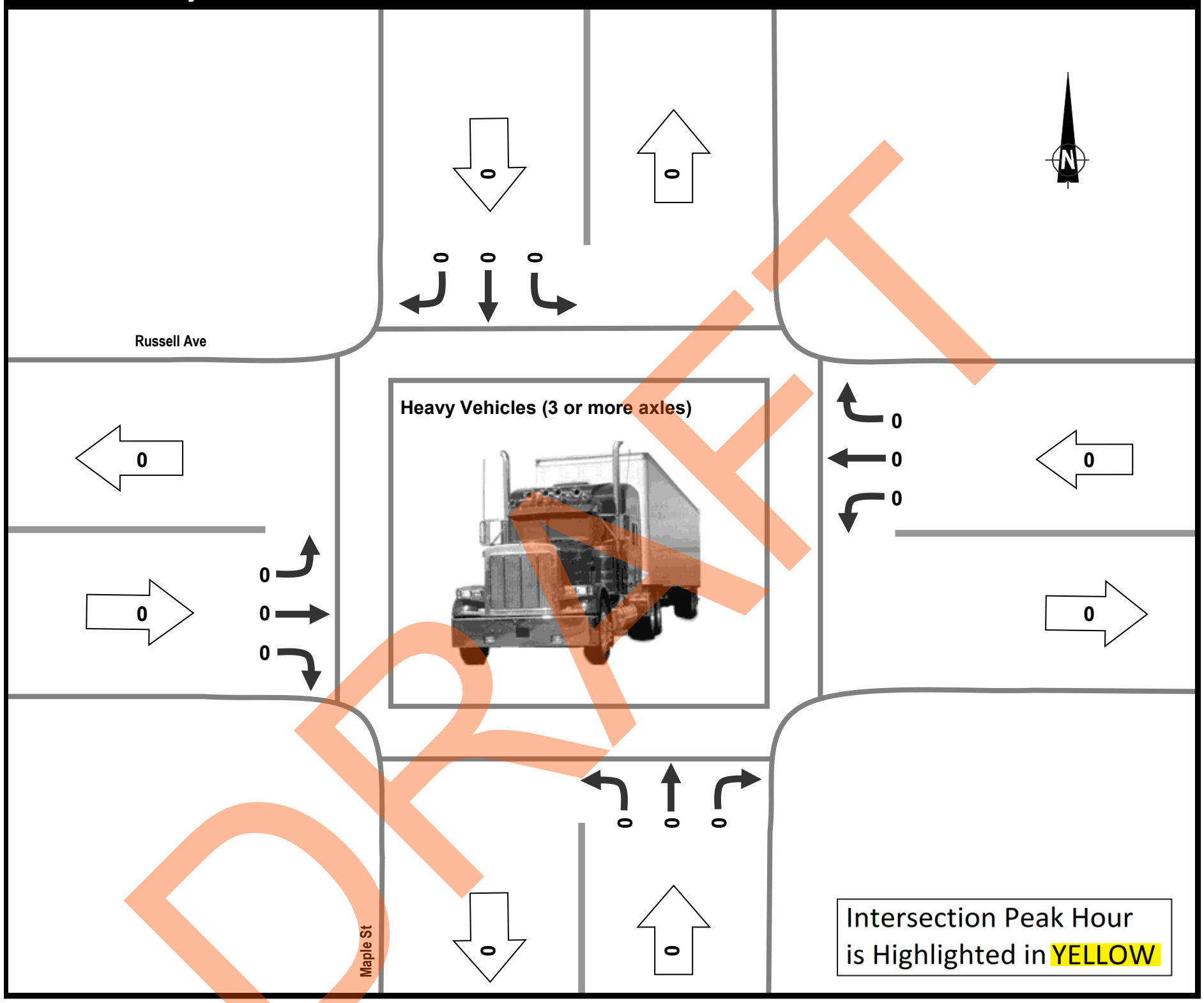
Maple St & Russell Ave

Friday, September 22, 2017

Morning Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Cloudy
Vehicle Class: Heavy Vehicles (3 or more axles)

Peak Hour Traffic by Movement 7:00 AM to 8:00 AM



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	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**					**0**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00
Peak 15 X 4	0	0	0	0	0	0	0	0	0	0	0	0					0
Average Hour	0	0	0	0	0	0	0	0	0	0	0	0					0
Survey Total	0	0	0	0	0	0	0	0	0	0	0	0					0
7:00	0	0	0	0	0	0	0	0	0	0	0	0					0
7:15	0	0	0	0	0	0	0	0	0	0	0	0					0
7:30	0	0	0	0	0	0	0	0	0	0	0	0					0
7:45	0	0	0	0	0	0	0	0	0	0	0	0					0
8:00	0	0	0	0	0	0	0	0	0	0	0	0					0
8:15	0	0	0	0	0	0	0	0	0	0	0	0					0
8:30	0	0	0	0	0	0	0	0	0	0	0	0					0
8:45	0	0	0	0	0	0	0	0	0	0	0	0					0

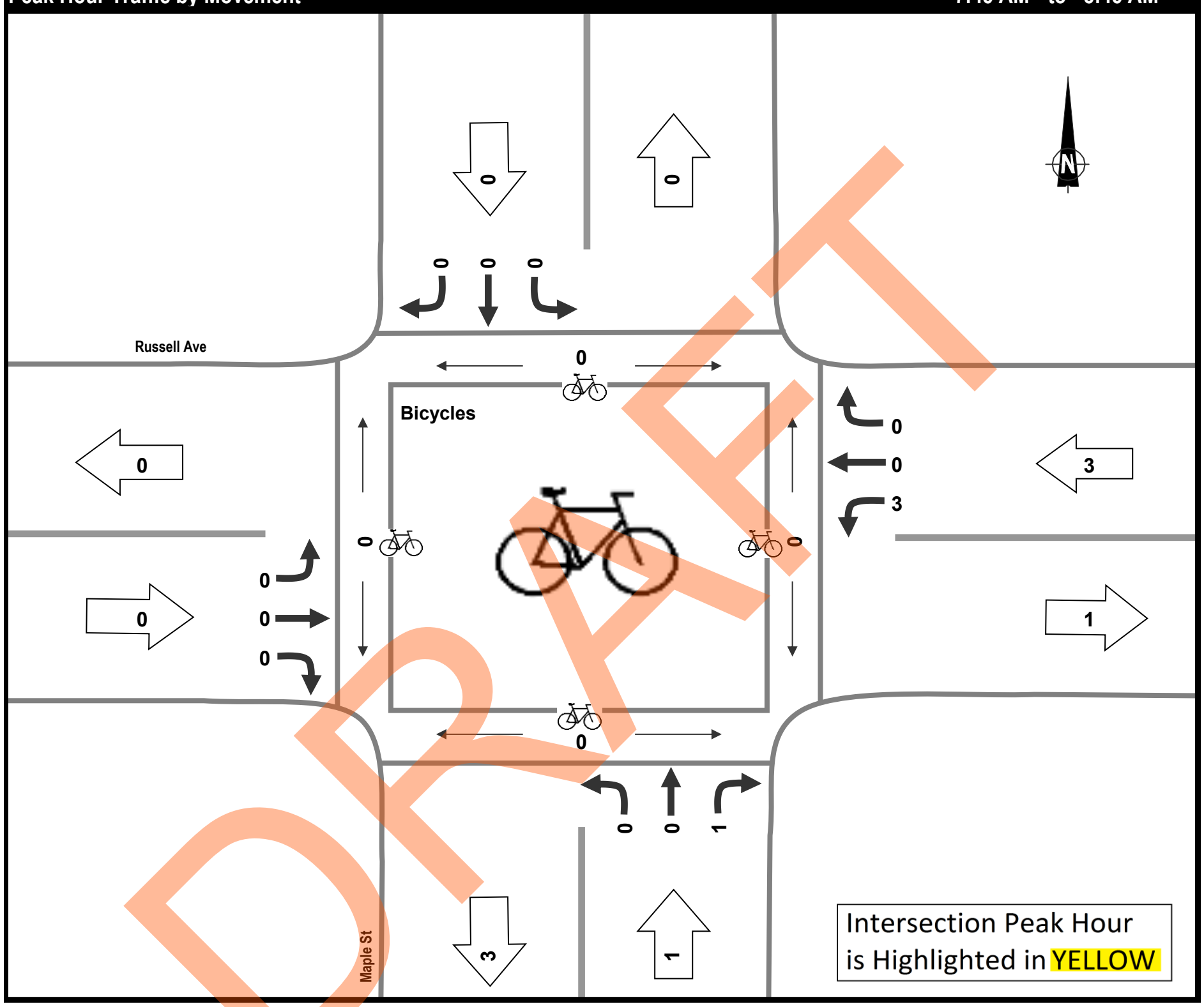
Maple St & Russell Ave

Friday, September 22, 2017

Morning Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Cloudy
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
PHF	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.33
Peak 15 X 4	0	0	0	0	0	4	0	0	0	12	0	0	0	0	0	0	12
Average Hour	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	3
Survey Total	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	4
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

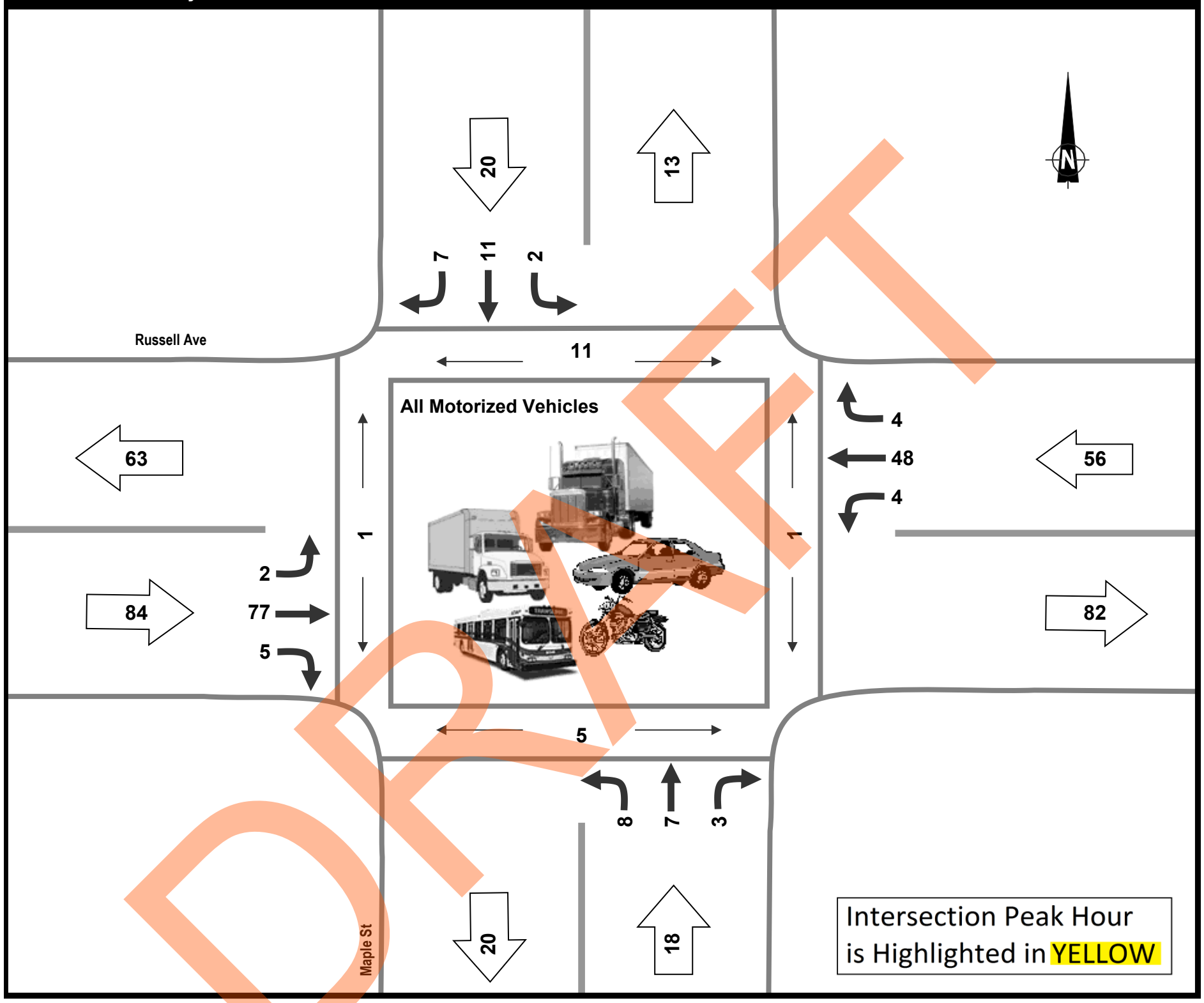
Maple St & Russell Ave

Friday, September 22, 2017

Afternoon Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Cloudy
Vehicle Class: All Motorized Vehicles

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	**2**	**11**	**7**	**8**	**7**	**3**	**2**	**77**	**5**	**4**	**48**	**4**	**11**	**5**	**1**	**1**	**178**
PHF	0.50	0.69	0.58	1.00	0.58	0.38	0.50	0.88	0.63	0.50	0.86	0.50	0.46	0.63	0.25	0.25	0.89
Peak 15 X 4	4	16	12	8	12	8	4	88	8	8	56	8	24	8	4	4	200
Average Hour	1	9	6	7	7	1	2	61	8	2	44	1	6	4	3	2	149
Survey Total	3	28	17	21	20	4	5	184	23	7	132	4	18	11	8	7	448
15:00	1	4	0	2	3	1	0	22	0	1	14	1	1	1	0	1	49
15:15	1	2	1	2	1	2	1	20	2	2	14	2	1	2	0	0	50
15:30	0	2	3	2	0	0	0	19	1	0	11	0	3	1	1	0	38
15:45	0	3	3	2	3	0	1	16	2	1	9	1	6	1	0	0	41
16:00	0	2	2	1	3	1	0	9	4	0	14	0	0	3	3	1	36
16:15	0	1	1	5	2	0	0	11	1	1	6	0	0	0	1	0	28
16:30	0	1	1	3	2	0	1	16	3	0	12	0	0	0	0	0	39
16:45	0	4	2	1	2	0	0	13	2	1	14	0	3	0	0	2	39
17:00	0	6	2	3	2	0	0	21	0	0	10	0	2	0	0	1	44
17:15	0	2	1	0	0	0	1	10	2	0	13	0	0	1	1	1	29
17:30	0	1	0	0	0	0	0	14	2	1	8	0	0	1	0	0	26
17:45	1	0	1	0	2	0	1	13	4	0	7	0	2	1	2	1	29

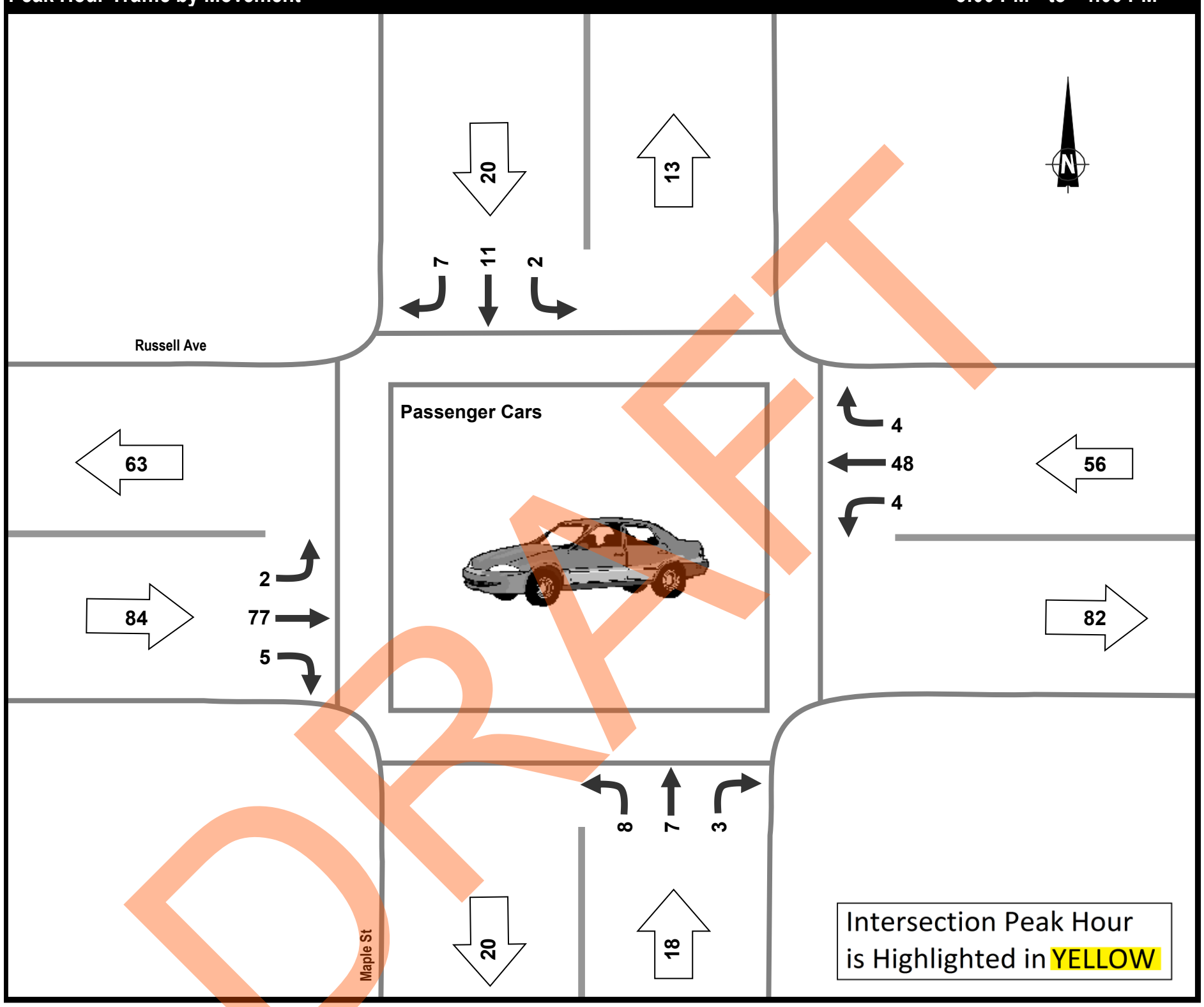
Maple St & Russell Ave

Friday, September 22, 2017

Afternoon Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Cloudy
Vehicle Class: Passenger Cars

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	**2**	**11**	**7**	**8**	**7**	**3**	**2**	**77**	**5**	**4**	**48**	**4**					**178**
PHF	0.50	0.69	0.58	1.00	0.58	0.38	0.50	0.88	0.63	0.50	0.86	0.50					0.89
Peak 15 X 4	4	16	12	8	12	8	4	88	8	8	56	8					200
Average Hour	1	9	6	7	7	1	2	61	8	2	44	1					149
Survey Total	3	28	17	21	20	4	5	184	23	7	132	4					448
15:00	1	4	0	2	3	1	0	22	0	1	14	1					49
15:15	1	2	1	2	1	2	1	20	2	2	14	2					50
15:30	0	2	3	2	0	0	0	19	1	0	11	0					38
15:45	0	3	3	2	3	0	1	16	2	1	9	1					41
16:00	0	2	2	1	3	1	0	9	4	0	14	0					36
16:15	0	1	1	5	2	0	0	11	1	1	6	0					28
16:30	0	1	1	3	2	0	1	16	3	0	12	0					39
16:45	0	4	2	1	2	0	0	13	2	1	14	0					39
17:00	0	6	2	3	2	0	0	21	0	0	10	0					44
17:15	0	2	1	0	0	0	1	10	2	0	13	0					29
17:30	0	1	0	0	0	0	0	14	2	1	8	0					26
17:45	1	0	1	0	2	0	1	13	4	0	7	0					29

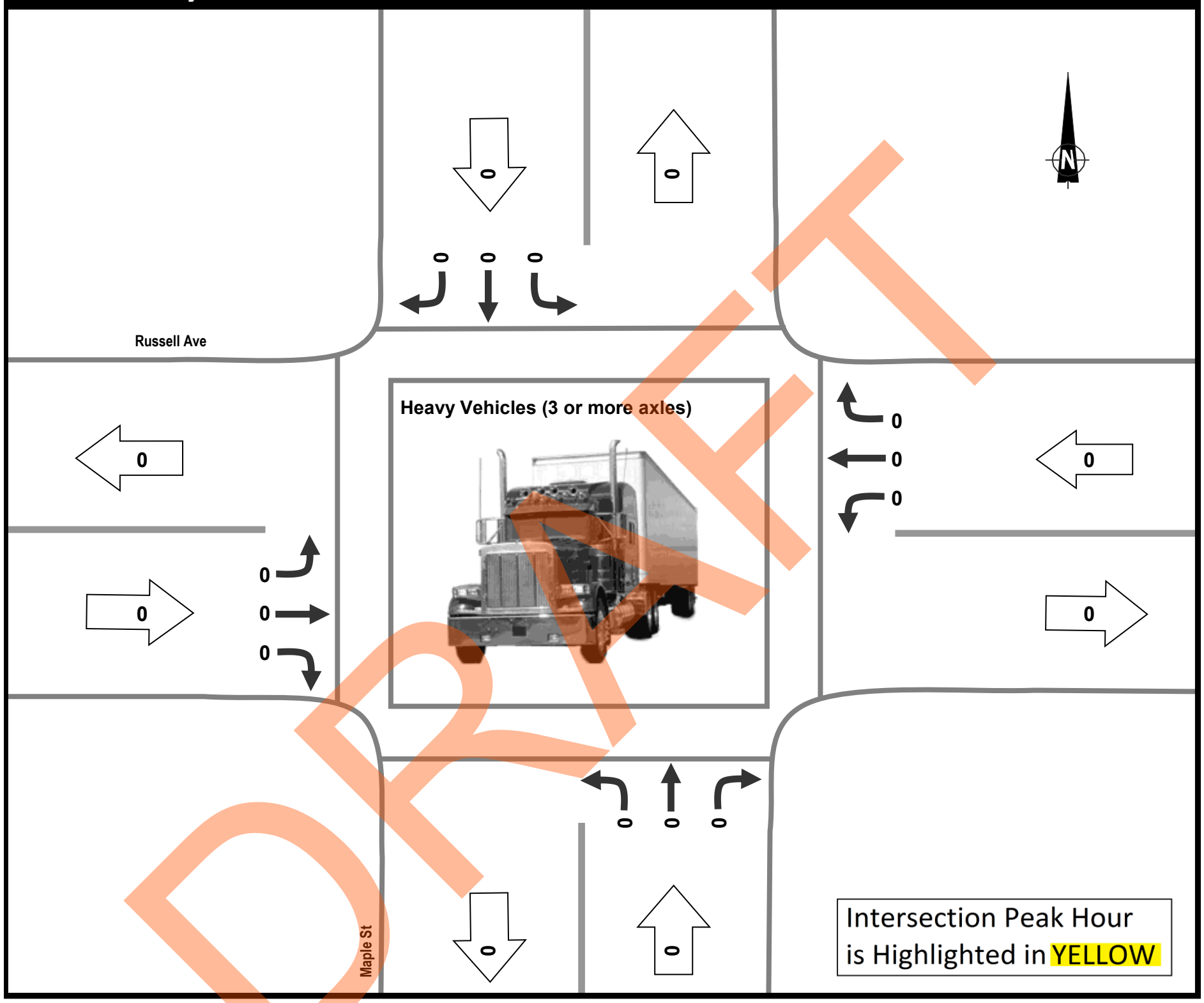
Maple St & Russell Ave

Friday, September 22, 2017

Afternoon Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Cloudy
Vehicle Class: Heavy Vehicles (3 or more axles)

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	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**					**0**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00
Peak 15 X 4	0	0	0	0	0	0	0	0	0	0	0	0					0
Average Hour	0	0	0	0	0	0	0	0	0	0	0	0					0
Survey Total	0	0	0	0	0	0	0	0	0	0	0	0					0
15:00	0	0	0	0	0	0	0	0	0	0	0	0					0
15:15	0	0	0	0	0	0	0	0	0	0	0	0					0
15:30	0	0	0	0	0	0	0	0	0	0	0	0					0
15:45	0	0	0	0	0	0	0	0	0	0	0	0					0
16:00	0	0	0	0	0	0	0	0	0	0	0	0					0
16:15	0	0	0	0	0	0	0	0	0	0	0	0					0
16:30	0	0	0	0	0	0	0	0	0	0	0	0					0
16:45	0	0	0	0	0	0	0	0	0	0	0	0					0
17:00	0	0	0	0	0	0	0	0	0	0	0	0					0
17:15	0	0	0	0	0	0	0	0	0	0	0	0					0
17:30	0	0	0	0	0	0	0	0	0	0	0	0					0
17:45	0	0	0	0	0	0	0	0	0	0	0	0					0

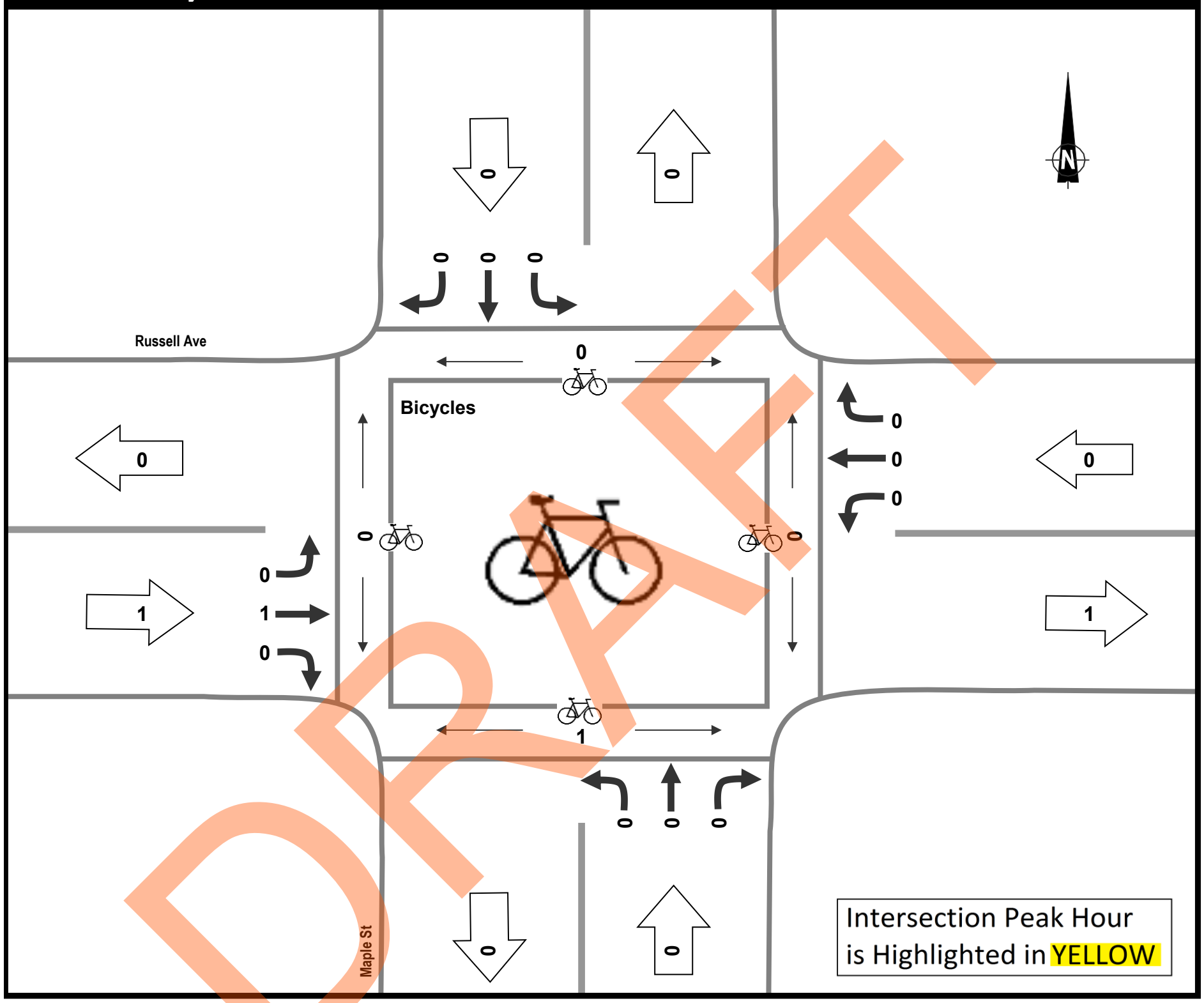
Maple St & Russell Ave

Friday, September 22, 2017

Afternoon Peak Period

Project: #5740: Russell Ave TIA
Municipality: White Rock
Weather: Clear, Cloudy
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 4:00 PM to 5:00 PM



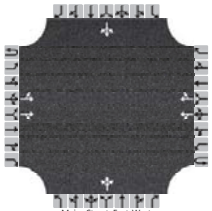
Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.50
Peak 15 X 4	0	0	0	0	0	0	0	4	0	0	0	0	0	4	0	0	4
Average Hour	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Survey Total	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	3
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix C
Capacity Analysis Worksheets

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2018	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		5	679	3		24	847	11		1	1	9		6	1	33
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

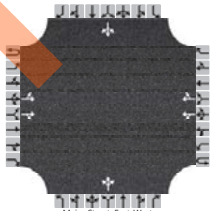
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6				30					14				50	
Capacity, c (veh/h)		560				758					203				185	
v/c Ratio		0.01				0.04					0.07				0.27	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.2				1.0	
Control Delay (s/veh)		11.5				9.9					24.0				31.6	
Level of Service (LOS)		B				A					C				D	
Approach Delay (s/veh)	0.2				0.7				24.0				31.6			
Approach LOS									C				D			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2020	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		6	707	4		25	881	12		2	2	10		7	2	35
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

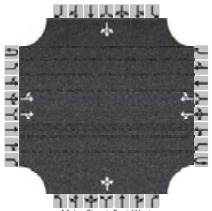
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		8				31					18				55	
Capacity, c (veh/h)		539				735					131				148	
v/c Ratio		0.01				0.04					0.13				0.37	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.4				1.6	
Control Delay (s/veh)		11.8				10.1					36.6				42.9	
Level of Service (LOS)		B				B					E				E	
Approach Delay (s/veh)	0.2				0.7				36.6				42.9			
Approach LOS									E				E			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2020	North/South Street	Lee St
Time Analyzed	AM Base+S	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		6	709	7		29	881	12		12	2	18		7	2	35
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

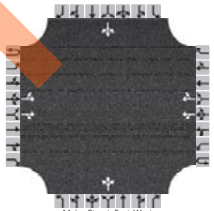
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		8				36				40				55		
Capacity, c (veh/h)		539				731				107				143		
v/c Ratio		0.01				0.05				0.38				0.38		
95% Queue Length, Q_{95} (veh)		0.0				0.2				1.5				1.6		
Control Delay (s/veh)		11.8				10.2				57.8				45.1		
Level of Service (LOS)		B				B				F				E		
Approach Delay (s/veh)	0.2				0.9				57.8				45.1			
Approach LOS									F				E			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2030	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		7	842	4		30	1051	14		2	2	12		8	2	41
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

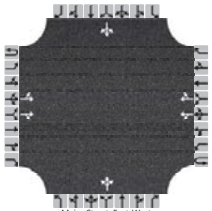
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		9				38				20				64		
Capacity, c (veh/h)		446				634				78				87		
v/c Ratio		0.02				0.06				0.26				0.74		
95% Queue Length, Q_{95} (veh)		0.1				0.2				0.9				3.7		
Control Delay (s/veh)		13.2				11.0				66.4				118.9		
Level of Service (LOS)		B				B				F				F		
Approach Delay (s/veh)	0.4				1.3				66.4				118.9			
Approach LOS									F				F			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2030	North/South Street	Lee St
Time Analyzed	AM Base + S	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		7	844	7		34	1051	14		12	2	20		8	2	41
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

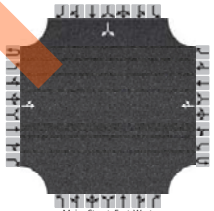
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		9				43					43				64	
Capacity, c (veh/h)		446				631					57				82	
v/c Ratio		0.02				0.07					0.74				0.78	
95% Queue Length, Q_{95} (veh)		0.1				0.2					3.2				3.9	
Control Delay (s/veh)		13.2				11.1					164.8				133.1	
Level of Service (LOS)		B				B					F				F	
Approach Delay (s/veh)	0.4				1.5				164.8				133.1			
Approach LOS									F				F			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2018	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		4	69				90	4						17		12
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

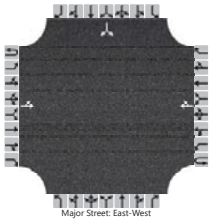
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5													36	
Capacity, c (veh/h)		1445													813	
v/c Ratio		0.00													0.04	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.5													9.6	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.4												9.6			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2020	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		5	72				94	5						18		13
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

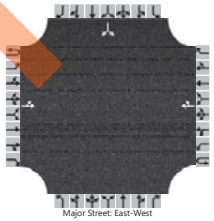
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6													39	
Capacity, c (veh/h)		1437													804	
v/c Ratio		0.00													0.05	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		7.5													9.7	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.5												9.7			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2020	North/South Street	Lee St
Time Analyzed	AM Base +S	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		5	72				94	5						19		15
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

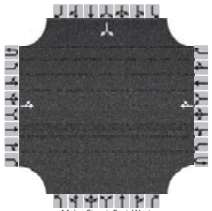
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6													43	
Capacity, c (veh/h)		1437													807	
v/c Ratio		0.00													0.05	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		7.5													9.7	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.5												9.7			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2030	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		5	86				112	5						22		15
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

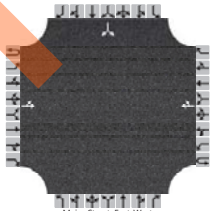
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6													46	
Capacity, c (veh/h)		1410													767	
v/c Ratio		0.00													0.06	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		7.6													10.0	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.4												10.0			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2030	North/South Street	Lee St
Time Analyzed	AM Base+S	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		5	86				112	5						23		17
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

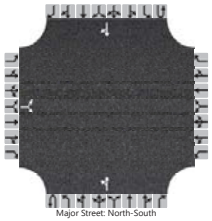
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6													50	
Capacity, c (veh/h)		1410													770	
v/c Ratio		0.00													0.06	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		7.6													10.0	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.4												10.0			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & Site Access
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Site Access
Analysis Year	2020	North/South Street	Lee St
Time Analyzed	AM Base+S	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		18		3						0	14				31	7
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

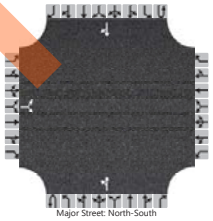
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			26							0						
Capacity, c (veh/h)			957							1560						
v/c Ratio			0.03							0.00						
95% Queue Length, Q_{95} (veh)			0.1							0.0						
Control Delay (s/veh)			8.9							7.3						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		8.9								0.0						
Approach LOS		A														

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & Site Access
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Site Access
Analysis Year	2030	North/South Street	Lee St
Time Analyzed	AM Base+S	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		18		3						0	16				36	7
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

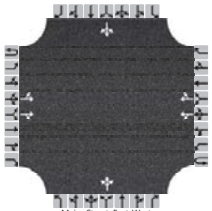
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			26							0						
Capacity, c (veh/h)			946							1552						
v/c Ratio			0.03							0.00						
95% Queue Length, Q_{95} (veh)			0.1							0.0						
Control Delay (s/veh)			8.9							7.3						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		8.9								0.0						
Approach LOS		A														

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2018	North/South Street	Maple
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		5	663	3		16	809	9		1	1	11		3	0	12
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

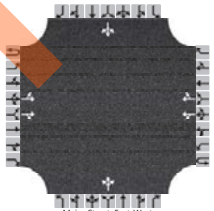
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		6				20					16				19	
Capacity, c (veh/h)		592				783					262				201	
v/c Ratio		0.01				0.03					0.06				0.09	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.2				0.3	
Control Delay (s/veh)		11.1				9.7					19.6				24.8	
Level of Service (LOS)		B				A					C				C	
Approach Delay (s/veh)	0.2				0.4				19.6				24.8			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2020	North/South Street	Maple
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		6	690	4		17	842	10		2	2	12		4	0	13
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

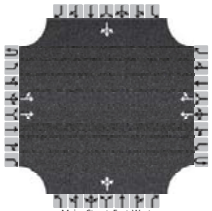
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		8				21					20				21	
Capacity, c (veh/h)		571				760					177				164	
v/c Ratio		0.01				0.03					0.11				0.13	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.4				0.4	
Control Delay (s/veh)		11.4				9.9					28.0				30.1	
Level of Service (LOS)		B				A					D				D	
Approach Delay (s/veh)	0.2				0.5				28.0				30.1			
Approach LOS									D				D			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2020	North/South Street	Maple
Time Analyzed	AM Base+S	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		6	693	5		17	852	10		4	2	14		4	0	13
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

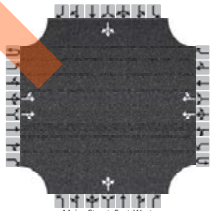
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		8				21					25				21	
Capacity, c (veh/h)		564				756					165				160	
v/c Ratio		0.01				0.03					0.15				0.13	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.5				0.4	
Control Delay (s/veh)		11.5				9.9					30.7				30.9	
Level of Service (LOS)		B				A					D				D	
Approach Delay (s/veh)	0.2				0.5				30.7				30.9			
Approach LOS									D				D			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2020	North/South Street	Maple
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		7	823	4		20	1004	12		2	2	14		4	0	15
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

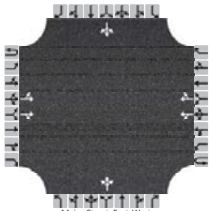
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		9				25					23				24	
Capacity, c (veh/h)		476				657					116				108	
v/c Ratio		0.02				0.04					0.19				0.22	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.7				0.8	
Control Delay (s/veh)		12.7				10.7					43.2				47.4	
Level of Service (LOS)		B				B					E				E	
Approach Delay (s/veh)	0.4				0.8				43.2				47.4			
Approach LOS									E				E			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2020	North/South Street	Maple
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		7	826	5		20	1014	12		4	2	16		4	0	15
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

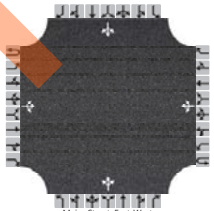
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		9				25					28				24	
Capacity, c (veh/h)		471				654					107				105	
v/c Ratio		0.02				0.04					0.26				0.23	
95% Queue Length, Q_{95} (veh)		0.1				0.1					1.0				0.8	
Control Delay (s/veh)		12.8				10.7					50.2				49.0	
Level of Service (LOS)		B				B					F				E	
Approach Delay (s/veh)	0.4				0.8				50.2				49.0			
Approach LOS									F				E			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2018	North/South Street	Maple St
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	59	3		3	114	2		10	8	4		5	15	4
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)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

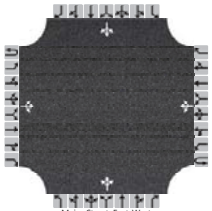
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				4					28				30	
Capacity, c (veh/h)		1404				1505					698				677	
v/c Ratio		0.00				0.00					0.04				0.04	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.1				0.1	
Control Delay (s/veh)		7.6				7.4					10.4				10.6	
Level of Service (LOS)		A				A					B				B	
Approach Delay (s/veh)	0.0				0.2				10.4				10.6			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2020	North/South Street	Maple St
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	62	4		4	119	3		11	9	5		6	16	5
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)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

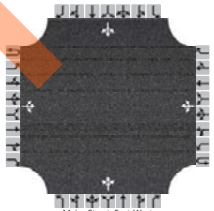
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				5					31				34	
Capacity, c (veh/h)		1395				1498					687				667	
v/c Ratio		0.00				0.00					0.05				0.05	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.1				0.2	
Control Delay (s/veh)		7.6				7.4					10.5				10.7	
Level of Service (LOS)		A				A					B				B	
Approach Delay (s/veh)	0.0				0.3				10.5				10.7			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2020	North/South Street	Maple St
Time Analyzed	AM Base + S	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	62	4		4	121	3		11	9	5		6	16	5
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)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

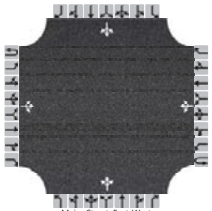
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				5					31				34	
Capacity, c (veh/h)		1392				1498					685				665	
v/c Ratio		0.00				0.00					0.05				0.05	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.1				0.2	
Control Delay (s/veh)		7.6				7.4					10.5				10.7	
Level of Service (LOS)		A				A					B				B	
Approach Delay (s/veh)	0.0				0.3				10.5				10.7			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2030	North/South Street	Maple St
Time Analyzed	AM Base	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	74	4		4	142	3		13	10	5		7	19	5
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)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

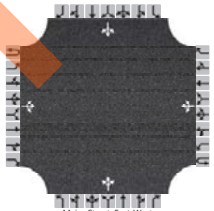
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				5					35				39	
Capacity, c (veh/h)		1362				1480					642				626	
v/c Ratio		0.00				0.00					0.05				0.06	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.2				0.2	
Control Delay (s/veh)		7.6				7.4					10.9				11.1	
Level of Service (LOS)		A				A					B				B	
Approach Delay (s/veh)	0.0				0.2				10.9				11.1			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2030	North/South Street	Maple St
Time Analyzed	AM Base + S	Peak Hour Factor	0.80
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	74	4		4	144	3		13	10	5		7	19	5
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)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

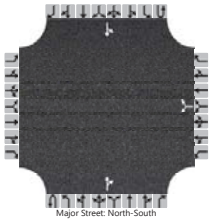
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				5					35				39	
Capacity, c (veh/h)		1359				1480					640				624	
v/c Ratio		0.00				0.00					0.05				0.06	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.2				0.2	
Control Delay (s/veh)		7.6				7.4					10.9				11.1	
Level of Service (LOS)		A				A					B				B	
Approach Delay (s/veh)	0.0				0.2				10.9				11.1			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple & Site Access
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Site Access
Analysis Year	2020	North/South Street	Maple St
Time Analyzed	AM Base+S	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						0		4			16	0		1	21	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

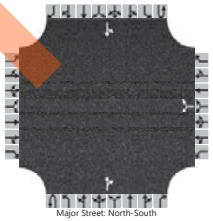
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							5							1		
Capacity, c (veh/h)							1055							1593		
v/c Ratio							0.00							0.00		
95% Queue Length, Q_{95} (veh)							0.0							0.0		
Control Delay (s/veh)							8.4							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.4								0.3		
Approach LOS						A										

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple & Site Access
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Site Access
Analysis Year	2030	North/South Street	Maple St
Time Analyzed	AM Base+S	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						0		4			18	0		1	24	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

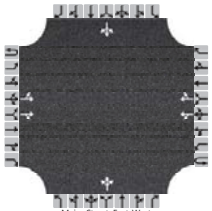
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							5							1		
Capacity, c (veh/h)							1052							1590		
v/c Ratio							0.00							0.00		
95% Queue Length, Q_{95} (veh)							0.0							0.0		
Control Delay (s/veh)							8.4							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.4								0.3		
Approach LOS						A										

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2018	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		7	717	9		14	772	24		2	0	3		6	2	12
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

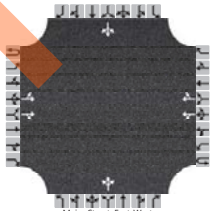
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		8				15					5				22	
Capacity, c (veh/h)		708				811					220				182	
v/c Ratio		0.01				0.02					0.02				0.12	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.1				0.4	
Control Delay (s/veh)		10.1				9.5					21.8				27.4	
Level of Service (LOS)		B				A					C				D	
Approach Delay (s/veh)	0.2				0.3				21.8				27.4			
Approach LOS									C				D			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2020	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		8	746	10		15	803	25		3	0	4		7	3	13
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

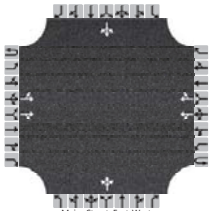
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		9				16					8				25	
Capacity, c (veh/h)		686				788					191				156	
v/c Ratio		0.01				0.02					0.04				0.16	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.1				0.6	
Control Delay (s/veh)		10.3				9.7					24.7				32.6	
Level of Service (LOS)		B				A					C				D	
Approach Delay (s/veh)	0.2				0.3				24.7				32.6			
Approach LOS									C				D			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2020	North/South Street	Lee St
Time Analyzed	PM Base+S	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		8	748	19		24	805	25		9	0	10		7	3	13
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

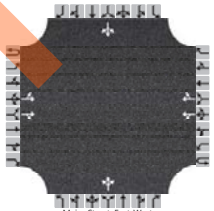
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		9				26					21				25	
Capacity, c (veh/h)		685				780					168				146	
v/c Ratio		0.01				0.03					0.12				0.17	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.4				0.6	
Control Delay (s/veh)		10.3				9.8					29.5				34.6	
Level of Service (LOS)		B				A					D				D	
Approach Delay (s/veh)	0.2				0.6				29.5				34.6			
Approach LOS									D				D			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2030	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		9	890	12		18	958	30		3	0	4		8	3	15
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

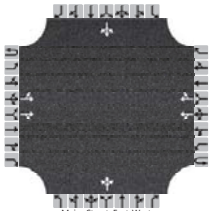
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				20					8				29	
Capacity, c (veh/h)		588				686					123				103	
v/c Ratio		0.02				0.03					0.06				0.28	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.2				1.0	
Control Delay (s/veh)		11.2				10.4					36.3				53.1	
Level of Service (LOS)		B				B					E				F	
Approach Delay (s/veh)	0.3				0.5				36.3				53.1			
Approach LOS									E				F			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2030	North/South Street	Lee St
Time Analyzed	PM Base+S	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		9	892	21		27	960	30		9	0	10		8	3	15
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

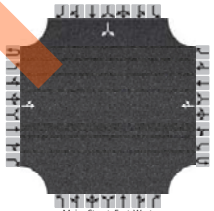
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				30					21				29	
Capacity, c (veh/h)		587				678					105				95	
v/c Ratio		0.02				0.04					0.20				0.30	
95% Queue Length, Q_{95} (veh)		0.1				0.1					0.7				1.1	
Control Delay (s/veh)		11.2				10.5					47.4				58.2	
Level of Service (LOS)		B				B					E				F	
Approach Delay (s/veh)	0.3				0.8				47.4				58.2			
Approach LOS									E				F			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2018	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	66				64	2						11		9
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

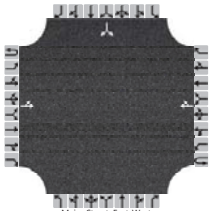
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													22	
Capacity, c (veh/h)		1479													870	
v/c Ratio		0.00													0.03	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.4													9.2	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.0												9.2			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2020	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	69				67	3						12		10
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

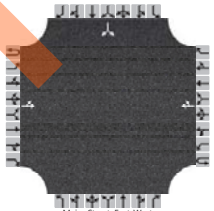
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													24	
Capacity, c (veh/h)		1473													864	
v/c Ratio		0.00													0.03	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.4													9.3	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.0												9.3			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2020	North/South Street	Lee St
Time Analyzed	PM Base+S	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		1	69				67	4						13		11
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

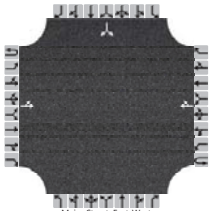
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1													26	
Capacity, c (veh/h)		1472													862	
v/c Ratio		0.00													0.03	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.4													9.3	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.1												9.3			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2030	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	82				80	3						14		12
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

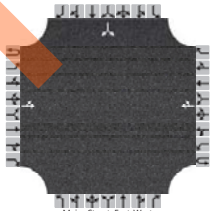
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													29	
Capacity, c (veh/h)		1456													840	
v/c Ratio		0.00													0.03	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.5													9.4	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.0												9.4			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2030	North/South Street	Lee St
Time Analyzed	PM Base+S	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		1	82				80	4						15		13
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

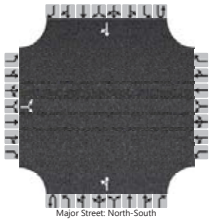
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1													31	
Capacity, c (veh/h)		1454													838	
v/c Ratio		0.00													0.04	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.5													9.5	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.1												9.5			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & Site Access
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Site Access
Analysis Year	2020	North/South Street	Lee St
Time Analyzed	PM Base+S	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		12		2						2	7				28	18
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

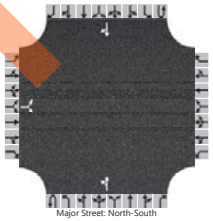
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			15							2						
Capacity, c (veh/h)			964							1556						
v/c Ratio			0.02							0.00						
95% Queue Length, Q_{95} (veh)			0.0							0.0						
Control Delay (s/veh)			8.8							7.3						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		8.8								1.6						
Approach LOS		A														

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Lee St & Site Access
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Site Access
Analysis Year	2030	North/South Street	Lee St
Time Analyzed	PM Base+S	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		12		2						2	7				33	18
Percent Heavy Vehicles (%)		2		2						2						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.42		6.22						4.12						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.52		3.32						2.22						

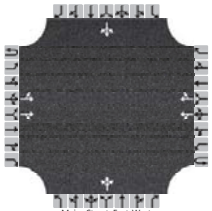
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			15							2						
Capacity, c (veh/h)			958							1549						
v/c Ratio			0.02							0.00						
95% Queue Length, Q_{95} (veh)			0.0							0.0						
Control Delay (s/veh)			8.8							7.3						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)		8.8								1.6						
Approach LOS		A														

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2018	North/South Street	Maple
Time Analyzed	PM Base	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		1	725	8		18	668	19		3	0	9		2	1	5
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

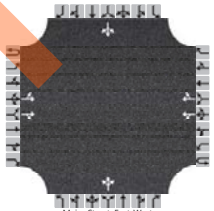
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1				20					13				9	
Capacity, c (veh/h)		812				799					305				227	
v/c Ratio		0.00				0.02					0.04				0.04	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.1				0.1	
Control Delay (s/veh)		9.4				9.6					17.3				21.5	
Level of Service (LOS)		A				A					C				C	
Approach Delay (s/veh)	0.0				0.4				17.3				21.5			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2020	North/South Street	Maple
Time Analyzed	PM Base	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		2	754	9		19	695	20		4	0	10		3	2	6
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

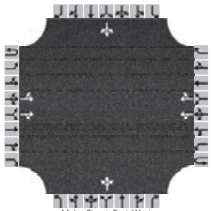
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				21					15				12	
Capacity, c (veh/h)		790				776					264				181	
v/c Ratio		0.00				0.03					0.06				0.07	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.2				0.2	
Control Delay (s/veh)		9.6				9.8					19.5				26.3	
Level of Service (LOS)		A				A					C				D	
Approach Delay (s/veh)	0.0				0.5				19.5				26.3			
Approach LOS									C				D			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2020	North/South Street	Maple
Time Analyzed	PM Base+S	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		2	763	10		21	701	20		5	0	12		3	2	6
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

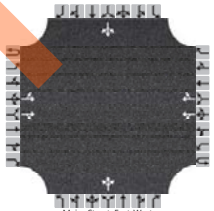
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				23					19				12	
Capacity, c (veh/h)		786				769					253				176	
v/c Ratio		0.00				0.03					0.07				0.07	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.2				0.2	
Control Delay (s/veh)		9.6				9.8					20.3				27.0	
Level of Service (LOS)		A				A					C				D	
Approach Delay (s/veh)	0.0				0.5				20.3				27.0			
Approach LOS									C				D			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2030	North/South Street	Maple
Time Analyzed	PM Base	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		2	899	10		23	829	24		4	0	12		3	2	7
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

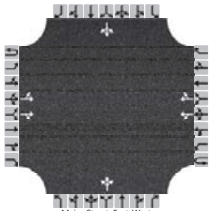
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				25					18				13	
Capacity, c (veh/h)		693				675					201				128	
v/c Ratio		0.00				0.04					0.09				0.10	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.3				0.3	
Control Delay (s/veh)		10.2				10.5					24.6				36.2	
Level of Service (LOS)		B				B					C				E	
Approach Delay (s/veh)	0.1				0.6				24.6				36.2			
Approach LOS									C				E			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	North Bluff Rd
Analysis Year	2030	North/South Street	Maple
Time Analyzed	PM Base+S	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		2	908	11		25	835	24		5	0	14		3	2	7
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

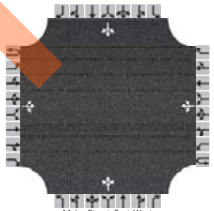
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				27					21				13	
Capacity, c (veh/h)		689				668					189				124	
v/c Ratio		0.00				0.04					0.11				0.11	
95% Queue Length, Q_{95} (veh)		0.0				0.1					0.4				0.3	
Control Delay (s/veh)		10.2				10.6					26.3				37.4	
Level of Service (LOS)		B				B					D				E	
Approach Delay (s/veh)	0.1				0.7				26.3				37.4			
Approach LOS									D				E			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2018	North/South Street	Maple St
Time Analyzed	PM	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		2	79	5		4	49	4		8	7	3		2	11	7
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)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

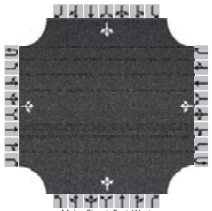
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2				4					20				22	
Capacity, c (veh/h)		1510				1486					754				778	
v/c Ratio		0.00				0.00					0.03				0.03	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.1				0.1	
Control Delay (s/veh)		7.4				7.4					9.9				9.8	
Level of Service (LOS)		A				A					A				A	
Approach Delay (s/veh)	0.2				0.5				9.9				9.8			
Approach LOS									A				A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2020	North/South Street	Maple St
Time Analyzed	PM	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	83	6		5	51	5		9	8	4		3	12	8
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)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

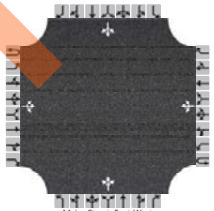
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				5				23				25		
Capacity, c (veh/h)		1506				1479				744				769		
v/c Ratio		0.00				0.00				0.03				0.03		
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.1				0.1		
Control Delay (s/veh)		7.4				7.4				10.0				9.8		
Level of Service (LOS)		A				A				A				A		
Approach Delay (s/veh)	0.3				0.6				10.0				9.8			
Approach LOS									A				A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2020	North/South Street	Maple St
Time Analyzed	PM+S	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	84	6		5	52	5		9	8	4		3	12	8
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)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

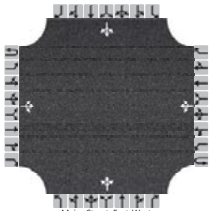
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				5				23				25		
Capacity, c (veh/h)		1505				1478				742				767		
v/c Ratio		0.00				0.00				0.03				0.03		
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.1				0.1		
Control Delay (s/veh)		7.4				7.4				10.0				9.9		
Level of Service (LOS)		A				A				B				A		
Approach Delay (s/veh)	0.3				0.6				10.0				9.9			
Approach LOS									B				A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2030	North/South Street	Maple St
Time Analyzed	PM	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	98	7		5	61	5		10	9	4		3	14	9
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)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

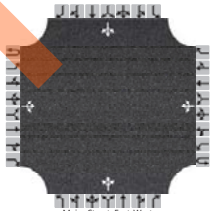
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				5				25				29		
Capacity, c (veh/h)		1492				1458				712				744		
v/c Ratio		0.00				0.00				0.04				0.04		
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.1				0.1		
Control Delay (s/veh)		7.4				7.5				10.2				10.0		
Level of Service (LOS)		A				A				B				B		
Approach Delay (s/veh)	0.2				0.6				10.2				10.0			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple St & Russell Ave
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Russell Ave
Analysis Year	2030	North/South Street	Maple St
Time Analyzed	PM+S	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		3	99	7		5	62	5		10	9	4		3	14	9
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)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.12				7.12	6.52	6.22		7.12	6.52	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

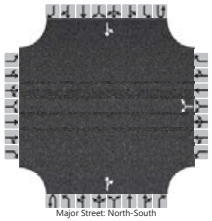
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3				5				25				29		
Capacity, c (veh/h)		1491				1456				710				742		
v/c Ratio		0.00				0.00				0.04				0.04		
95% Queue Length, Q_{95} (veh)		0.0				0.0				0.1				0.1		
Control Delay (s/veh)		7.4				7.5				10.3				10.0		
Level of Service (LOS)		A				A				B				B		
Approach Delay (s/veh)	0.2				0.5				10.3				10.0			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple & Site Access
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Site Access
Analysis Year	2020	North/South Street	Maple St
Time Analyzed	PM Base+S	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						0		3			14	0		3	30	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

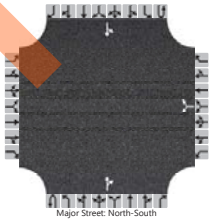
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							3							3		
Capacity, c (veh/h)							1062							1599		
v/c Ratio							0.00							0.00		
95% Queue Length, Q_{95} (veh)							0.0							0.0		
Control Delay (s/veh)							8.4							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.4								0.7		
Approach LOS						A										

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DG	Intersection	Maple & Site Access
Agency/Co.	CTS	Jurisdiction	City of White ROck
Date Performed	12/18/2018	East/West Street	Site Access
Analysis Year	2030	North/South Street	Maple St
Time Analyzed	PM Base+S	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Beachview		

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	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						0		3			16	0		3	35	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							3							3		
Capacity, c (veh/h)							1059							1597		
v/c Ratio							0.00							0.00		
95% Queue Length, Q_{95} (veh)							0.0							0.0		
Control Delay (s/veh)							8.4							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.4								0.6		
Approach LOS						A										

Appendix C
Traffic Count Data

Lee St & Russell Ave

Thursday, November 08, 2018

Vehicle Classification Summary

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy

Time Period	Entering Intersection	Vehicle Classification					**Total**
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	259	3				**262**
	%	98.9%	1.1%				**100.0%**
Midday	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	374	3				**377**
	%	99.2%	0.8%				**100.0%**
Total (5 Hours)	**Volume**	**633**	**6**				**639**
	%	**99.1%**	**0.9%**				**100.0%**

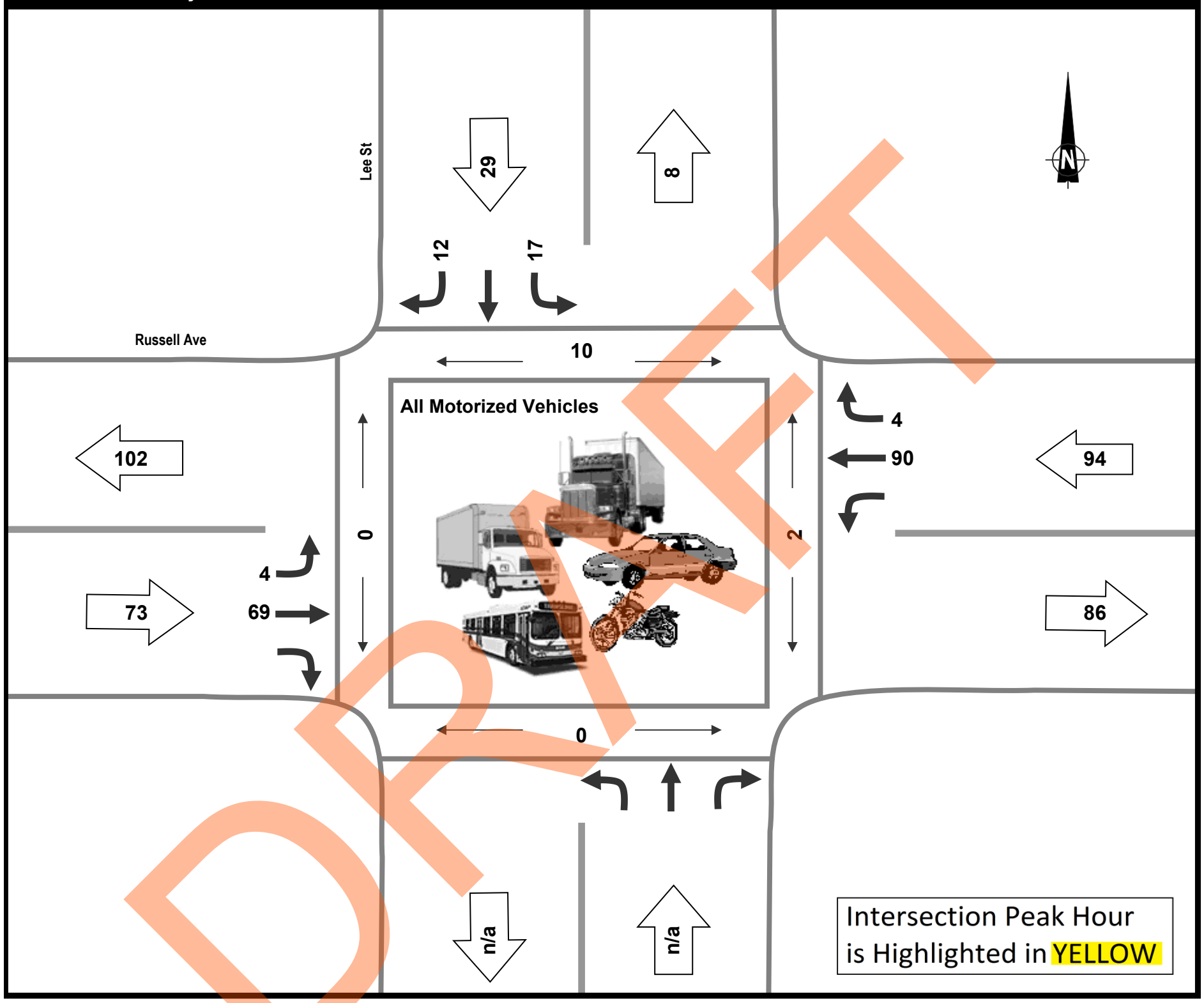
Lee St & Russell Ave

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: All Motorized Vehicles

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



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	**17**		**12**				**4**	**69**			**90**	**4**	**10**	**0**	**0**	**2**	**196**
PHF	0.61		0.60				0.50	0.69			0.56	0.50	0.36	0.00	0.00	0.25	0.63
Peak 15 X 4	28		20				8	100			160	8	28	0	0	8	312
Average Hour	10		8				3	49			60	3	6	0	0	1	133
Survey Total	19		15				5	98			120	5	11	0	0	2	262
7:00	0		0				0	6			3	0	0	0	0	0	9
7:15	0		1				0	13			5	0	0	0	0	0	19
7:30	0		1				1	6			7	0	0	0	0	0	15
7:45	0		1				0	13			18	0	3	0	0	0	32
8:00	4		5				1	13			15	0	0	0	0	0	38
8:15	6		4				1	25			40	2	7	0	0	0	78
8:30	7		2				2	18			17	2	0	0	0	2	48
8:45	2		1				0	4			15	1	1	0	0	0	23

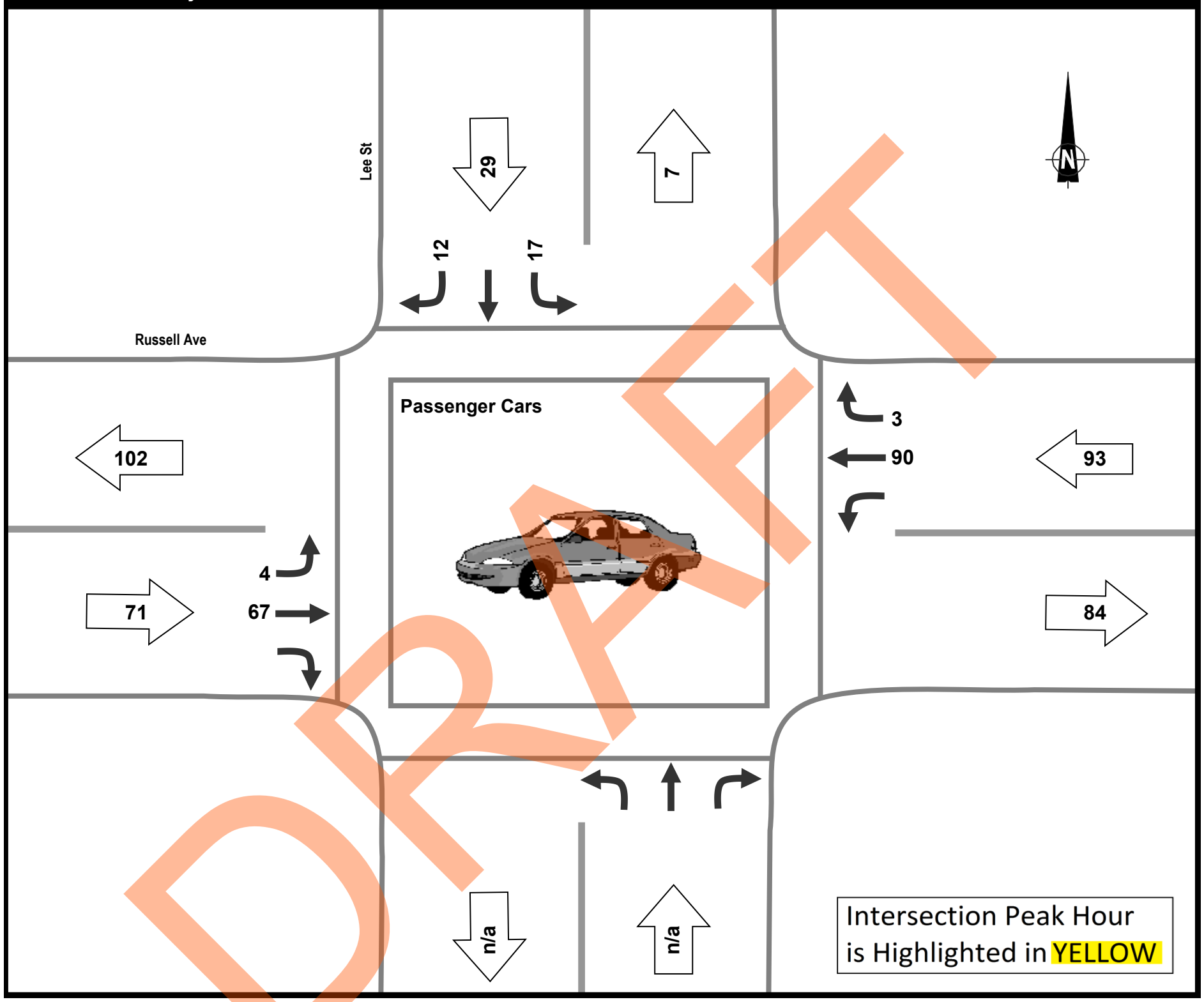
Lee St & Russell Ave

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Passenger Cars

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



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	**17**		**12**				**4**	**67**			**90**	**3**					**193**
PHF	0.61		0.60				0.50	0.70			0.56	0.38					0.63
Peak 15 X 4	28		20				8	96			160	8					304
Average Hour	10		8				3	48			60	2					131
Survey Total	19		15				5	96			120	4					259
7:00	0		0				0	6			3	0					9
7:15	0		1				0	13			5	0					19
7:30	0		1				1	6			7	0					15
7:45	0		1				0	13			18	0					32
8:00	4		5				1	12			15	0					37
8:15	6		4				1	24			40	1					76
8:30	7		2				2	18			17	2					48
8:45	2		1				0	4			15	1					23

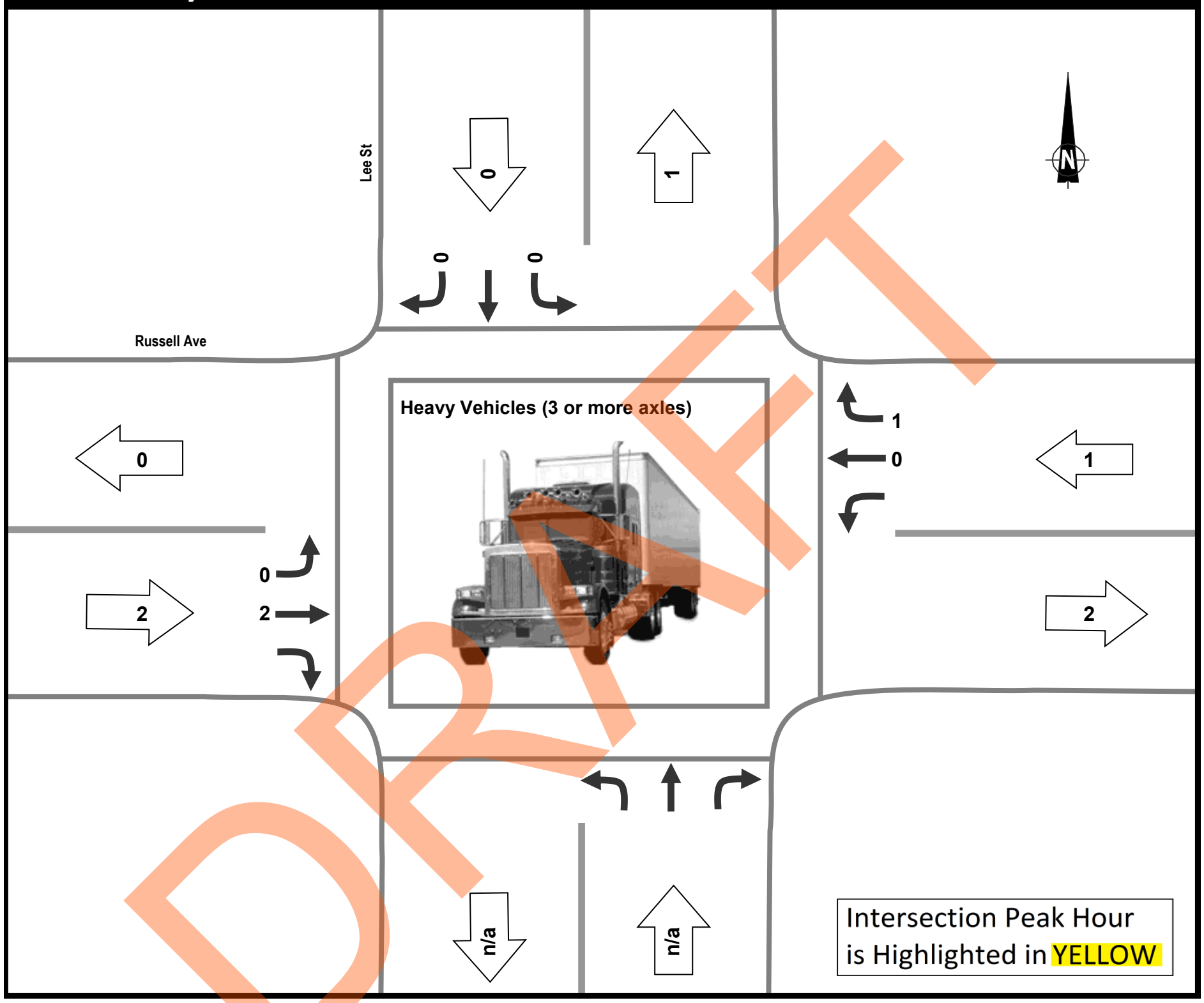
Lee St & Russell Ave

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Heavy Vehicles (3 or more axles)

Peak Hour Traffic by Movement 7:30 AM to 8:30 AM



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	**0**		**0**				**0**	**2**			**0**	**1**					**3**
PHF	0.00		0.00				0.00	0.50			0.00	0.25					0.38
Peak 15 X 4	0		0				0	4			0	4					8
Average Hour	0		0				0	1			0	1					2
Survey Total	0		0				0	2			0	1					3
7:00	0		0				0	0			0	0					0
7:15	0		0				0	0			0	0					0
7:30	0		0				0	0			0	0					0
7:45	0		0				0	0			0	0					0
8:00	0		0				0	1			0	0					1
8:15	0		0				0	1			0	1					2
8:30	0		0				0	0			0	0					0
8:45	0		0				0	0			0	0					0

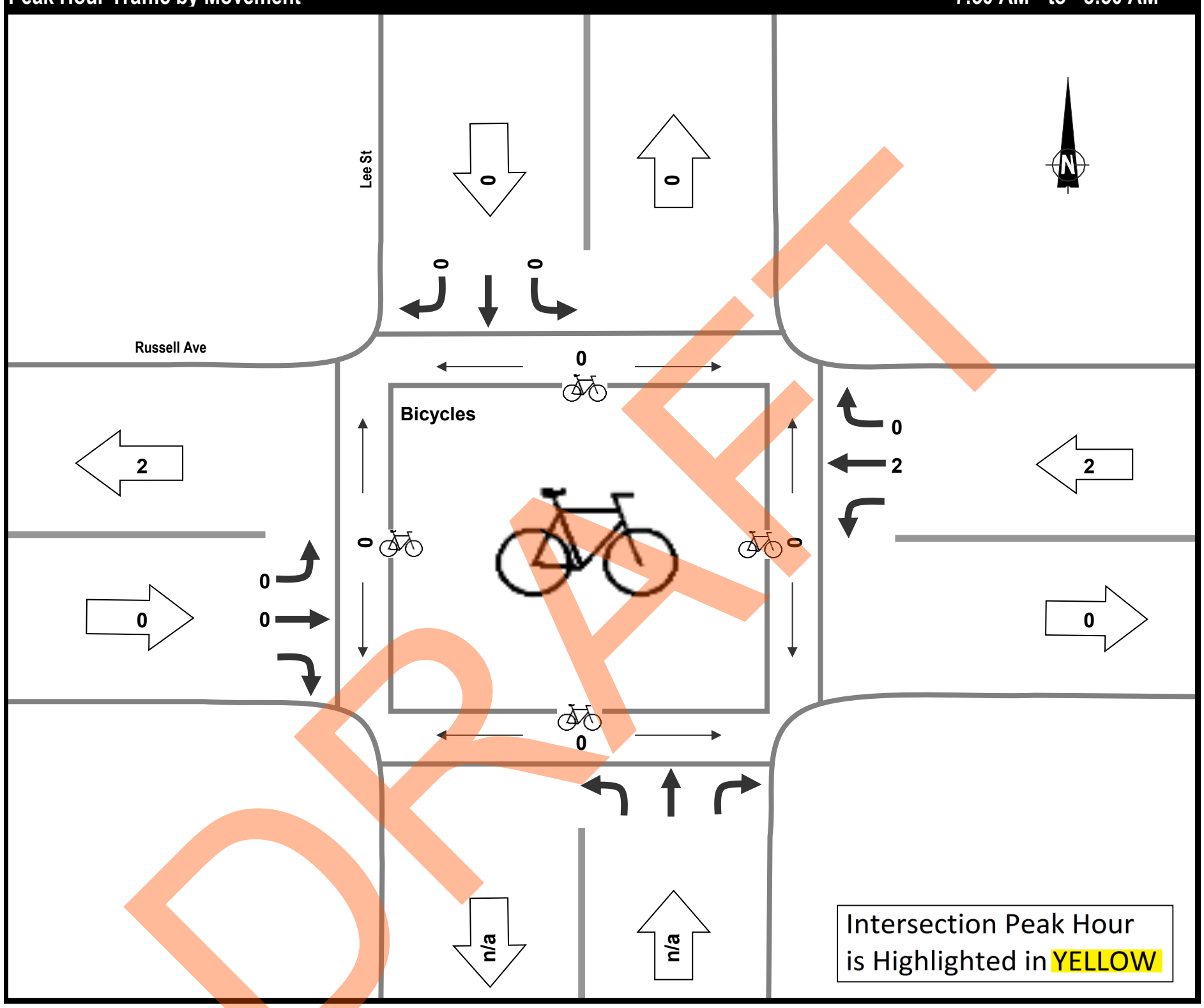
Lee St & Russell Ave

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 7:30 AM to 8:30 AM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**		**0**				**0**	**0**			**2**	**0**	**0**	**0**	**0**	**0**	**2**
PHF	0.00		0.00				0.00	0.00			0.50	0.00	0.00	0.00	0.00	0.00	0.50
Peak 15 X 4	0		0				0	0			4	0	0	0	0	0	4
Average Hour	0		0				0	0			1	0	0	0	0	0	1
Survey Total	0		0				0	0			2	0	0	0	0	0	2
7:00	0		0				0	0			0	0	0	0	0	0	0
7:15	0		0				0	0			0	0	0	0	0	0	0
7:30	0		0				0	0			0	0	0	0	0	0	0
7:45	0		0				0	0			0	0	0	0	0	0	0
8:00	0		0				0	0			1	0	0	0	0	0	1
8:15	0		0				0	0			1	0	0	0	0	0	1
8:30	0		0				0	0			0	0	0	0	0	0	0
8:45	0		0				0	0			0	0	0	0	0	0	0

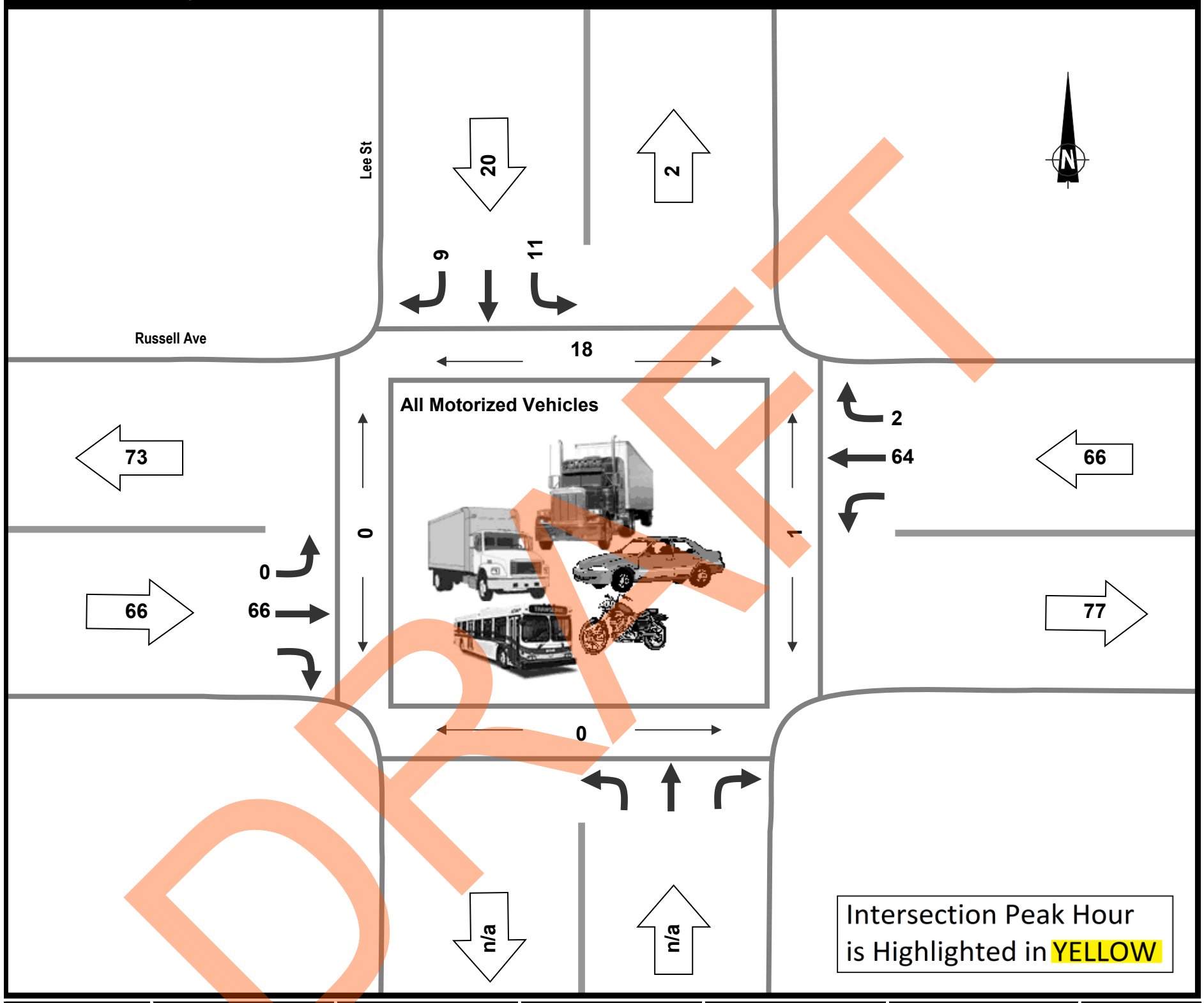
Lee St & Russell Ave

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: All Motorized Vehicles

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	**11**		**9**				**0**	**66**			**64**	**2**	**18**	**0**	**0**	**1**	**152**
PHF	0.46		0.75				0.00	0.87			0.57	0.50	0.45	0.00	0.00	0.25	0.69
Peak 15 X 4	24		12				0	76			112	4	40	0	0	4	220
Average Hour	5		8				2	59			50	2	9	0	1	0	126
Survey Total	15		23				7	176			150	6	27	0	3	1	377
15:00	6		2				0	18			28	1	10	0	0	0	55
15:15	0		2				0	13			11	1	3	0	0	1	27
15:30	3		3				0	16			14	0	5	0	0	0	36
15:45	2		2				0	19			11	0	0	0	0	0	34
16:00	1		0				1	14			17	1	2	0	0	0	34
16:15	0		3				1	16			19	0	1	0	0	0	39
16:30	1		4				1	13			15	0	0	0	0	0	34
16:45	1		0				2	14			5	0	0	0	0	0	22
17:00	1		2				0	20			7	0	0	0	0	0	30
17:15	0		2				1	11			13	2	4	0	0	0	29
17:30	0		0				0	16			5	0	1	0	0	0	21
17:45	0		3				1	6			5	1	1	0	3	0	16

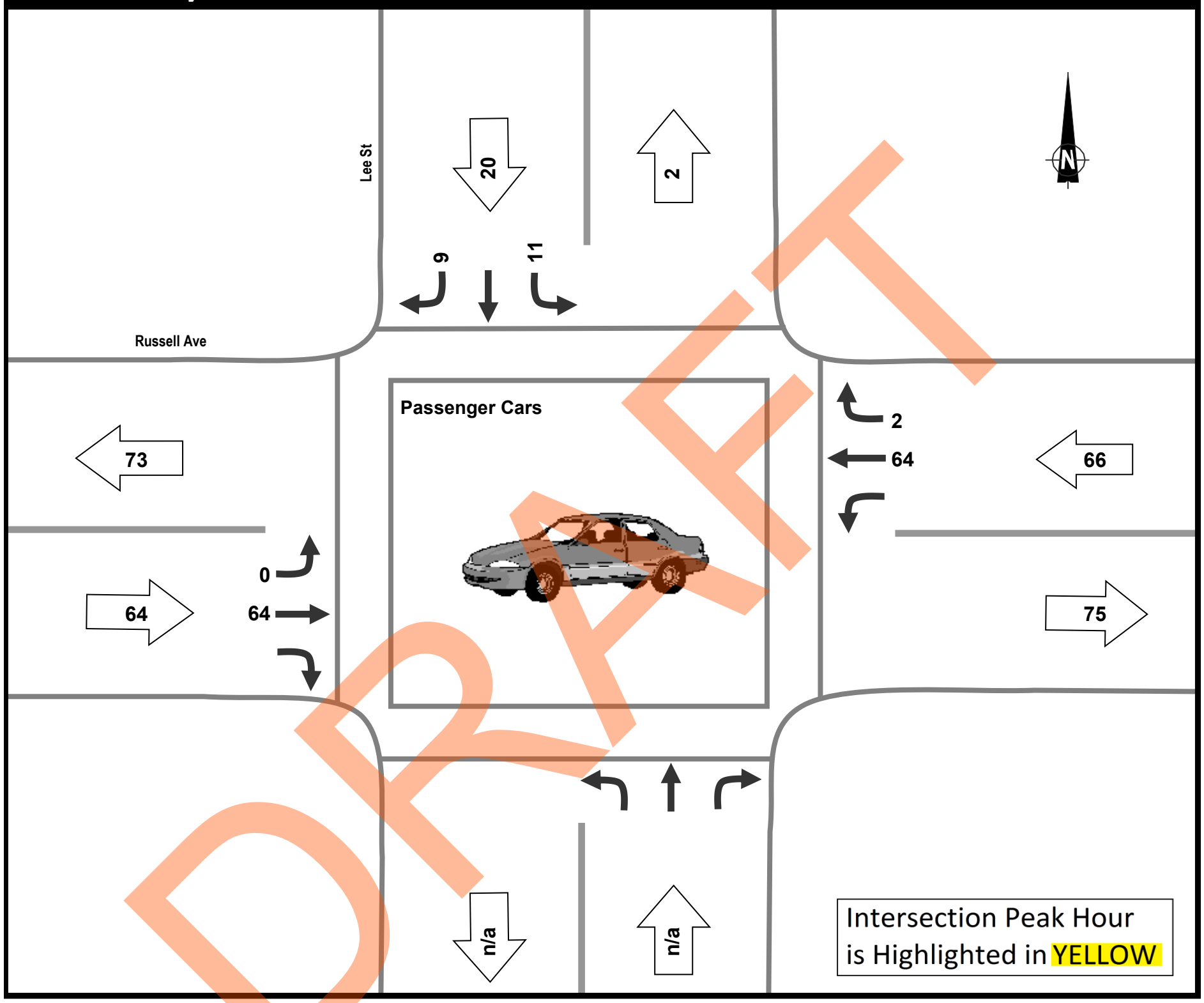
Lee St & Russell Ave

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Passenger Cars

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	**11**		**9**				**0**	**64**			**64**	**2**					**150**
PHF	0.46		0.75				0.00	0.84			0.57	0.50					0.71
Peak 15 X 4	24		12				0	76			112	4					212
Average Hour	5		8				2	58			50	2					125
Survey Total	15		23				7	173			150	6					374
15:00	6		2				0	16			28	1					53
15:15	0		2				0	13			11	1					27
15:30	3		3				0	16			14	0					36
15:45	2		2				0	19			11	0					34
16:00	1		0				1	14			17	1					34
16:15	0		3				1	16			19	0					39
16:30	1		4				1	13			15	0					34
16:45	1		0				2	13			5	0					21
17:00	1		2				0	20			7	0					30
17:15	0		2				1	11			13	2					29
17:30	0		0				0	16			5	0					21
17:45	0		3				1	6			5	1					16

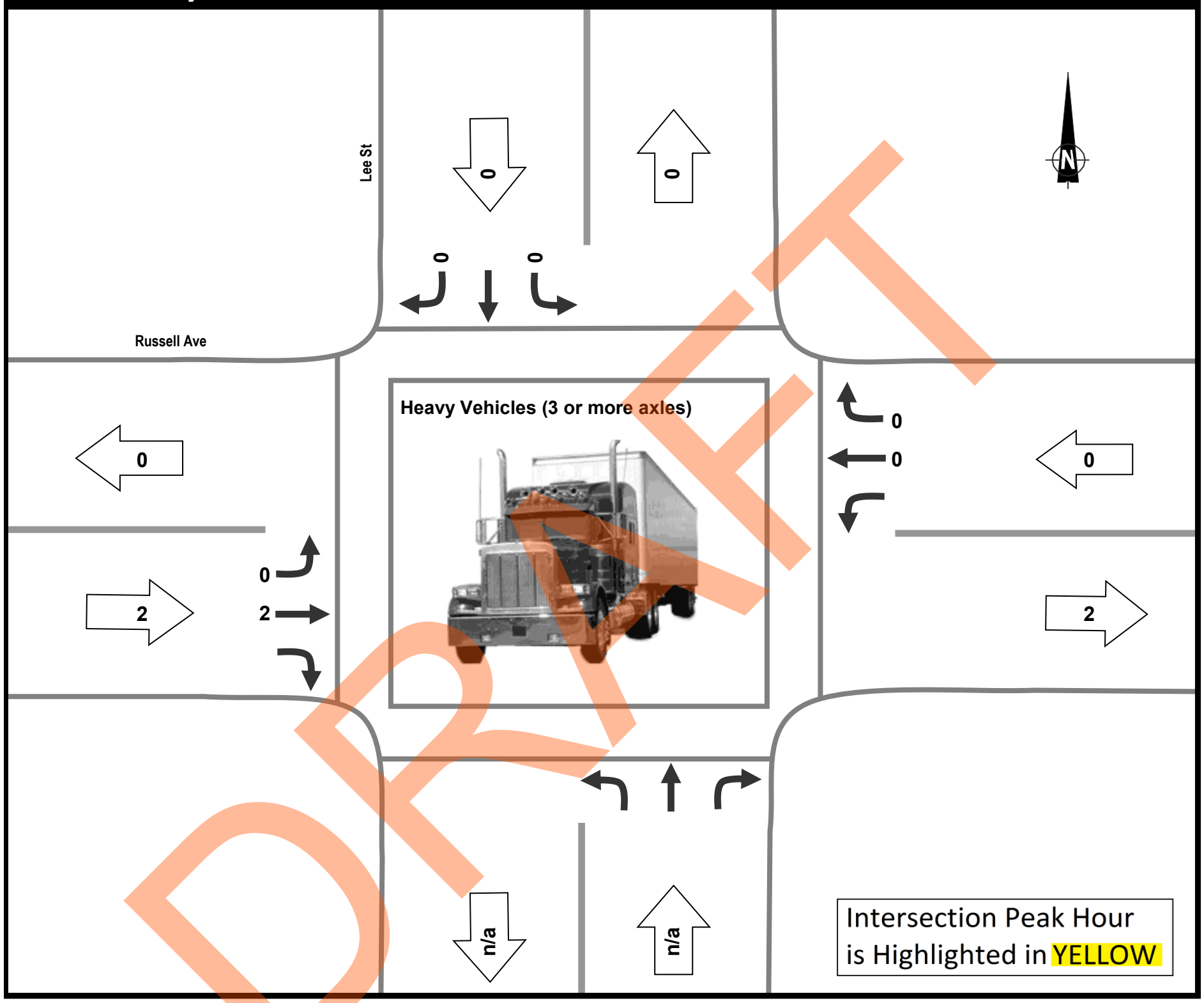
Lee St & Russell Ave

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Heavy Vehicles (3 or more axles)

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	**0**		**0**				**0**	**2**			**0**	**0**					**2**
PHF	0.00		0.00				0.00	0.25			0.00	0.00					0.25
Peak 15 X 4	0		0				0	8			0	0					8
Average Hour	0		0				0	1			0	0					1
Survey Total	0		0				0	3			0	0					3
15:00	0		0				0	2			0	0					2
15:15	0		0				0	0			0	0					0
15:30	0		0				0	0			0	0					0
15:45	0		0				0	0			0	0					0
16:00	0		0				0	0			0	0					0
16:15	0		0				0	0			0	0					0
16:30	0		0				0	0			0	0					0
16:45	0		0				0	1			0	0					1
17:00	0		0				0	0			0	0					0
17:15	0		0				0	0			0	0					0
17:30	0		0				0	0			0	0					0
17:45	0		0				0	0			0	0					0

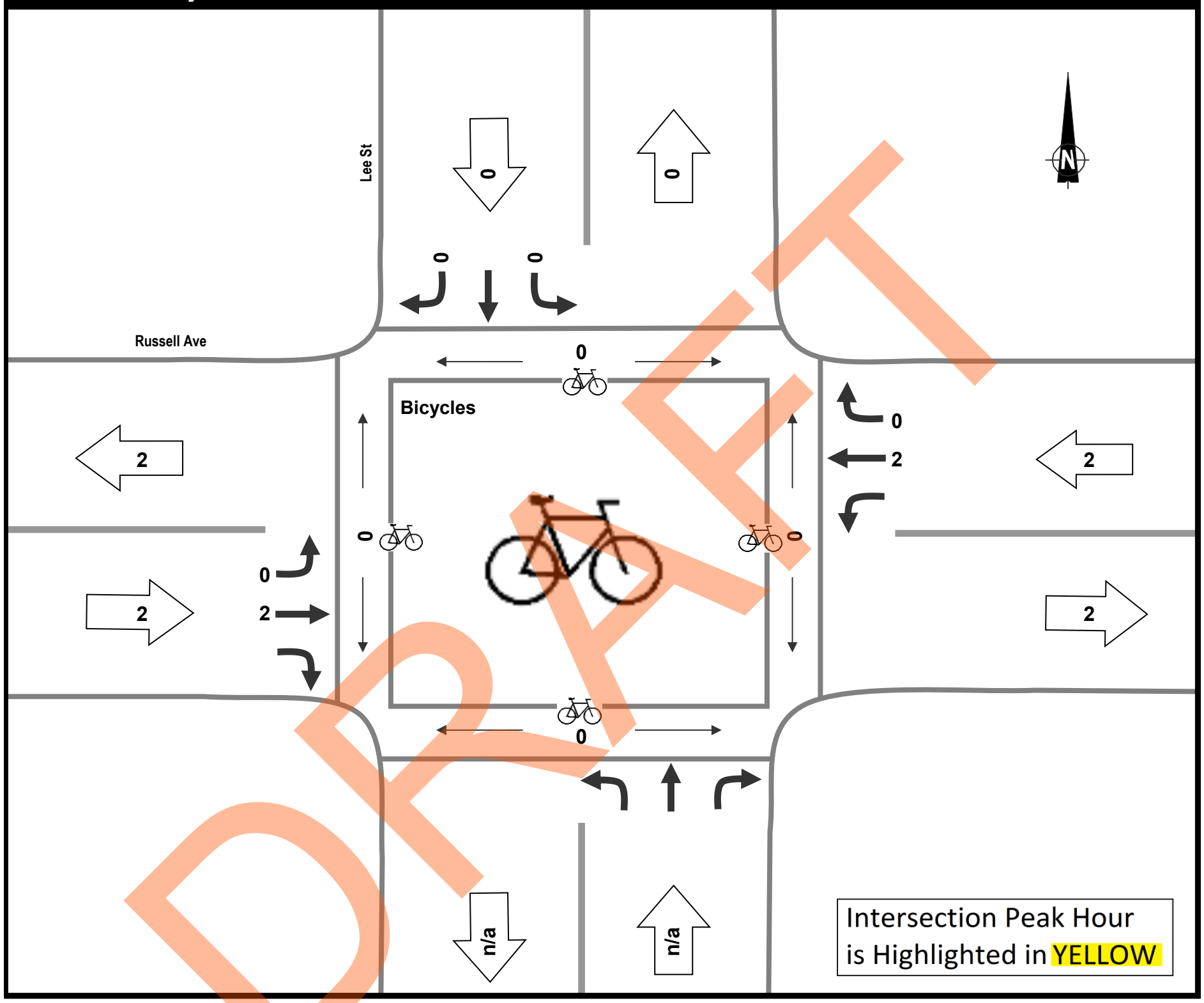
Lee St & Russell Ave

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 4:30 PM to 5:30 PM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**		**0**				**0**	**2**			**2**	**0**	**0**	**0**	**0**	**0**	**4**
PHF	0.00		0.00				0.00	0.50			0.50	0.00	0.00	0.00	0.00	0.00	0.50
Peak 15 X 4	0		0				0	4			4	0	0	0	0	0	8
Average Hour	0		0				0	1			1	0	0	0	0	0	2
Survey Total	0		0				0	4			2	0	0	0	0	0	6
15:00	0		0				0	0			0	0	0	0	0	0	0
15:15	0		0				0	0			0	0	0	0	0	0	0
15:30	0		0				0	0			0	0	0	0	0	0	0
15:45	0		0				0	2			0	0	0	0	0	0	2
16:00	0		0				0	0			0	0	0	0	0	0	0
16:15	0		0				0	0			0	0	0	0	0	0	0
16:30	0		0				0	0			0	0	0	0	0	0	0
16:45	0		0				0	0			1	0	0	0	0	0	1
17:00	0		0				0	1			1	0	0	0	0	0	2
17:15	0		0				0	1			0	0	0	0	0	0	1
17:30	0		0				0	0			0	0	0	0	0	0	0
17:45	0		0				0	0			0	0	0	0	0	0	0

Lee St & North Bluff Rd

Thursday, November 08, 2018

Vehicle Classification Summary

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy

Time Period	Entering Intersection	Vehicle Classification					**Total**
		Passenger Cars	Heavy Vehicles (3 or more axles)				
Morning (07:00 - 09:00)	Volume	2,538	34				**2,572**
	%	98.7%	1.3%				**100.0%**
Midday	Volume						
	%						
Afternoon (15:00 - 18:00)	Volume	4,528	17				**4,545**
	%	99.6%	0.4%				**100.0%**
Total (5 Hours)	**Volume**	**7,066**	**51**				**7,117**
	%	**99.3%**	**0.7%**				**100.0%**

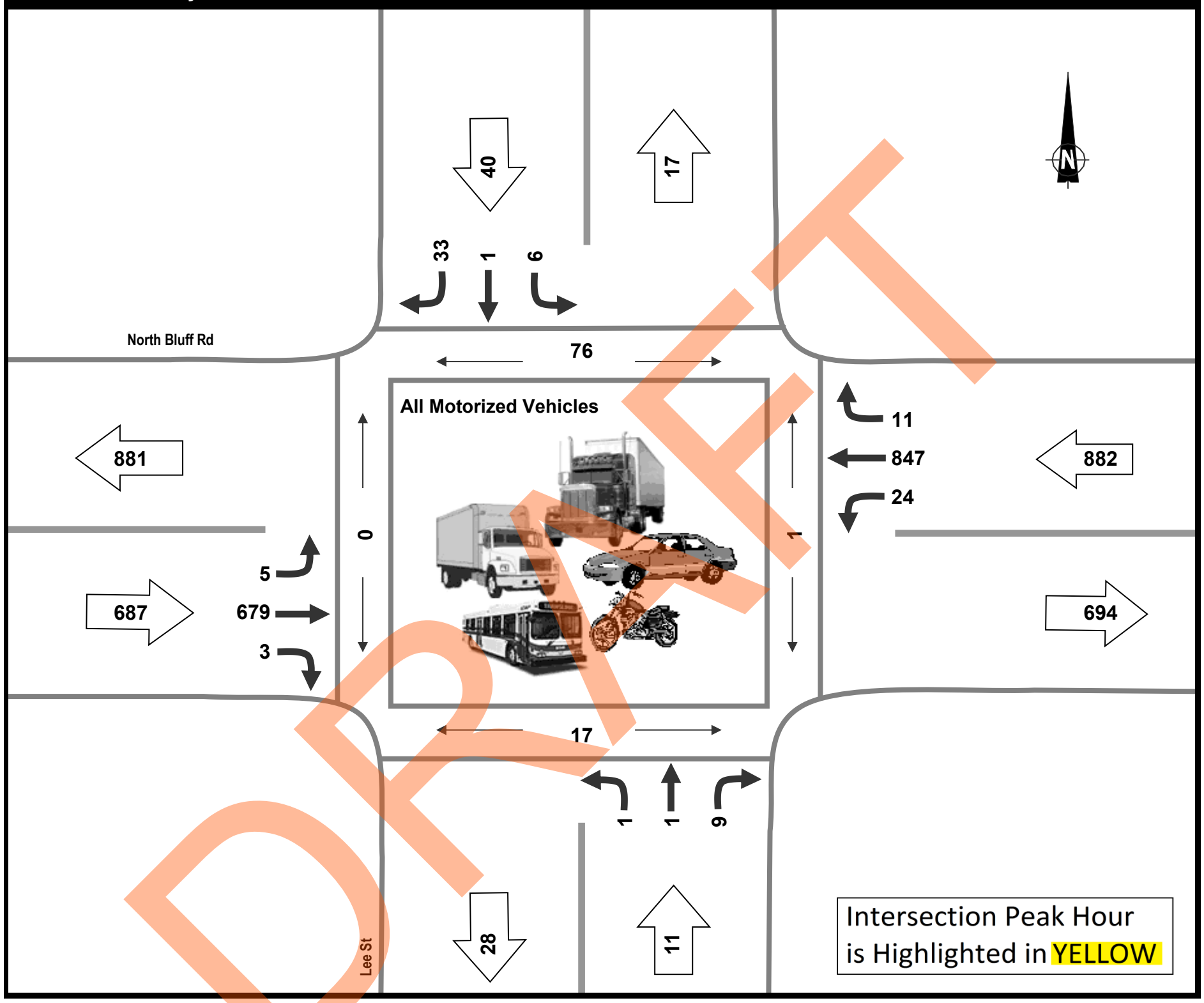
Lee St & North Bluff Rd

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: All Motorized Vehicles

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



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	**6**	**1**	**33**	**1**	**1**	**9**	**5**	**679**	**3**	**24**	**847**	**11**	**76**	**17**	**0**	**1**	**1,620**
PHF	0.50	0.25	0.52	0.25	0.25	0.56	0.42	0.91	0.75	0.60	0.81	0.55	0.61	0.39	0.00	0.25	0.85
Peak 15 X 4	12	4	64	4	4	16	12	744	4	40	1,040	20	124	44	0	4	1,916
Average Hour	11	1	21	1	1	5	3	565	3	13	660	6	48	11	0	1	1,290
Survey Total	21	1	41	1	1	10	5	1,130	5	26	1,319	12	95	21	0	1	2,572
7:00	2	0	2	0	0	0	0	99	0	0	86	0	0	0	0	0	189
7:15	4	0	2	0	0	0	0	89	0	1	94	0	1	0	0	0	190
7:30	6	0	1	0	0	1	0	137	0	0	120	1	1	4	0	0	266
7:45	2	0	2	0	0	0	0	160	0	2	162	1	8	2	0	0	329
8:00	1	0	6	1	0	2	1	181	1	5	189	5	13	3	0	1	392
8:15	0	1	16	0	0	3	3	186	1	7	260	2	31	11	0	0	479
8:30	3	0	9	0	1	4	1	152	1	10	236	3	24	1	0	0	420
8:45	3	0	3	0	0	0	0	126	2	1	172	0	17	0	0	0	307

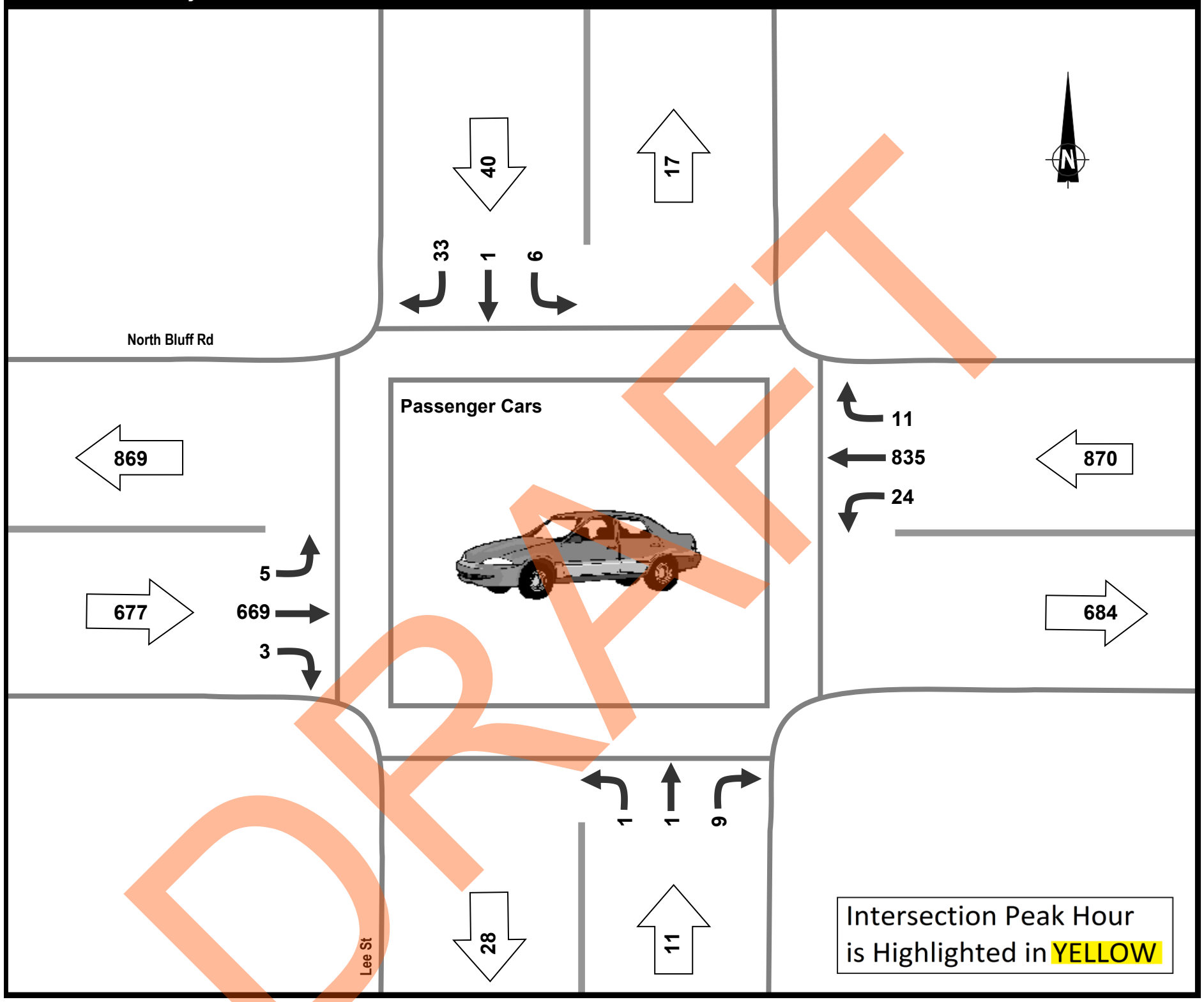
Lee St & North Bluff Rd

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Passenger Cars

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



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	**6**	**1**	**33**	**1**	**1**	**9**	**5**	**669**	**3**	**24**	**835**	**11**					**1,598**
PHF	0.50	0.25	0.52	0.25	0.25	0.56	0.42	0.92	0.75	0.60	0.81	0.55					0.84
Peak 15 X 4	12	4	64	4	4	16	12	728	4	40	1,036	20					1,896
Average Hour	11	1	21	1	1	5	3	560	3	13	648	6					1,273
Survey Total	21	1	41	1	1	10	5	1,119	5	26	1,296	12					2,538
7:00	2	0	2	0	0	0	0	99	0	0	81	0					184
7:15	4	0	2	0	0	0	0	89	0	1	93	0					189
7:30	6	0	1	0	0	1	0	136	0	0	116	1					261
7:45	2	0	2	0	0	0	0	159	0	2	158	1					324
8:00	1	0	6	1	0	2	1	180	1	5	186	5					388
8:15	0	1	16	0	0	3	3	182	1	7	259	2					474
8:30	3	0	9	0	1	4	1	148	1	10	232	3					412
8:45	3	0	3	0	0	0	0	126	2	1	171	0					306

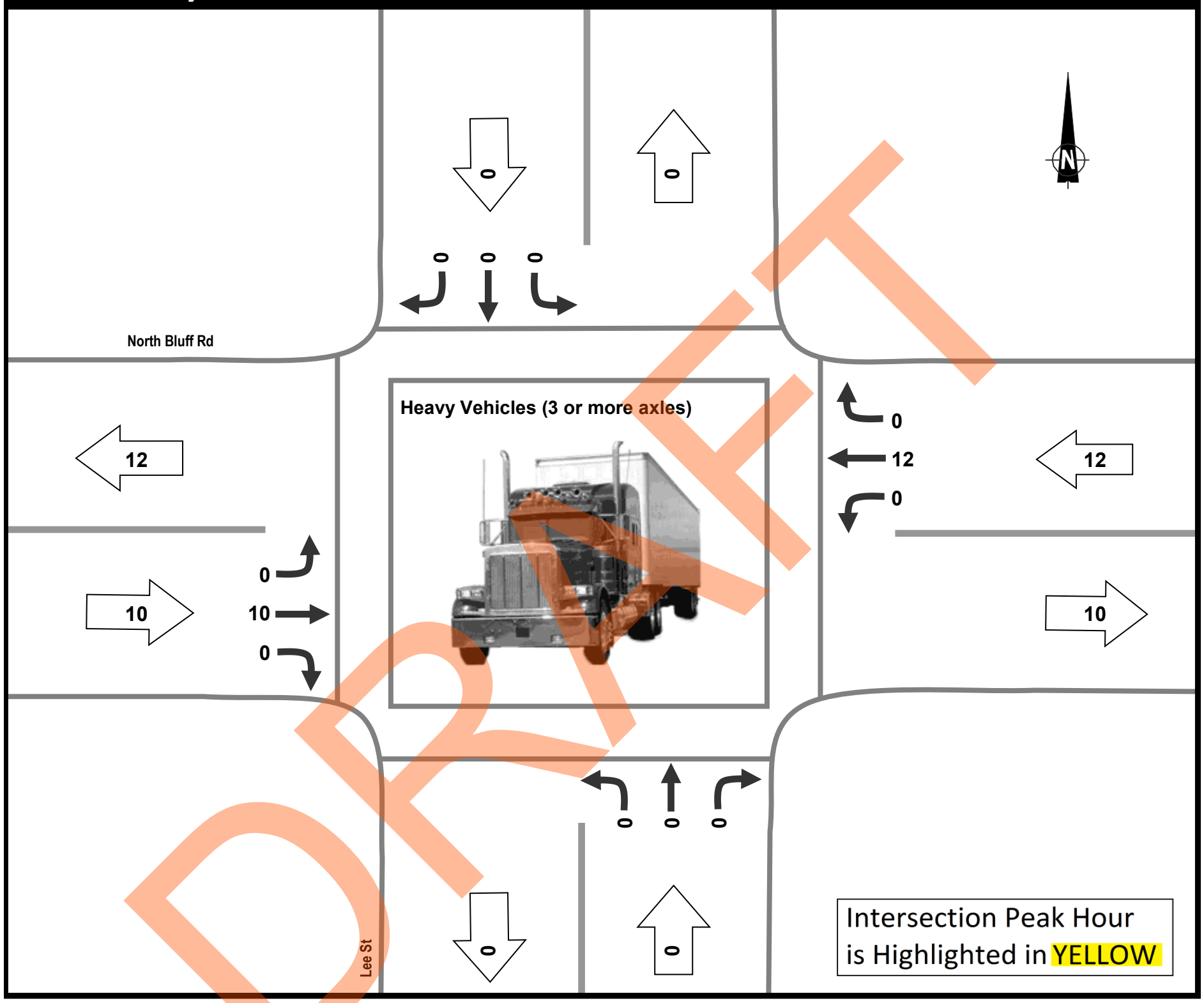
Lee St & North Bluff Rd

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Heavy Vehicles (3 or more axles)

Peak Hour Traffic by Movement 7:45 AM to 8:45 AM



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	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**12**	**0**					**22**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.75	0.00					0.69
Peak 15 X 4	0	0	0	0	0	0	0	16	0	0	16	0					32
Average Hour	0	0	0	0	0	0	0	6	0	0	12	0					18
Survey Total	0	0	0	0	0	0	0	11	0	0	23	0					34
7:00	0	0	0	0	0	0	0	0	0	0	5	0					5
7:15	0	0	0	0	0	0	0	0	0	0	1	0					1
7:30	0	0	0	0	0	0	0	1	0	0	4	0					5
7:45	0	0	0	0	0	0	0	1	0	0	4	0					5
8:00	0	0	0	0	0	0	0	1	0	0	3	0					4
8:15	0	0	0	0	0	0	0	4	0	0	1	0					5
8:30	0	0	0	0	0	0	0	4	0	0	4	0					8
8:45	0	0	0	0	0	0	0	0	0	0	1	0					1

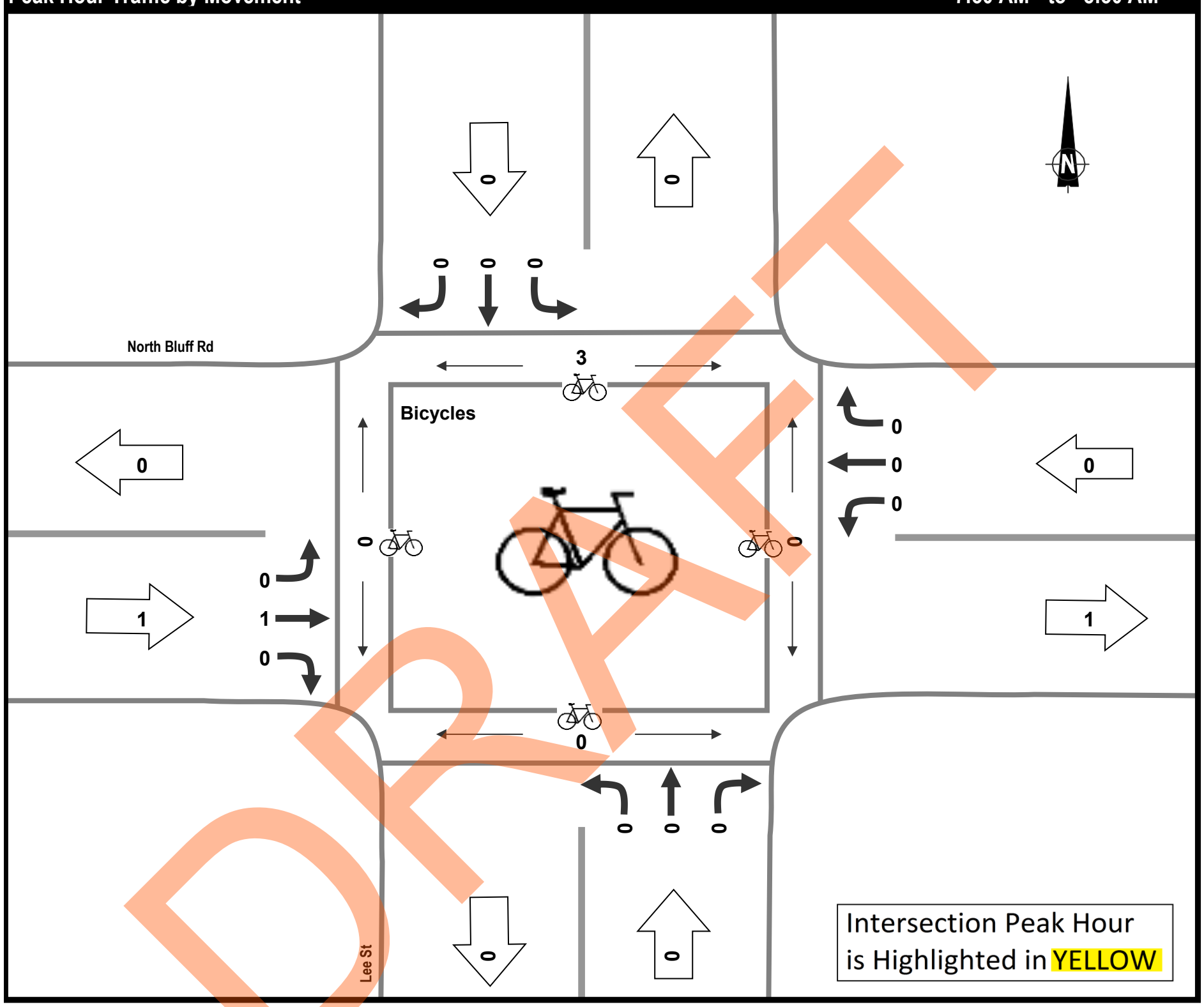
Lee St & North Bluff Rd

Thursday, November 08, 2018

Morning Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 7:30 AM to 8:30 AM



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**4**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.50
Peak 15 X 4	0	0	0	0	0	0	0	4	0	0	0	0	8	0	0	0	8
Average Hour	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	3
Survey Total	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	5
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:45	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
8:30	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

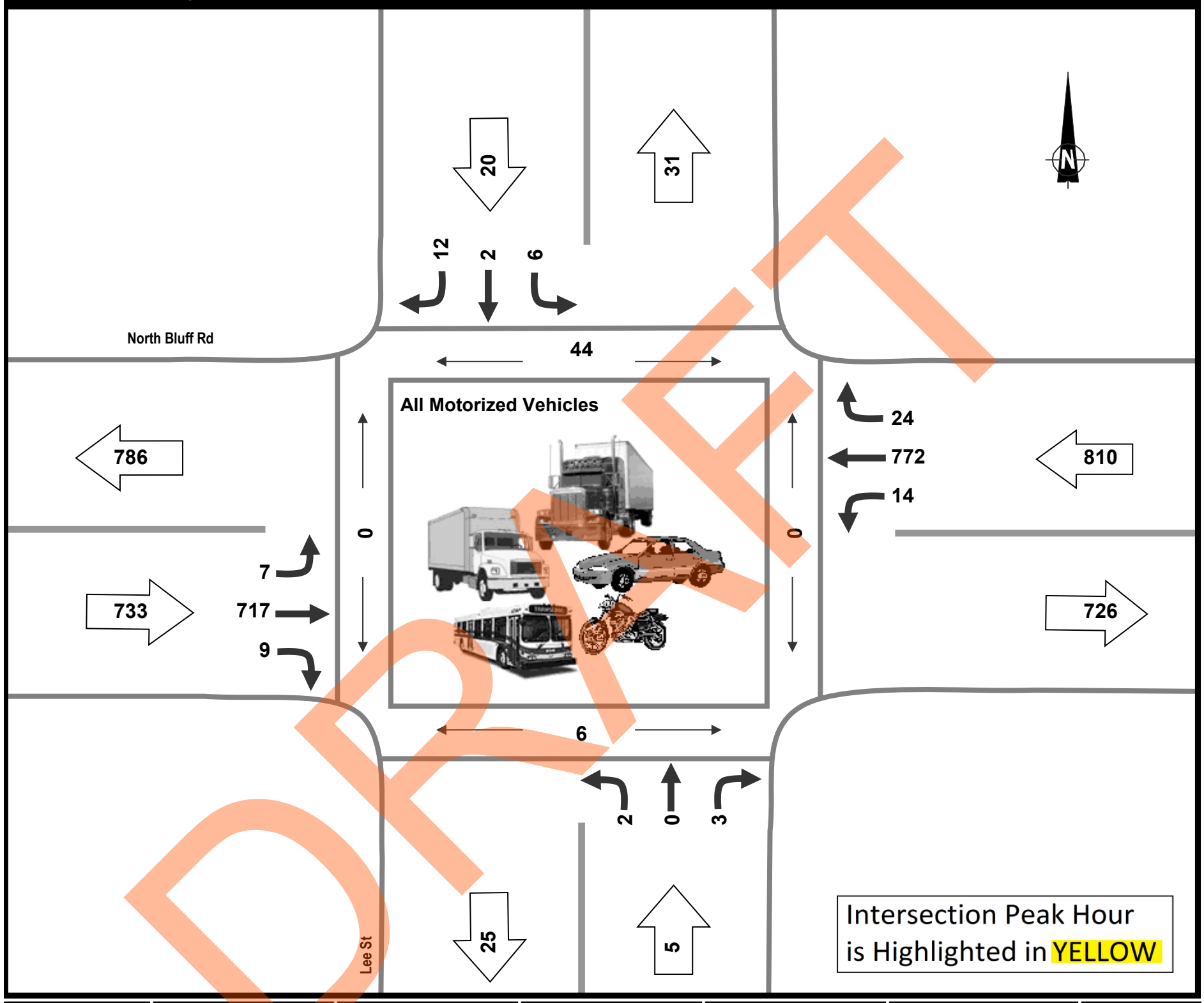
Lee St & North Bluff Rd

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: All Motorized Vehicles

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	**6**	**2**	**12**	**2**	**0**	**3**	**7**	**717**	**9**	**14**	**772**	**24**	**44**	**6**	**0**	**0**	**1,568**
PHF	0.38	0.25	0.50	0.25	0.00	0.38	0.29	0.86	0.75	0.50	0.94	0.75	0.58	0.50	0.00	0.00	0.88
Peak 15 X 4	16	8	24	8	0	8	24	836	12	28	820	32	76	12	0	0	1,788
Average Hour	9	1	9	3	0	2	6	702	5	9	752	17	20	5	0	0	1,515
Survey Total	26	3	27	8	1	7	18	2,105	15	28	2,257	50	60	15	0	1	4,545
15:00	1	2	6	2	0	2	6	209	2	7	202	8	19	3	0	0	447
15:15	1	0	2	0	0	0	0	163	3	2	194	6	13	3	0	0	371
15:30	0	0	2	0	0	0	0	186	2	3	171	8	5	0	0	0	372
15:45	4	0	2	0	0	1	1	159	2	2	205	2	7	0	0	0	378
16:00	1	0	2	2	0	0	0	195	2	1	186	1	0	1	0	0	390
16:15	2	0	1	0	0	0	2	181	0	3	181	2	5	2	0	1	372
16:30	4	1	2	0	0	1	2	188	0	3	169	2	0	0	0	0	372
16:45	3	0	2	1	0	1	3	184	1	0	212	5	3	0	0	0	412
17:00	2	0	2	1	0	0	0	206	2	2	186	6	2	0	0	0	407
17:15	2	0	2	0	1	2	2	153	1	1	203	1	4	1	0	0	368
17:30	3	0	2	1	0	0	0	147	0	1	171	4	1	1	0	0	329
17:45	3	0	2	1	0	0	2	134	0	3	177	5	1	4	0	0	327

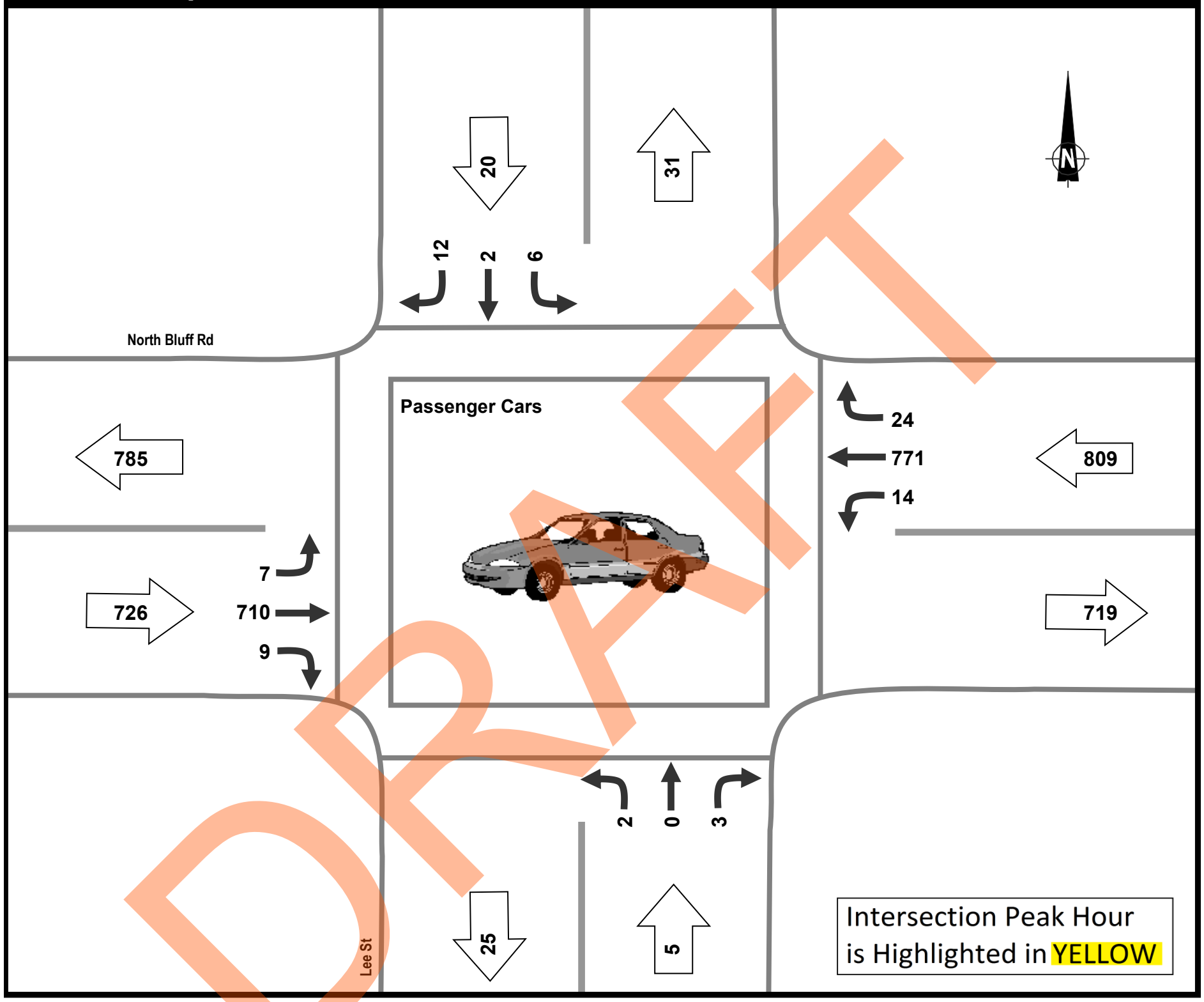
Lee St & North Bluff Rd

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Passenger Cars

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	**6**	**2**	**12**	**2**	**0**	**3**	**7**	**710**	**9**	**14**	**771**	**24**					**1,560**
PHF	0.38	0.25	0.50	0.25	0.00	0.38	0.29	0.85	0.75	0.50	0.94	0.75					0.87
Peak 15 X 4	16	8	24	8	0	8	24	832	12	28	820	32					1,784
Average Hour	9	1	9	3	0	2	6	698	5	9	751	17					1,510
Survey Total	26	3	27	8	1	7	18	2,093	15	28	2,252	50					4,528
15:00	1	2	6	2	0	2	6	208	2	7	202	8					446
15:15	1	0	2	0	0	0	0	160	3	2	193	6					367
15:30	0	0	2	0	0	0	0	183	2	3	171	8					369
15:45	4	0	2	0	0	1	1	159	2	2	205	2					378
16:00	1	0	2	2	0	0	0	195	2	1	182	1					386
16:15	2	0	1	0	0	0	2	180	0	3	181	2					371
16:30	4	1	2	0	0	1	2	187	0	3	169	2					371
16:45	3	0	2	1	0	1	3	184	1	0	212	5					412
17:00	2	0	2	1	0	0	0	204	2	2	186	6					405
17:15	2	0	2	0	1	2	2	153	1	1	203	1					368
17:30	3	0	2	1	0	0	0	146	0	1	171	4					328
17:45	3	0	2	1	0	0	2	134	0	3	177	5					327

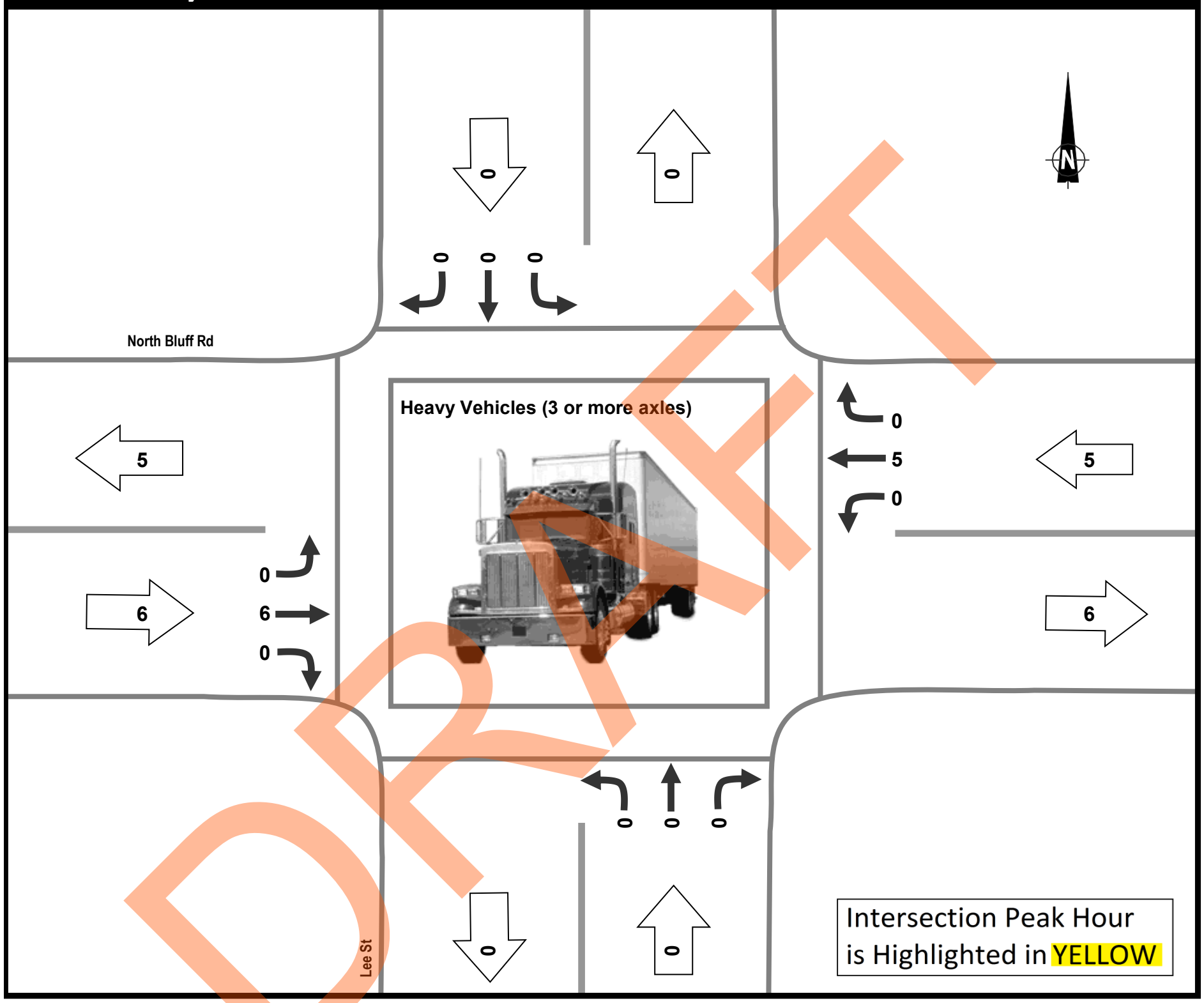
Lee St & North Bluff Rd

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Heavy Vehicles (3 or more axles)

Peak Hour Traffic by Movement 3:15 PM to 4:15 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	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**5**	**0**					**11**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.31	0.00					0.69
Peak 15 X 4	0	0	0	0	0	0	0	12	0	0	16	0					16
Average Hour	0	0	0	0	0	0	0	4	0	0	2	0					6
Survey Total	0	0	0	0	0	0	0	12	0	0	5	0					17
15:00	0	0	0	0	0	0	0	1	0	0	0	0					1
15:15	0	0	0	0	0	0	0	3	0	0	1	0					4
15:30	0	0	0	0	0	0	0	3	0	0	0	0					3
15:45	0	0	0	0	0	0	0	0	0	0	0	0					0
16:00	0	0	0	0	0	0	0	0	0	0	4	0					4
16:15	0	0	0	0	0	0	0	1	0	0	0	0					1
16:30	0	0	0	0	0	0	0	1	0	0	0	0					1
16:45	0	0	0	0	0	0	0	0	0	0	0	0					0
17:00	0	0	0	0	0	0	0	2	0	0	0	0					2
17:15	0	0	0	0	0	0	0	0	0	0	0	0					0
17:30	0	0	0	0	0	0	0	1	0	0	0	0					1
17:45	0	0	0	0	0	0	0	0	0	0	0	0					0

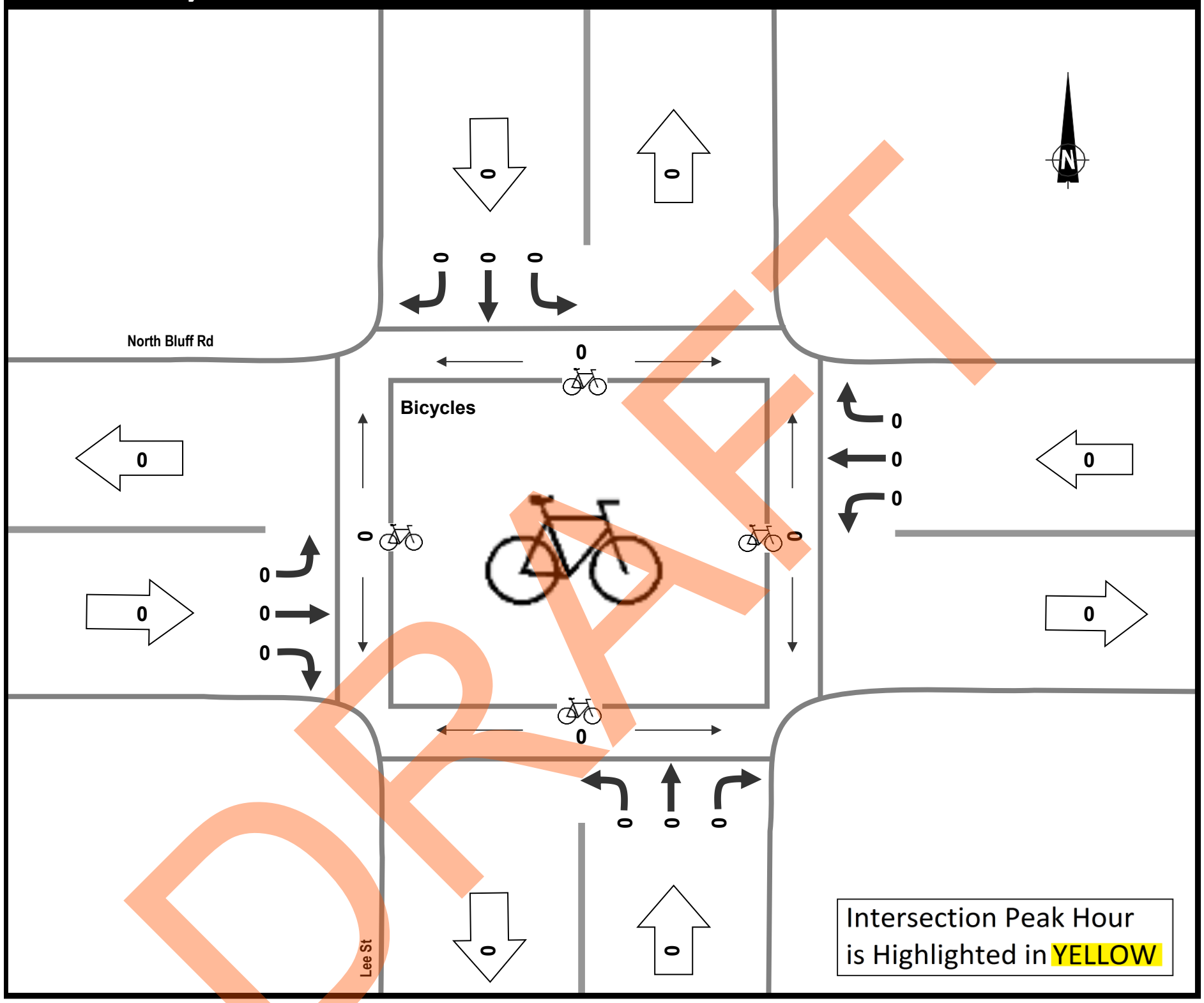
Lee St & North Bluff Rd

Thursday, November 08, 2018

Afternoon Peak Period

Project: #5935: Beachway Traffic Impact Assessment
Municipality: White Rock
Weather: Cloudy
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

Peak Hour Traffic by Movement 3:00 PM to 4:00 PM



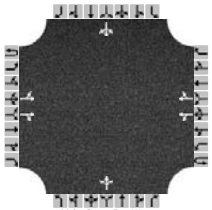
Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES in X-WALKS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Peak 15 X 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Survey Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix D
Intersection Capacity Analysis

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	North Bluff Rd
Analysis Year	2019	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		8	698	6		28	870	15		2	2	12		9	2	37
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

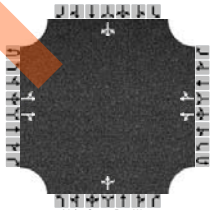
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				34				19				58		
Capacity, c (veh/h)		636				682				148				175		
v/c Ratio		0.02				0.05				0.13				0.33		
95% Queue Length, Q_{95} (veh)		0.0				0.2				0.4				1.4		
Control Delay (s/veh)		10.7				10.6				33.0				35.4		
Level of Service (LOS)		B				B				D				E		
Approach Delay (s/veh)	0.3				0.9				33.0				35.4			
Approach LOS									D				E			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	North Bluff Rd
Analysis Year	2019	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		9	737	13		18	791	28		3	0	5		9	3	16
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

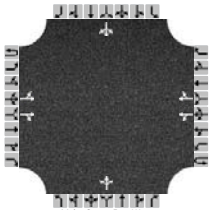
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				21				9				33		
Capacity, c (veh/h)		702				703				161				146		
v/c Ratio		0.02				0.03				0.06				0.22		
95% Queue Length, Q_{95} (veh)		0.0				0.1				0.2				0.8		
Control Delay (s/veh)		10.2				10.3				28.7				36.6		
Level of Service (LOS)		B				B				D				E		
Approach Delay (s/veh)	0.3				0.5				28.7				36.6			
Approach LOS									D				E			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	North Bluff Rd
Analysis Year	2021	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		9	726	7		30	905	16		3	3	13		10	3	39
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

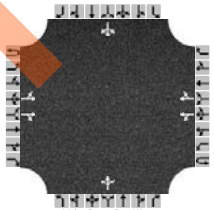
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				36				23				63		
Capacity, c (veh/h)		613				661				109				143		
v/c Ratio		0.02				0.05				0.21				0.44		
95% Queue Length, Q_{95} (veh)		0.1				0.2				0.7				2.0		
Control Delay (s/veh)		11.0				10.8				46.6				48.7		
Level of Service (LOS)		B				B				E				E		
Approach Delay (s/veh)	0.3				1.0				46.6				48.7			
Approach LOS									E				E			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	North Bluff Rd
Analysis Year	2021	North/South Street	Lee St
Time Analyzed	AM Base + Site	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		9	726	16		31	905	16		22	4	33		10	4	39
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

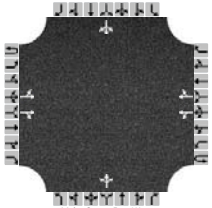
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				37				71				64		
Capacity, c (veh/h)		613				655				89				128		
v/c Ratio		0.02				0.06				0.80				0.50		
95% Queue Length, Q_{95} (veh)		0.1				0.2				4.2				2.3		
Control Delay (s/veh)		11.0				10.8				129.7				58.6		
Level of Service (LOS)		B				B				F				F		
Approach Delay (s/veh)	0.3				1.0				129.7				58.6			
Approach LOS									F				F			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	North Bluff Rd
Analysis Year	2021	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		10	767	14		19	823	30		4	0	6		10	4	17
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

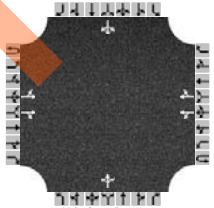
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		12				22				12				36		
Capacity, c (veh/h)		678				681				136				125		
v/c Ratio		0.02				0.03				0.09				0.29		
95% Queue Length, Q_{95} (veh)		0.1				0.1				0.3				1.1		
Control Delay (s/veh)		10.4				10.5				33.9				45.4		
Level of Service (LOS)		B				B				D				E		
Approach Delay (s/veh)	0.3				0.6				33.9				45.4			
Approach LOS									D				E			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	North Bluff Rd
Analysis Year	2021	North/South Street	Lee St
Time Analyzed	PM Base + Site	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		10	767	34		36	823	30		17	1	18		10	5	17
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

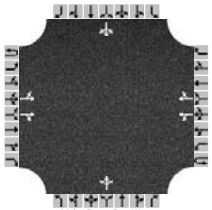
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		12				42				42				38		
Capacity, c (veh/h)		678				667				96				102		
v/c Ratio		0.02				0.06				0.44				0.37		
95% Queue Length, Q_{95} (veh)		0.1				0.2				1.8				1.5		
Control Delay (s/veh)		10.4				10.8				68.8				59.5		
Level of Service (LOS)		B				B				F				F		
Approach Delay (s/veh)	0.3				1.1				68.8				59.5			
Approach LOS									F				F			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	North Bluff Rd
Analysis Year	2026	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		10	796	7		32	992	18		3	3	14		11	3	43
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

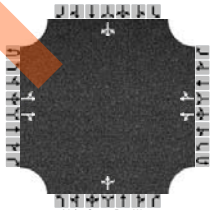
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		12				39				24				69		
Capacity, c (veh/h)		557				614				83				108		
v/c Ratio		0.02				0.06				0.29				0.64		
95% Queue Length, Q_{95} (veh)		0.1				0.2				1.1				3.2		
Control Delay (s/veh)		11.6				11.3				65.0				84.2		
Level of Service (LOS)		B				B				F				F		
Approach Delay (s/veh)	0.4				1.2				65.0				84.2			
Approach LOS									F				F			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	North Bluff Rd
Analysis Year	2026	North/South Street	Lee St
Time Analyzed	AM Base + Site	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		10	796	16		33	992	18		22	4	34		11	4	43
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

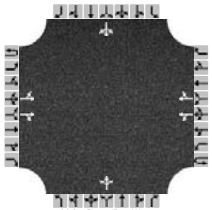
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		12				40				72				70		
Capacity, c (veh/h)		557				609				64				95		
v/c Ratio		0.02				0.07				1.13				0.74		
95% Queue Length, Q_{95} (veh)		0.1				0.2				5.7				3.8		
Control Delay (s/veh)		11.6				11.3				260.3				110.5		
Level of Service (LOS)		B				B				F				F		
Approach Delay (s/veh)	0.4				1.3				260.3				110.5			
Approach LOS									F				F			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	North Bluff Rd
Analysis Year	2026	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		11	841	15		21	902	32		4	0	6		11	4	19
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

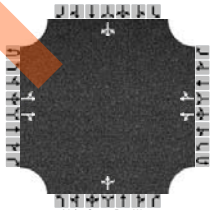
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		13				25				12				40		
Capacity, c (veh/h)		624				630				104				98		
v/c Ratio		0.02				0.04				0.11				0.41		
95% Queue Length, Q_{95} (veh)		0.1				0.1				0.4				1.7		
Control Delay (s/veh)		10.9				10.9				44.1				64.8		
Level of Service (LOS)		B				B				E				F		
Approach Delay (s/veh)	0.4				0.7				44.1				64.8			
Approach LOS									E				F			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & North Bluff Rd
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	North Bluff Rd
Analysis Year	2026	North/South Street	Lee St
Time Analyzed	PM Base + Site	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		11	841	35		38	902	32		17	1	18		11	5	19
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)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.14				4.14				7.54	6.54	6.94		7.54	6.54	6.94
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.22				2.22				3.52	4.02	3.32		3.52	4.02	3.32

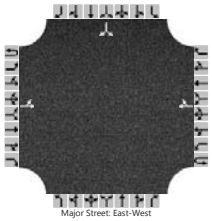
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		13				45				42				41		
Capacity, c (veh/h)		624				618				70				79		
v/c Ratio		0.02				0.07				0.60				0.52		
95% Queue Length, Q_{95} (veh)		0.1				0.2				2.6				2.2		
Control Delay (s/veh)		10.9				11.3				114.5				93.0		
Level of Service (LOS)		B				B				F				F		
Approach Delay (s/veh)	0.4				1.3				114.5				93.0			
Approach LOS									F				F			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Russell Ave
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Russell Ave
Analysis Year	2019	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		7	75				94	7						20		16
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

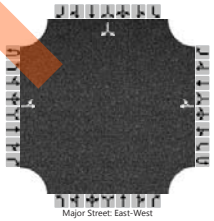
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		8													43	
Capacity, c (veh/h)		1440													807	
v/c Ratio		0.01													0.05	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		7.5													9.7	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.7												9.7			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Russell Ave
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Russell Ave
Analysis Year	2019	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	71				68	4						14		13
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

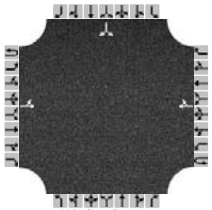
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													32	
Capacity, c (veh/h)		1464													855	
v/c Ratio		0.00													0.04	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.5													9.4	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.0												9.4			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Russell Ave
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Russell Ave
Analysis Year	2021	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		8	78				98	8						21		17
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

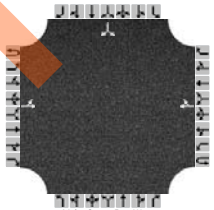
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10													46	
Capacity, c (veh/h)		1432													798	
v/c Ratio		0.01													0.06	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		7.5													9.8	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.7												9.8			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Russell Ave
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Russell Ave
Analysis Year	2021	North/South Street	Lee St
Time Analyzed	AM Base + Site	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		9	78				98	9						23		19
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

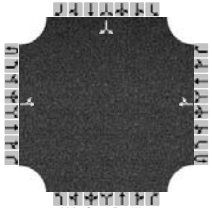
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11													51	
Capacity, c (veh/h)		1431													796	
v/c Ratio		0.01													0.06	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		7.5													9.8	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.8												9.8			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Russell Ave
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Russell Ave
Analysis Year	2021	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	74				71	5						15		14
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

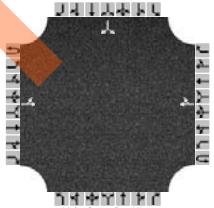
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													34	
Capacity, c (veh/h)		1458													849	
v/c Ratio		0.00													0.04	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.5													9.4	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.0												9.4			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Russell Ave
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Russell Ave
Analysis Year	2021	North/South Street	Lee St
Time Analyzed	PM Base + Site	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	74				71	7						16		15
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

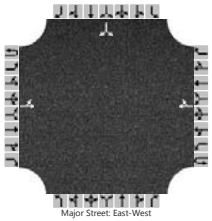
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2													36	
Capacity, c (veh/h)		1455													844	
v/c Ratio		0.00													0.04	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.5													9.5	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.2												9.5			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Russell Ave
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Russell Ave
Analysis Year	2026	North/South Street	Lee St
Time Analyzed	AM Base	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		8	86				108	8						23		19
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

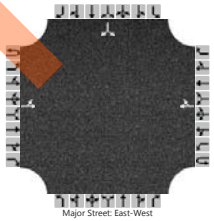
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10													51	
Capacity, c (veh/h)		1418													780	
v/c Ratio		0.01													0.06	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		7.6													9.9	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.7												9.9			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Russell Ave
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Russell Ave
Analysis Year	2026	North/South Street	Lee St
Time Analyzed	AM Base + Site	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		9	86				108	9						25		21
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

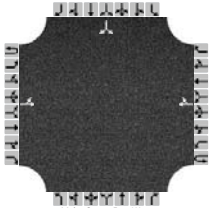
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11													55	
Capacity, c (veh/h)		1416													778	
v/c Ratio		0.01													0.07	
95% Queue Length, Q_{95} (veh)		0.0													0.2	
Control Delay (s/veh)		7.6													10.0	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.8												10.0			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Russell Ave
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Russell Ave
Analysis Year	2026	North/South Street	Lee St
Time Analyzed	PM Base	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		0	81				78	5						16		15
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

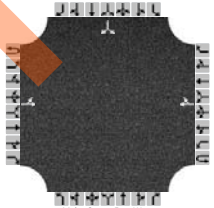
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0													36	
Capacity, c (veh/h)		1448													835	
v/c Ratio		0.00													0.04	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.5													9.5	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.0												9.5			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Russell Ave
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Russell Ave
Analysis Year	2026	North/South Street	Lee St
Time Analyzed	PM Base + Site	Peak Hour Factor	0.85
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	81				78	7						17		16
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

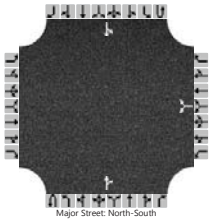
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2													39	
Capacity, c (veh/h)		1445													830	
v/c Ratio		0.00													0.05	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.5													9.6	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)	0.2												9.6			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Access
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Access
Analysis Year	2021	North/South Street	Lee St
Time Analyzed	AM Base + Site	Peak Hour Factor	0.83
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						4		40			17	2		11	37	
Percent Heavy Vehicles (%)						2		3						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.23						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.33						2.22		

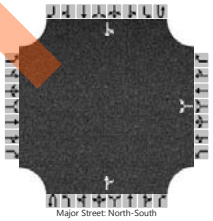
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							53							13		
Capacity, c (veh/h)							1037							1592		
v/c Ratio							0.05							0.01		
95% Queue Length, Q_{95} (veh)							0.2							0.0		
Control Delay (s/veh)							8.7							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.7								1.7		
Approach LOS						A										

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Access
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Access
Analysis Year	2021	North/South Street	Lee St
Time Analyzed	PM Base + Site	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						2		26			7	4		38	32	
Percent Heavy Vehicles (%)						2		3						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.23						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.33						2.22		

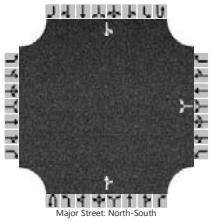
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							33							45		
Capacity, c (veh/h)							1046							1606		
v/c Ratio							0.03							0.03		
95% Queue Length, Q_{95} (veh)							0.1							0.1		
Control Delay (s/veh)							8.6							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.6								4.1		
Approach LOS						A										

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Access
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Access
Analysis Year	2026	North/South Street	Lee St
Time Analyzed	AM Base + Site	Peak Hour Factor	0.83
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						4		40			19	2		11	40	
Percent Heavy Vehicles (%)						2		3						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.23						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.33						2.22		

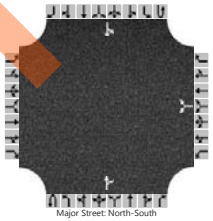
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							53							13		
Capacity, c (veh/h)							1033							1589		
v/c Ratio							0.05							0.01		
95% Queue Length, Q_{95} (veh)							0.2							0.0		
Control Delay (s/veh)							8.7							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.7								1.6		
Approach LOS						A										

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JAL	Intersection	Lee St & Access
Agency/Co.	CTS	Jurisdiction	White Rock
Date Performed	10/10/2019	East/West Street	Access
Analysis Year	2026	North/South Street	Lee St
Time Analyzed	PM Base + Site	Peak Hour Factor	0.85
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	7130 - Beachway 2 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	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						2		26			7	4		38	35	
Percent Heavy Vehicles (%)						2		3						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.23						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.33						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							33							45		
Capacity, c (veh/h)							1046							1606		
v/c Ratio							0.03							0.03		
95% Queue Length, Q_{95} (veh)							0.1							0.1		
Control Delay (s/veh)							8.6							7.3		
Level of Service (LOS)							A							A		
Approach Delay (s/veh)						8.6								3.9		
Approach LOS						A										