

## **NOTICE OF PUBLIC HEARING – JULY 18, 2022**

**BYLAW 2435: WHITE ROCK ZONING BYLAW, 2012, NO. 2000, AMENDMENT (CD ZONE 67 - 15704, 15724/28/38/48/58/70 NORTH BLUFF ROAD) BYLAW, 2022, NO. 2435**

**CIVIC ADDRESS: 15704, 15724/28/38/48/58/70 NORTH BLUFF ROAD**

**PURPOSE:** Bylaw 2435 proposes to rezone the subject properties from "RS-1 One Unit Residential Zone" to "Comprehensive Development Zone (CD) 67". If approved, it would enable the proposed multi-building residential project that consists of 87 units a mixture of townhomes and apartments ranging from studios to 3-bedroom units to be built.

**WHITE ROCK**  
*My City by the Sea!*

**Documents:**

| Author  | Document   | Item # |
|---|--|--------|
| Director of Planning and Development Services | Land Use and Planning corporate report dated June 27, 2022 | R-1    |
| Corporate Administration Department           | Minutes – Various Extracts                                 | R-2    |

**Written Submissions:**

| Author        | Date Received | Resident? | Status | Item # |
|---------------|---------------|-----------|--------|--------|
| None to date. |               |           |        |        |

THE CORPORATION OF THE  
**CITY OF WHITE ROCK**

15322 BUENA VISTA AVENUE, WHITE ROCK, B.C. V4B 1Y6

**NOTICE OF PUBLIC HEARING**  
**MONDAY, JULY 18, 2022**

**NOTICE** is hereby given that the Council of the City of White Rock will hold an opportunity for public participation for a Public Hearing on **MONDAY, JULY 18, 2022**, at **5:00 P.M.** in accordance with the *Local Government Act* and the *Planning Procedures Bylaw*. All persons who deem their interest in property is affected by the proposed bylaw / application shall be afforded an opportunity to be heard **in person, via telephone or by forwarding written submissions** reflecting matters contained in the proposed bylaw / application that is the subject of the Public Hearing. At the Public Hearing, Council will hear and receive submissions from the interested persons in regard to the bylaw / application listed below:

**BYLAW 2435: WHITE ROCK ZONING BYLAW, 2012, NO. 2000,  
AMENDMENT (CD ZONE 67 - 15704, 15724/28/38/48/58/70  
NORTH BLUFF ROAD) BYLAW, 2022, NO. 2435**

**CIVIC ADDRESS: 15704, 15724/28/38/48/58/70 NORTH BLUFF ROAD (See Site Map)**

**PURPOSE:** Bylaw 2435 proposes to rezone the subject properties from "RS-1 One Unit Residential Zone" to "Comprehensive Development Zone (CD) 67". If approved, it would enable the proposed multi-building residential project that consists of 87 units a mixture of townhomes and apartments ranging from studios to 3-bedroom units to be built.

The proposed application and associated reports can be viewed online on the agenda and minutes page of the City website, [www.whiterockcity.ca](http://www.whiterockcity.ca), under Council Agendas from July 5, 2022, until July 18, 2022. If you are unable to access the information online, please contact the Corporate Administration department at 604-541-2278, between the hours of 8:30 a.m. and 4:30 p.m., or leave a voicemail and staff will ensure you have the information made available to you.

**ADDITIONAL INFORMATION**

Further details regarding the subject of the Public Hearing may be found online: [whiterockcity.ca/publichearings](http://whiterockcity.ca/publichearings)

Contact the Planning and Development Services Department for any questions regarding this application: 604-541-2136 | [planning@whiterockcity.ca](mailto:planning@whiterockcity.ca)





THE CORPORATION OF THE  
**CITY OF WHITE ROCK**  
**CORPORATE REPORT**



**DATE:** June 27, 2022

**TO:** Land Use and Planning Committee

**FROM:** Anne Berry, Director, Planning and Development Services

**SUBJECT:** White Rock Zoning Bylaw, 2012, No 2000, Amendment (CD Zone 67 - 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435

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**RECOMMENDATIONS**

THAT the Land Use and Planning Committee recommend that Council:

1. Receive for information the corporate report dated June 27, 2022, from the Director of Planning and Development Services, titled " White Rock Zoning Bylaw, 2012, No 2000, Amendment (CD Zone 67 – 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435."
2. Give first and second readings to "White Rock Zoning Bylaw, 2012, No. 2000, Amendment (CD Zone 67 – 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435" as presented, and direct staff to schedule the required Public Hearing;
3. Direct staff to resolve the following issues prior to final adoption, if Bylaw No. 2435 is given third reading after the public hearing:
  - a) Ensure that all engineering requirements and issues, are addressed to the satisfaction of the Director of Engineering and Municipal Operations;
  - b) Confirm and ensure the recommendations of the final arborist report, approved by the Director of Planning and Development Services and, more specifically the City's Arboricultural Technician, are implemented and maintained through future demolition and construction activities.

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**EXECUTIVE SUMMARY**

This is a draft Zoning Amendment Bylaw, and a draft Major Development Permit to be considered by Council. The bylaws and permit are related to a proposed multi-building development at – 15704, 15724/28/38/48/58/70 North Bluff Road. Therefore, the application is being presented for the first and second reading for the Draft Zoning Amendment Bylaw and, before adoption, the issuance of a Major Development Permit.

## **PREVIOUS COUNCIL DIRECTION**

| <b>Motion # &amp; Meeting Date</b> | <b>Motion Details</b>  |
|------------------------------------|--|
| LU/P-038<br>March 29, 2021         | THAT the Land Use and Planning Committee endorse in relation to Town Centre Transition area Option C as noted in the March 8, 2021 corporate report, with an amendment noting four (4) to six (6) stories where it is defined that along North Bluff on the east or west side permit six (6) stories; and For the remaining sites it be noted as four (4) stories to six (6) stories with a notation that proposals over four (4) stores would be considered when there is an affordable housing component.<br>CARRIED |
| LU/P-039<br>March 29, 2021         | THAT the Land Use and Planning Committee endorse Option A as noted in the March 8, 2021 corporate report titled "Results of OCP Review Survey- Building Heights Outside the Town Centre" in regard to the East Side Large Lot Infill.<br>CARRIED   |
| LU/P40<br>March 29, 2021           | THAT the Land Use and Planning Committee endorse removal of the row of single family homes on Finlay Street - section below Russell Avenue from the area titled as "East Side Large Infill" from Official Community Plan and it remain with the mature neighbourhood designation.<br>CARRIED   |
| LU/P-041<br>March 29, 2021         | THAT the Land Use and Planning Committee endorse a maximum of a four (4) storey height along North Bluff road along the east side (East of Lee Street to Maccaud Park).<br>CARRIED   |
| LU/P-042<br>March 29, 2021         | THAT the Land Use and Planning Committee endorse the Waterfront Village be limited and/ or referred to as only the buildings that front onto Marine Drive.   |
| LU/P-043<br>March 29, 2021         | THAT the Land Use and Planning Committee endorse, at West Beach along Marine Drive, permitting a building height of three (3) stories.<br>CARRIED  |

## **INTRODUCTION/BACKGROUND**

### **Project Overview**

#### **Initial Application**

This application has undergone several revisions based on Council direction and comments from the Public Information Meeting (PIM) and the Advisory Design Panel (ADP).

The original application presented at the PIM and to ADP was a 6-storey, 2.5 floor area ratio (FAR) form of development. It consolidates seven existing single-family home lots on North Bluff Road between Lee Street and Maccaud Park. Three buildings were proposed: two mid-rise,

multi-unit, market residential buildings and one mid-rise, multi-unit, affordable non-market rental housing located at the corner of North Bluff and Lee Street.

The project site is located within the East Side Large Lot Infill Area, as defined by the City of White Rock Official Community Plan (OCP), which at the time of the initial application allowed for the development of a 2.5 FAR density and 6 storeys building height. The initial design was for 115 homes (Figure 1).

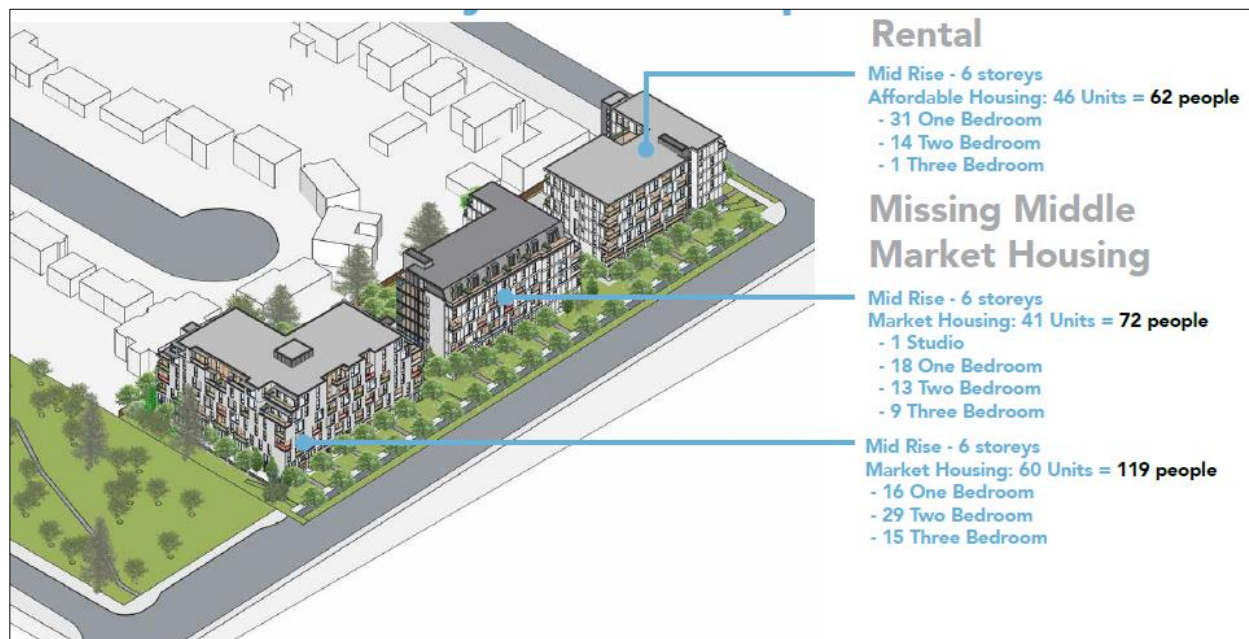


Figure 1 Birds view of the Site Plan of the APD Submission (October 1, 2020)

The community and the ADP overall supported this design. The summary of the PIM is in (Appendix A). The application complied with the OCP for height in the East Side Large Lot category. It included a car-sharing program in exchange for relaxation in the parking requirements. At the March 8, 2021, meeting as a result of the Official Community Plan Review Survey - Building Heights Outside the Town Centre, Council made a resolution to reduce the FAR and the maximum storey height from 6 to 4, with the ability for the developer to reach 2.5 FAR and 6 storeys if Affordable housing was included as per Policy 11.2.1.c.

*Affordable Housing Bonus – Allow rezonings in the Town Centre Transition area to permit buildings up to six storeys and 2.5 FAR where the development provides:*

*For a development replacing existing rental units and providing compensation to tenants in accordance with the City's Tenant Relocation Policy, at least 5% of the units as Affordable Rental Housing. Projects with applications submitted prior to 2021 may be approved with at least 5% of the units secured at average rents for a period of 10 years, instead of 20% below average for the life of the building. Developments in this category may have a density up to 2.8 FAR.*

This project progressed to the ADP and was presented to the panel at the October 20, 2020, meeting. A summary of ADP's comments and the applicants' responses are summarized in Appendix B. The ADP passed the following motion:

*It was MOVED and SECONDED THAT the Advisory Design Panel recommends that the application for the development proposal at 15704, 15724/28/38/48/58/70 North Bluff*

*Road (ZON/MJP 19-017) North Bluff Road [Beachway II] be referred to Council subject to the applicant giving consideration to.*

1. *Adequacy of parking supply:*
2. *Adequacy of the location of spaces for deliveries/drop-offs;*
3. *Management of stormwater and;*
4. *Further development of the landscape proposal in the Southeast corner of the site.*

The table below summarized the applicant's responses to the considerations ADP passed in the above motion.

Table 1

| <b>Motion Consideration<br/>(1-4 above)</b>                     | <b>ADP Comments</b>  | <b>Response</b>  |
|---|--|--|
| 1. Adequacy of parking supply.                                  | Limited parking supply identified as a concern – reduction may be too aggressive – may require additional supply (“excavation”) – alternative opinion regarding the opportunity presented by the proposal is looking at efforts to change auto reliance. | Parking reductions are no longer being proposed. The developments parking provision will meet the requirements of the City of White Rock Zoning Bylaw.   |
| 2. Adequacy of the location of spaces for deliveries/drop-offs. | Comments were made regarding the need for allocation for service vehicles, e.g. food delivery or taxis, to stop near the buildings and overall accessibility (or distance) from portions of the overall development site.                                | Service parking is located both at grade with a Zoning compliant oversized loading bay. There is also smaller service/loading stalls within the below-grade parkade, one per elevator shaft. Due to prohibitions on curb cuts along both North Bluff Road and Maccaud Park, there is limited ability to achieve additional service delivery lay-by locations. Any potential on-street lay-bys would be under the purview of the City of White Rock Engineering Department. |
| 3. Management of stormwater.                                    | Applicant states that “all” rainwater is to be reused– that would be excellent. However, this needs to be confirmed or clarified through the City’s review of the stormwater management plan.  | The current stormwater management proposal is to provide a stormwater detention tank complete with a flow control device that limits flows to the  |

|   |   |  |
|---|---|--|
|   |   | pre-development conditions. Stormwater reuse is not feasible for this site.  |
| 4. Further development of the landscape proposal in the Southeast corner of the site. | The landscape plan has a good flow of spaces and fits the configuration of the property well; would like to see the pedestrian path between Buildings 2 and 3 (see figures 3) made wider (~1 foot wider) and in the southeast corner of the site; would like steppingstones south of Building 3 to be evaluated in terms of the impact that trees (roots) may have on the area over time and the type of steppingstones used in terms of their longevity (larger basalt stones may be a better option). | The pedestrian path connecting Buildings 2 and 3 through the drive aisle is limited to 1.2m (4') width because of slope requirements to get to the parkade entry. Pedestrian bridge width is designed per Architecture/Structural standards. The landscape path connection matches at 1.32m (4'4"). The exit path at the southeast site corner is 1.2m (4') wide which adheres to code requirements – note this is not a main route through the site. All stepping stones on the site are located at play areas and meant to act as a nature play element, encouraging children to interact with the planting. |

#### Current Application

The revisions to the proposal are in direct response to the Council motion to reduce the height to a maximum of four storeys in this area. The project no longer seeks the additional density provided for affordable housing per the East Side Large Lot Infill Redevelopment Area (*Policy 11.2.1.c*). The revised approach will meet 1.5 FAR over three buildings (two four-storey multi-family residential buildings and one three-storey townhouse building in the middle). In addition, the previous application sought reductions in parking requirements by providing a car-share program in the building. A reduction is no longer needed, and the car-sharing program has been removed. Parking is now proposed to meet the requirements in the Zoning Bylaw. Below are site plans of the two proposals (see figures 3&4).



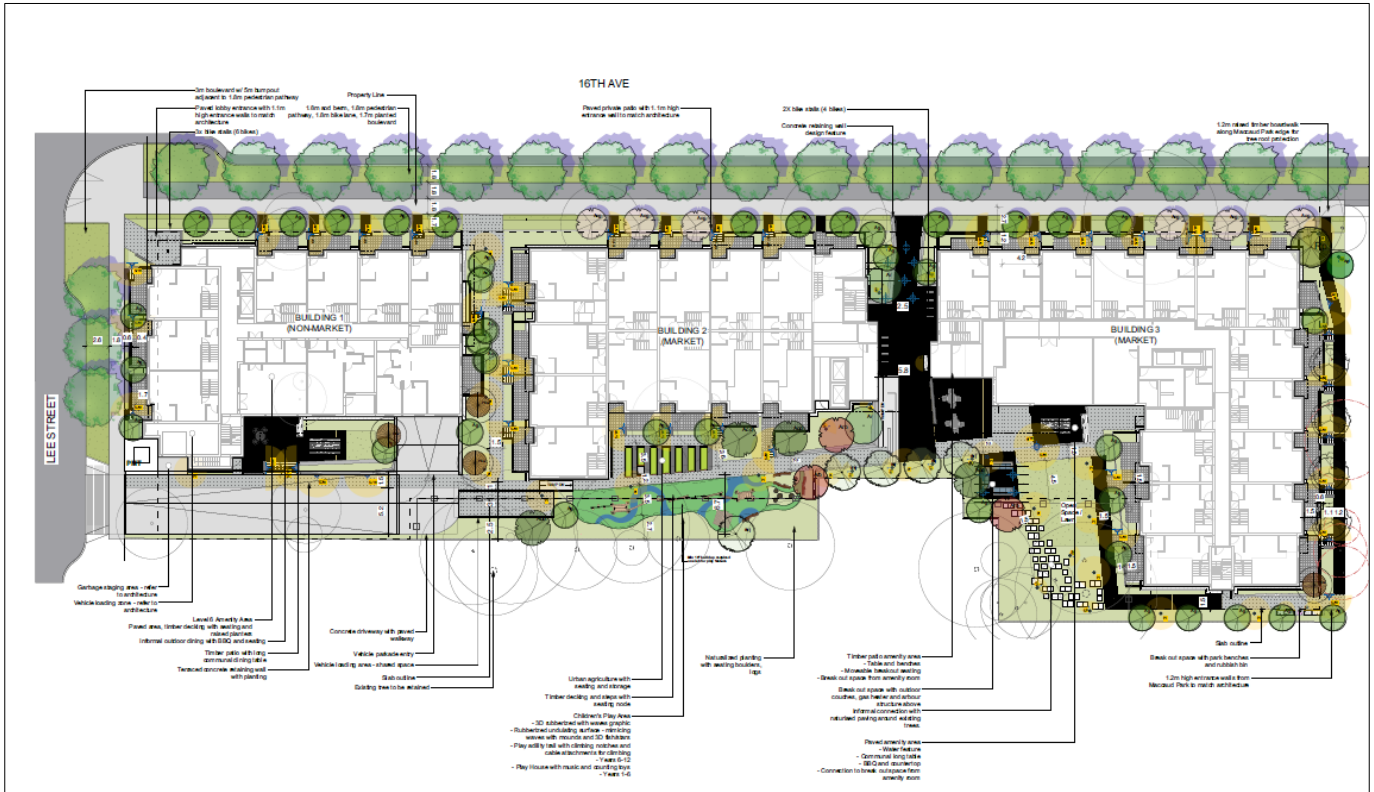


Figure 3- Site Plan of the APD Submission (Oct 1, 2020)

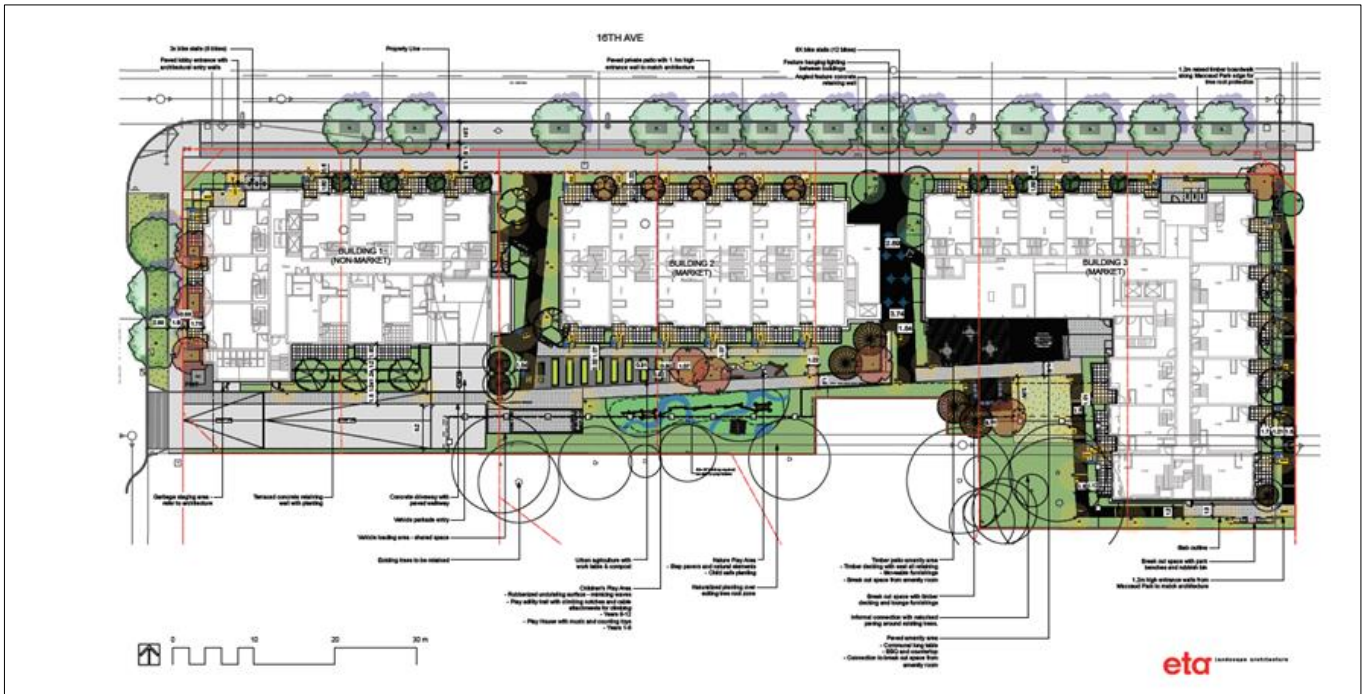


Figure 2- Site Plan of the Current Submission (Apr 14, 2022)

### Design Changes

In comparison to the past application, the development has undergone the following amendments:

| Previous ADP Submission (October 1, 2020)  | Current Submission (April 14, 2022)  |
|--|--|
| <b>Density Comparison</b>  |  |
| <ul style="list-style-type: none"> <li>- 2.5 FAR overall</li> <li>- 149 units</li> <li>- 2.5 FAR Affordable housing was previously proposed, aligned with the East Side Large Lot Infill Redevelopment Area.</li> <li>- Lot Coverage 51.6%</li> </ul>  | <ul style="list-style-type: none"> <li>- 1.5 FAR overall</li> <li>- 87 units</li> <li>- With Council's decision to reduce height/density at this location, affordable housing targets per the East Side Large Lot Infill Redevelopment Area are not being pursued. It is not financially feasible based on the rising construction cost and the allowable density.</li> <li>- Lot Coverage 46.0%</li> </ul>  |
| <b>Form of Development</b>   |  |
| <ul style="list-style-type: none"> <li>- Three buildings at 6 storeys each per the East Side Large Lot Infill Redevelopment Area with affordable housing.</li> <li>- Each building is roughly L-shaped in plan, which results in a more broken-up courtyard space south of the buildings.</li> </ul> | <ul style="list-style-type: none"> <li>- 4-storey buildings bookend on either side of the site, with a 3-storey townhouse building. Overall footprints of Buildings 1 and 3 remain very similar to the October 1, 2020 submission. Building 2 has been revised to suit townhouses only and is no longer stacked townhomes with apartments on the upper levels.</li> <li>- The 4-storey apartment buildings are located at the corners of the site to take advantage of multiple street frontages.</li> <li>- The central townhouse building is limited in width (6 units facing North Bluff Road), and the linear form removes building mass from the south-facing courtyard, thereby increasing the size and quality of the outdoor amenity space.</li> </ul> |
| <b>Height</b>  |  |
| <ul style="list-style-type: none"> <li>- Building Heights previously presented at 6 storeys maximum, per the East Side Large Lot Infill Redevelopment Area.</li> </ul>   | <ul style="list-style-type: none"> <li>- Building height maximum has been reduced to 4 storeys for Buildings 1 and 3. Building 2 has been proposed as a three-storey townhouse to bring the developable FAR to 1.5 FAR overall.</li> <li>- Building heights at Building 2 have been set to create a consistent street wall in relation to Building 3 along North Bluff Road.</li> </ul>  |

| <b>Setbacks</b>  |  |
|--|--|
| <ul style="list-style-type: none"> <li>- Proposed minimum setbacks are in alignment with the OCP.</li> </ul>   | <ul style="list-style-type: none"> <li>- No change in minimum setback requirements from OCP.</li> <li>- Townhouses (Building 2) are provided with a greater setback distance to North Bluff Road to deal with the grade change across the site and to create a more varied street wall (One of the long side boundaries of a street, formed by buildings, hedges, etc.).</li> <li>- Patio terraces have been adjusted to provide a minimum of 600mm of landscape buffer to the adjacent sidewalk.</li> </ul>   |
| <b>Architectural Character</b>   |  |
| <ul style="list-style-type: none"> <li>- The western two buildings (Buildings 1+2) were more in character with one another, being shown with fibre-cement cladding, while the easternmost building (Building 3) has brick cladding.</li> </ul> | <ul style="list-style-type: none"> <li>- The site design allows the two larger L-shaped 4-storey buildings to act as bookends, anchoring the northwest corner of the site, facing the park, and the southwest corner at Lee Street.</li> <li>- There have been some adjustments to Building 1 to align with the character of Building 3 as previously proposed, with similar brick facades. The brick proposed for Buildings 1 and 3 is darker than presented at ADP to help “anchor” each end of the site, create streetscape variety along North Bluff Road, and differentiate from the townhouse building.</li> <li>- Balcony guardrails previously shown as coloured glass have been revised to clear safety glass.</li> </ul> |
| <ul style="list-style-type: none"> <li>- A common entrance to Buildings 2 and 3 was proposed from the courtyard.</li> </ul>  | <ul style="list-style-type: none"> <li>- Units facing streets are similar to the previous design, with an individualized expression of each unit and semi-private front terraces. Patios have been adjusted slightly to provide for a minimum 600mm landscape buffer to the adjacent sidewalk.</li> <li>- Finish floor elevations and street-facing patios have been adjusted to provide for raised terraces within 1500 mm of grade.</li> <li>- The northeast corner townhouse unit at Building 3 has been rotated to more directly face Maccaud Park, providing eyes on the park and connectivity with the other units facing the park.</li> </ul>   |



| <b>Amenity Spaces</b>   |  |
|---|--|
| <ul style="list-style-type: none"> <li>- Indoor amenity spaces totalling 207.8 sq.m (1.4 sq.m. per unit) were located in both Buildings 1 and 3.</li> </ul>   | <ul style="list-style-type: none"> <li>- With the reduction in the number of units, amenity spaces have been consolidated in Building 3 to create a vibrant community hub.</li> <li>- The size has been adjusted to 187.5 sq.m. (2.1 sq.m per unit)</li> <li>- With a reduced building footprint, there is an increase in outdoor amenity area from the October 1, 2020 submission.</li> </ul>   |
| <b>Parking and Loading</b>  |  |
| <ul style="list-style-type: none"> <li>- A parking variance was previously proposed to reduce the number of required parking stalls.</li> <li>- Loading spaces were provided both at the lane (for larger vehicles) and within the parkade (for smaller vehicles).</li> </ul>   | <ul style="list-style-type: none"> <li>- Parking is proposed to meet the requirements of the Zoning Bylaw, with no requests for a variance.</li> <li>- As the request for a variance has been removed, so have car and bike share facilities. However, some enhanced bike facilities (bike repair station and bike wash) remain.</li> <li>- The approach to loading spaces is similar to the October 1, 2020 submission. with one larger loading space at the lane and smaller loading spaces within the underground parkade for more day-to-day deliveries.</li> </ul>  |
| <b>Open Space/Landscaping</b>   |  |
| <ul style="list-style-type: none"> <li>- Buildings were provided with landscaped patio terraces facing the adjacent streets and Maccaud Park. A common courtyard south of the buildings provided an available amenity area with good solar access and site porosity.</li> </ul> | <ul style="list-style-type: none"> <li>- Overall landscape concept remains similar to the October 1, 2020 submission. However, transitions between buildings leading to the courtyard from North Bluff Road have been adjusted to suit the revised building siting.</li> <li>- The lane access from the Lee Street ramp has increased to achieve zoning-conforming clear height in the parkade. In addition, an additional accessible route into the courtyard between Buildings 1 and 2 has been added to improve accessibility to the outdoor amenity area.</li> </ul> |

### Unit Changes

Overall, 62 units have been removed from the project from the October 1, 2020, submission to the current proposal (from 149 units to 86 units). As noted previously, this coincides with the overall development density and building height reduction. Below are the details of the decrease in the unit per building (1,2&3).

| Previous ADP Submission (Oct 1, 2020)   | Current Submission (Apr 14, 2022)  |
|---|--|
| <p><b>Building 1</b></p> <p>Midrise – 6 storeys<br/>Market housing – 60 units</p> <ul style="list-style-type: none"> <li>○ 16 one-bedroom units</li> <li>○ 29 two-bedroom units</li> <li>○ 15 three-bedroom units</li> </ul>                    | <p><b>Building 1</b></p> <p>Midrise – 4 storeys<br/>Market housing 31 units</p> <ul style="list-style-type: none"> <li>○ 20 one-bedroom</li> <li>○ 4 two-bedroom</li> <li>○ 7 townhomes</li> </ul> <p>Detailed changes:</p> <p>Building 1 (a net reduction of 16 units):</p> <ul style="list-style-type: none"> <li>• Level 1 (+1 unit): <ul style="list-style-type: none"> <li>• Indoor amenity removed due to a lower overall building population, with the removal of overall density. This was replaced with a 1-bedroom unit.</li> </ul> </li> <li>• Level 2 (no net change in unit count): <ul style="list-style-type: none"> <li>• A minor adjustment in the size of Unit 110 to better align the structure and improve the functionality of the unit’s floor plan.</li> </ul> </li> <li>• Level 3 (no net change in unit count): <ul style="list-style-type: none"> <li>• No significant changes to units.</li> </ul> </li> <li>• Level 4 (no net change in unit count): <ul style="list-style-type: none"> <li>• No significant changes to units.</li> </ul> </li> <li>• Level 5 &amp; 6 (-17 units): <ul style="list-style-type: none"> <li>• Floor levels deleted.</li> <li>• 9 units were removed at Level 5.</li> <li>• 8 units were removed at Level 6.</li> </ul> </li> </ul> |
| <p><b>Building 2</b></p> <p>Midrise – 6 storeys<br/>Market housing – 41 units</p> <ul style="list-style-type: none"> <li>○ 1 Studio</li> <li>○ 18 one-bedroom units</li> <li>○ 13 two-bedroom units</li> <li>○ 9 three-bedroom units</li> </ul> | <p>Midrise – 3 storeys<br/>Market housing 12 units</p> <ul style="list-style-type: none"> <li>○ 12 townhomes</li> </ul> <p>Detailed changes:</p> <ul style="list-style-type: none"> <li>• Building 2 (a net reduction of 30 units): <ul style="list-style-type: none"> <li>• Building 2 changed from a 42-unit, 6-storey Multi-Residential Building (mix of apartments and townhouses)</li> </ul> </li> </ul>  |

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|   | to twelve 3-storey townhouses. All new unit types to suit—a net total of 30 units removed from the project.  |
| <b>Building 3</b>   |  |
| <p>Midrise – 6 storeys<br/>Non-Market housing – 46 units (affordable rental housing)</p> <ul style="list-style-type: none"> <li>○ 31 one-bedroom units</li> <li>○ 14 two-bedroom units</li> <li>○ 1 three-bedroom unit</li> </ul> | <p>Midrise – 4 storeys<br/>Market housing 44 units</p> <ul style="list-style-type: none"> <li>○ 14 one-bedroom</li> <li>○ 16 two-bedroom</li> <li>○ 14 townhomes</li> </ul> <p>Detailed changes:</p> <p>Building 3 (a net reduction of 16 units):</p> <ul style="list-style-type: none"> <li>• Level 1 (no net change in unit count): <ul style="list-style-type: none"> <li>• Entry to building relocated to face North Bluff Road, improving wayfinding, addressing, and fire department access. Unit 106B two-storey townhouse was removed (October 1, 2020 submission) to provide a location for the new building lobby; a single-storey unit on Level 2 has replaced this.</li> <li>• Unit 106B (April 14, 2022 plans) rotated to front more directly on Maccaud Park, improving the park frontage and benefitting the livability of the unit.</li> <li>• Exit stair #2 at the southeast corner of the building was adjusted to flatten the façade at this location. Minor adjustments to the entry doors into Units 111B and 112B (April 14, 2022 plans) to suit.</li> <li>• Indoor Amenity reconfigured to maximize plan efficiency.</li> </ul> </li> <li>• Level 2 (no net change in unit count): <ul style="list-style-type: none"> <li>• Adjustment of Unit 202B floor plan to suit reconfiguration of Stair #3.</li> <li>• Units 101B-105B: plans flipped to better coordinate balcony positions.</li> <li>• Unit 201B is shown as a single-storey 1-bedroom unit due to its position above the new entry lobby. This unit replaces the former two-storey townhouse unit; therefore, there is no</li> </ul> </li> </ul> |

|  |  |
|--|--|
|  | <p>addition to the overall unit count at this location.</p> <ul style="list-style-type: none"> <li>• Unit 106B: reconfigured to face park (see above).</li> <li>• Units 107B-114B: balconies adjusted to improve building envelope detailing.</li> <li>• Level 3 (no net change in unit count): <ul style="list-style-type: none"> <li>• No significant changes to units.</li> </ul> </li> <li>• Level 4 (no net change in unit count): <ul style="list-style-type: none"> <li>• No significant changes to units.</li> </ul> </li> <li>• Levels 5 &amp; 6 (-16 units): <ul style="list-style-type: none"> <li>• Floor levels deleted. 8 units were removed at Level 5, and 8 units were removed at Level 6.</li> </ul> </li> </ul> |
|--|--|

Staff have reviewed the application changes and compared them to the previous plans and the ADP roles and mandate. In the review of development permits applications, the panel's mandate is to consider the following:

- *The alignment with applicable policies of the Official Community Plan and the Development Permit Area Guidelines:*
  - A local government may designate certain lands as Development Permit Areas (DPA) within an Official Community Plan (OCP). The Form and Character DPA controls the form and character objectives for commercial, industrial and residential development (e.g. landscaping, siting, exterior design).
  - The form, character, appearance and landscaping are important part of what makes a place attractive and livable.
  - Staff have concluded through the review that the application still meets the intent of the guidelines, the density has been reduced but the overall form and characteristics of the development has not changed. Modifications are primarily the reconfiguration of townhomes and apartments.
- *Form and character impacts that may arise out of a request for relief from a zoning bylaw standard(s) (e.g., reduction in yard setbacks, additional building height, etc.):*
  - There is no longer a request for relief from zoning bylaw standards.
- *The intended function of the project and how the development fits within the neighbourhood context (e.g., urban design, site design, compatibility of built form, the potential for land use impacts such as shadowing, insufficient parking, negative impacts to traffic volumes, etc.):*
  - The urban design has not changed significantly. The overall site plans in figures 1 and 2 are similar. The modification to the design include a reduction in height, number of units, and shadowing has been reduced due to the reduction in height. The proposed parking meets the requirements our zoning bylaw and have been verified by staff. Traffic volumes will be reduced due to the reduction in units.
- *The overall quality of building and site design considering:*

- *the livability of the project for future occupants / site users including specific regard for public safety (CPTED) and accessibility;*
  - The applicant included these features into their design. No significant changes have been made to the current submission that would affect this.
- *the constructability of the design with regard to the potential impact on building longevity and cost (affordability for future owners / renters);*
  - The design for the use of a prefabricated timber system will:
    - Enhance quality of construction,
    - Sequester carbon creating an environmentally sustainable building,
    - Reduce construction time limiting the impact on neighbours,
    - Result in a quieter construction site with reduced trades on site,
    - Support local industry, and
    - Result in affordable, warm, compelling homes for a wide range of residents.

This method of construction has not changed since the Previous ADP Submission (Oct 1, 2020).
- *the environmental sustainability of the design considering efforts for stormwater; retention, passive solar gain, electric vehicle use, and other measures;*
  - See the Climate Change Implications section of the report.
- *the way in which the building design interacts with, and positively contributes to, the public realm (e.g., interface of the building with the street, landscaping treatment, pedestrian connections, variability in design and massing, etc.);*
  - The project focuses on providing open and engaging spaces for public life, enhancing the character of the built environment and public realm. A network of pedestrian routes link to the central courtyard. Green space both within and surrounding the site provides area for growth of a healthy tree canopy, improving the character and walk-ability of the neighbourhood. This has not changed from the Previous ADP Submission (October 1, 2020). The intent is the same.
- the impact of the siting of buildings and structures, as well as other site features (e.g., driveways, impermeable amenity spaces, etc.) on protected trees, both private and public, and the ability to avoid tree removals and/or support tree plantings through the design of the building(s) and the layout of the site; and
- the potential for conflicts with other municipal bylaws where such conflicts may affect the overall form and character of the development or the way in which the project upholds the policy objectives of the Official Community Plan.

Based on the above information and comments, staff concluded that the changes made to the October 1, 2020 submission are not enough to be sent back to the ADP for further comments. The revised current Submission (Apr 14, 2022) meets the intent of the design guidelines and it aligns with the mandate of the ADP. Further, all considerations made by the ADP have been addressed (table 1). Council may choose to direct this application back to the ADP should council deem a further review necessary.



NORTH BLUFF ROAD ELEVATION



COURTYARD ELEVATION

### Site Context

The development is located within the East Side Large Lot Development Infill permit area, on North Bluff Road, between Maccaud Park and Lee Street (see figure 5). This site is well placed to encourage walking, transit use, and biking:

- The site is within a 15-minute walk to the Semiahmoo Town Centre.
- The Peace Arch Hospital Precinct is a 5-minute walk to the west.
- Earl Marriot Secondary School is located north of the site along North Bluff Road, and Peace Arch Elementary School is less than 5-minute walk to the southeast through the residential neighbourhood.
- The Kent Street Activity Centre, located within Maccaud Park and home to the Kent Street Seniors Activity groups, is a 2-minute walk.
- Proposed new R1 RapidBus service will be located along 152nd Street with an extension to 156th Ave/Finlay Street and North Bluff Road within the Semiahmoo Town Centre.

The surrounding neighbourhood is generally comprised of low density, detached residential homes, except for the ‘ALTUS’ development, a 13-storey mixed-use building currently under construction. Several institutional uses are also near the site, with the BC Hydro substation and Peace Arch Hospital to the west, and Earl Marriott Secondary School (in Surrey) and Maccaud Park to the east. Nearby projects under development or construction include:

- ALTUS development with 4.3 FAR at Finlay and Russell.
- Immediately to the north of the site, the Semiahmoo Town Centre Expansion Area has a projected FAR of 2.5 between 156th and 157th streets.

- Between 157th and Earl Marriot School there includes a proposal for 114 units in 2 six storey mid-rise affordable housing and 4 storey stacked townhouses.

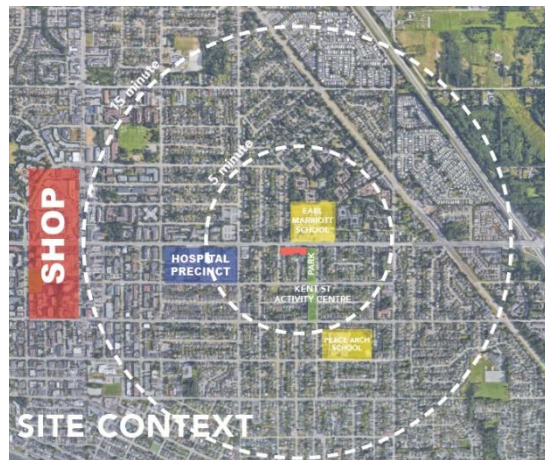


Figure 4 - Site Context

#### White Rock Official Community Plan, 2017, No. 2220

The Official Community Plan (OCP) sets out land use, density, height, and other policy directions for development applications. It's objective is to enable a mix of residential forms and choices in the area east of the Peace Arch Hospital – as well as select commercial uses to support the Hospital – that are compatible with adjacent Mature Neighbourhood areas and supportive of transit along North Bluff Road.

This designation contemplates providing opportunities by allowing multi-unit residential uses in townhouses and low to mid-rise buildings, mixed-use buildings (commercial/office/residential), and single family homes. In reference to permissible densities and heights the OCP would allow a density of up to 1.5 FAR (gross floor area ratio) in buildings up to four storeys in height with an 2 story addition for projects with 20% of the units with an affordable housing component.

This site is within the East Side Large Lot Infill Development Permit Area (DPA). The objectives of this Development Permit Area are to:

- Establish an attractive, comfortable, well-connected, pedestrian-oriented environment.
- Ensure the compatibility of new development with adjacent existing buildings.
- Enhance quality of life.
- Conserve energy and water and reduce GHGs.
- Enhance the character of the built environment and public realm in the City of White Rock.

#### Zoning Bylaw No. 2000

The subject properties are currently zoned 'RS-1 One Unit Residential' in the White Rock Zoning Bylaw. The intent of this zone is to accommodate one-unit residential buildings on lots of 464 m<sup>2</sup> (4,995 ft<sup>2</sup>) or larger. Under the current zoning, the subject property would be permitted to construct a 17,000 ft<sup>2</sup> (excluding basement, garage, and other areas) single-family dwelling with a maximum height of 7.7 metres (25.26 feet).

### Traffic Impact Study

The traffic impact study (Appendix C) was prepared for a development of 149 units and this revised development is for 87 units. Due to the lower number of units staff did not feel it was necessary to have the applicant update the study. The overall impact of the development on current traffic patterns is minimal.

### FINANCIAL IMPLICATIONS

The following fees would be collected if approved for rezoning and subdivision (Table 2). Note these fees are subject to change:

**Table 2: Applicable Development Costs**

|   | Fee<br>(per unit) | Units<br>Subject to<br>Fee | Sub-Total             |
|---|-------------------|----------------------------|-----------------------|
| City of White Rock Development Cost Charges (DCCs)            | \$11,253.27       | 87                         | <b>\$979,036.80</b>   |
| TransLink DCCs  |                   |                            |                       |
| - Townhomes   | \$4,695.00        | 12                         | <b>\$56,340.00</b>    |
| - Apartments  | \$3,530.00        | 75                         | <b>\$264,750.00</b>   |
| Metro Vancouver (Regional) DCCs                               |                   |                            |                       |
| - Townhomes   | \$4,695.00        | 12                         | <b>\$56,340.00</b>    |
| - Apartments  | \$3,530.00        | 75                         | <b>\$264,750.00</b>   |
| Surrey School District School Site Acquisition Charges (SSAC) | \$800.00          | 87                         | <b>\$69,600.00</b>    |
| <b>Total</b>  |                   |                            | <b>\$1,690,816.80</b> |

This development does not meet the threshold for Community Amenity Contributions.

### COMMUNICATION AND COMMUNITY ENGAGEMENT IMPLICATIONS

A Public Information Meeting (PIM) for this proposal was held on September 9, 2020. A copy of the applicant's PIM Summary is included in Appendix A.

### INTERDEPARTMENTAL INVOLVEMENT/IMPLICATIONS

The zoning bylaw amendment application and development permit were referred to municipal departments for comments. Comments provided to the applicant have been addressed related to this stage of the rezoning proposal.

Approval of the final detailed (civil) designs and the execution of a "Works and Servicing Agreement" to the satisfaction of the Director of Engineering and Operations would be required as a condition of 3<sup>rd</sup> reading.

### CLIMATE CHANGE IMPLICATIONS

The application will enable the intensification of the 'East Side Large Lot Infill Area', thereby lessening the demand for outward sprawl otherwise necessary to accommodate growth. The applicant has also proposed several initiatives to address climate change, which include the following:



- Prefabricated wood construction to reduce energy and greenhouse gas emission, support local industry, and to reduce construction time,
- High performance building envelopes and mechanical systems to conserve energy and reduce greenhouse gas emissions,
- Enhanced stormwater retention strategies will be incorporated into the buildings and site design to manage the quality and quantity of rainwater runoff,
- Native plant species and xeriscaping will ensure the landscape supports a rich biodiversity, enhancing the natural environmental and human health performance of the community

### **IMPLICATIONS FOR TREE PRESERVATION AND TREE CANOPY ENHANCEMENT**

All the trees identified on the Tree Retention/Removal Plan and have been given their Retention/Removal recommendation on a preliminary basis (Appendix E). Final recommendations will be based upon design/construction and grading details. Any City tree that is removed will have replacement tree bonds collected as Cash-in-Lieu. There are 40 total replacement and two of the trees will be handled by Cash in Lieu (\$1,500) as these are straddling city property.

The applicant has been advised that any trees that need to be removed on neighbouring properties must be approved by the property owner. The applicant has obtained letters of approval from the properties owners.

### **ALIGNMENT WITH STRATEGIC PRIORITIES**

Council has expressed a desire to support a high quality of life in the City. The ability to support residential infill can help lessen the demand for sprawl while also making the best use of existing infrastructure.

### **OPTIONS / RISKS / ALTERNATIVES**

The following options for Council's consideration are:

1. Give first and second readings to "White Rock Zoning Bylaw, 2012, No. 2000, Amendment (CD Zone 65 – 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435." and Development Permit No. 423 as presented, and direct staff to schedule the required public hearing; or
2. Reject "White Rock Zoning Bylaw, 2012, No. 2000, Amendment (CD Zone 65 – 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435.; or
3. Defer consideration of "White Rock Zoning Bylaw, 2012, No. 2000, (CD Zone 65 – 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435. pending further information to be identified.

Staff recommends Option 1, which is incorporated into the recommendations at the beginning of this corporate report.

## **CONCLUSION**

This application proposes to rezone seven properties from the "RS-1 One Unit Residential Zone" to the "Comprehensive Development Zone (CD) 65". If approved, it would enable the proposed multi-building residential project that consists of 87 units a mixture of townhomes and apartments ranging from studios to 3 bedroom units to be built. If council is supportive of this application staff will bring the development permit forward at third reading. Overall, staff supports the proposal subject to the recommended conditions noted.

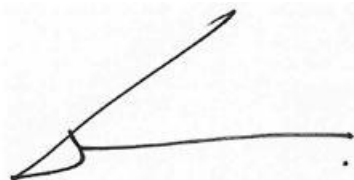
Respectfully submitted,



Anne Berry  
Director, Planning and Development Services

## **Comments from the Chief Administrative Officer**

I concur with the recommendations of this corporate report.



Guillermo Ferrero  
Chief Administrative Officer

- Appendix A: Public Information Meeting (PIM) Summary
- Appendix B: ADP Comments – Comparison Memo
- Appendix C: Traffic Impact Study for 15704, 15724/28/38/48/58/70 North Bluff Road
- Appendix D: Zoning Amendment No. 2435 - 15704, 15724/28/38/48/58/70 North Bluff Road
- Appendix E: Arborist Report - 15704, 15724/28/38/48/58/70 North Bluff Road



## **Email Correspondence: Virtual Public Information Meeting**

Below is a table outlining email correspondence (questions) that was received by the City of White Rock regarding the Virtual Public Information Meeting for the project numbered: **19-017**.

| Email Correspondence Total |
|----------------------------|
| <b>3</b>                   |

Upon our review, the main concerns of the public and our responses to them are below:

### **Height:**

A six-storey development is in compliance with the OCP for height in the East Side Large Lot category. Only two blocks to the east is the site of a 13-storey building.

### **Parking:**

Including the car-share rationale, we feel Beachway 2 would provide enough parking and transportation options. For construction and trade purposes, Waterstock owns lands on the Surrey side of North Bluff road that will house the parking during construction.

### **Density:**

Waterstock Properties are great champions of Floor Space Ratio (FSR) compliance. Beachway 2 fits into the allowable 2.5 FSR in the East-Side Large Lot designation.

## **Virtual Public Information Meeting Live Comments**

Below are questions or comments that were received and answered during the live Virtual Public Information Meeting for the project numbered: **19-017**. These comments are written precisely how they were presented. Any spelling or grammatical errors seen here are an exact recreation to what was shown at the Virtual Public Information Meeting.

| 1)               | <table><tr><th>Identity</th><th>Timestamp</th></tr><tr><td><b>Anonymous</b></td><td><b>9/10/2020 0:39</b></td></tr></table> | Identity | Timestamp | <b>Anonymous</b> | <b>9/10/2020 0:39</b> |
|------------------|---|----------|-----------|------------------|-----------------------|
| Identity         | Timestamp   |          |           |                  |                       |
| <b>Anonymous</b> | <b>9/10/2020 0:39</b>   |          |           |                  |                       |

Content:

*I think it is a good fit. Height is only 69.55 feet and it is medium density.*

Response:

We thank you for your support of the project and how it will contribute to the community!



2)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 0:48</b> |

Content:

*White Rock desperately needs affordable, long term rental accommodations. The designated location seems perfect!*

Response:

Thank you for the support! We are excited to bring the rental component to the area.

3)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 0:54</b> |

Content:

*Below market rentals are not the same as affordable housing. It is just used to get the extra 3 stories of height for all buildings.*

*For Beechway 1 they were going to turn the affordable units property over to BC Housing ?*

Response:

Any correspondence on Beachway 1 is available on the White Rock website. Beachway 2 has been proactive in understanding all avenues with regards to affordable housing.

4)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:02</b> |

Content:

*A bit too much density . Townhouses would be better like the ones yuo built in Surrey.*

Response:

We feel Beachway 2 offers a great mix for people in all stages of life. First time homebuyers, downsizers, and essential workers (especially hospital employees) were at the forefront of the design discussion.

5)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:07</b> |

Content:

*A good mix of units.*

Response:

Thank you for your support!

6)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:13</b> |

Content:

*From experience people living in two and three bedroom apartments need at least 2 parkade stalls each . So around 260 stalls are needed.*



Response:

Including the car-share rationale, we feel Beachway 2 would provide enough parking and transportation options.

7)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:16</b> |

Content:

*When you cut down parking stalls the parking goes out to the street in the form of permit parking . Basically this project will be eligible for 584 residents only parking passes. This project will add huge street parking issues.*

Response:

Including the car-share rationale, we feel Beachway 2 would provide enough parking and transportation options. The location strategically placed on the artery that is North Bluff road to encourage different modes of transportation. The RapidBus will also be implemented to support this.

8)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:17</b> |

Content:

*How many levels of underground parking?*

Response:

There will be two levels.

9)

| Identity           | Timestamp             |
|--------------------|-----------------------|
| <b>Erin Carter</b> | <b>9/10/2020 1:19</b> |

Content:

*This looks great! As a local Realtor, I'd love to see more affordable housing options in White Rock.*

Response:

Thank you for your comment, Erin!

10)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:20</b> |

Content:

*What will north bluff road look like in 5 years?*

Response:

Waterstock, and all developers, work diligently with the municipality to ensure the infrastructure is upgraded as needed.



11)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:23</b> |

Content:

*I appreciate the presentation and certainly you have envisioned living in this development. What about people living on connected streets (i.e.: Parker) who have lived here a long time and may not be excited about having six stories looking down into their properties?*

Response:

Thank you for your support and envisioning living in this development. White Rock has seen exponential growth (in height) of new developments over the past few years. Beachway 2 is compliant with the OCP designation East-Side Large Lot and we feel strongly in keeping within the designated height and density parameters.

12)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:24</b> |

Content:

*Are you going to use Government Loans?*

Response:

Waterstock's Founding Principal, Raghbir Gurm, spoke to this note in the PIM presentation and is available to the public on the White Rock Website. Any financial questions will not be will be deferred to further correspondence.

13)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:26</b> |

Content:

*Tell me about the electric care shared program? That sounds exciting! What type of cars would there be and would this be provided to the community?*

Response:

We are excited about the car-share program as well! There are a few different options that are going through the due diligence necessary to be implemented in White Rock. We feel this will be a great start to bringing emissions down.

14)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:26</b> |

Content:

*how will this development affect the market value of our existing bordering properties?*



Response:

Waterstock feels that Beachway 2 will add positively to the community. These units are a different offering than the surrounding properties and feel that it will bring economic benefit to the entire community and contribute to surrounding market value.

15)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:26</b> |

Content:

*Nice looking project and needed in W.R. We need more affordable housing people cannot afford to buy into the new towers currently under construction and we are blocking no WR views with Surrey to the North*

Response:

Thank you for your comment and the support!

16)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:27</b> |

Content:

*My wife works at Peace Arch Hospital and there's very little new rental in the neighbourhood, especially larger rental units where you can actually raise a kid. How would you qualify for the affordable housing component for this project?*

Response:

This is the grouping of citizens we are aiming to apply to. When it comes to the affordable rentals, parameters of qualification will be introduced as the project gets closer to that stage. We are excited to hear more people becoming interested in this!

17)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:28</b> |

Content:

*Very excited about about the car share program!! Can you tells us more about the fleet and the charging infrastructure. Will it be accessible for the general community?*

Response:

Thank you for your comment! We are excited to have this come to the community as well. This was touched upon in the Public Information Meeting and various sources on the internet.

18)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:28</b> |



Content:

*Times are changing... this project will reduce emissions and create housing options and transportation options for young adults. A lot of my friends don't want cars... or they cant afford cars and houses.*

Response:

Thank you for your comment, we are excited to present this project!

19)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:29</b> |

Content:

*Did you look at the option of building town houses? If so what was the reason you did not choose to include this in the project*

Response:

Waterstock wanted to offer a great mix of affordable housing options for people of the area while being compliant with the OCP designation.

20)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:31</b> |

Content:

Car share is the way of the future!

Response:

Thank you for your comment – we agree!

21)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:31</b> |

Content:

*I love the idea of a "100 mile build" utilizing local trades and materials. Ive never heard of this before... it shows the type of planning that has gone into this project.*

Response:

Thank you for your comment! As members of this community, we understand the importance of local business and environmentally sound options for building.

22)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:33</b> |

Content:

*Love the design and the fact that the main floor is wrapped with step up 2 level suites.*





Response:

Thank you for your comment! We are excited to get the opportunity to present this to the community.

23)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:35</b> |

Content:

*Yes can see now*

Response:

Thank you for joining the Public Information Meeting and taking the time to comment.

24)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:35</b> |

Content:

*Good presentation, can you please explain why town houses were not included in on the plan?*

Response:

Thank you for taking the time to comment and we are pleased to hear that you enjoyed the presentation. We wanted to offer an affordable and expansive unit mix to ensure options were available to the surrounding community.

25)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:35</b> |

Content:

Agreed RE: the car use decrease, I didn't gas my car for a month. The proposed parking is more than enough IMO

Response:

Thank you for your support and taking the time to comment!

26)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:39</b> |

Content:

*How will transit service the densification of the area?*

Response:

The location strategically placed on the artery that is North Bluff road to encourage different modes of transportation. The RapidBus will also be implemented to support this.



27)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:40</b> |

Content:

*How wheelchair accessible units will there be in the rentals units and in the owner units.*

Response:

Shelley Craig, a Principal at Urban Arts Architecture spoke to this in the presentation but was unsure of the actual count. Waterstock and UAA are great champions of accessible units.

28)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:42</b> |

Content:

*These homes are older now and we need to regenerate the area.*

Response:

Thank you for joining the Virtual Public Information Meeting and writing a comment!

29)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:43</b> |

Content:

*For people my age (39) with two kids, this project would allow us to live close to my mom who never fails to remind us how rarely we see her...we prefer townhomes to singlefamily anyway, we don't have time to worry about things like grass mowing and roof maintenance. Whats the price ranges.?*

Response:

Thank you for writing a thoughtful comment. This is one of the demographics that Waterstock wanted to reach. The prices will be below \$800,000 to purchase, with affordable rental rates established by the city of White Rock.

30)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:47</b> |

Content:

*what is the estimated time period of construction and how will the noise and dust be mitigated?*

Response:

We are hoping to start construction as early as 2021. As members of the community, Waterstock implements all the safety standards in compliance with the BC Building Code to mitigate noise and dust.



31)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:49</b> |

Content:

*After reading the ocp, this is literally in lock step with what the city has asked for. Is the only holdup the parking? Or does the city not want to follow its own dictates?*

Response:

Thank you for taking the time to write a comment. Waterstock are great champions of operating within the parameters of the OCP designation. We are currently at the first stage of the process in bringing this forward to the community and we look forward to working with City Staff and the community to bring this forward to the City Councillors.

32)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:55</b> |

Content:

*When you say “eyes on the street” what does that mean and how was it used for the design?*

Response:

Eyes on the street simply refers to safety. We wanted to create a space where families and individuals would always feel safe. This is a big component of the design by eliminating blind corners and creating porous spacing.

33)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:56</b> |

Content:

*What sort of plans does the developer have for Construction worker parking during construction.*

Response:

Waterstock owns lands on the Surrey side of North Bluff road that will be staged for the use of construction workers and vehicles during that time.

34)

| Identity         | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 1:57</b> |

Content:

*thanks yes it does*



Response:

Thank you for joining the Public Information Meeting and taking the time to comment.

36)

| 35) Identity     | Timestamp             |
|------------------|-----------------------|
| <b>Anonymous</b> | <b>9/10/2020 2:00</b> |

Content:

*I don't see any West Coast Architectural components such as the Sanctuary at Horseshoe Bay. Its too boxy?*

Response:

Thank you for taking the time to join the Public Information Meeting but we are unsure of how to answer this question. We will defer to Urban Arts architecture and if you wish further information, we recommend you reach out directly.

### **Feedback Forms**

Upon completion of the Virtual Public Information Meeting, the City of White Rock website provided an online form for public feedback. These forms were open to public completion for one (1) week after the date of the Virtual Public Information Meeting. In total, one (1) form was filled out, and was in support of Beachway 2. Below is a breakdown of the comments and responses:

1)

| Identity       | Timestamp      |
|----------------|----------------|
| <b>Unknown</b> | <b>Unknown</b> |

Content:

*Excellent location for this type of housing. Rental component Provided much needed.*

Response:

Thank you for taking the time to look over the project and to write in a comment. We feel strongly that Beachway 2 will provide a great mix of affordable homes for people at all stages of life.

**MEMO**

Date: June 6, 2022

To: City of White Rock  
Planning and Development Services  
13450 - 104 Avenue, Surrey BC, V3T 1V8

Attention: Attn: Alex Wallace; Anne Berry  
E: [awallace@whiterockcity.ca](mailto:awallace@whiterockcity.ca); [aberry@whiterockcity.ca](mailto:aberry@whiterockcity.ca)

From: Alan Tse, Architect AIBC, MRAIC, Associate  
Re: **Rezoning/Major Development Permit**  
**15704 North Bluff Road (Courtyard Commons)**

Dear Alex and Anne,

As discussed in your discussions with Waterstock Properties, the City of White Rock has requested that the proponent team provide a summary of changes to residential units from the previous development permit submission relating to 15704 North Bluff Road. The summary below is intended to be read in conjunction with drawings and commentary submitted to the City of White Rock on April 14, 2022 and May 4, 2022 - and is compared to the previous ADP submission, dated October 1, 2020 which represented a 6-storey, 2.5 FAR form of development.

|   | <b>ADP Discussion</b>   | <b>Response</b>   |
|---|---|---|
| 1 | Encouraged by the use of timber   | The use of timber remains consistent between both iterations.   |
| 2 | Appreciation expressed for context provided at the outset by the proponent;   | Project context remains the same from the previous iteration.   |
| 3 | General support offered for the form and massing of the buildings;  | The project has been reduced in overall mass from 6 storeys to 4 storeys at Buildings 1 and 3, while Building 2 has been converted to 3-storey ground-oriented townhouses. Overall approach to building massing and site planning remains similar to previous, albeit with lower building heights.  |
| 4 | What is the surface between buildings 2 and 3? It would be a different paver (colour);  | Drive aisle is vehicular concrete, detail per Civil, w/ vehicular pavers at crossings and a 6m wide paver area at entry.  |
| 5 | Demarcation of open spaces between Buildings 1 and 2 more semi-private in its design due to the private balconies which access the space; the space between Buildings 2 and 3 are more open and publically accessible | Open spaces between buildings are intended to have a more publicly-accessible character. With the proposed re-grading of the parking ramp area to suit Zoning requirements for clear overhead height within the parkade, the route between Buildings 1 and 2 has been provided as an additional accessible route into the common outdoor space. |

|    |  |  |
|----|--|--|
| 6  | Concerns raised about the façade, including coloured glass, and how it would look in many years – later discussed by Panel with support for the use of colour and the “playfulness” it adds to the development;  | Coloured glass guardrails have been removed from the current project proposal. Coloured glass guardrails could be considered at Buildings 1 and 3.   |
| 7  | Limited parking supply identified as a concern – reduction may be too aggressive – may require additional supply (“excavation”) – alternative opinion regarding the opportunity presented by the proposal in looking at efforts to change auto-reliance; | Parking reductions are no longer being proposed; parking provision will meet the requirements of the City of White Rock Zoning By-law.   |
| 8  | Would like to see more (100%) of the parking spaces roughed in for electrical vehicles   | 100% of parking spaces are intended to be roughed-in for electric vehicles.  |
| 9  | Garbage collection details including location for pickup and terms of pick-up (internal garbage storage tied to each building)   | <p>A location for waste pick-up staging is located at the laneway off of Lee Street. This staging area (enclosed but outside the building thermal boundary) is intended to accept waste bins transferred from below-grade waste sorting rooms on pick-up day.</p> <p>Below-grade waste collection and sorting rooms are located on the parkade level in proximity to the elevator cores, for the convenience of residents. On pick-up day, maintenance staff will transfer the bins via pickup truck to the staging area, from which location the oversized garbage/recycling truck will receive the bins for final delivery to the landfill/transfer station.</p> |
| 10 | Separation of laneway/garbage loading and children’s play-area – grade differential (less than 5%) and plantings used to separate the two activities / spaces  | Separation of outdoor spaces remains similar to previous iterations. The parking ramp has been adjusted to ensure zoning-conforming overhead clearance for the below-grade parking while retaining unit entrances within 1.5m of grade along North Bluff Road. An additional accessible route to the common outdoor space has been provided between Buildings 1 and 2.   |
| 11 | Applicant states that “all” rainwater to be reused – that would be excellent but needs to be confirmed or clarified through City’s review of stormwater management   | The current stormwater management proposal is to provide a stormwater detention tank complete with a flow control device that limits flows to the pre-development conditions. Stormwater re-use is not feasible for this site.   |
| 12 | Accessibility of units- how many are there and can the proposed units be converted to accessible units in the future   | 20 adaptable units conforming to BC Building Code are proposed within Building 1. This equates to 23% of total units across the development.   |
| 13 | Rain-screen assembly (brick as cladding with air gap, exterior insulation, wood stud, vapor barrier, and dry wall) – looking as mass timber for the floor structure, roof structure and elevator core with wood stud infill                              | Wall assembly design intent remains consistent with previous iterations.   |
| 14 | Configuration and design of the rental units (Building 1)  | Unit types within the Multi-unit residential buildings (1 and 3) remain largely the same as  |

|    |   |   |
|----|---|---|
|    |   | previous. Building 2 has been replaced with townhouse units.  |
| 15 | Design of the mansard roof with Building 1 – provides variability in the design and accommodates some stepping of height moving west to east  | The reduction of building height from 6 storeys to 4 storeys mitigates overall height impacts to adjacent buildings.  |
| 16 | Design of floors, mass timber with concrete topping to help with sound attenuation and additional space for insulation to keep rainwater out of the building  | Floor assembly design intent remains consistent with previous iterations.   |
| 17 | How will rainwater management facilities impact the design of the roof of Building 2 – intent is to manage rainwater through plumbing within the party walls or to hide the infrastructure if required on the exterior of the building  | Rainwater is intended to be managed via rainwater leaders whenever feasible.  |
| 18 | Management of market and non-market buildings, ideally, undertaken by same entity so that there is a cohesive management direction between buildings  | Non-market housing is no longer proposed. Differences in management structure is no longer applicable.  |
| 19 | Construction materials should weather well in the White Rock context  | Construction materials selected are similar to previous and are intended to be long-lasting and durable.  |
| 20 | Compliment for use of renderings and variability / breaks in massing  | Proposed breaks in massing remain consistent with previous iterations.  |
| 21 | Building 1 and 2 are similar in design and material, and may be read as a single large building – perhaps worth looking at materiality to create some additional variation between buildings  | With the reconfiguration of building typology at Building 2 from a multi-unit residential building to grade-oriented townhouses, there variation in form, massing, and material character proposed. Buildings 1 and 3 have been reconsidered with more similar treatments between them, effectively “bookending” the site and providing greater visual coherence amongst the buildings.   |
| 22 | Comments made regarding the need for a location for service vehicles, e.g. food delivery or taxis, to stop near the buildings and overall accessibility (or distance) from portions of the overall development site   | Service parking is located both at grade (Zoning-compliant oversized loading bay) as well as with smaller service/loading stalls within the below-grade parkade, one per elevator shaft. Due to prohibitions on curb cuts along both North Bluff Road and McCaud Park, there is limited ability to achieve additional service delivery lay-by locations. Any potential on-street lay-bys would be under the purview of the City of White Rock.  |
| 23 | Landscape plan has good flow of spaces and fits the configuration of the property well; would like to see the pedestrian path between Buildings 2 and 3 made wider (~1 foot wider) and in southeast corner of the site; would like stepping stones south of Building 3 to be evaluated in terms of the impact that trees (roots) may have on the area over time and the type of stepping stones used in terms of their longevity (larger basalt stones may be a better option). | Pedestrian path connecting Building 2 and 3 through the drive aisle is limited to 1.2m (4') width because of slope requirements to get to the parkade entry. Pedestrian bridge width is designed per Arch/Structural, and landscape path connection matches at 1.32m (4'4"). Exit path at S-E site corner is 1.2m (4') wide which adheres to code requirements – note this is not a main route through the site. All stepping stones on the site are located at play areas and meant to act as a nature play element, encouraging children to interact with the planting. |

The Advisory Design Panel recommended that the application for the development proposal be referred to Council subject to the applicant giving consideration to the following. Please see below and above for responses to the items requiring further consideration.

|   | <b>Consideration to be given</b>   | <b>Response</b>          |
|---|--|--------------------------|
| A | Adequacy of parking supply   | Refer to Item 7, above.  |
| B | Adequacy of location of spaces for deliveries / drop-offs                          | Refer to Item 22, above. |
| C | Management of stormwater   | Refer to Item 11, above. |
| D | Further development of the landscape proposal in the Southeast corner of the site. | Refer to Item 23, above. |

We look forward to working with the City of White Rock on this much needed housing project. Please feel free to call if you have any questions.

Sincerely,  
URBAN ARTS ARCHITECTURE



Alan Tse, Architect AIBC, MRAIC, Assoc. AIA, LEED AP  
Associate



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 26<sup>th</sup>, 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.

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## 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

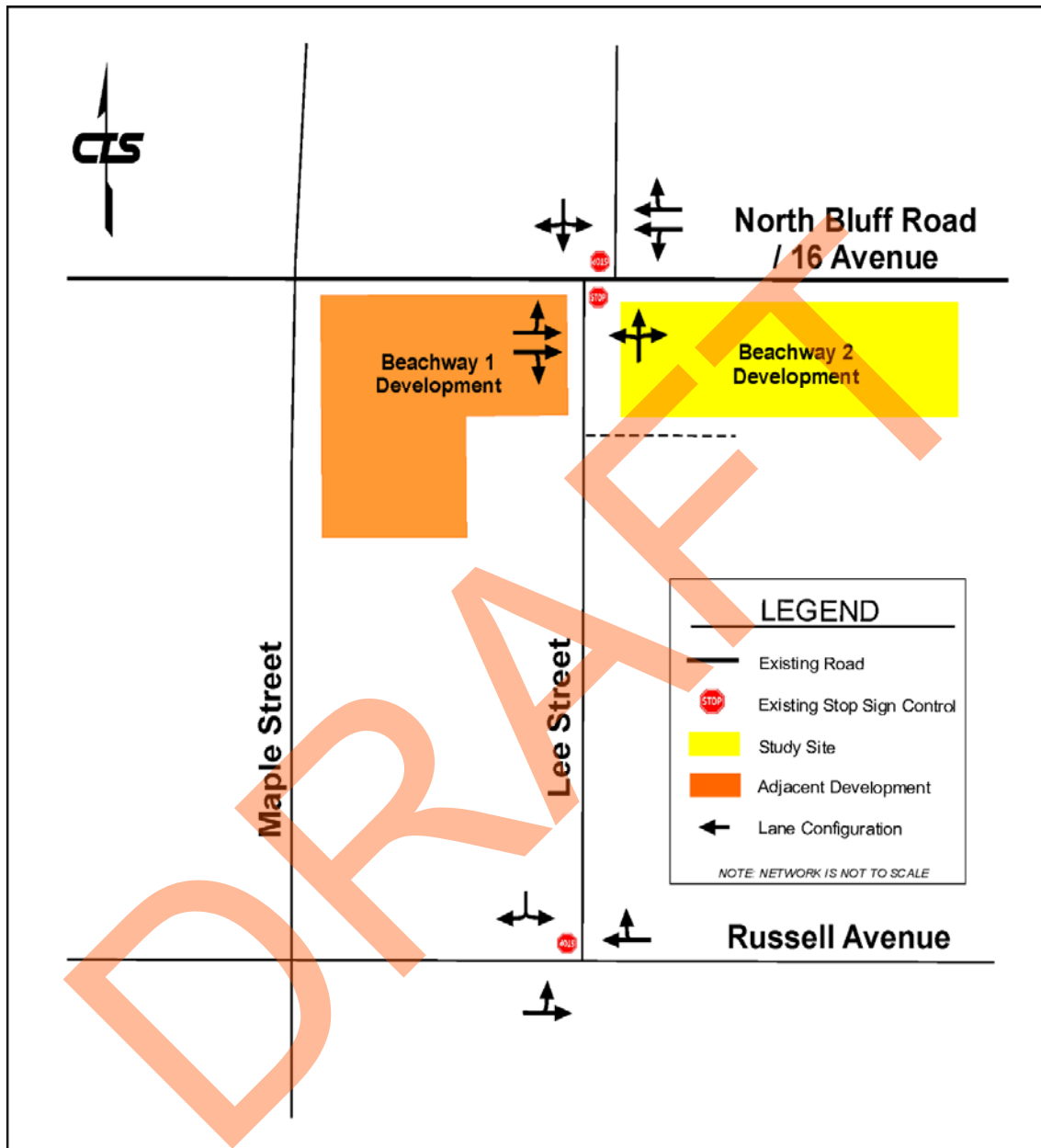
- North / south neighborhood local road.
- Two lanes.
- 'Permit parking Only' on both sides
- No curb or gutter.
- Street Lighting.

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

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## 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);

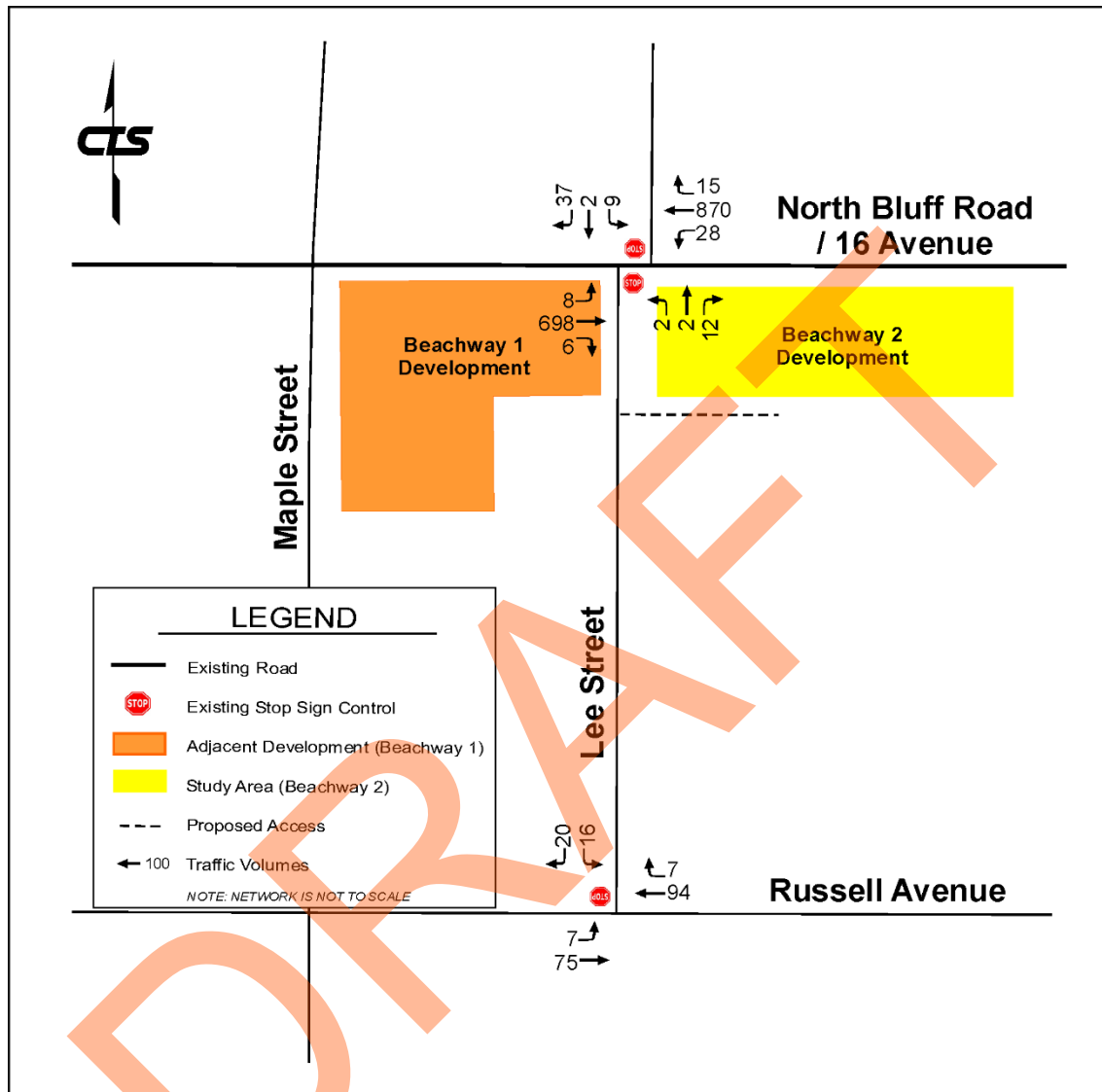
The traffic count data was summarized and reviewed to ensure data integrity and validity. The summarized traffic data sheets are included in **APPENDIX C**.

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

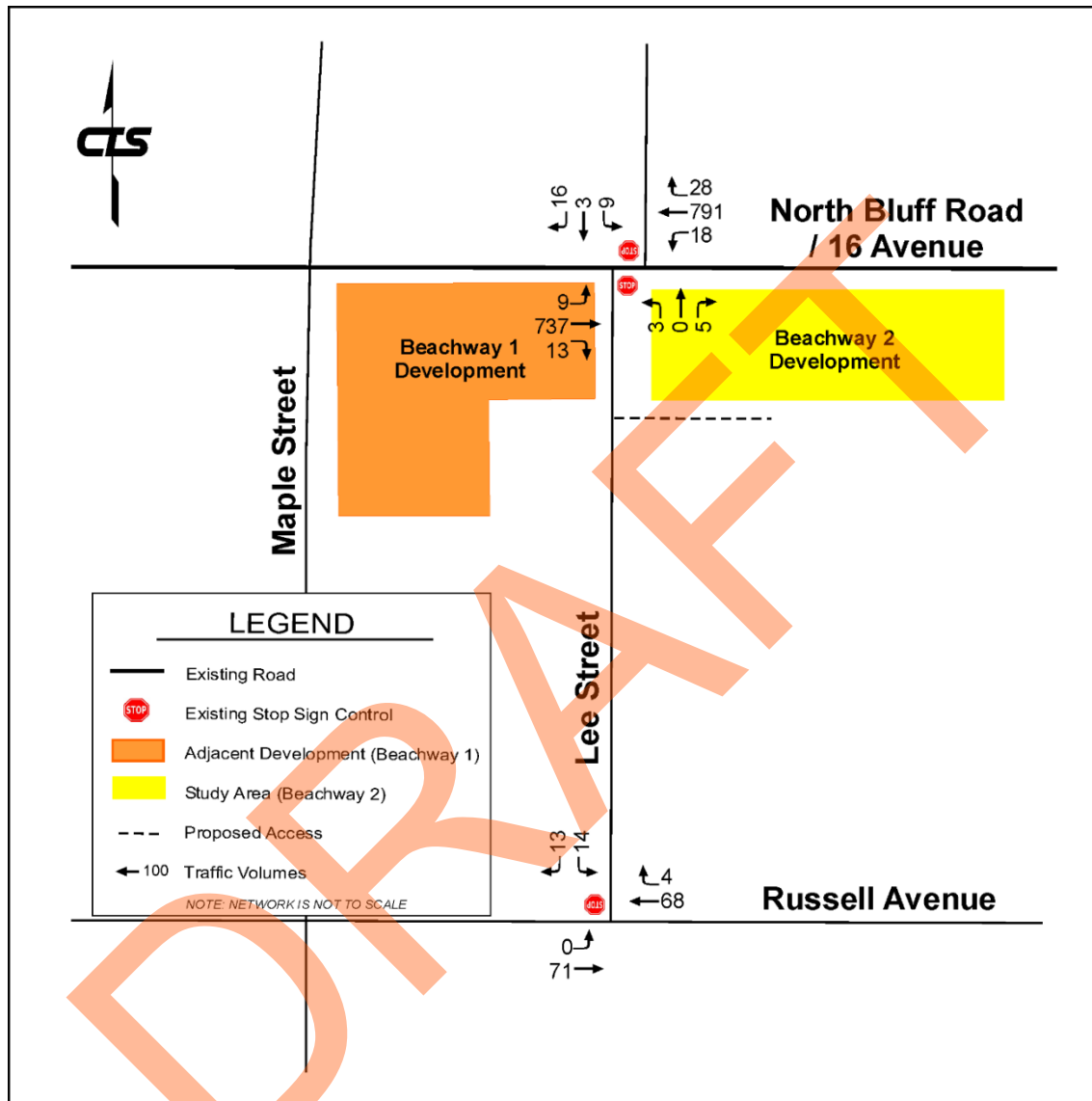
From the collected data, the weekday morning peak hour was determined to occur from 7:45 to 8:45 and the afternoon peak hour was determined to occur from 15:00 to 16:00.

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.

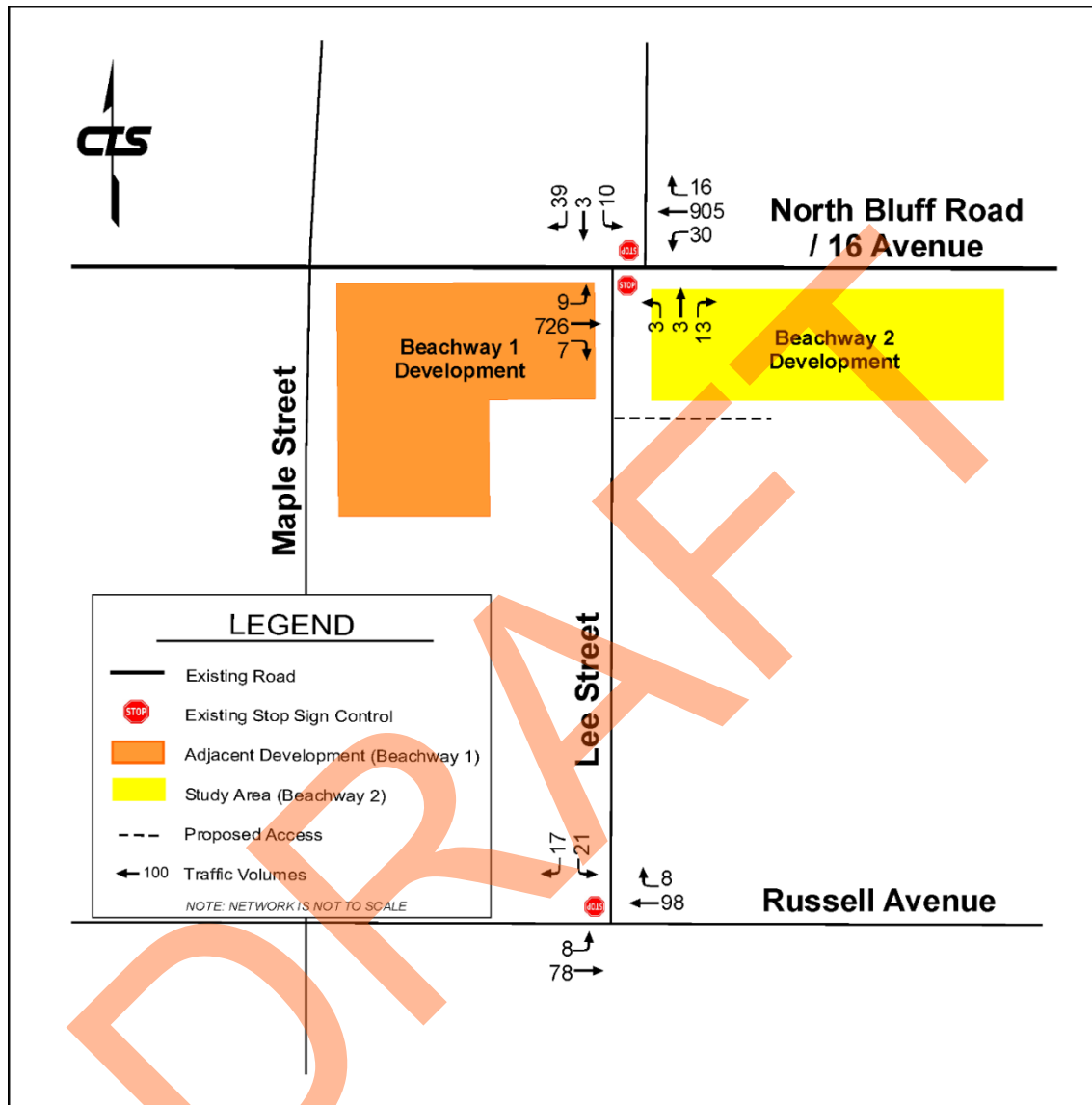
**FIGURE 6 and FIGURE 7** illustrate the weekday morning and afternoon peak hour vehicle volumes, respectively.

### 2026 Future Base Traffic Volumes

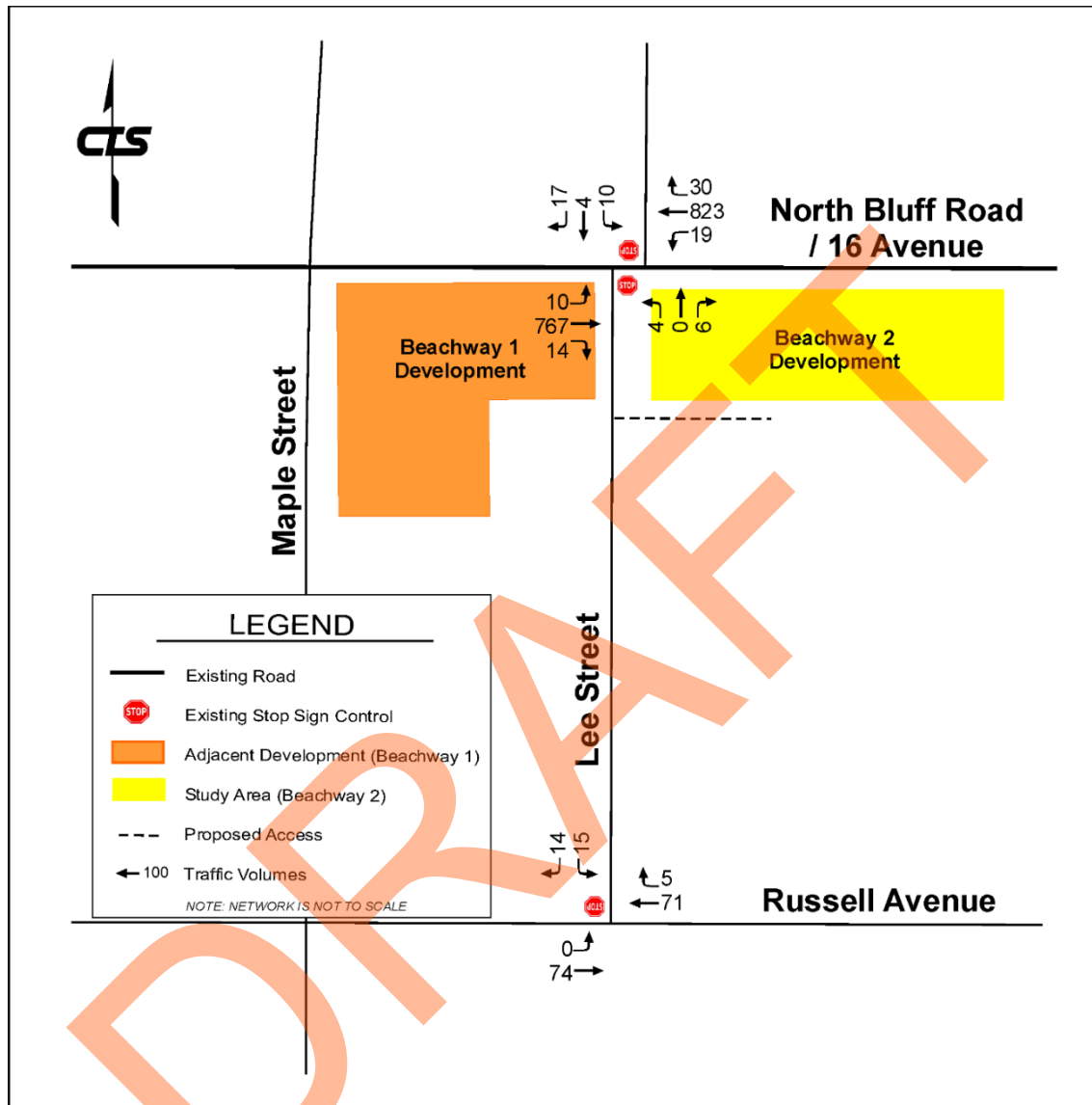
2026 is ten years after the anticipated year of full buildout for the proposed development, and is a scenario requested by the City of White Rock. The 2019 base traffic volumes were factored up by a traffic volume growth rate of 2.0% per annum (simple straight line) to represent base year 2026 volumes.

**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**

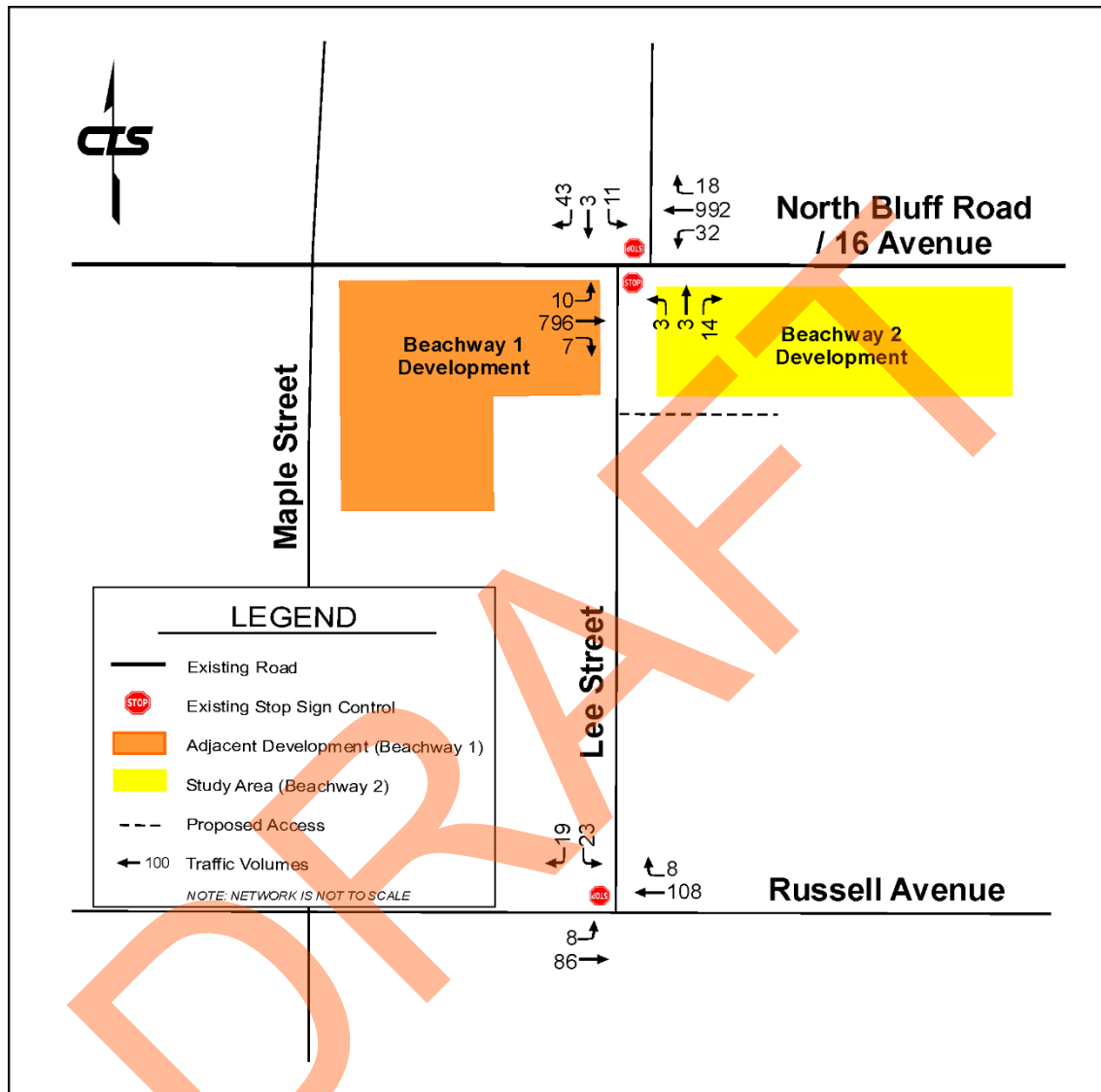


**FIGURE 7**  
**2021 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES**

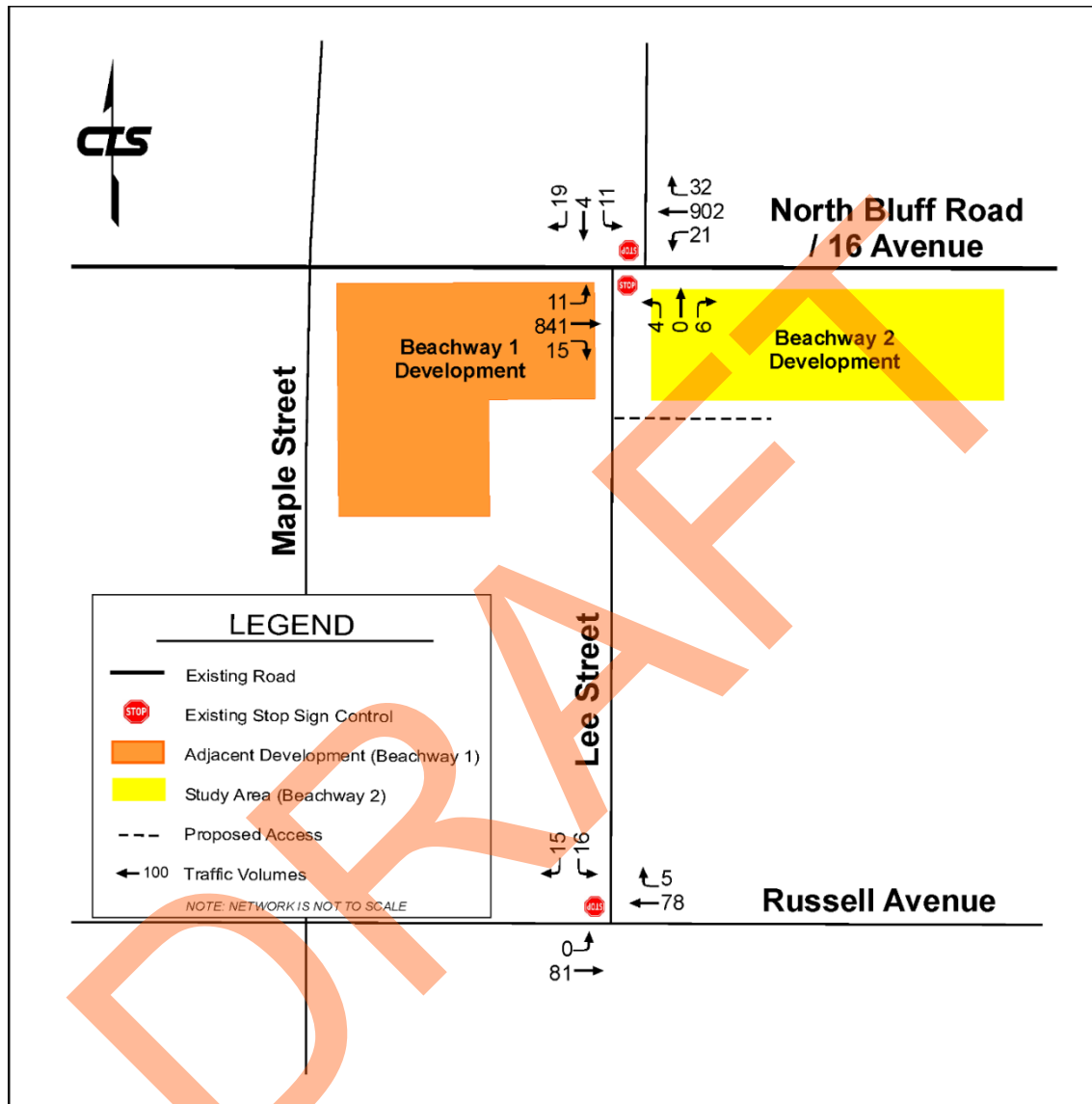




**FIGURE 8**  
**2026 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES**



**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) 10<sup>th</sup> 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

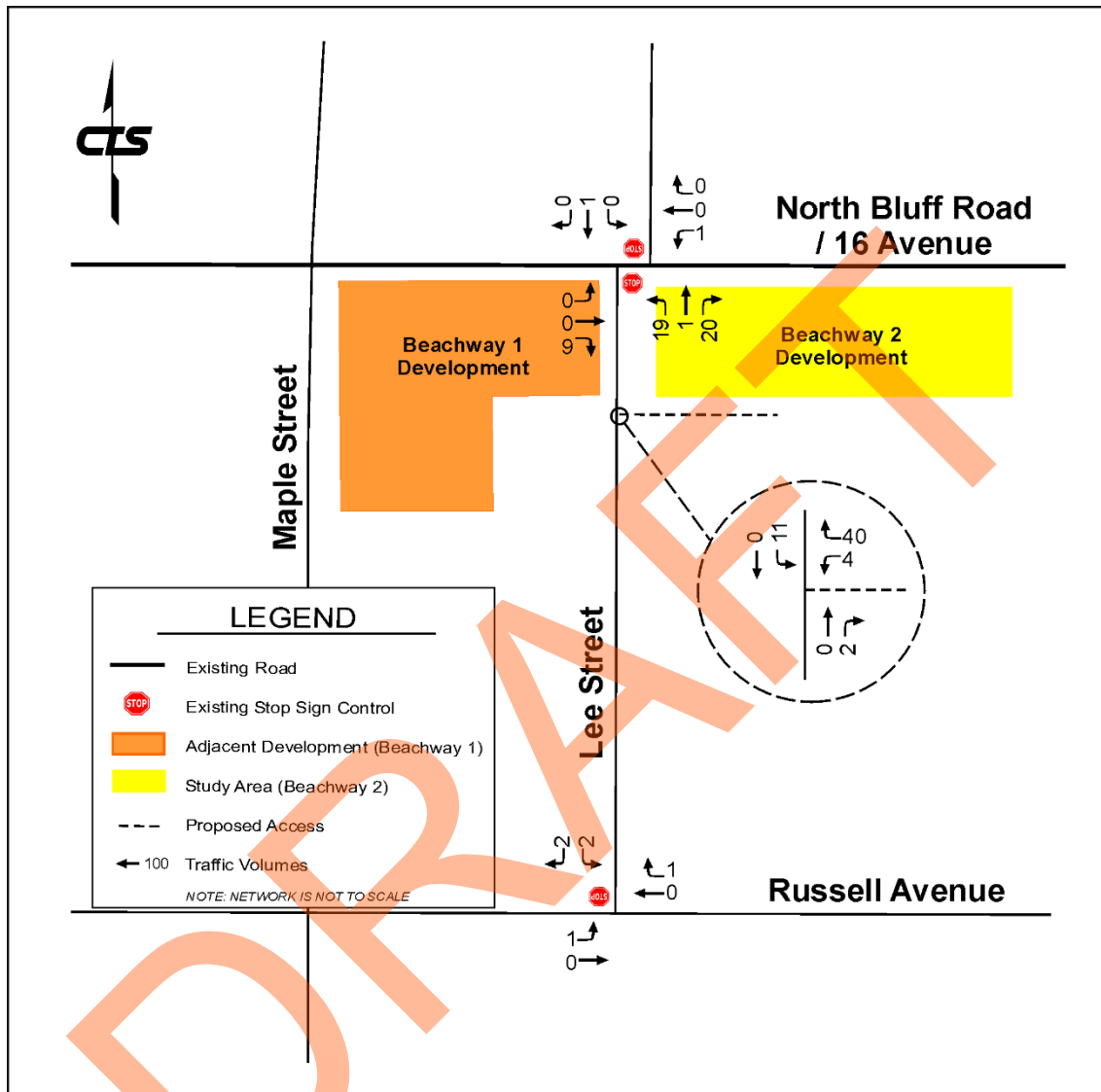
The trip distribution parameters for distributing site generated vehicle trips to / from the site were developed from existing traffic patterns entering and exiting the study area. The traffic volume assignment is summarized in **TABLE 2**.

**TABLE 2**  
**TRIP DISTRIBUTION VEHICLE VOLUMES**  
**FOR SITE GENERATED TRAFFIC**

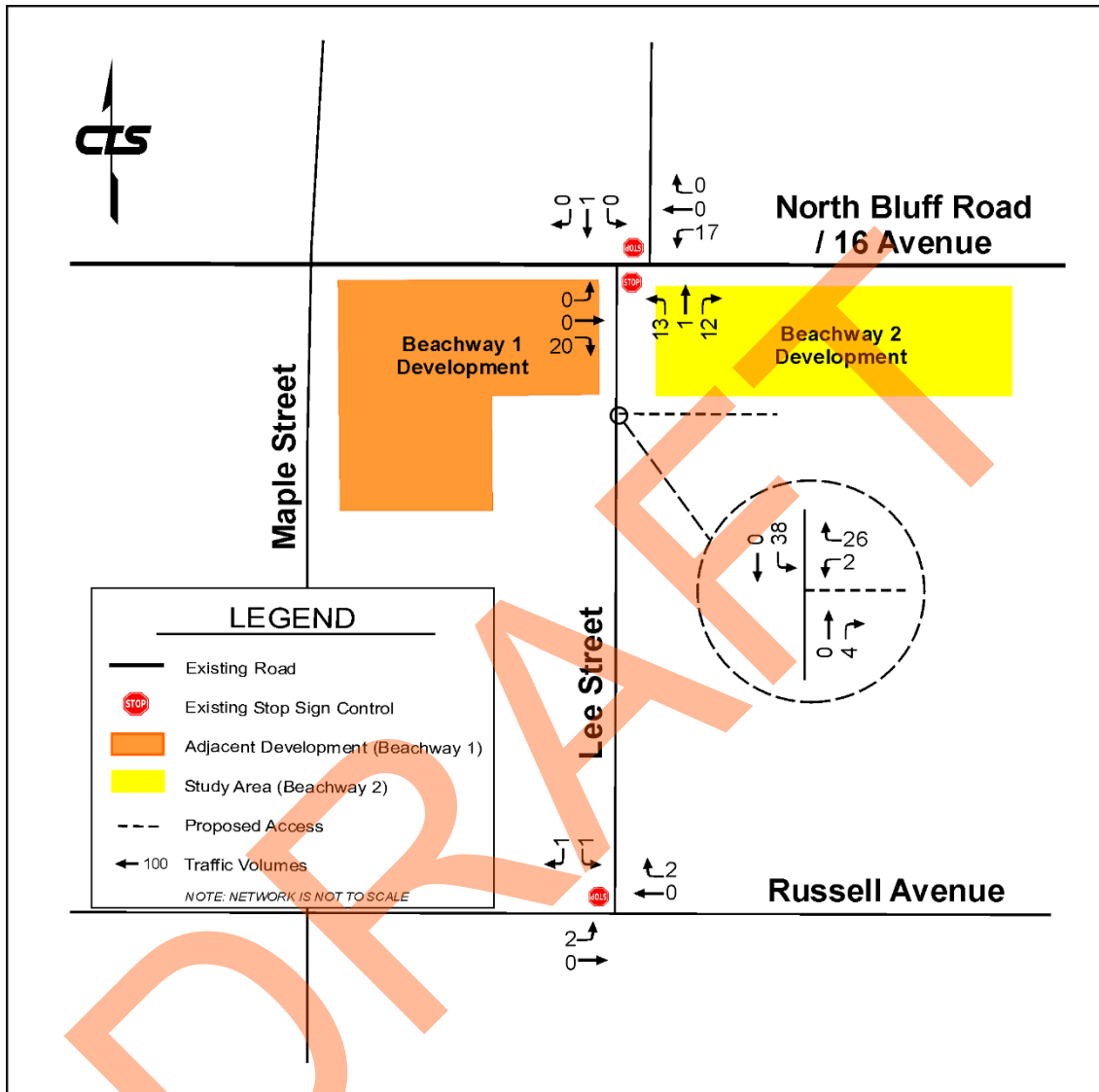
| From / To            | Weekday AM Peak Hour |           | Weekday PM Peak Hour |           |
|----------------------|----------------------|-----------|----------------------|-----------|
|                      | Inbound              | Outbound  | Inbound              | Outbound  |
| North Bluff Road (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         |
| <b>TOTAL</b>         | <b>13</b>            | <b>44</b> | <b>42</b>            | <b>28</b> |
|                      | <b>57</b>            |           | <b>70</b>            |           |

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.

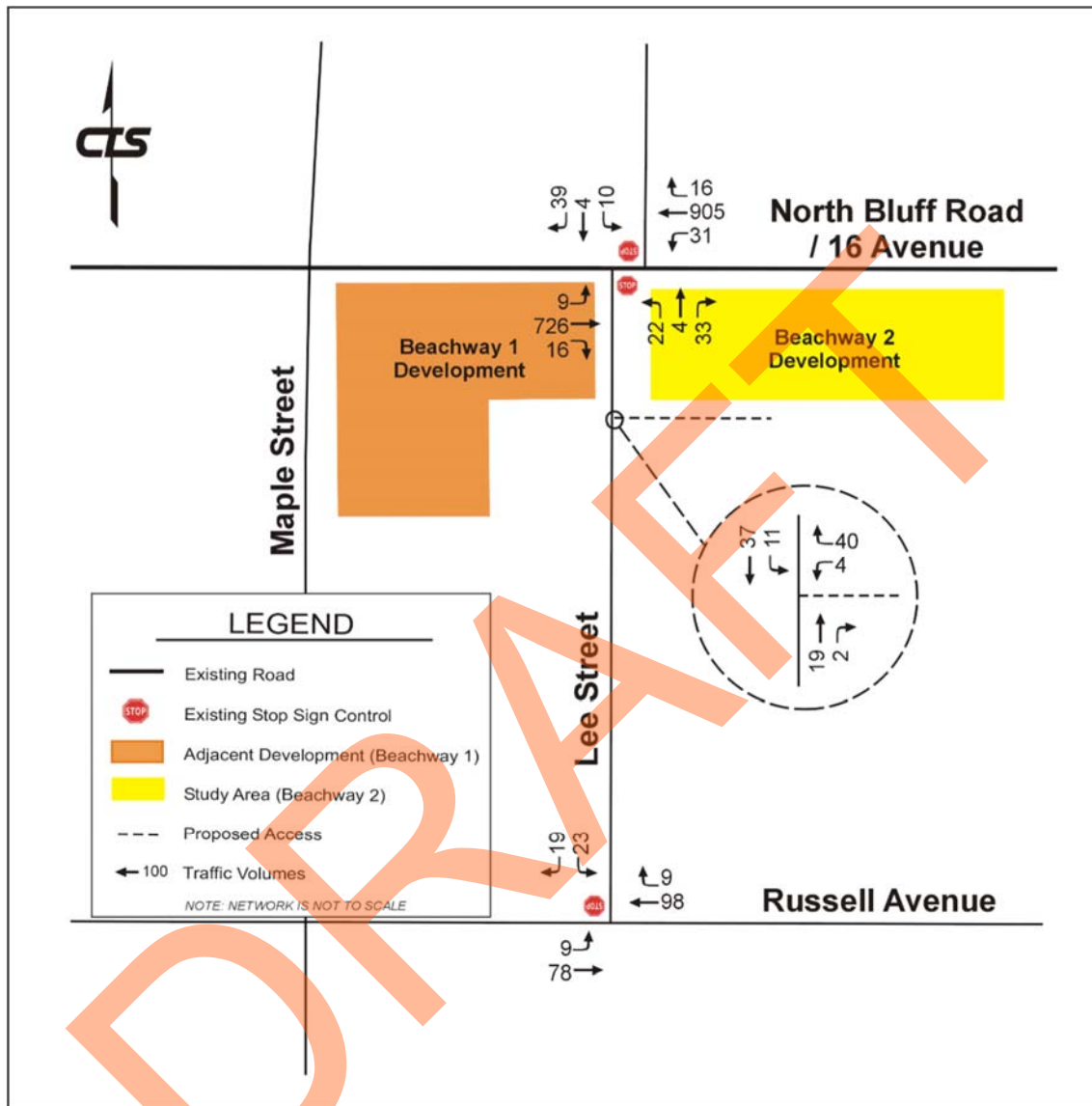
### 2026 Future Base + Site Traffic Volumes

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.

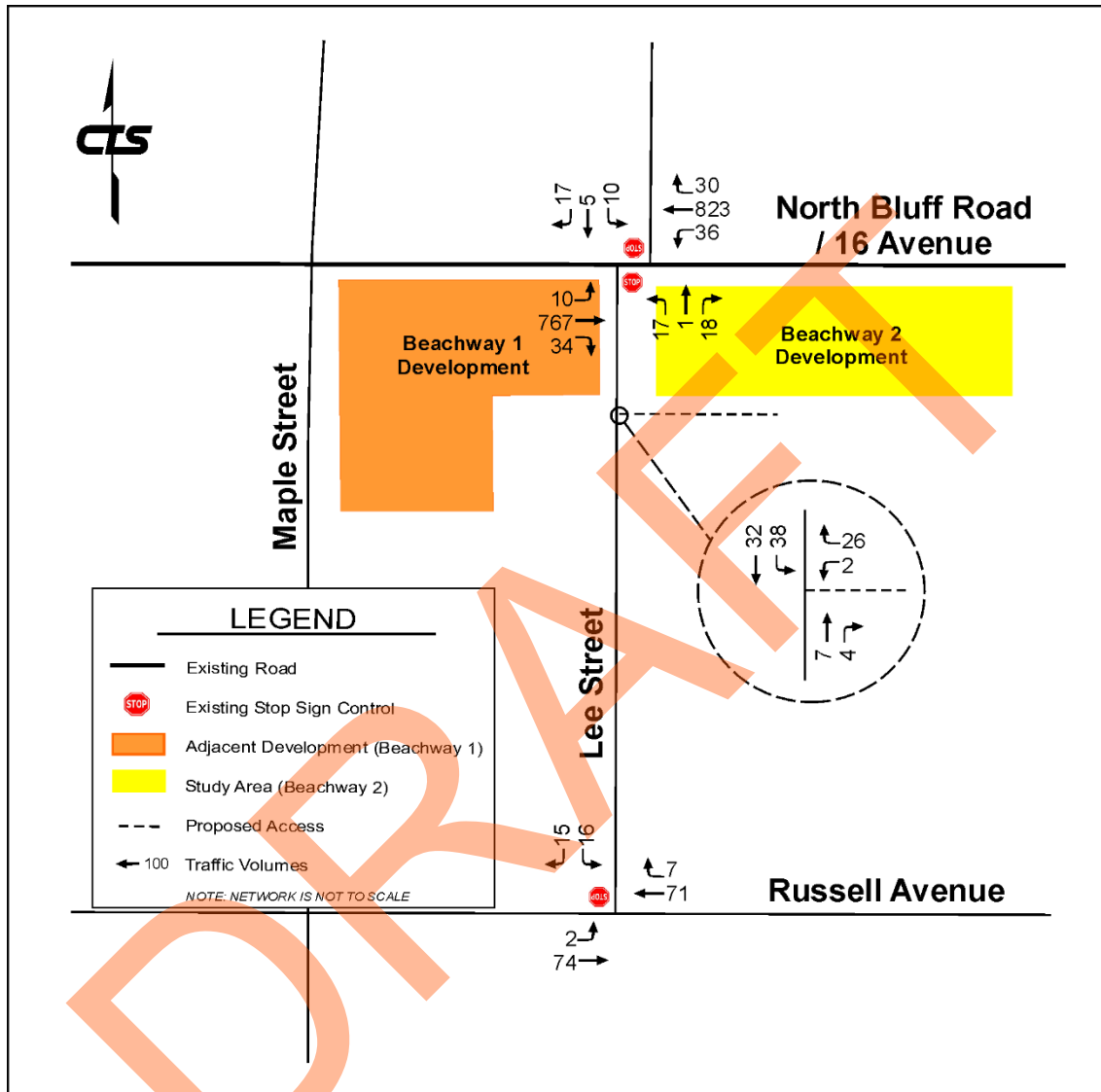
**FIGURE 15** illustrates the total projected traffic for the 2026 weekday afternoon peak hour consisting of the future base plus the proposed development site generated traffic.

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

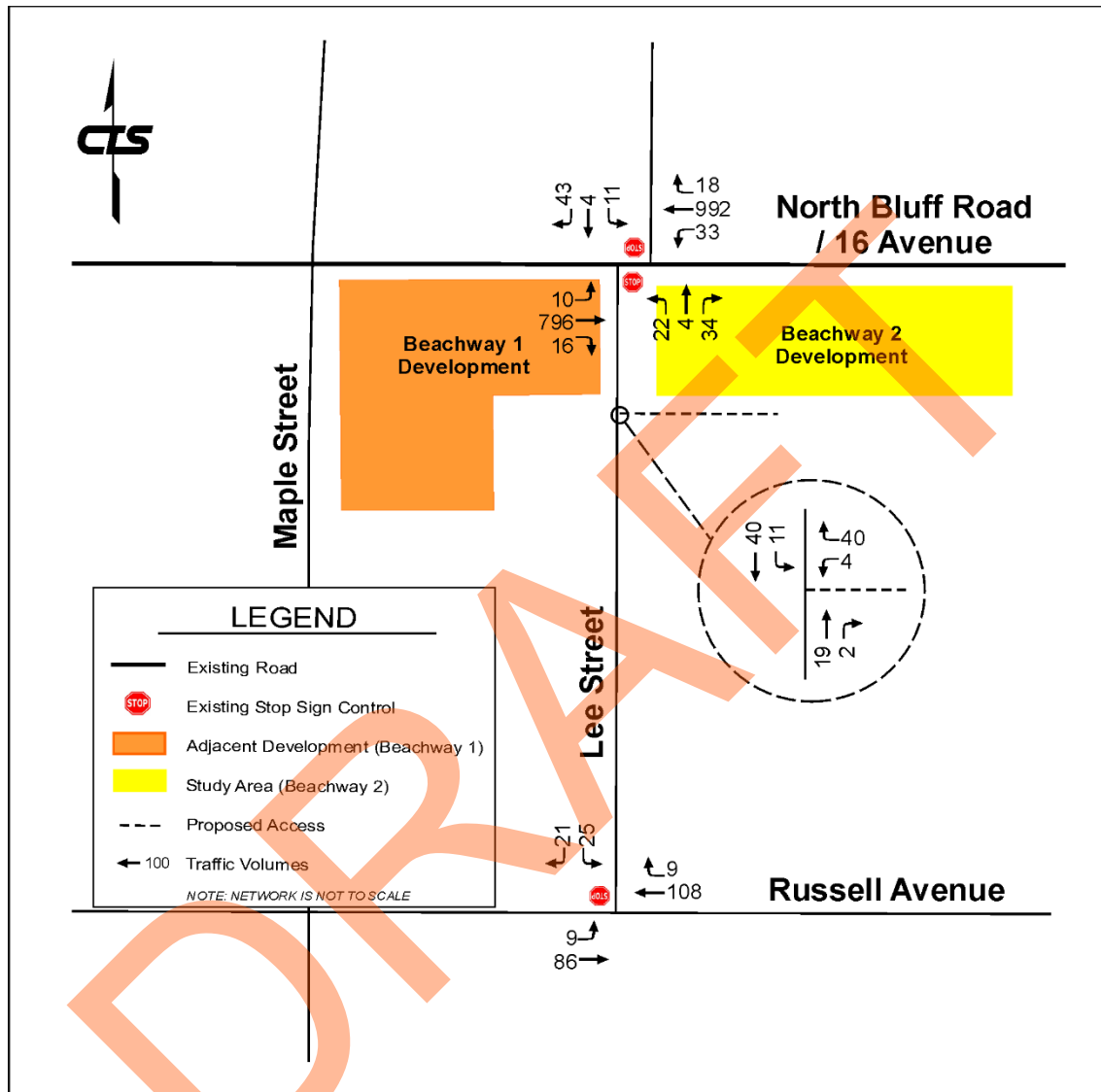




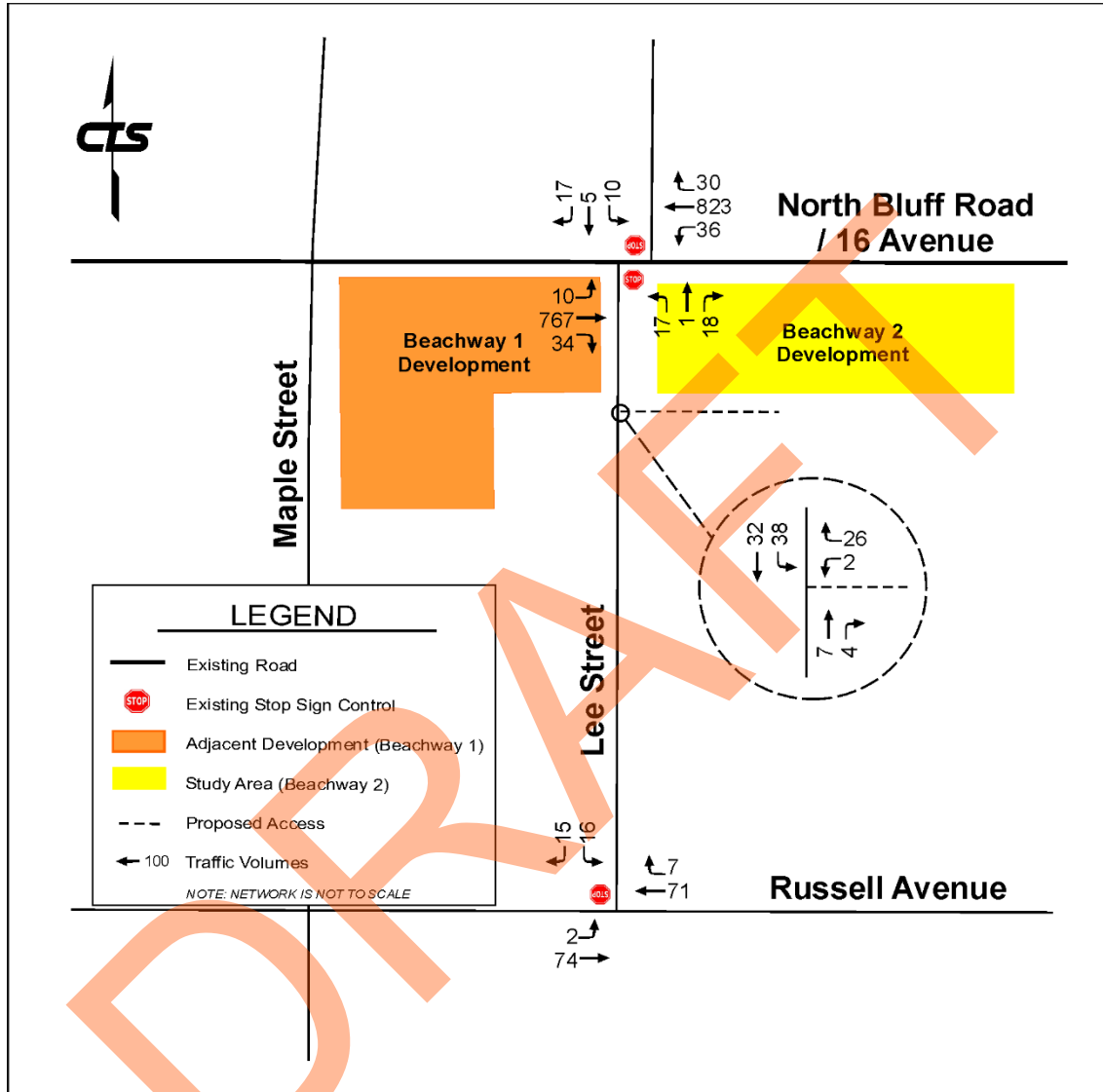
**FIGURE 13**  
**2021 WEEKDAY AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES**



**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**.

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**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)

UN SIGNALIZED 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.



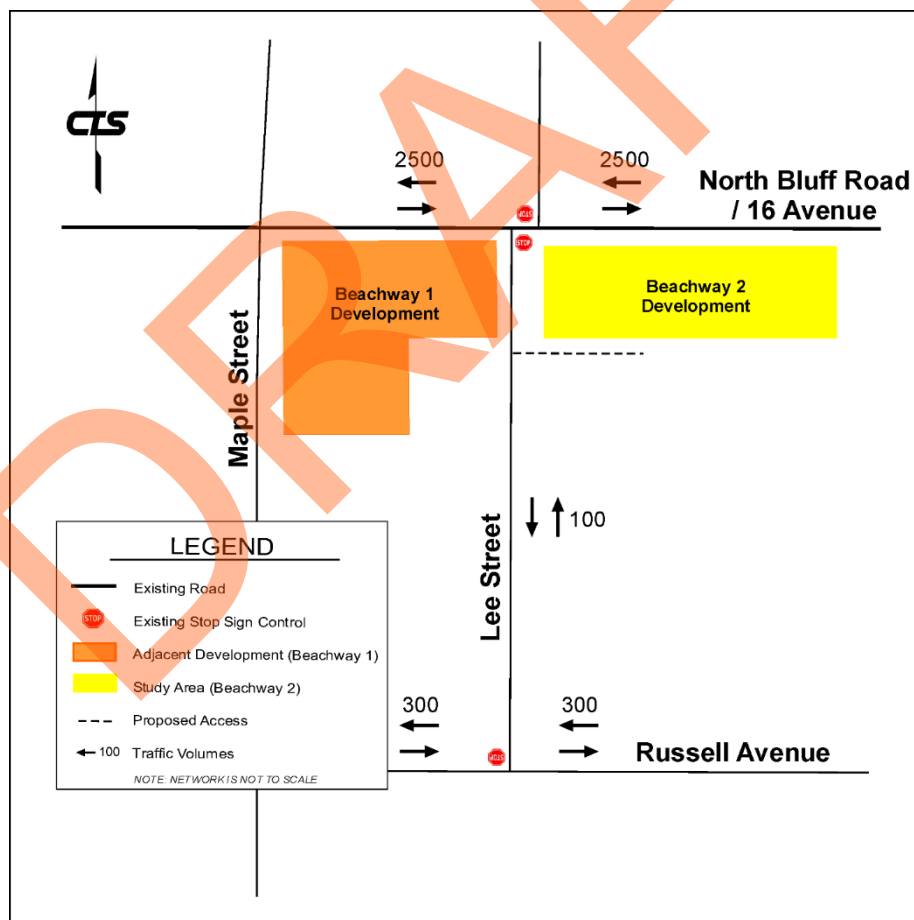
## 6.0 2045 LINK VOLUMES

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.

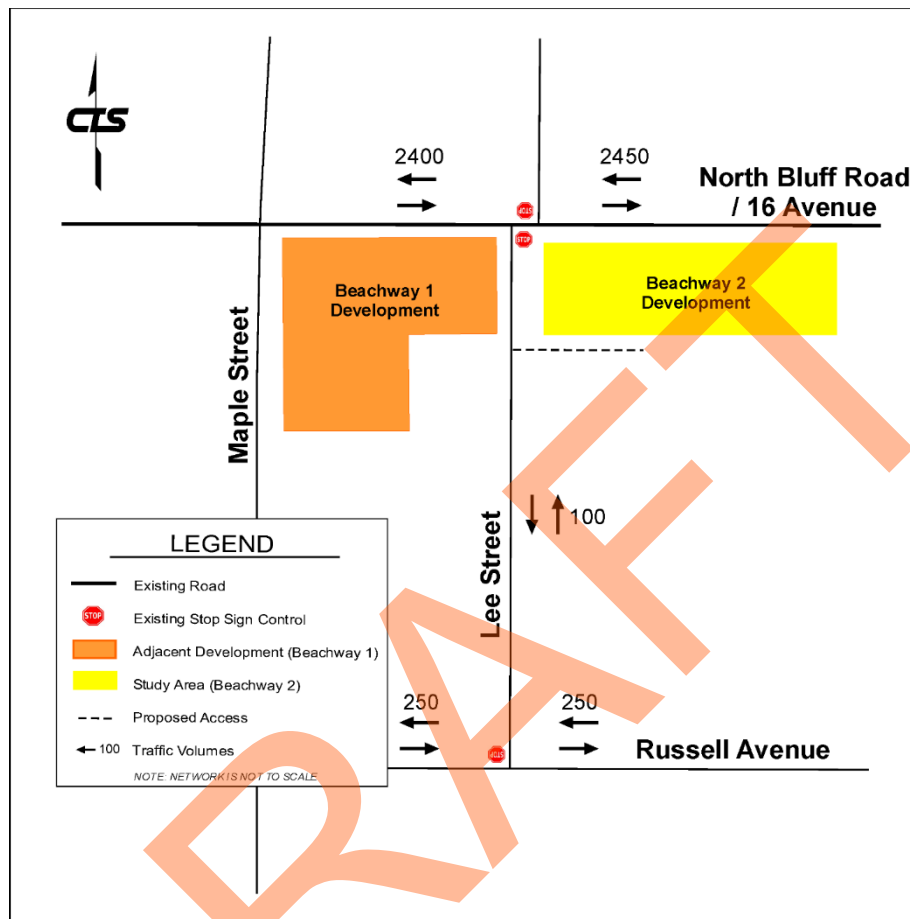
As this scenario is 26 years into the future, it is difficult to accurately forecast vehicle volumes in the context of intersection analysis. Therefore, peak hour road link volumes were determined to provide an estimated magnitude of vehicle volumes.

**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 152<sup>nd</sup> Street at North Bluff Road, is within a fifteen (15) minute walk from the site and 152<sup>nd</sup> 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 or 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 Peace 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 charging 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

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## 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 5<sup>th</sup> 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.





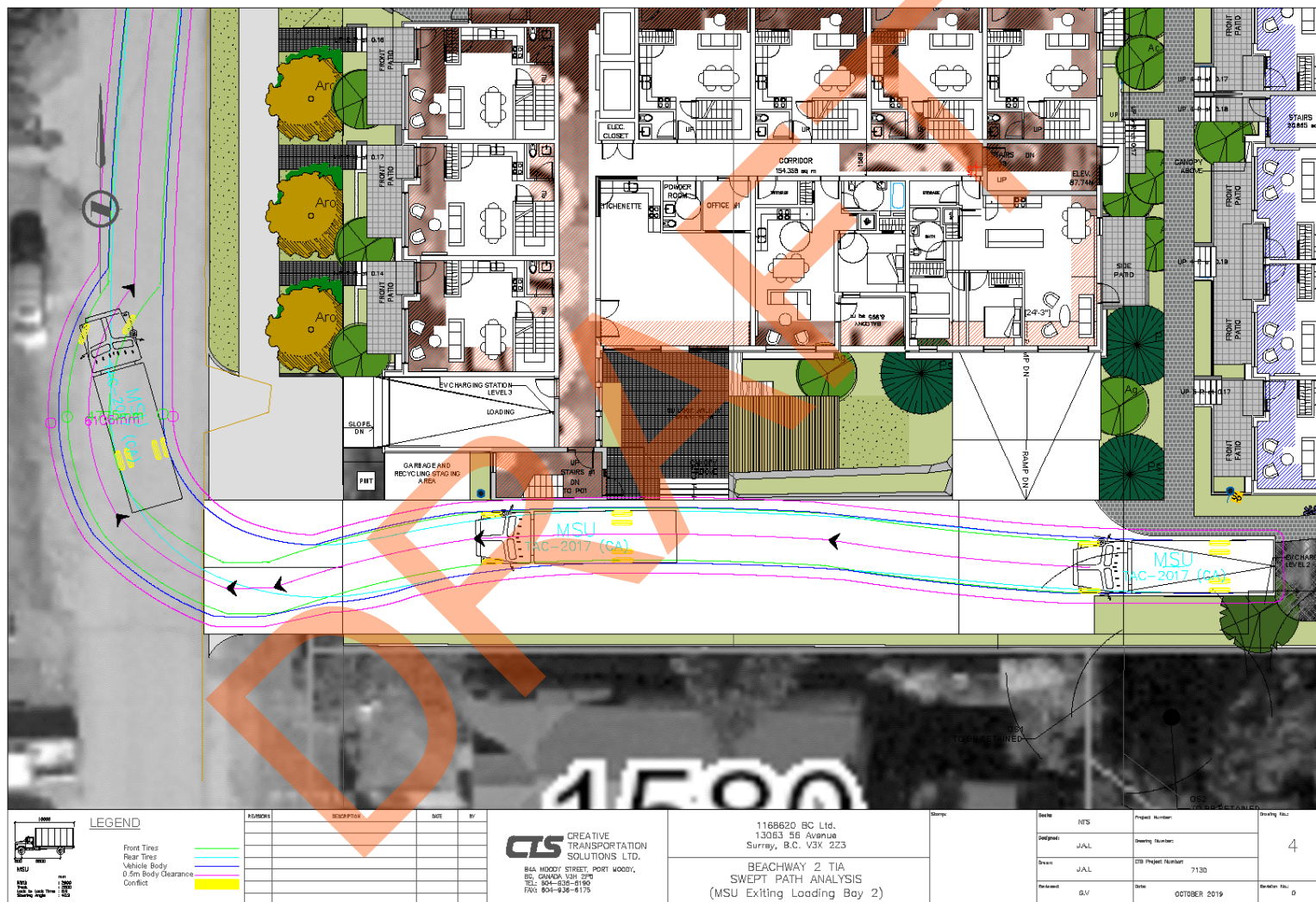




**FIGURE 21**  
**MSU ENTERING LOADING BAY 2**



**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 8<sup>th</sup>, 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:*

*Prepared by:*

**Gary Vlieg, P.Eng.**  
Engineering Group Manager

**Jacqueline Lee, EIT**  
Junior Traffic Engineer

Attachment

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## **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

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| DRAWING LIST |                                       |       |            |  |
|--------------|---------------------------------------|-------|------------|--|
| SHEET NO     | SHEET NAME                            | SCALE | DATE       |  |
| A000         | Cover Page                            | NTS   | 2019.10.24 |  |
| A001         | Information Data 1                    | NTS   | 2019.10.24 |  |
| A002         | Information Data 2 FAR per building   | NTS   | 2019.10.24 |  |
| A101         | Site Plan                             | 1:200 | 2019.10.24 |  |
| A102         | Parkade LVL 01                        | 1:200 | 2019.10.24 |  |
| A103         | Parkade LVL 02.0                      | 1:200 | 2019.10.24 |  |
| A105         | Preliminary slab plan                 | 1:200 | 2019.10.24 |  |
| A106         | Site Plan Coverage                    | 1:200 | 2019.10.24 |  |
| A107         | Average Natural Grade Calculation     | 1:200 | 2019.10.24 |  |
| A201         | Non-Market LVL 01 (Building#1)        | 1:100 | 2019.10.24 |  |
| A201 area    | Non-Market LVL 01 (Building#1)        | 1:100 | 2019.10.24 |  |
| A202         | Non-Market LVL 02 (Building#1)        | 1:100 | 2019.10.24 |  |
| A202 area    | Non-Market LVL 02 (Building#1)        | 1:100 | 2019.10.24 |  |
| A203         | Non-Market LVL 03 (Building#1)        | 1:100 | 2019.10.24 |  |
| A203 area    | Non-Market LVL 03 (Building#1)        | 1:100 | 2019.10.24 |  |
| A204         | Non-Market LVL 04 (Building#1)        | 1:100 | 2019.10.24 |  |
| A204 area    | Non-Market LVL 04 (Building#1)        | 1:100 | 2019.10.24 |  |
| A205         | Non-Market LVL 05 (Building#1)        | 1:100 | 2019.10.24 |  |
| A205 area    | Non-Market LVL 05 (Building#1)        | 1:100 | 2019.10.24 |  |
| A206         | Non-Market LVL 06 (Building#1)        | 1:100 | 2019.10.24 |  |
| A206 area    | Non-Market LVL 06 (Building#1)        | 1:100 | 2019.10.24 |  |
| A207         | Non-Market Roof (Building#1)          | 1:100 | 2019.10.24 |  |
| A208         | Market LVL 01 (Building#2)            | 1:100 | 2019.10.24 |  |
| A208 area    | Market LVL 01 (Building#2)            | 1:100 | 2019.10.24 |  |
| A209         | Market LVL 1.5 Mezzanine (Building#2) | 1:100 | 2019.10.24 |  |
| A210         | Market LVL 02 (Building#2)            | 1:100 | 2019.10.24 |  |
| A210 area    | Market LVL 02 (Building#2)            | 1:100 | 2019.10.24 |  |
| A211         | Market LVL 03 (Building#2)            | 1:100 | 2019.10.24 |  |
| A211 area    | Market LVL 03 (Building#2)            | 1:100 | 2019.10.24 |  |
| A212         | Market LVL 04 (Building#2)            | 1:100 | 2019.10.24 |  |
| A212 area    | Market LVL 04 (Building#2)            | 1:100 | 2019.10.24 |  |
| A213         | Market LVL 05 (Building#2)            | 1:100 | 2019.10.24 |  |
| A213 area    | Market LVL 05 (Building#2)            | 1:100 | 2019.10.24 |  |
| A214         | Market LVL 06/Roof (Building#2)       | 1:100 | 2019.10.24 |  |
| A214 area    | Market LVL 06 (Building#2)            | 1:100 | 2019.10.24 |  |
| A215         | Roof (Building#2)                     | 1:100 | 2019.10.24 |  |
| A216         | Market LVL 01 (Building#3)            | 1:100 | 2019.10.24 |  |
| A216 area    | Market LVL 01 (Building#3)            | 1:100 | 2019.10.24 |  |
| A217         | Market LVL 1.5 (Building#3)           | 1:100 | 2019.10.24 |  |
| A217 area    | Market LVL 1.5 (Building#3)           | 1:100 | 2019.10.24 |  |
| A218         | Market LVL 02 (Building#3)            | 1:100 | 2019.10.24 |  |
| A218 area    | Market LVL 02 (Building#3)            | 1:100 | 2019.10.24 |  |
| A219         | Market LVL 03 (Building#3)            | 1:100 | 2019.10.24 |  |
| A219 area    | Market LVL 03 (Building#3)            | 1:100 | 2019.10.24 |  |
| A220         | Market LVL 04 (Building#3)            | 1:100 | 2019.10.24 |  |
| A220 area    | Market LVL 04 (Building#3)            | 1:100 | 2019.10.24 |  |
| A221         | Market LVL 05 (Building#3)            | 1:100 | 2019.10.24 |  |
| A221 area    | Market LVL 05 (Building#3)            | 1:100 | 2019.10.24 |  |
| A222         | Market LVL 06 (Building#3)            | 1:100 | 2019.10.24 |  |
| A222 area    | Market LVL 06 (Building#3)            | 1:100 | 2019.10.24 |  |
| A223         | Roof (Building#3)                     | 1:100 | 2019.10.24 |  |
| A400         | Elevation                             | 1:200 | 2019.10.24 |  |
| A401         | Elevation                             | 1:200 | 2019.10.24 |  |
| A402         | Streetscapes                          | NTS   | 2019.10.24 |  |
| A403         | Bird's Eye Views 1                    | NTS   | 2019.10.24 |  |
| A404         | Bird's Eye Views 2                    | NTS   | 2019.10.24 |  |
| A405         | 3D Perspective Views                  | NTS   | 2019.10.24 |  |
| A406         | 3D Perspective Views                  | NTS   | 2019.10.24 |  |
| A407         | 3D Perspective Views                  | NTS   | 2019.10.24 |  |
| A408         | Car & Bike Share Hub                  | NTS   | 2019.10.24 |  |
| A501         | Section                               | 1:200 | 2019.10.24 |  |
| A502         | Section                               | 1:200 | 2019.10.24 |  |
| A503         | Section                               | 1:100 | 2019.10.24 |  |
| A504         | Section                               | 1:100 | 2019.10.24 |  |

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Consultant Name



BEACHWAY

A 2019-10-23 Issued for DP Application

REV. DATE ISSUE

WR-NBR-2  
BEACHWAY 2

Cover Page

A000

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SCALE: NTS

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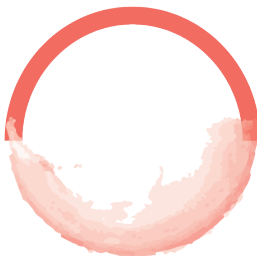
NOTES:

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

Do not scale drawings.

Consultant Name



BEACHWAY

|                                    |  |   |                                      |                   |                    |                  |                  |        |  |  |  |
|------------------------------------|--|---|--------------------------------------|-------------------|--------------------|------------------|------------------|--------|--|--|--|
| SITE DATA:                         |  |   |                                      |                   |                    |                  |                  |        |  |  |  |
| CIVIC ADDRESS:                     | 15704 North Bluff Road, White Rock, BC (Lot 1), 15724 North Bluff Road, White Rock, BC (Lot 2)<br>15728 North Bluff Road, White Rock, BC (Lot Rem1),15738 North Bluff Road, White Rock, BC (Lot Rem2)<br>15748 North Bluff Road, White Rock, BC (Lot 305),15758 North Bluff Road, White Rock, BC (Lot 3)<br>15770 North Bluff Road, White Rock, BC (Lot 4) |   |                                      |                   |                    |                  |                  |        |  |  |  |
| LEGAL ADDRESS:                     | Lots 1 to 2, New Westminster District, Plan 18697; Lots Rem 1 & Rem 2, New Westminster District, Plan 13659<br>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:                            | Multi-Residential  |   |                                      |                   |                    |                  |                  |        |  |  |  |
| USES:                              |  |   |                                      |                   |                    |                  |                  |        |  |  |  |
| NUMBER OF UNITS:                   | NON-MARKET<br>46<br>(31.3%)  | MARKET<br>101<br>(68.7%)                      | TOTAL<br>147<br>(100%)               |                   |                    |                  |                  |        |  |  |  |
| FAR SUMMARY:                       |  |   |                                      |                   |                    |                  |                  |        |  |  |  |
| MAX. FAR                           | GROSS AREA SQ.M.<br>13,415.603 sq.m.   | GROSS AREA SQ.FT. sq ft<br>144,404.209 sq.ft. | FAR<br>2.5                           | RESIDENTIAL SQ.M. | RESIDENTIAL SQ.FT. | FAR              |                  |        |  |  |  |
| 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:           |  |   |                                      |                   |                    |                  |                  |        |  |  |  |
|                                    | NON-MARKET   | 46  | RELAXATION RATIONALE                 | GRAND TOTAL       |                    |                  |                  |        |  |  |  |
|                                    | NON-MARKET VISITOR   | 2   | -                                    | 46                |                    |                  |                  |        |  |  |  |
|                                    | MARKET   | 63  | -                                    | 2                 |                    |                  |                  |        |  |  |  |
|                                    | MARKET VISITOR   | 10  | -                                    | 63                |                    |                  |                  |        |  |  |  |
|                                    | MARKET CAR SHARE   | 12  | 5 Parking Spaces = 1 car share       | 10                |                    |                  |                  |        |  |  |  |
|                                    | MARKET VISITOR CAR SHARE   | 5   | 5 Parking Spaces = 1 car share       | 60                |                    |                  |                  |        |  |  |  |
|                                    | TOTAL:   | 138   |                                      | 25                |                    |                  |                  |        |  |  |  |
|                                    |  |   |                                      | 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  |   |                                      |                   |                    |                  |                  |        |  |  |  |

A2019-10-23Issued for DP Application

REV. DATEISSUE

WR-NBR-2

BEACHWAY 2

Information Data 1

A001

PLOT DATE: 2019.10.24SCALE: NTS

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## 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     |                |
|                          | 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:        | 209.335 sq m      | 2253.26 sq ft     |                |
|                          | TOTAL NUMBER OF UNITS: | 6   |               |                   |                   |                |
|                          | 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:        |                   | 95.568 sq m       | 1028.681 sq ft |
|                          | TOTAL NUMBER OF UNITS: | 1   |               |                   |                   |                |
|                          | 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     |                   |                |
|                          | 31                     |   | TOTAL:        | 1768.034 sq m     | 19030.937 sq ft   |                |
| TOTAL NUMBER OF UNITS:   |                        |   |               |                   |                   |                |
| 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     |                   |                |
|                          | 6                      |   | TOTAL:        | 434.614 sq m      | 4678.141 sq ft    |                |
| TOTAL NUMBER OF UNITS:   |                        |   |               |                   |                   |                |
| 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     |                   |                |
|                          | 2                      |   | TOTAL:        | 152.999 sq m      | 1646.867 sq ft    |                |
| TOTAL NUMBER OF UNITS:   |                        |   |               |                   |                   |                |
| 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      |
|                          | 508A            | 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      | 1348.024 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 ft     | 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 RESIDENTIAL FLOOR FAR: | 0.62              | 0.62              |



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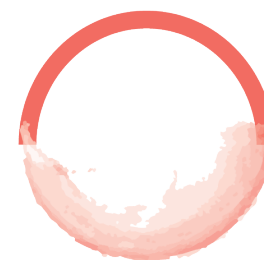
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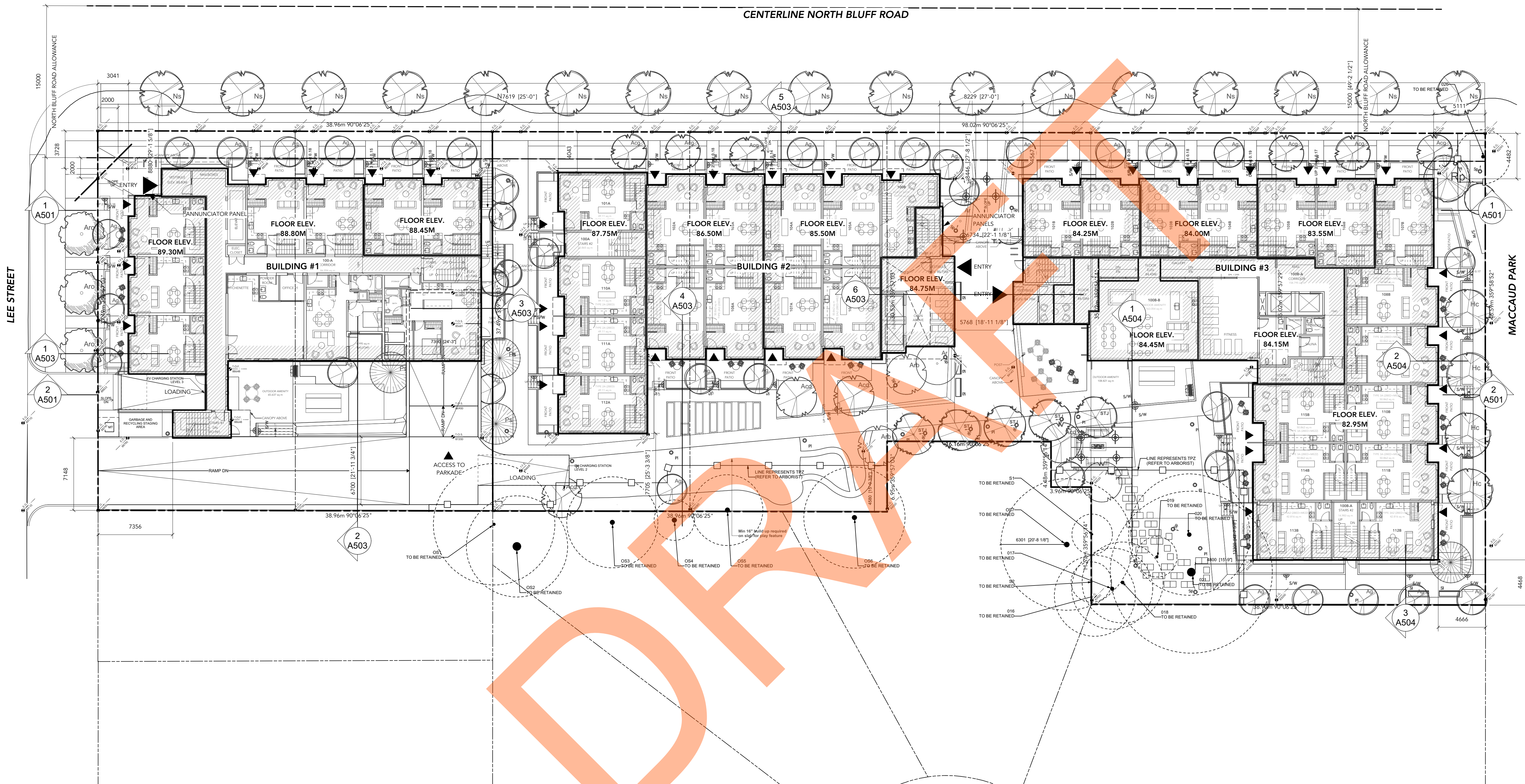
WR-NBR-2  
BEACHWAY 2

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:

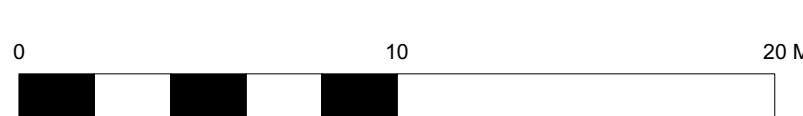
E.G. — EXISTING GRADE\*

P.G. — PROPOSED GRADE

T.O.S. — TOP OF SLAB

F.F.E. — FINISHED FLOOR ELEVATION

(REFER TO SURVEY PLAN)  
ALL ELEVATIONS IN MILLIMETRES





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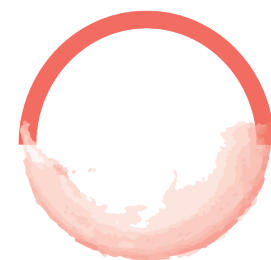
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BEACHWAY 2

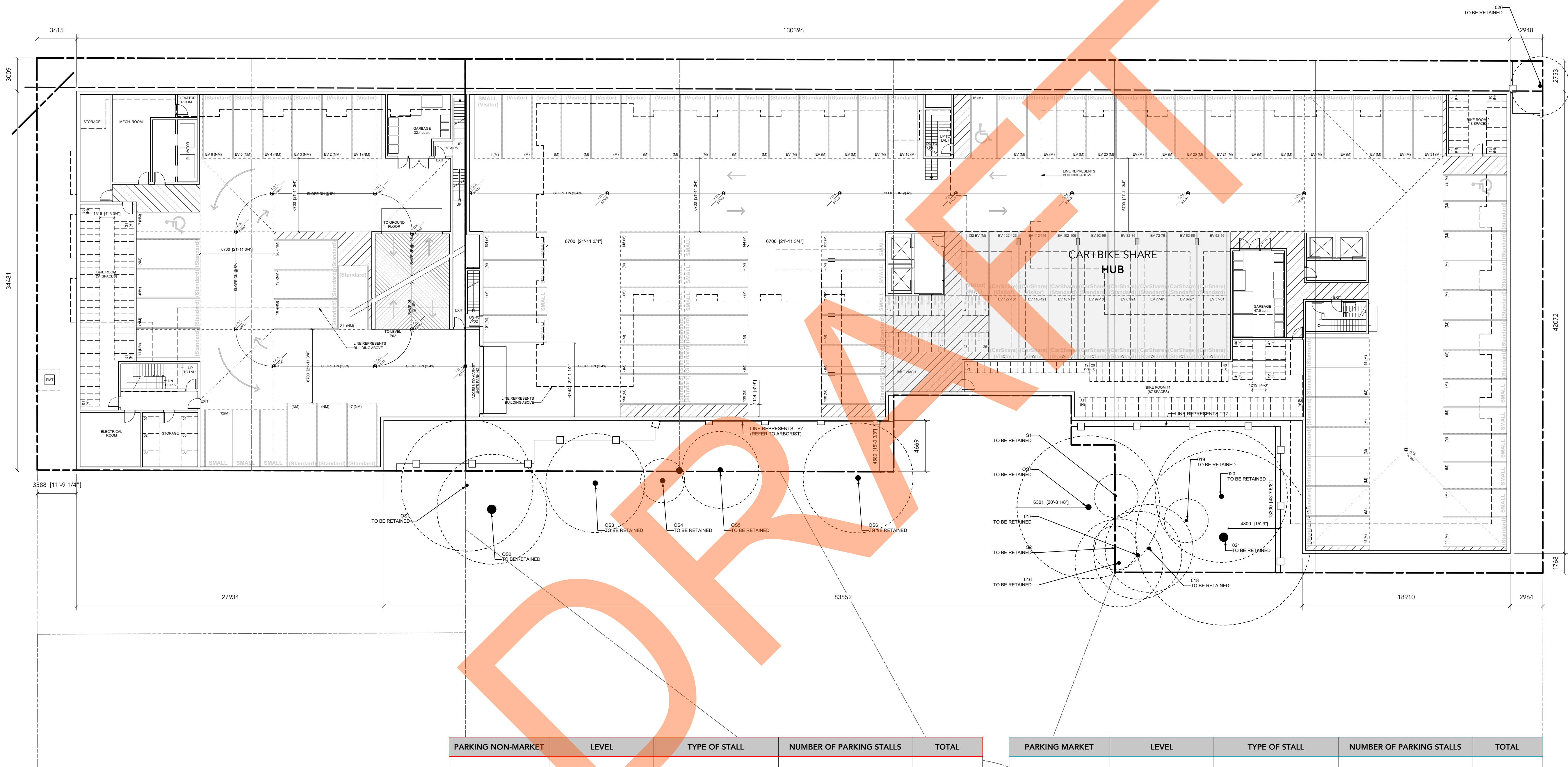
Parkade LVL 01

A102

PLOT DATE: 2019.10.24 SCALE: 1:200

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NORTH BLUFF ROAD



TREE LEGEND:

TREES TO BE RETAINED\*

TREE BARRIER PROTECTION\*

TRUNK SIZE AND LOCATION\*

(REFER TO ARBORIST REPORT)

GRADING LEGEND:

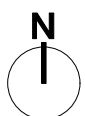
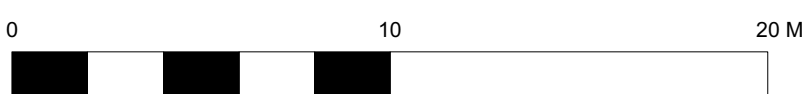
E.G. EXISTING GRADE\*

P.G. PROPOSED GRADE

T.O.S. TOP OF SLAB

F.F.E. FINISHED FLOOR ELEVATION

(REFER TO SURVEY PLAN)  
ALL ELEVATIONS IN MILLIMETRES



| 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                       | 90    |
|                 |                  | 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:             |                          |       |
|                 |                  |                             |                          |       |

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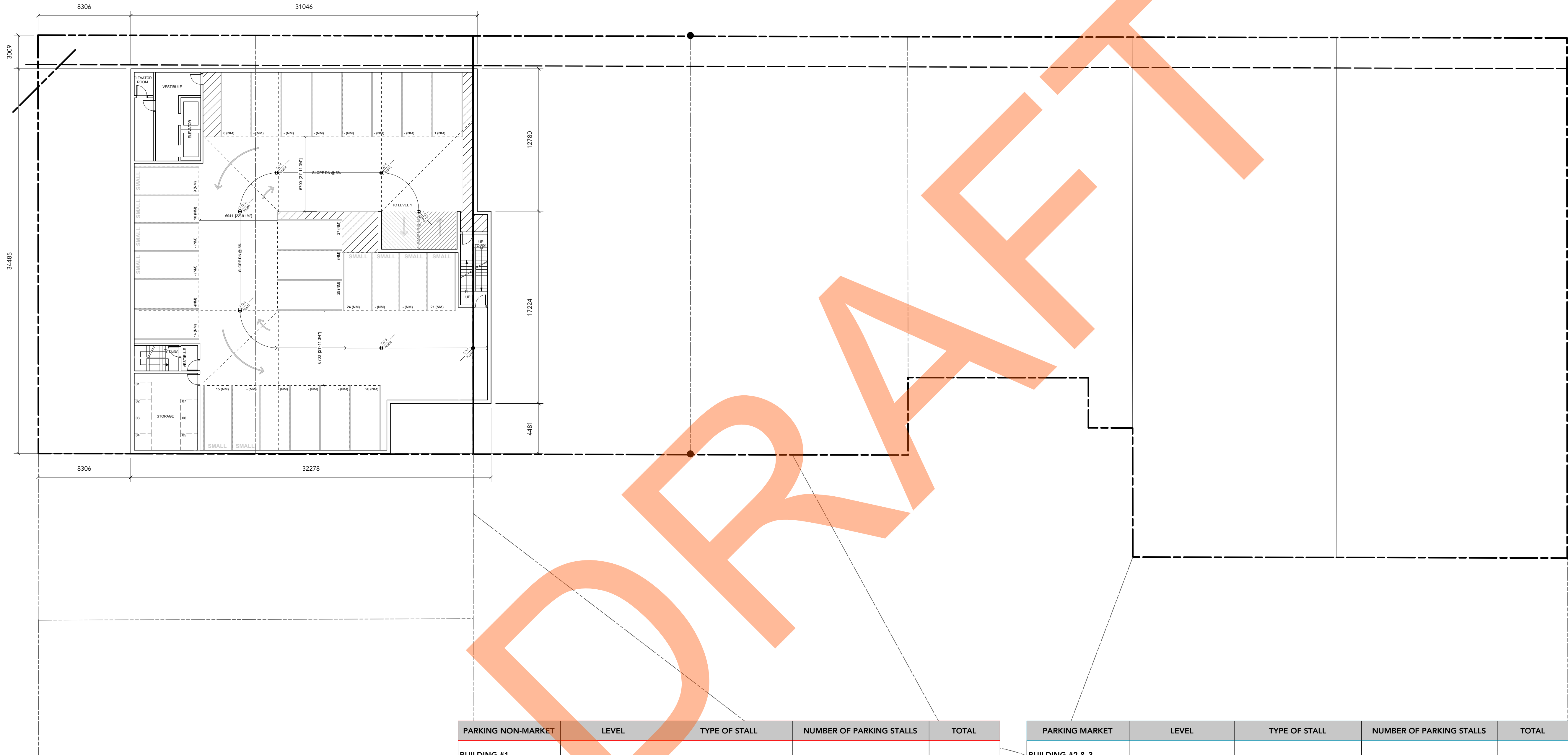
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| REV. | DATE       | ISSUE                     |

WR-NBR-2  
BEACHWAY 2

Parkade LVL 02.0

A103

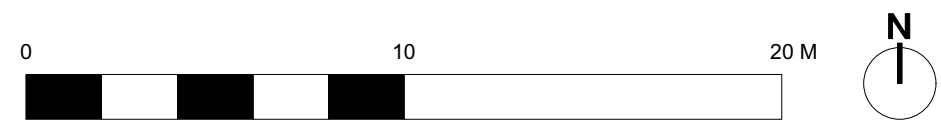
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| PLOT DATE: 2019.10.24 | SCALE: 1:200 |
| DRAWN BY: OEM         | CHECK BY: SC |



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



| PARKING NON-MARKET | LEVEL            | TYPE OF STALL               | NUMBER OF PARKING STALLS | TOTAL |
|--------------------|------------------|-----------------------------|--------------------------|-------|
| BUILDING #1        | PARKADE LEVEL 01 | STANDARD SPACE (2.7X5.8)    | 17                       | 21    |
|                    |                  | SMALL SPACE (2.5X5.8)       | 0                        |       |
|                    |                  | SMALL SPACE (2.5X5.2)       | 3                        |       |
|                    |                  | HANDICAPPED SPACE (4.0X5.8) | 1                        |       |
|                    |                  | TOTAL                       |                          |       |
|                    | PARKADE LEVEL 02 | STANDARD SPACE              | 17                       | 27    |
|                    |                  | SMALL SPACE (2.5 X 5.8)     | 6                        |       |
|                    |                  | SMALL SPACE (2.5X5.2)       | 4                        |       |
|                    |                  | HANDICAPPED SPACE           | 0                        |       |
|                    |                  | TOTAL                       |                          |       |
| 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                       | 90    |
|                 |                  | 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:             |                          |       |
|                 |                  |                             |                          |       |

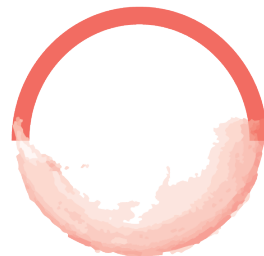
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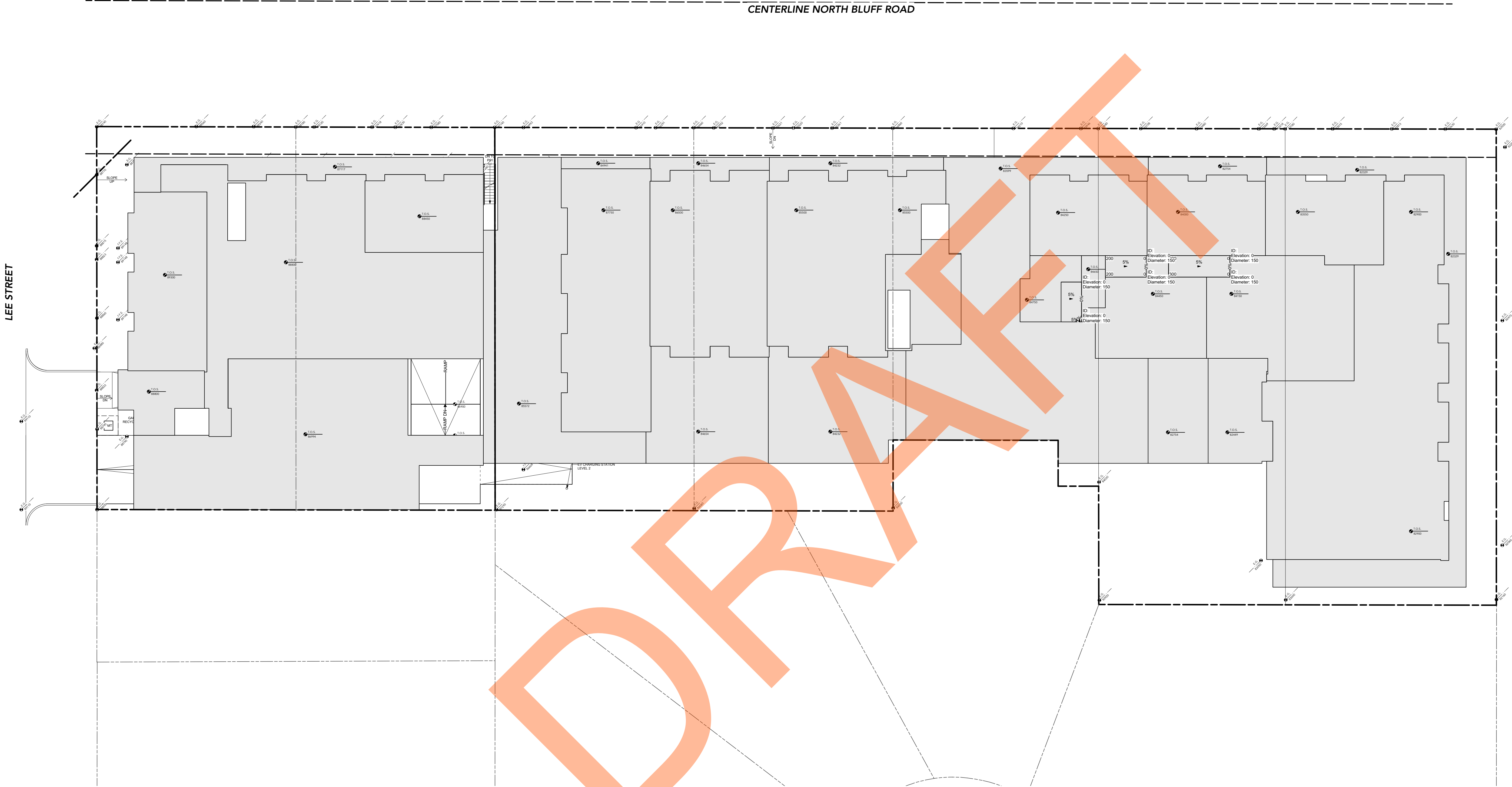
WR-NBR-2  
BEACHWAY 2

Preliminary slab plan

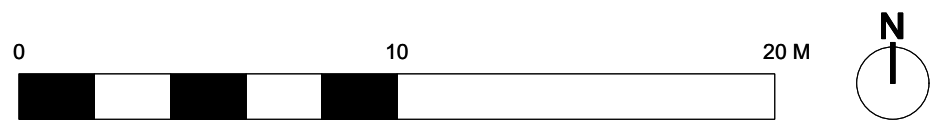
A105

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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





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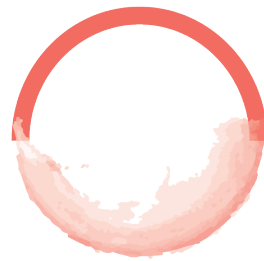
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BEACHWAY 2

Site Plan Coverage

A106

PLOT DATE: 2019.10.24 SCALE: 1:200

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CENTERLINE NORTH BLUFF ROAD

LEE STREET

MACCAUD PARK

|                |  |                 |                       |
|----------------|--|-----------------|-----------------------|
| SITE DATA:     |  |                 |                       |
| CIVIC ADDRESS: | 15704 North Bluff Road, White Rock, BC (Lot 1), 15724 North Bluff Road, White Rock, BC (Lot 2)<br>15728 North Bluff Road, White Rock, BC (Lot Rem1), 15738 North Bluff Road, White Rock, BC (Lot Rem2)<br>15748 North Bluff Road, White Rock, BC (Lot 305), 15758 North Bluff Road, White Rock, BC (Lot 3)<br>15770 North Bluff Road, White Rock, BC (Lot 4) |                 |                       |
| LEGAL ADDRESS: | Lots 1 to 2, New Westminster District, Plan 18697; Lots Rem 1 & Rem 2, New Westminster District, Plan 13659<br>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%               |



**Appendix B**  
**Beachway 1 Draft Traffic Impact Assessment**

DRAFT

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.



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## 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**



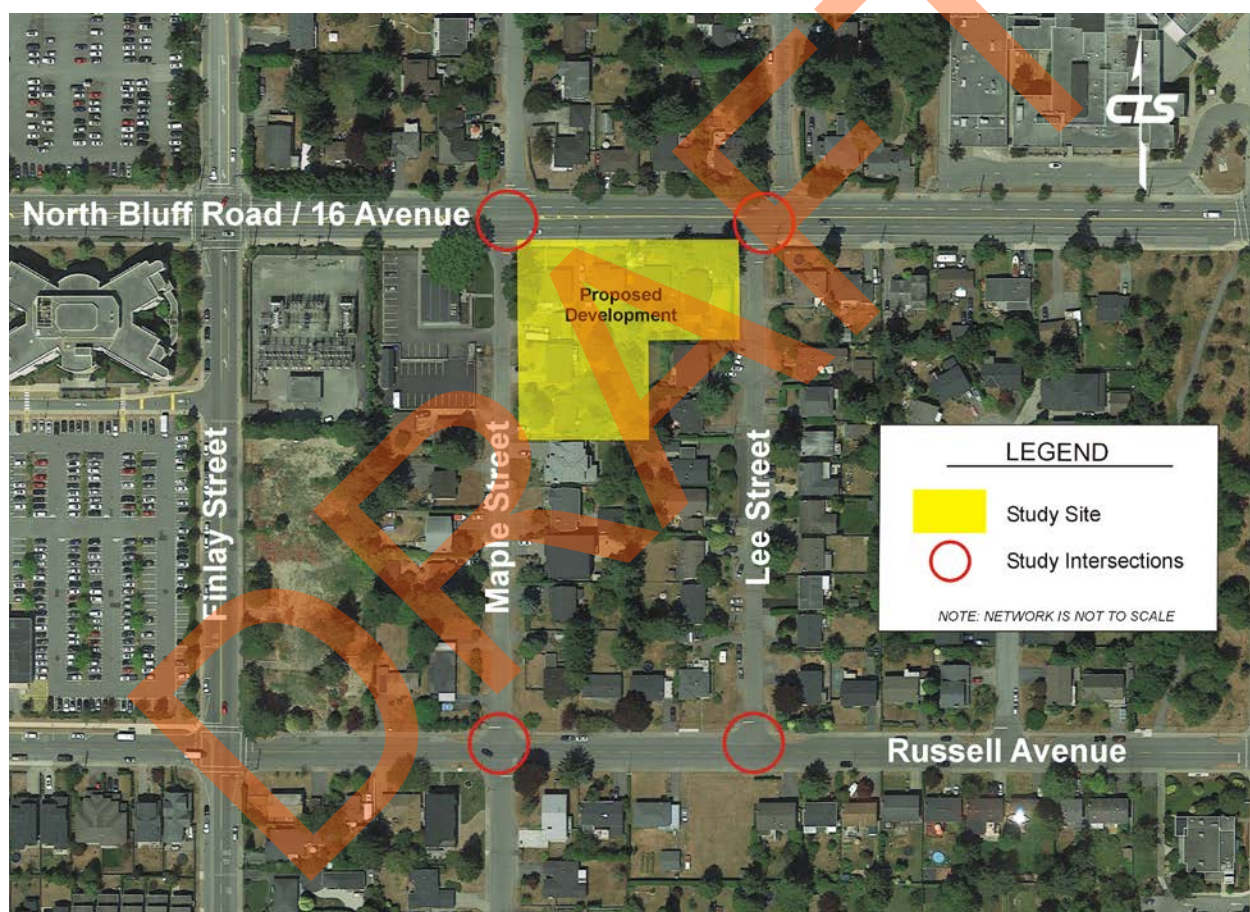


The residential development is proposed to be rezoned as a comprehensive development and will have 14 townhouse units and 76 condominium units for a total of 90 dwelling units. 25 of the condominium units will be non-market rental.

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.

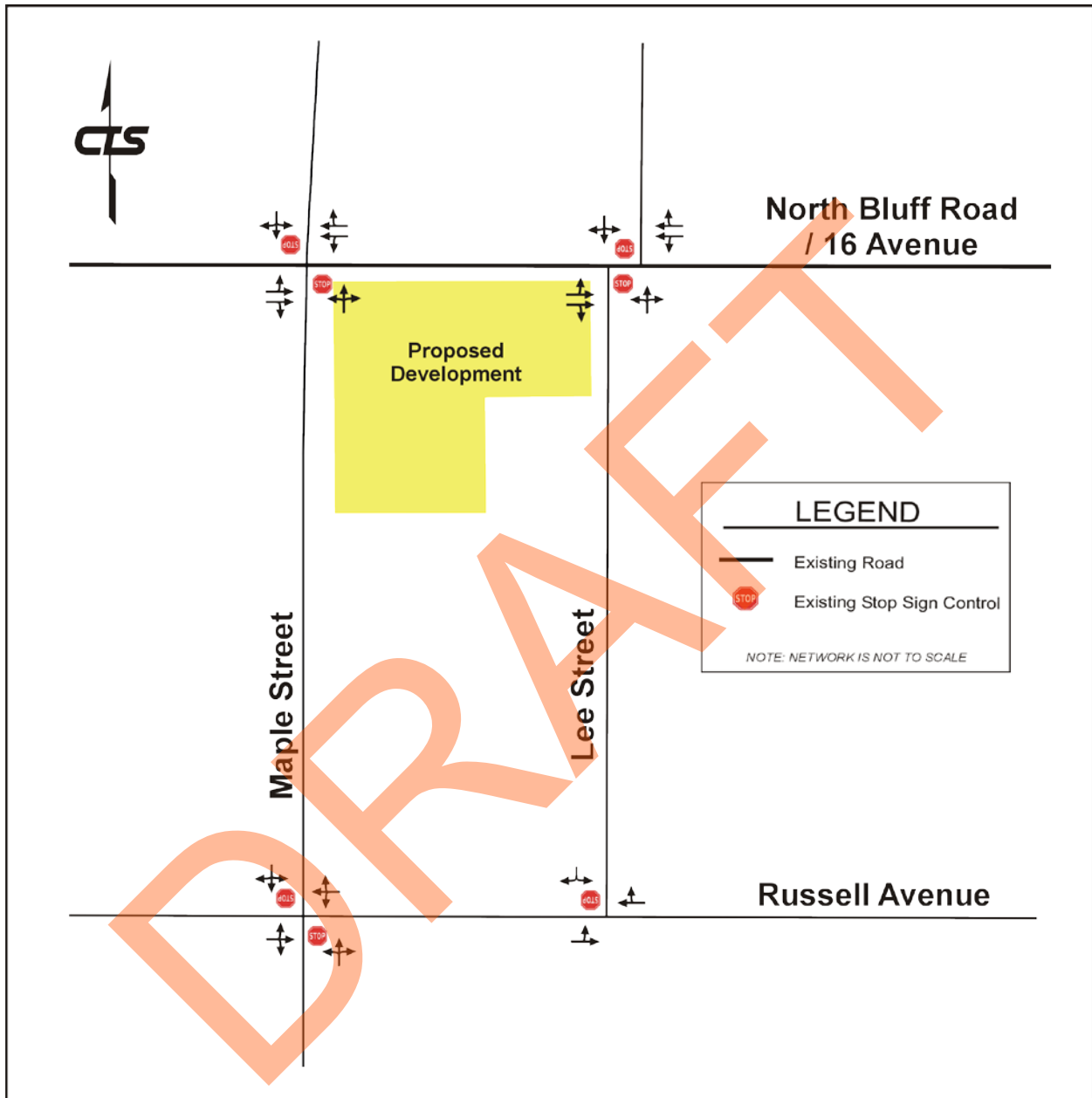
### Maple Street

- 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)

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## 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.

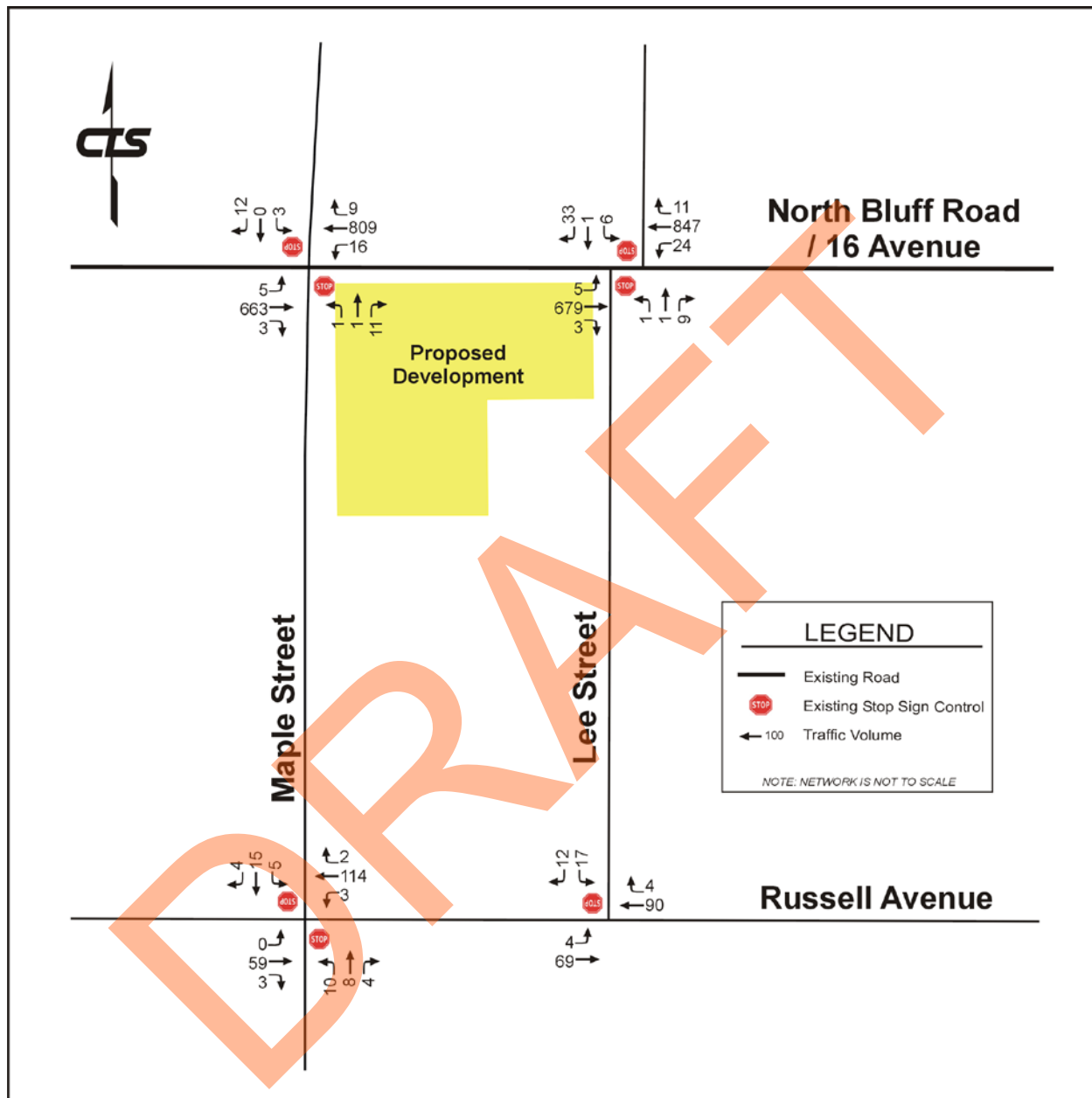
### 2030 Future Base Traffic Volumes

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.

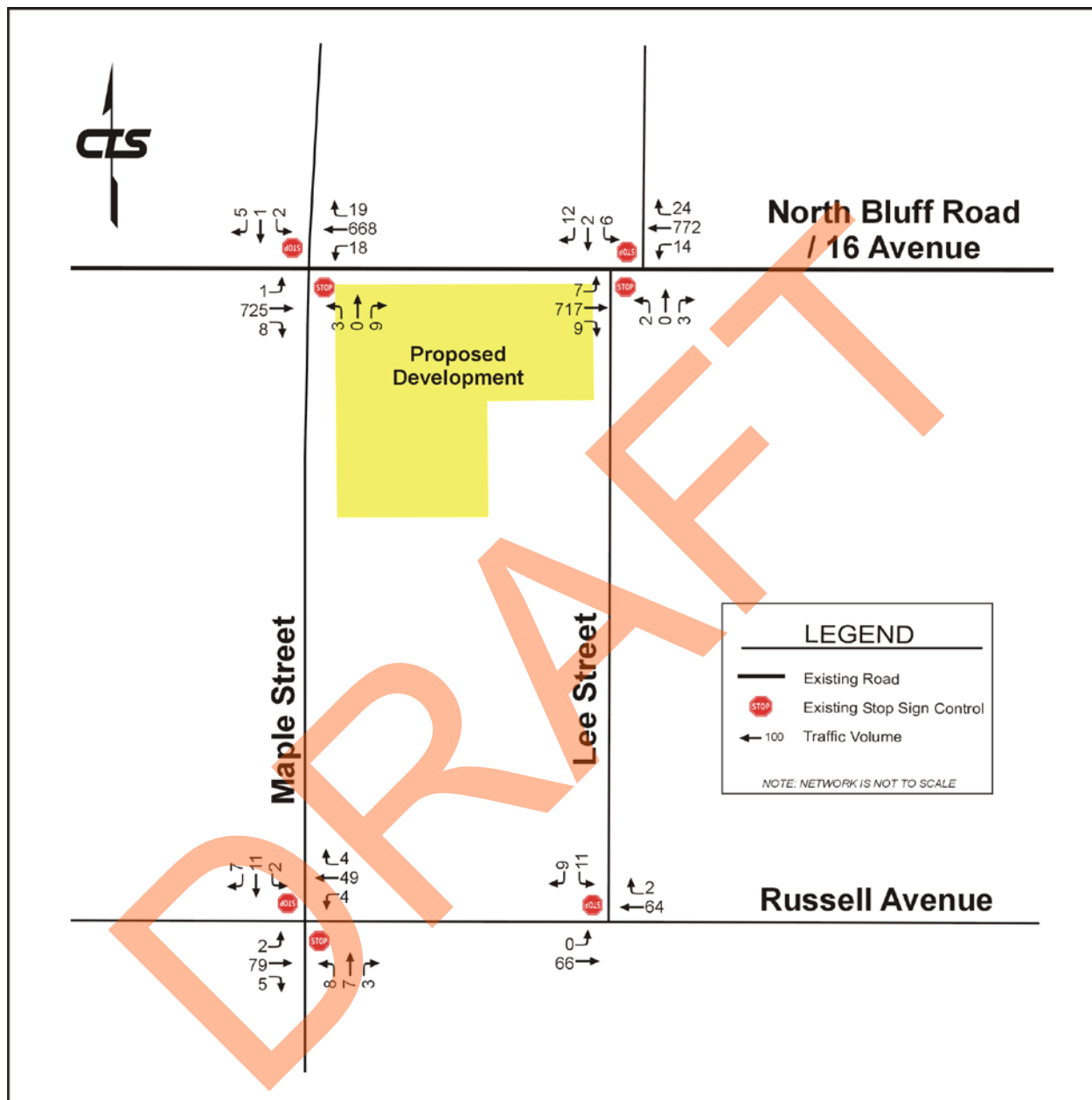
**FIGURE 8** and **FIGURE 9** illustrate the weekday morning and afternoon peak hour vehicle volumes, respectively.



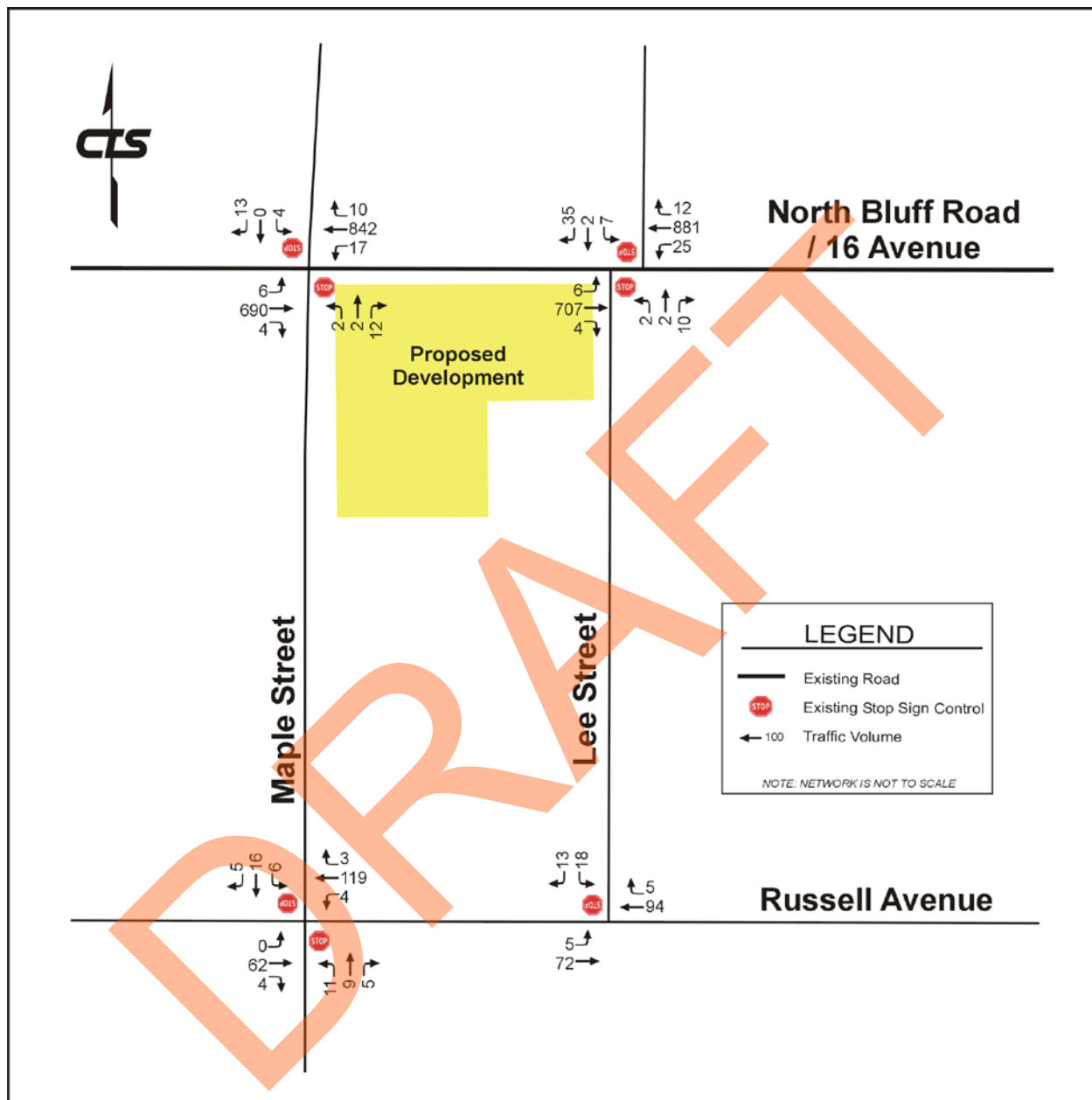
**FIGURE 4**  
**2018 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES**



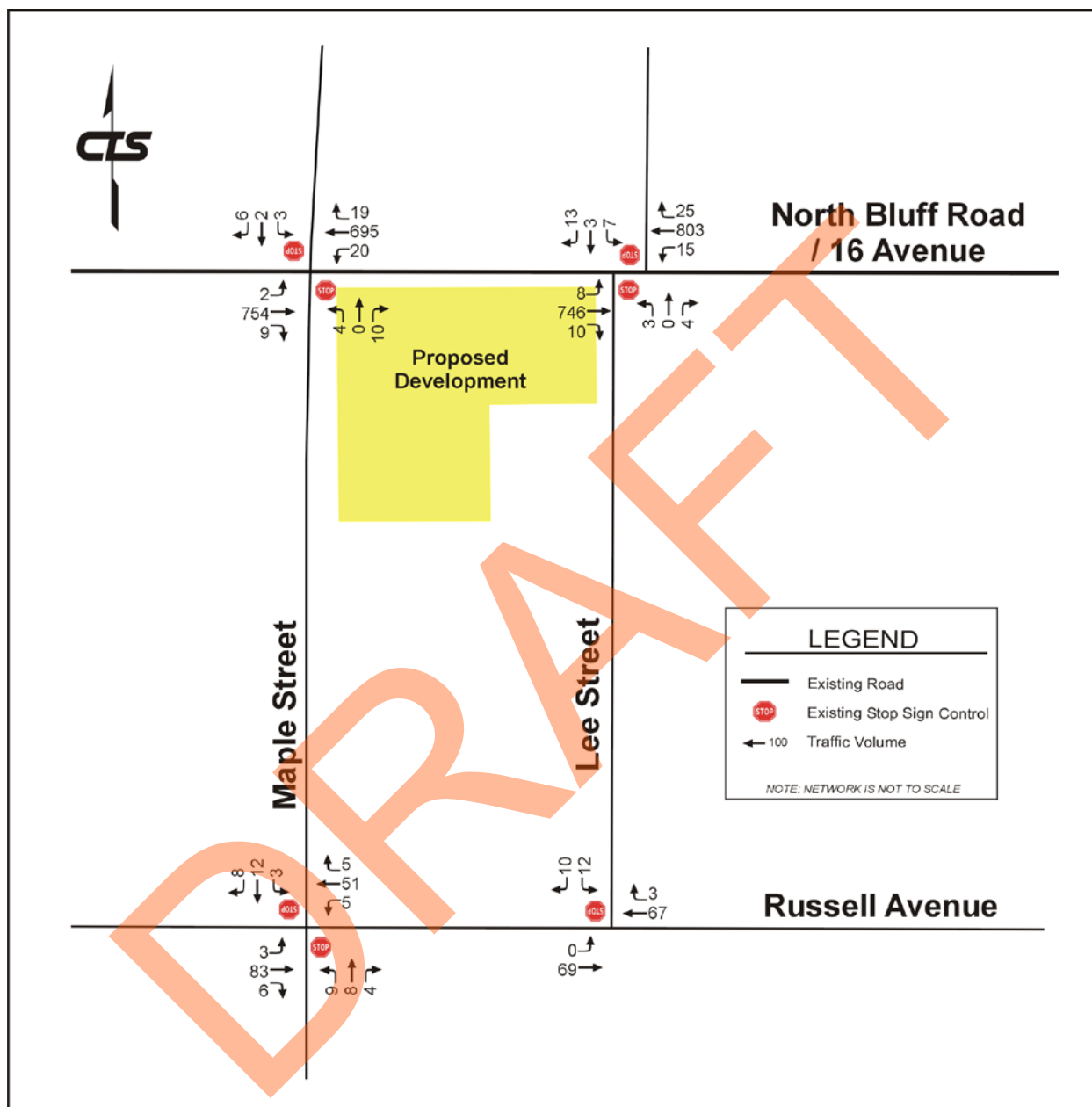
**FIGURE 5**  
**2018 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES**



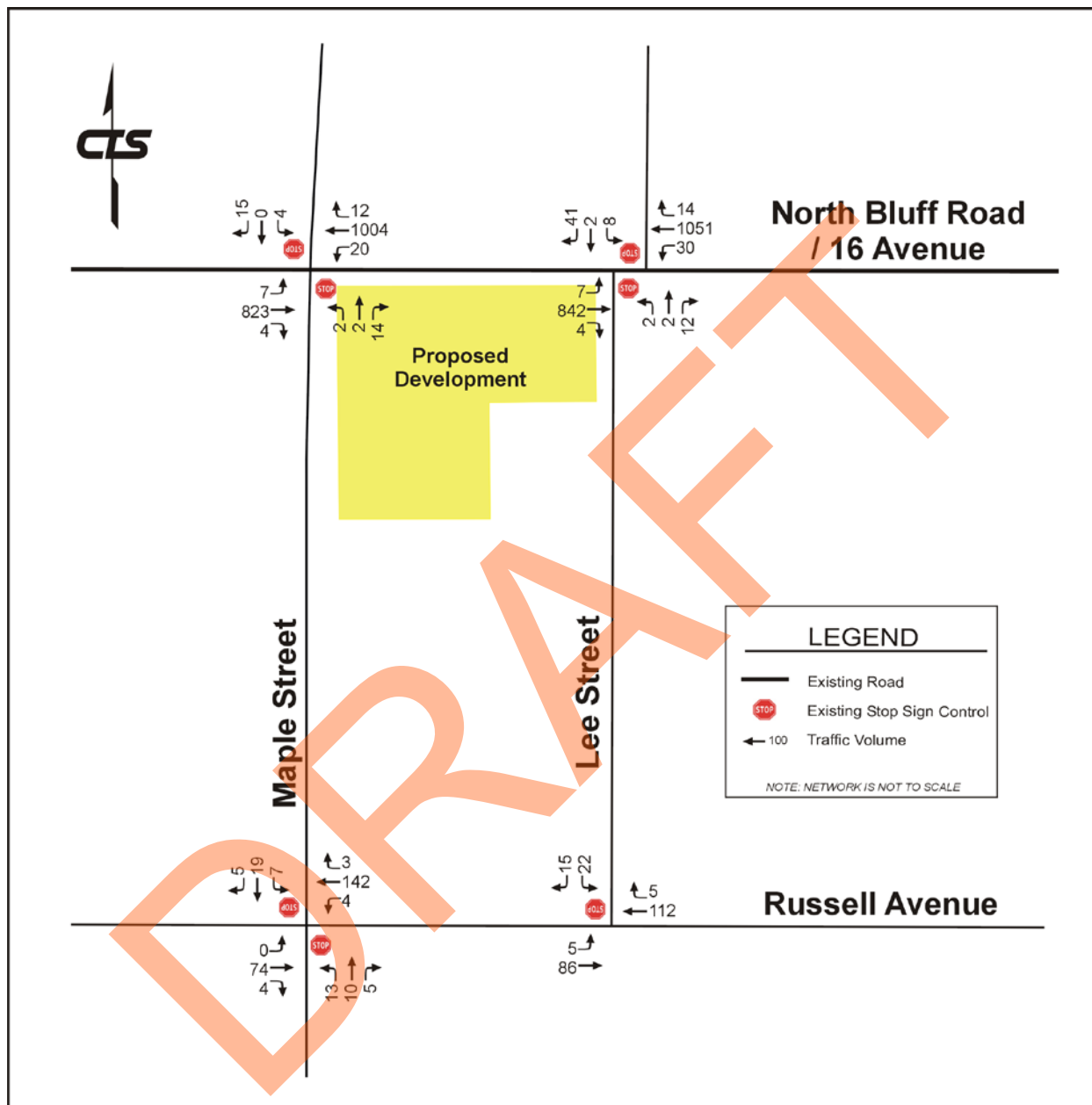
**FIGURE 6**  
**2020 WEEKDAY MORNING PEAK HOUR BASE TRAFFIC VOLUMES**



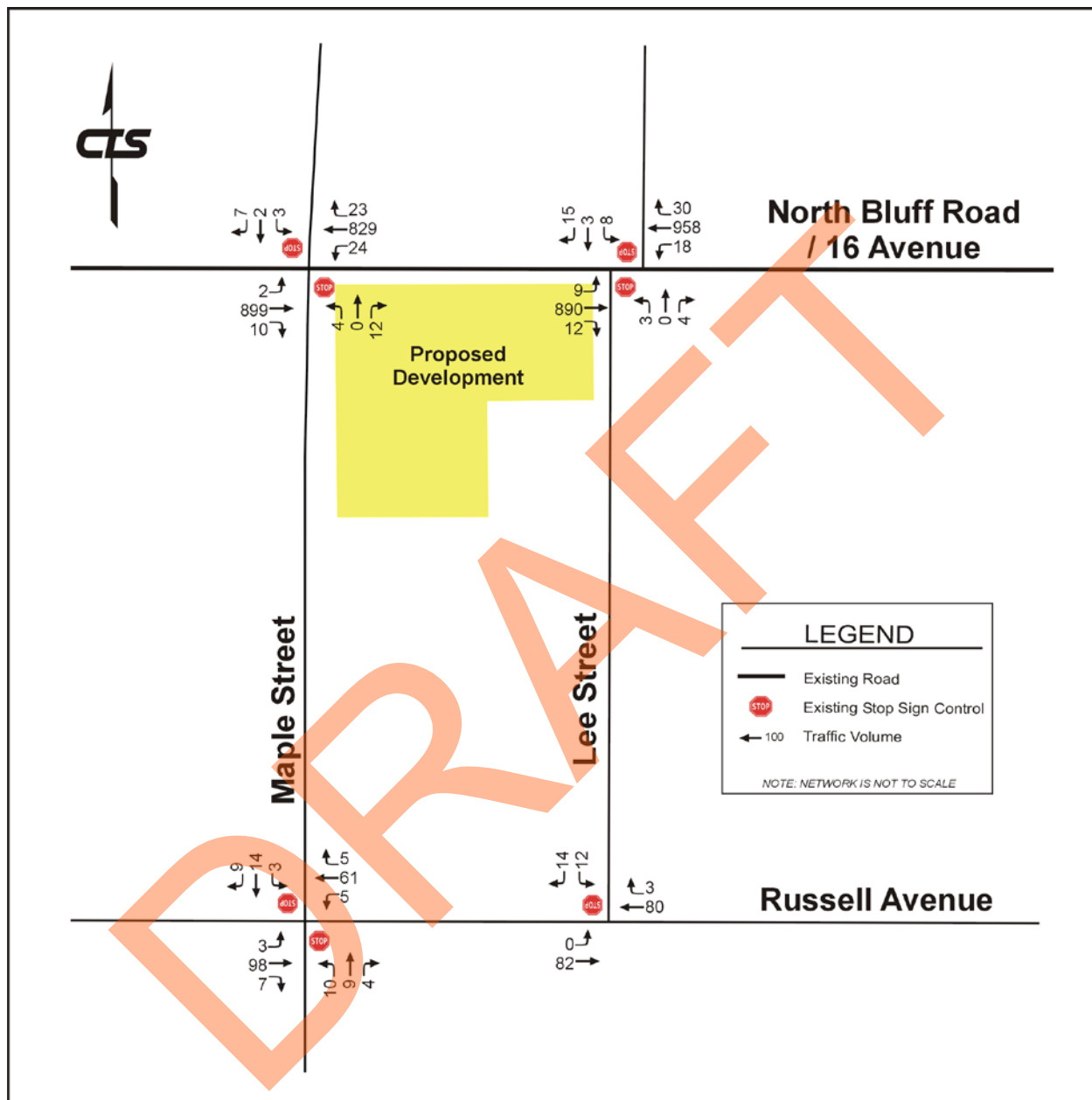
**FIGURE 7**  
**2020 WEEKDAY AFTERNOON PEAK HOUR BASE TRAFFIC VOLUMES**



**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      |                          |                      | 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      |                          |                      | 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         |
| <b>TOTAL</b>       | <b>8</b>             | <b>25</b> | <b>23</b>            | <b>17</b> |
|                    | <b>33</b>            |           | <b>40</b>            |           |

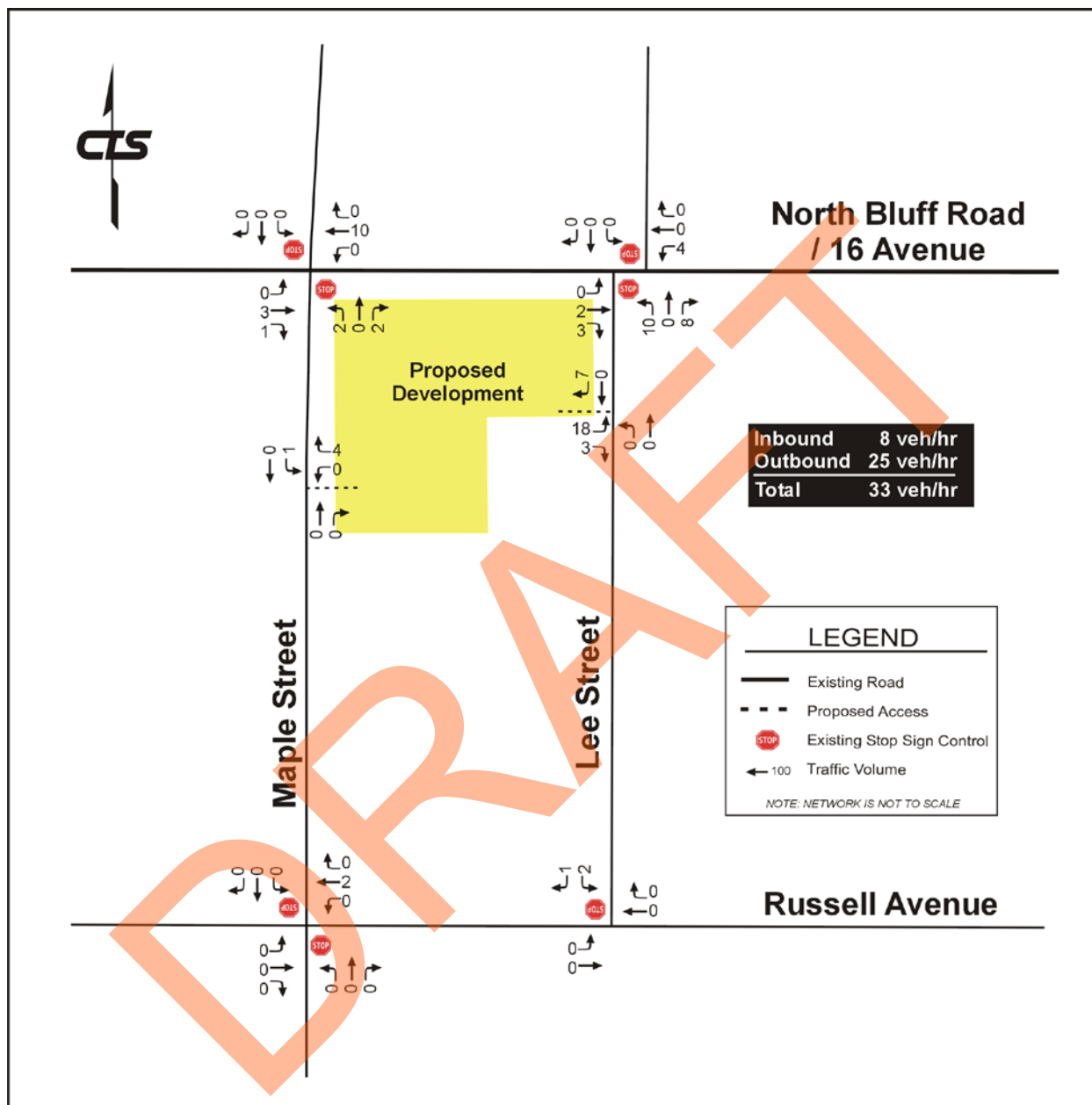
### 3.3 Traffic Assignment

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.

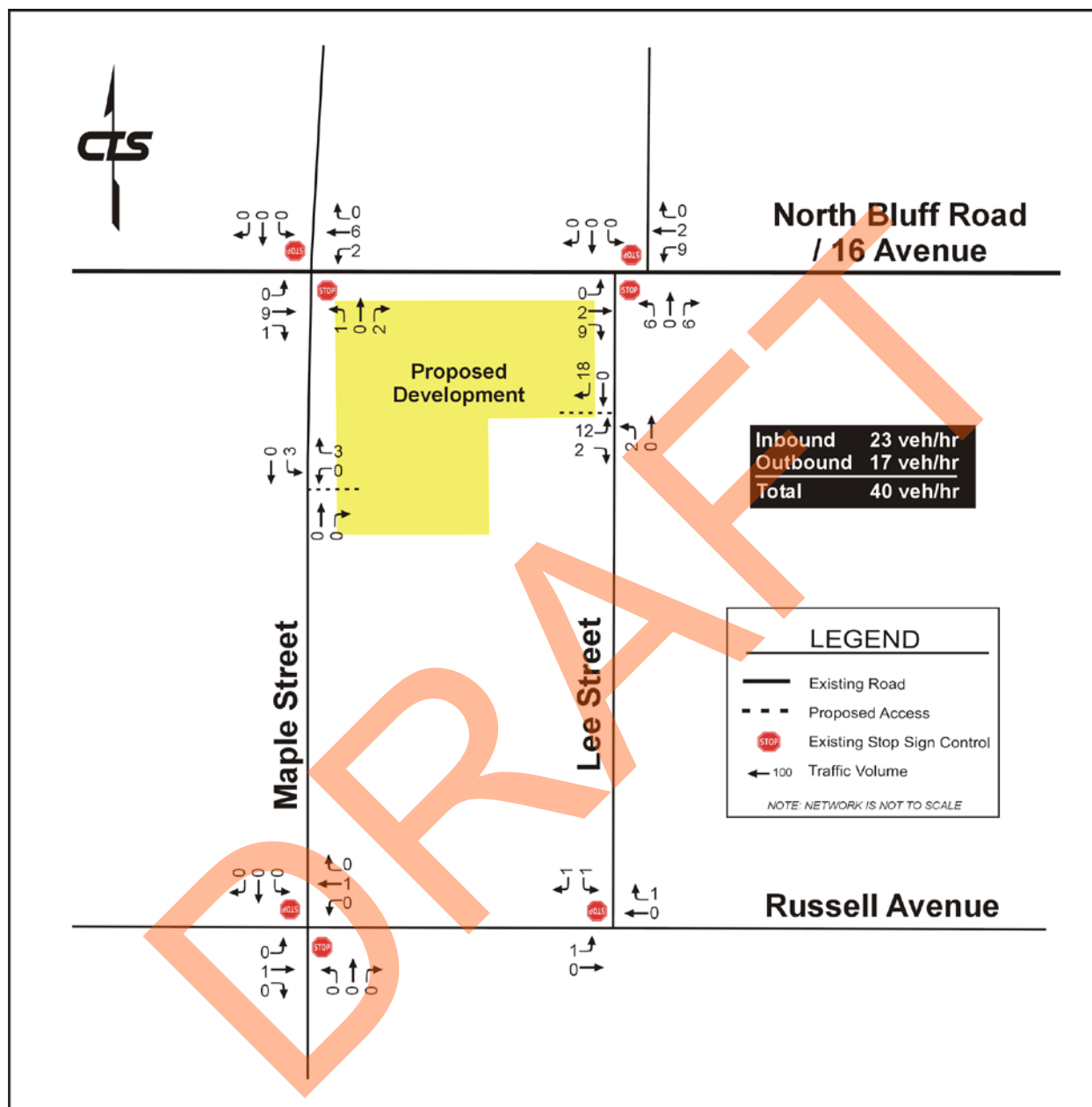
It is noted that the access off of Maple Street is for parking for the townhouses, and access off of Lee Street is for parking in the condominiums. Driveway usage is based on the proportional trip generation of each of these land uses as previously noted in **TABLE 1**.



**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**.

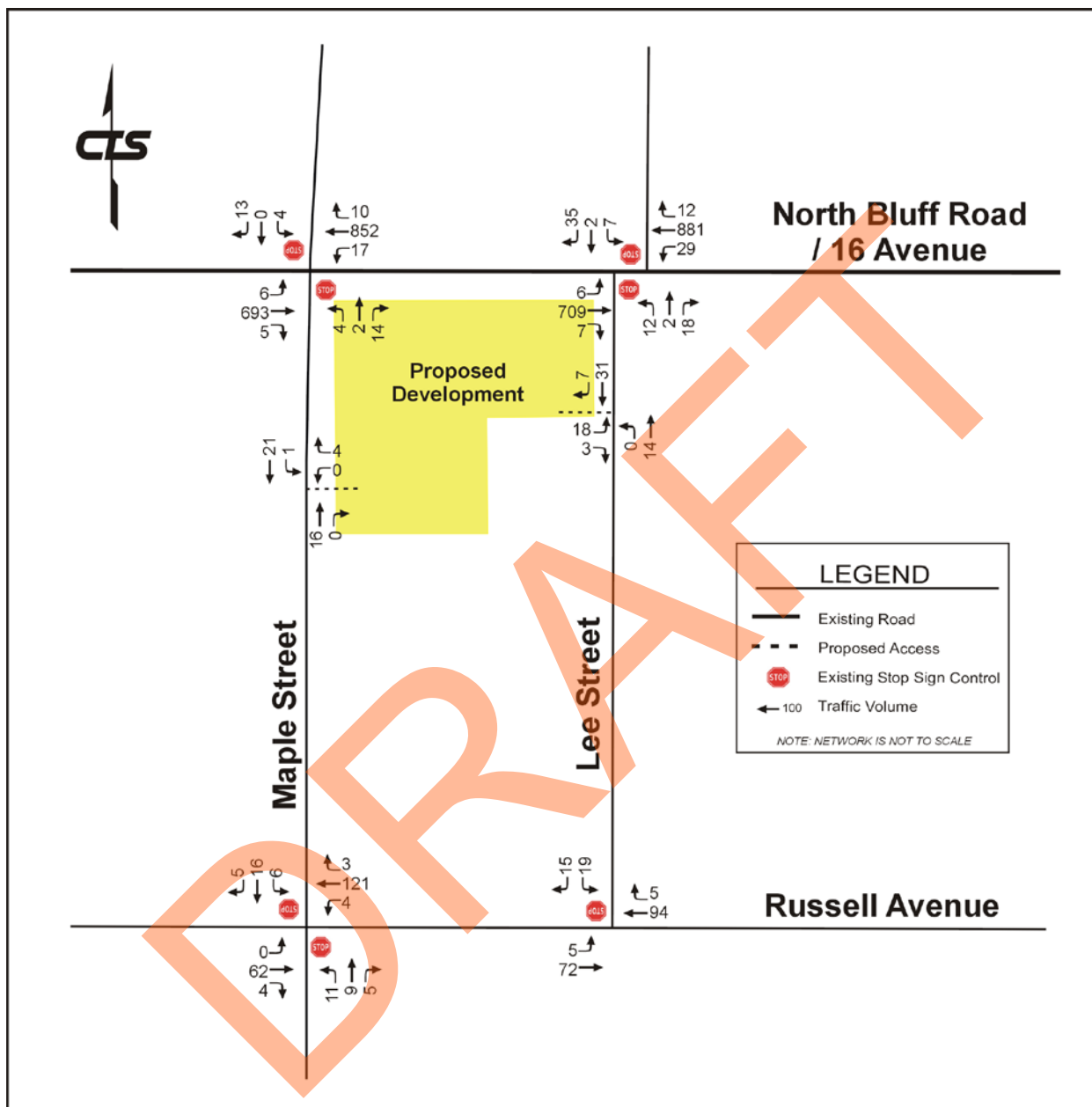
**FIGURE 13** illustrates the total projected traffic for the year 2020 weekday afternoon peak hour consisting of both future base and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 11** onto **FIGURE 7**.

**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**.

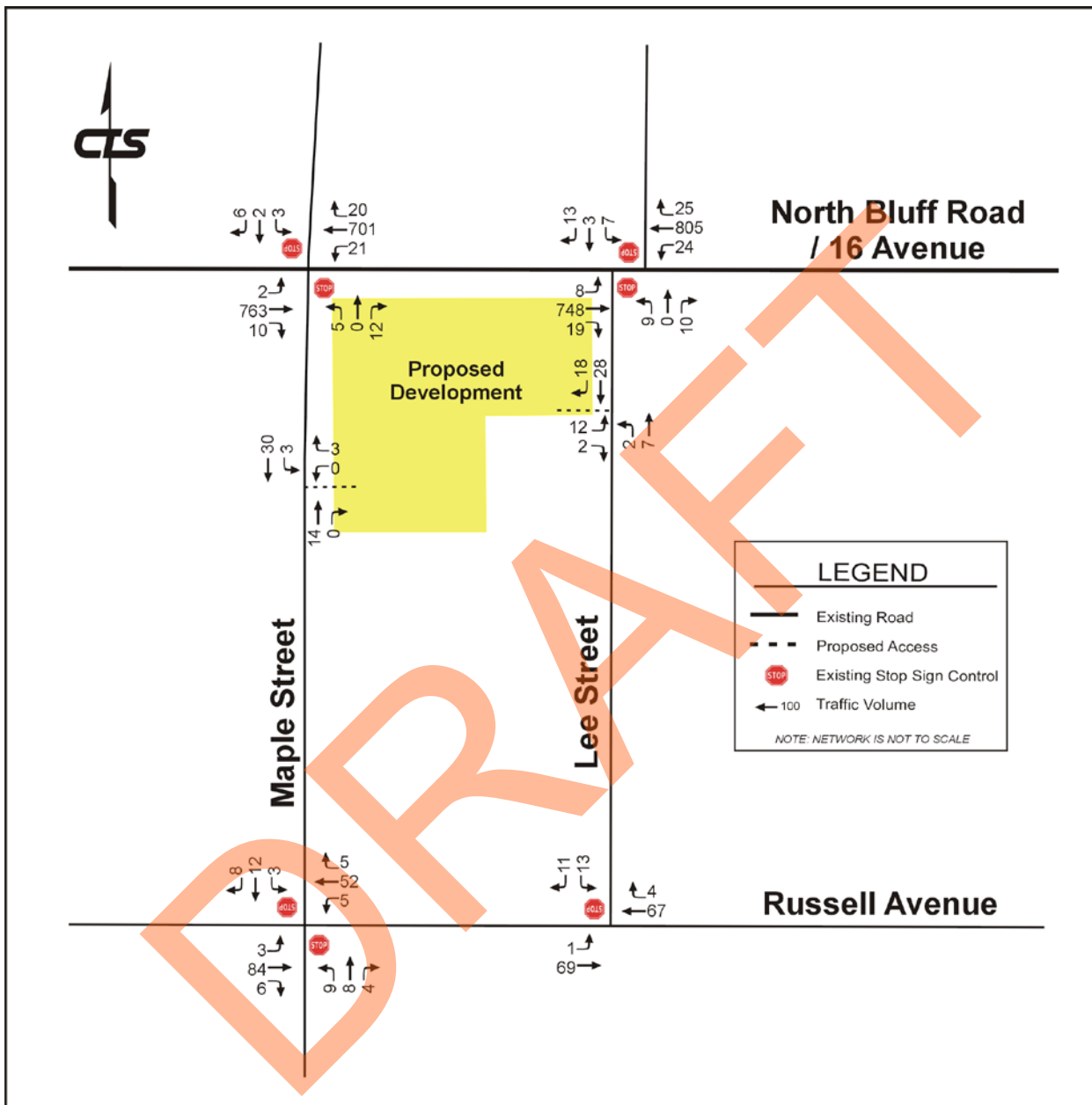
**FIGURE 15** illustrates the total projected traffic for the year 2030 weekday afternoon peak hour consisting of both future base and site traffic resulting from the proposed development. It is the result of superimposing **FIGURE 11** onto **Figure 9**.

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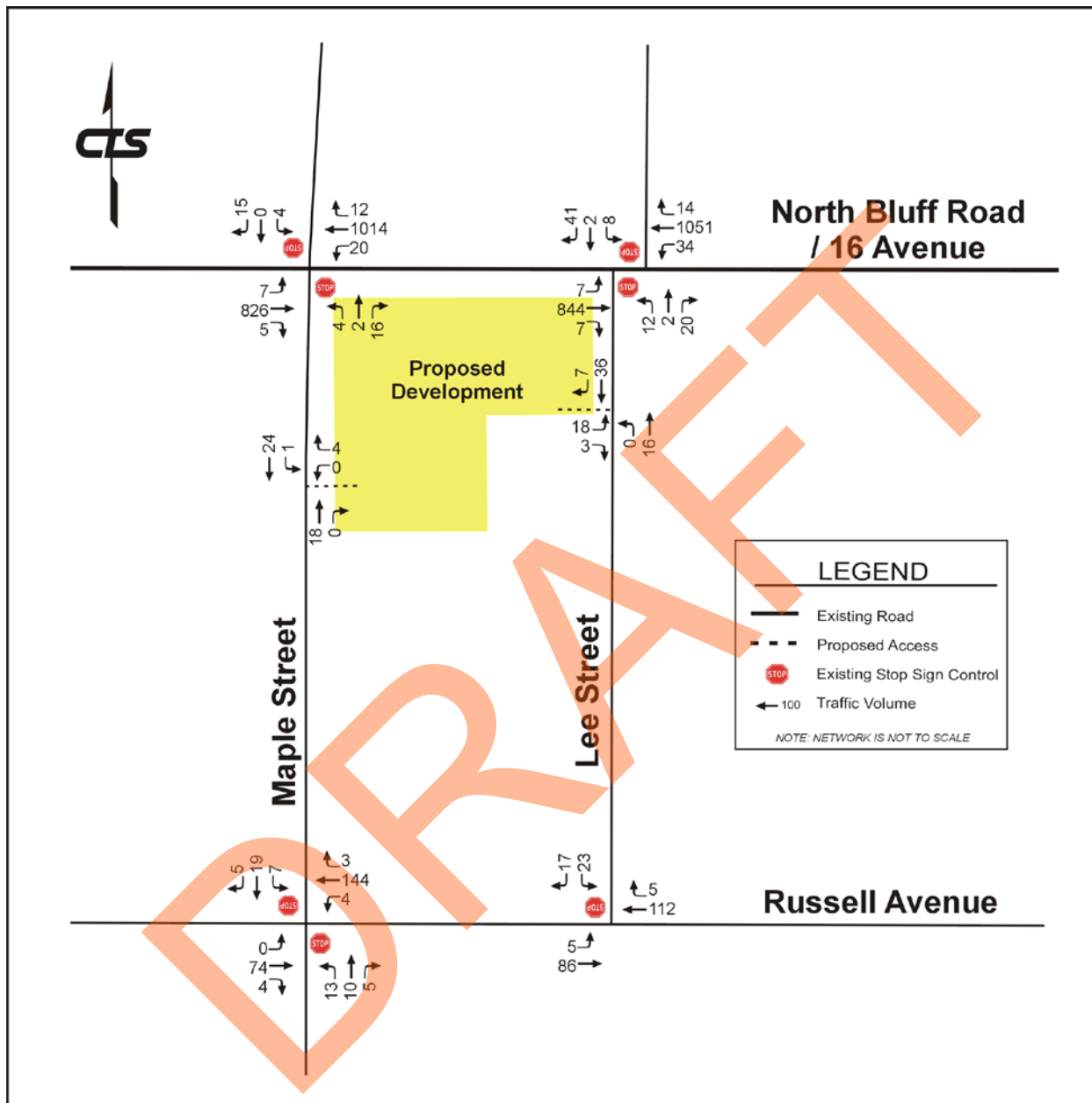
**FIGURE 12**  
**2020 MORNING PEAK HOUR BASE + SITE TRAFFIC VOLUMES**



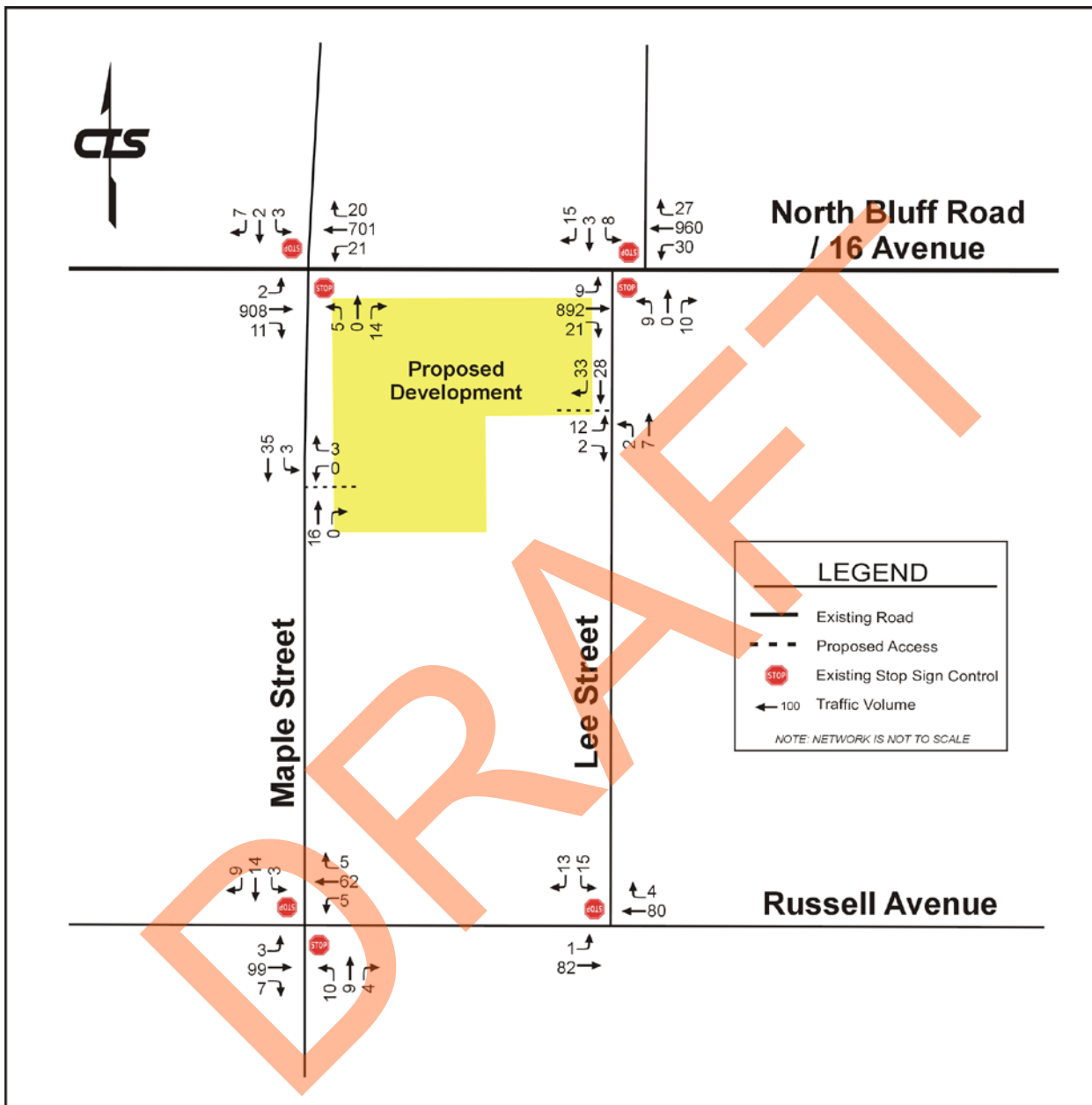
**FIGURE 13**  
**2020 AFTERNOON PEAK HOUR BASE + SITE TRAFFIC VOLUMES**



**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)

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

Red = 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     | A   | Okay.   |
|   |                             |                  | Delay               | 7.6       |      |       | 7.4       |      |       | 10.4       |      |       | 10.6       |      |       |     |   |
|   |                             |                  | 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     | A   | Okay.   |
|   |                             |                  | Delay               | 7.6       |      |       | 7.4       |      |       | 10.5       |      |       | 10.7       |      |       |     |   |
|   |                             |                  | 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     | A   | Okay.   |
|   |                             |                  | Delay               | 7.6       |      |       | 7.4       |      |       | 10.9       |      |       | 11.1       |      |       |     |   |
|   |                             |                  | 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     | A   | Okay.   |
|   |                             |                  | Delay               | 7.6       |      |       | 7.4       |      |       | 10.5       |      |       | 10.7       |      |       |     |   |
|   |                             |                  | 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     | A   | Okay  |
|   |                             |                  | Delay               | 7.6       |      |       | 7.4       |      |       | 10.9       |      |       | 11.1       |      |       |     |   |
|   |                             |                  | 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     | A   | Okay.   |
|   |                             |                  | Delay               | 7.4       |      |       | 7.4       |      |       | 9.9        |      |       | 9.8        |      |       |     |   |
|   |                             |                  | 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     | A   | Okay.   |
|   |                             |                  | Delay               | 7.4       |      |       | 7.4       |      |       | 10.0       |      |       | 9.8        |      |       |     |   |
|   |                             |                  | 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     | A   | Okay.   |
|   |                             |                  | Delay               | 7.4       |      |       | 7.5       |      |       | 10.2       |      |       | 10.0       |      |       |     |   |
|   |                             |                  | 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     | A   | Okay.   |
|   |                             |                  | Delay               | 7.4       |      |       | 7.4       |      |       | 10.0       |      |       | 9.9        |      |       |     |   |
|   |                             |                  | 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     | A   | Okay  |
|   |                             |                  | Delay               | 7.4       |      |       | 7.5       |      |       | 10.3       |      |       | 10.0       |      |       |     |   |
|   |                             |                  | 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    | B   | Southbound approach will experience medium delay  |
|   |                             |                  | Delay               | 11.5      | 11.5 | 0.0   | 9.9       | 9.9  | 0.0   | 24.0       |      |       | 31.6       |      |       |     |   |
|   |                             |                  | 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    | B   | Northbound and southbound approach will experience medium delay                                   |
|   |                             |                  | Delay               | 11.8      | 11.8 | 0.0   | 10.1      | 10.1 | 0.0   | 36.6       |      |       | 42.9       |      |       |     |   |
|   |                             |                  | 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    | B   | Northbound and southbound approach will experience high delay                                     |
|   |                             |                  | Delay               | 13.2      | 13.2 | 0.0   | 11.0      | 11.0 | 0.0   | 66.4       |      |       | 118.9      |      |       |     |   |
|   |                             |                  | 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    | B   | Northbound approach will experience high delays. Southbound approach will experience medium delay |
|   |                             |                  | Delay               | 11.8      | 11.8 | 0.0   | 10.2      | 10.2 | 0.0   | 57.8       |      |       | 45.1       |      |       |     |   |
|   |                             |                  | 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    | C   | Northbound and southbound approach will experience high delay                                     |
|   |                             |                  | Delay               | 13.2      | 13.2 | 0.0   | 11.1      | 11.1 | 0.0   | 164.8      |      |       | 133.1      |      |       |     |   |
|   |                             |                  | 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    | A   | Southbound approach will experience medium delay  |
|   |                             |                  | Delay               | 10.1      | 10.1 | 0.0   | 9.5       | 9.5  | 0.0   | 21.8       |      |       | 27.4       |      |       |     |   |
|   |                             |                  | 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    | B   | Southbound approach will experience medium delay  |
|   |                             |                  | Delay               | 10.3      | 10.3 | 0.0   | 9.7       | 9.7  | 0.0   | 24.7       |      |       | 32.6       |      |       |     |   |
|   |                             |                  | 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    | B   | Northbound approach will experience medium delays. Southbound approach will experience high delay |
|   |                             |                  | Delay               | 11.2      | 11.2 | 0.0   | 10.4      | 10.4 | 0.0   | 36.3       |      |       | 53.1       |      |       |     |   |
|   |                             |                  | 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    | B   | Northbound and southbound approach will experience medium delay                                   |
|   |                             |                  | Delay               | 10.3      | 10.3 | 0.0   | 9.8       | 9.8  | 0.0   | 29.5       |      |       | 34.6       |      |       |     |   |
|   |                             |                  | 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    | B   | Northbound approach will experience medium delays. Southbound approach will experience high delay |
|   |                             |                  | Delay               | 11.2      | 11.2 | 0.0   | 10.5      | 10.5 | 0.0   | 47.4       |      |       | 58.2       |      |       |     |   |
|   |                             |                  | 95% Queue (m)       | 0.1       | 0.1  | 0.0   | 0.1       | 0.1  | 0.0   | 0.7        |      |       | 1.1        |      |       |     |   |

Delay = Average Delay (seconds/vehicle)

Yellow background = Intersection approaching capacity (LOS 'D' or 'E'); or medium approach delays (25sec to &lt;50sec)

Red background = Intersection equals or exceeds capacity (LOS 'F'); or high approach delays (&gt;= 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    | A   | Okay. |
|   |                             |                  | Delay               | 7.5       |      |       |           | 0.0  |       |            |      |       | 9.6        |      |       |     |       |
|   |                             |                  | 95% Queue (m)       | 0.0       |      |       |           | 0.0  |       |            |      |       | 0.1        |      |       |     |       |
|   |                             | 2020 Base        | Volumes             | 5         | 72   |       |           | 94   | 5     |            |      |       | 18         |      | 13    | A   | Okay. |
|   |                             |                  | Delay               | 7.5       |      |       |           | 0.0  |       |            |      |       | 9.7        |      |       |     |       |
|   |                             |                  | 95% Queue (m)       | 0.0       |      |       |           | 0.0  |       |            |      |       | 0.2        |      |       |     |       |
|   |                             | 2030 Base        | Volumes             | 5         | 86   |       |           | 112  | 5     |            |      |       | 22         |      | 15    | A   | Okay. |
|   |                             |                  | Delay               | 7.6       |      |       |           | 0.0  |       |            |      |       | 10.0       |      |       |     |       |
|   |                             |                  | 95% Queue (m)       | 0.0       |      |       |           | 0.0  |       |            |      |       | 0.2        |      |       |     |       |
|   |                             | 2020 Base + Site | Volumes             | 5         | 72   |       |           | 94   | 5     |            |      |       | 19         |      | 15    | A   | Okay. |
|   |                             |                  | Delay               | 7.5       |      |       |           | 0.0  |       |            |      |       | 9.7        |      |       |     |       |
|   |                             |                  | 95% Queue (m)       | 0.0       |      |       |           | 0.0  |       |            |      |       | 0.2        |      |       |     |       |
|   |                             | 2030 Base+ Site  | Volumes             | 5         | 86   |       |           | 112  | 5     |            |      |       | 23         |      | 17    | A   | Okay. |
|   |                             |                  | Delay               | 7.6       |      |       |           | 0.0  |       |            |      |       | 10.0       |      |       |     |       |
|   |                             |                  | 95% Queue (m)       | 0.0       |      |       |           | 0.0  |       |            |      |       | 0.2        |      |       |     |       |
|   | Weekday Afternoon Peak Hour | 2018 Base        | Volumes             | 0         | 66   |       |           | 64   | 2     |            |      |       | 11         |      | 9     | A   | Okay. |
|   |                             |                  | Delay               | 7.4       |      |       |           | 0.0  |       |            |      |       | 9.2        |      |       |     |       |
|   |                             |                  | 95% Queue (m)       | 0.0       |      |       |           | 0.0  |       |            |      |       | 0.1        |      |       |     |       |
|   |                             | 2020 Base        | Volumes             | 0         | 69   |       |           | 67   | 3     |            |      |       | 12         |      | 10    | A   | Okay. |
|   |                             |                  | Delay               | 7.4       |      |       |           | 0.0  |       |            |      |       | 9.3        |      |       |     |       |
|   |                             |                  | 95% Queue (m)       | 0.0       |      |       |           | 0.0  |       |            |      |       | 0.1        |      |       |     |       |
|   |                             | 2030 Base        | Volumes             | 0         | 82   |       |           | 80   | 3     |            |      |       | 14         |      | 12    | A   | Okay. |
|   |                             |                  | Delay               | 7.5       |      |       |           | 0.0  |       |            |      |       | 9.4        |      | 9.4   |     |       |
|   |                             |                  | 95% Queue (m)       | 0.0       |      |       |           | 0.0  |       |            |      |       | 0.1        |      | 0.1   |     |       |
|   |                             | 2020 Base + Site | Volumes             | 1         | 69   |       |           | 67   | 4     |            |      |       | 13         |      | 11    | A   | Okay. |
|   |                             |                  | Delay               | 7.4       |      |       |           | 0.0  |       |            |      |       | 9.3        |      | 9.3   |     |       |
|   |                             |                  | 95% Queue (m)       | 0.0       |      |       |           | 0.0  |       |            |      |       | 0.1        |      | 0.1   |     |       |
|   |                             | 2030 Base+ Site  | Volumes             | 1         | 82   |       |           | 80   | 4     |            |      |       | 15         |      | 13    | A   | Okay. |
|   |                             |                  | Delay               | 7.5       |      |       |           | 0.0  |       |            |      |       | 9.5        |      | 9.5   |     |       |
|   |                             |                  | 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   |       | A   | Okay. |
|   |                             |                  | Delay               |           |      |       | 8.4       | 0.0  | 8.4   |            | 0.0  | 0.0   | 7.3        | 7.3  |       |     |       |
|   |                             |                  | 95% Queue (m)       |           |      |       | 0.0       | 0.0  | 0.0   |            | 0.0  | 0.0   | 0.0        | 0.0  |       |     |       |
|   | Weekday Afternoon Peak Hour | 2030 Base+ Site  | Volumes             |           |      |       | 0         | 0    | 4     |            | 18   | 0     | 1          | 24   |       | A   | Okay. |
|   |                             |                  | Delay               |           |      |       | 8.4       | 0.0  | 8.4   |            | 0.0  | 0.0   | 7.3        | 7.3  |       |     |       |
|   |                             |                  | 95% Queue (m)       |           |      |       | 0.0       | 0.0  | 0.0   |            | 0.0  | 0.0   | 0.0        | 0.0  |       |     |       |
|   |                             | 2020 Base + Site | Volumes             |           |      |       | 0         | 0    | 3     |            | 14   | 0     | 3          | 30   |       | A   | Okay. |
|   |                             |                  | Delay               |           |      |       | 8.4       | 0.0  | 8.4   |            | 0.0  | 0.0   | 7.3        | 7.3  |       |     |       |
|   |                             |                  | 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   |       | A   | Okay. |
|   |                             |                  | Delay               |           |      |       | 8.4       | 0.0  | 8.4   |            | 0.0  | 0.0   | 7.3        | 7.3  |       |     |       |
|   |                             |                  | 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     | A   | Okay. |
|   |                             |                  | Delay               | 8.9       | 0.0  | 8.9   |           |      |       | 7.3        | 7.3  |       |            | 0.0  | 0.0   |     |       |
|   |                             |                  | 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     | A   | Okay. |
|   |                             |                  | Delay               | 8.9       | 0.0  | 8.9   |           |      |       | 7.3        | 7.3  |       |            | 0.0  | 0.0   |     |       |
|   |                             |                  | 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    | A   | Okay. |
|   |                             |                  | Delay               | 8.8       | 0.0  | 8.8   |           |      |       | 7.3        | 7.3  |       |            | 0.0  | 0.0   |     |       |
|   |                             |                  | 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    | A   | Okay. |
|   |                             |                  | Delay               | 8.8       | 0.0  | 8.8   |           |      |       | 7.3        | 7.3  |       |            | 0.0  | 0.0   |     |       |
|   |                             |                  | 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

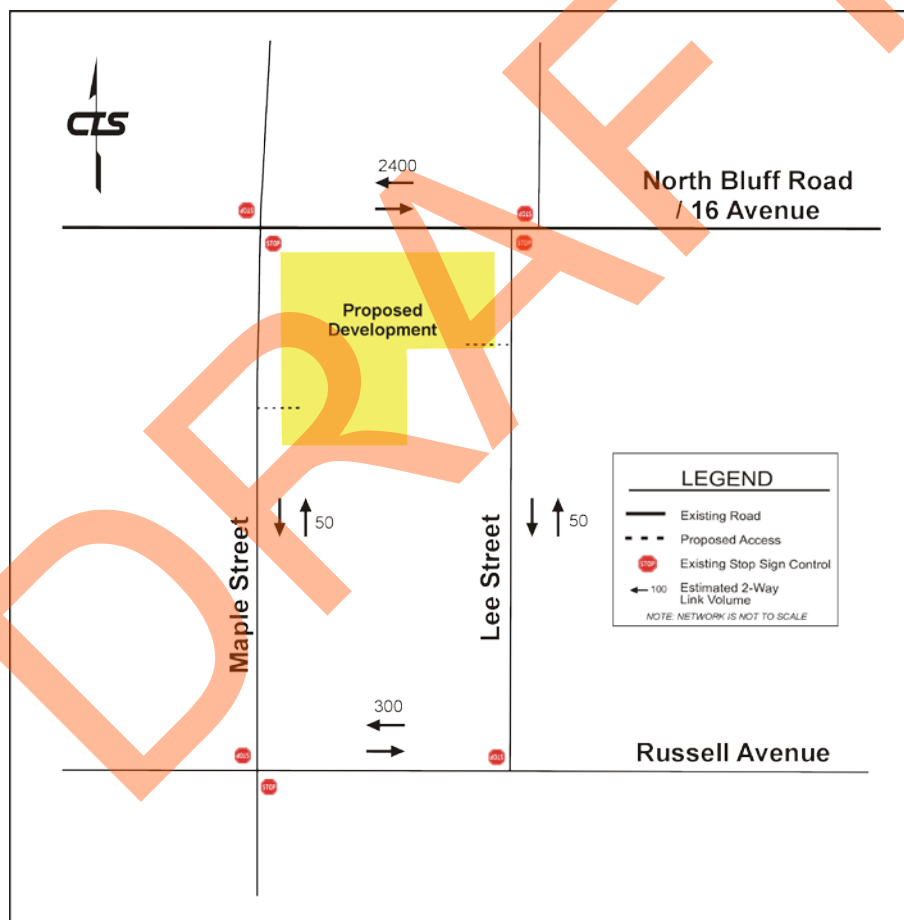
- In the morning and afternoon peak hour this intersection is forecasted to operate at a LOS A (Excellent) for all horizon years and scenarios. No operational or capacity issues were identified.
- No operational and/or geometrical improvements are recommended for this location.

## 6.0 2045 LINK VOLUMES

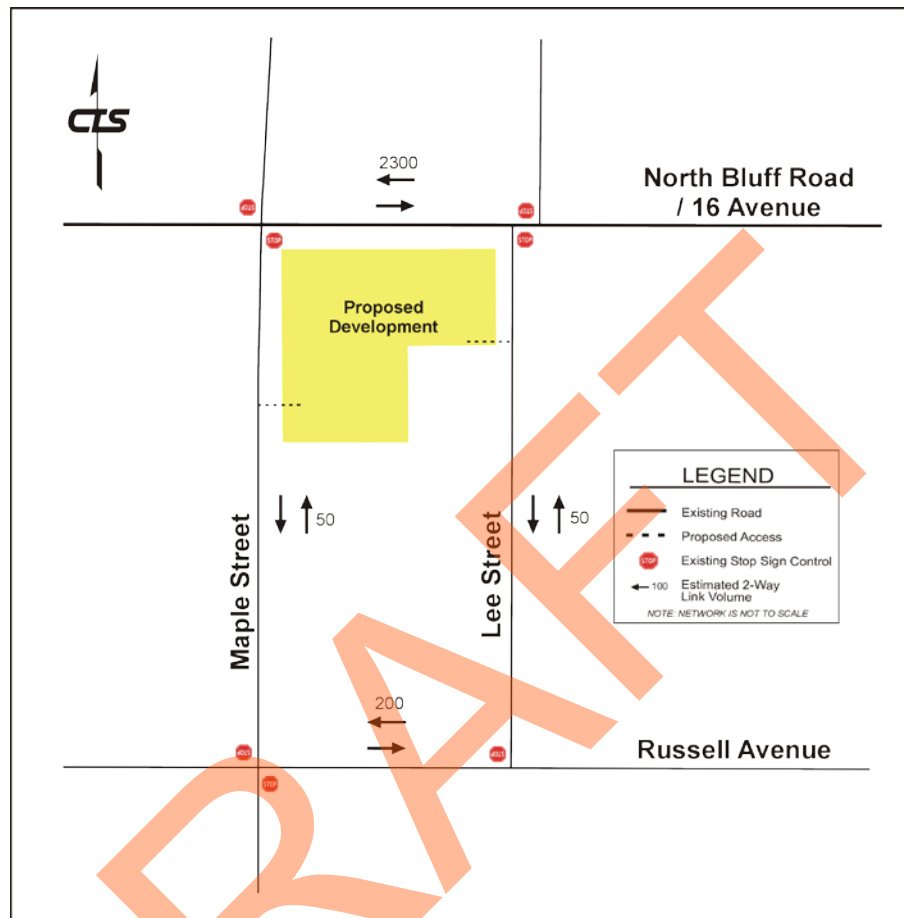
It was requested by the City of White Rock that vehicle link volumes for the year 2045 be considered as part of this Traffic Impact Assessment Study. This is to provide vehicle volume information, relative to the City of White Rock 2045 OCP.

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 DEVELOPMENT**

| 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                     |
| <b>Total</b>         |                               |                       | <b>90.0</b> | <b>142</b>              |

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 152<sup>nd</sup> 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 SWEEP 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.

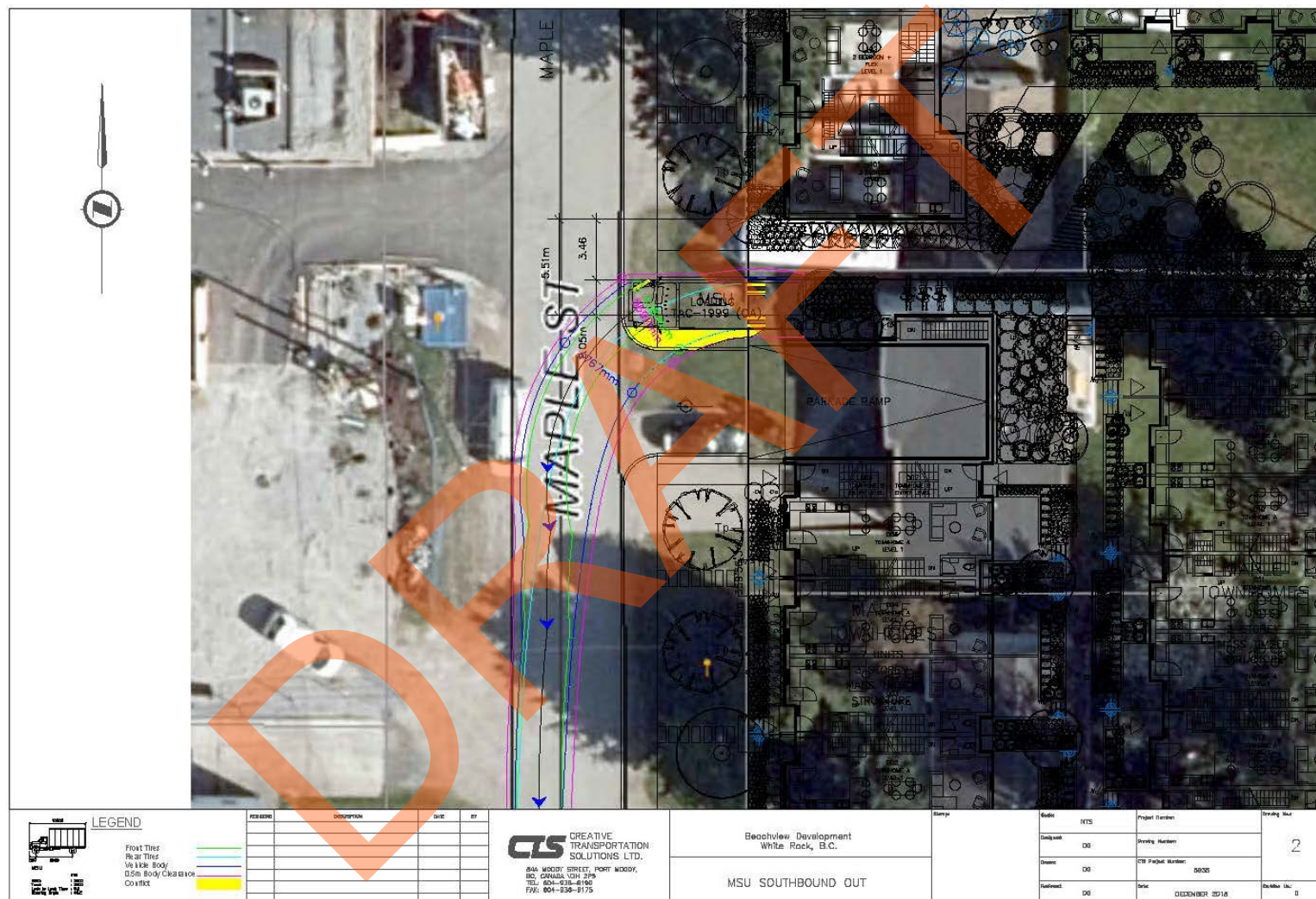
Reversing into the loading bay from the northbound lane is preferred, as it will have a lower overall impact on vehicle traffic on Maple Street. The swept path of a truck travelling northbound, entering the loading bay, is illustrated in **FIGURE 19**.

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 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.

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## 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:*

*Prepared by:*

**Gary Vlieg, P.Eng.**  
Engineering Group Manager

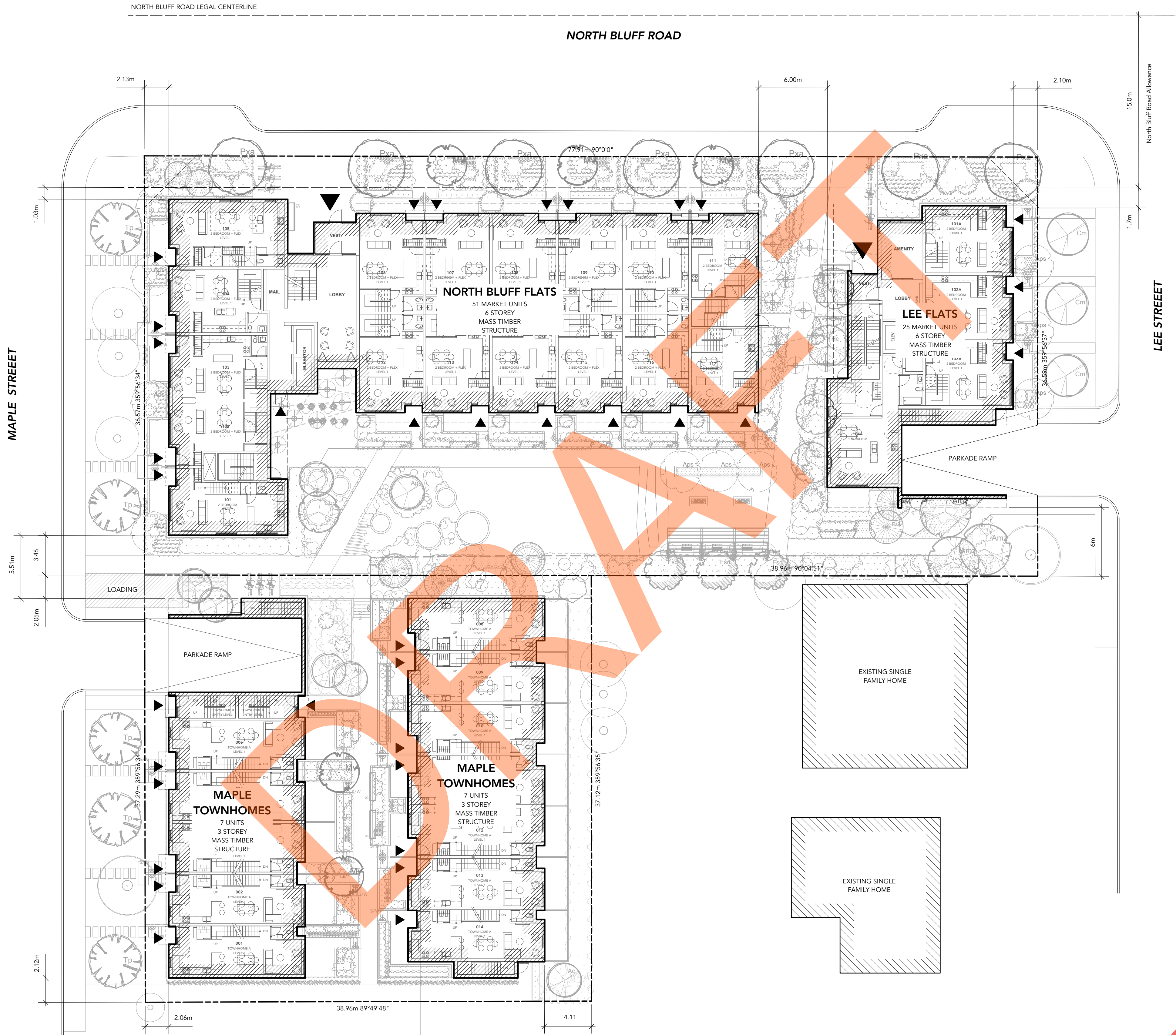
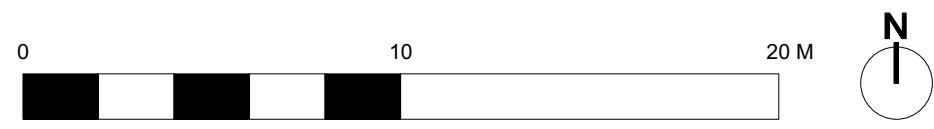
**Dominique Bram Guevarra, EIT**  
Junior Traffic Engineer

Attachment

## **Appendix A** **Architectural Drawing**

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## **Appendix B**

### **Turning Movement Counts**



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<br>(07:00 - 09:00)   | Volume                | 2,264                  | 52                               |  |  |  | 2,316  |
|                              | %                     | 97.8%                  | 2.2%                             |  |  |  | 100.0% |
| Midday<br>(00:00 - 00:00)    | Volume                |                        |                                  |  |  |  |        |
|                              | %                     |                        |                                  |  |  |  |        |
| Afternoon<br>(15:00 - 18:00) | Volume                | 4,006                  | 24                               |  |  |  | 4,030  |
|                              | %                     | 99.4%                  | 0.6%                             |  |  |  | 100.0% |
| Total<br>(5 Hours)           | Volume                | 6,270                  | 76                               |  |  |  | 6,346  |
|                              | %                     | 98.8%                  | 1.2%                             |  |  |  | 100.0% |

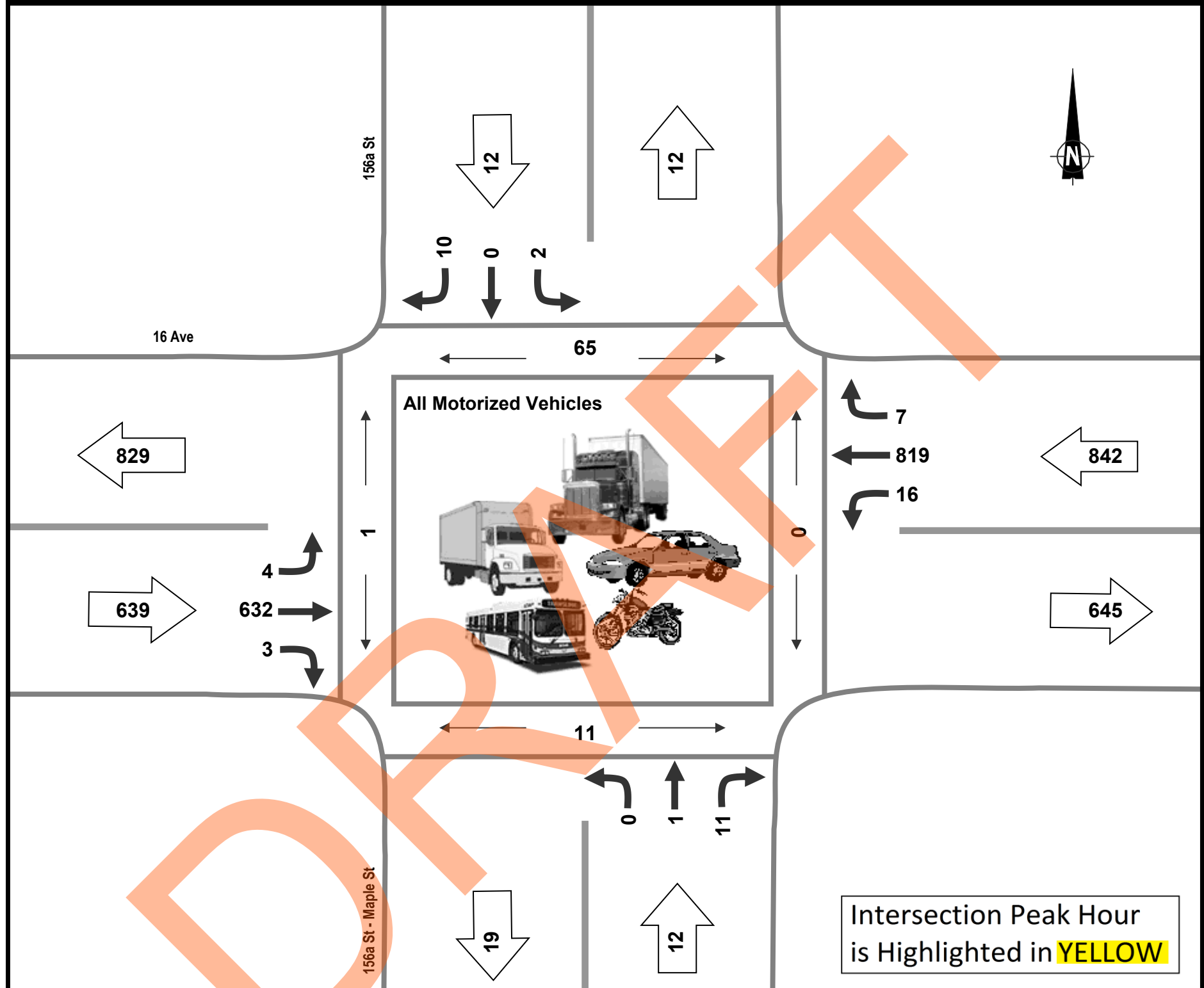
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Project: #5740: Russell Ave TIA  
Municipality: White Rock  
Weather: Clear, Sunny  
Vehicle Class: All Motorized Vehicles

### Peak Hour Traffic by Movement

8:00 AM to 9:00 AM



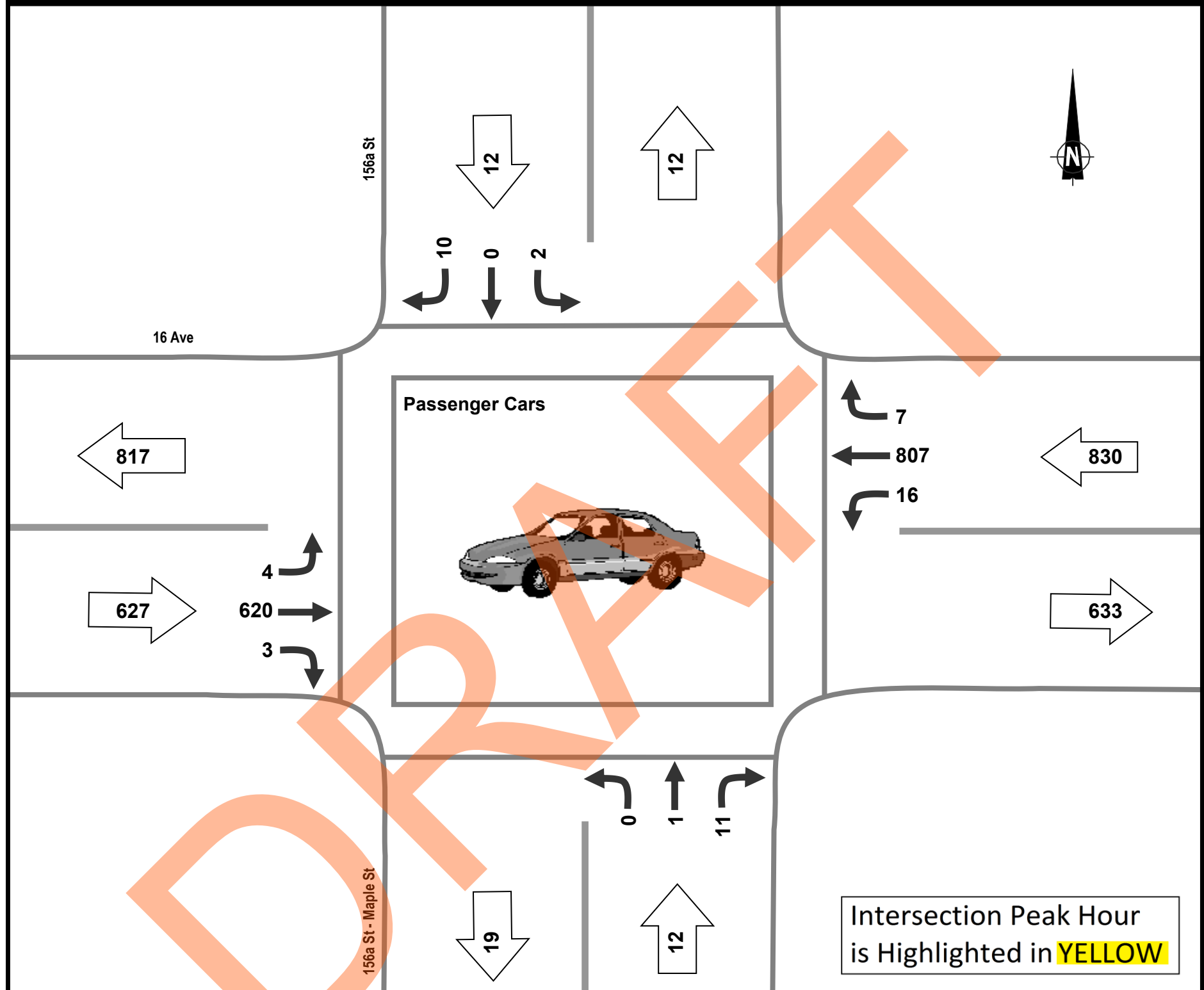
| Time         | NORTH Approach |      |       | SOUTH Approach |      |       | WEST Approach |       |       | EAST Approach |       |       | PEDESTRIANS |      |      |      | Total Volumes |
|--------------|----------------|------|-------|----------------|------|-------|---------------|-------|-------|---------------|-------|-------|-------------|------|------|------|---------------|
|              | 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           |



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

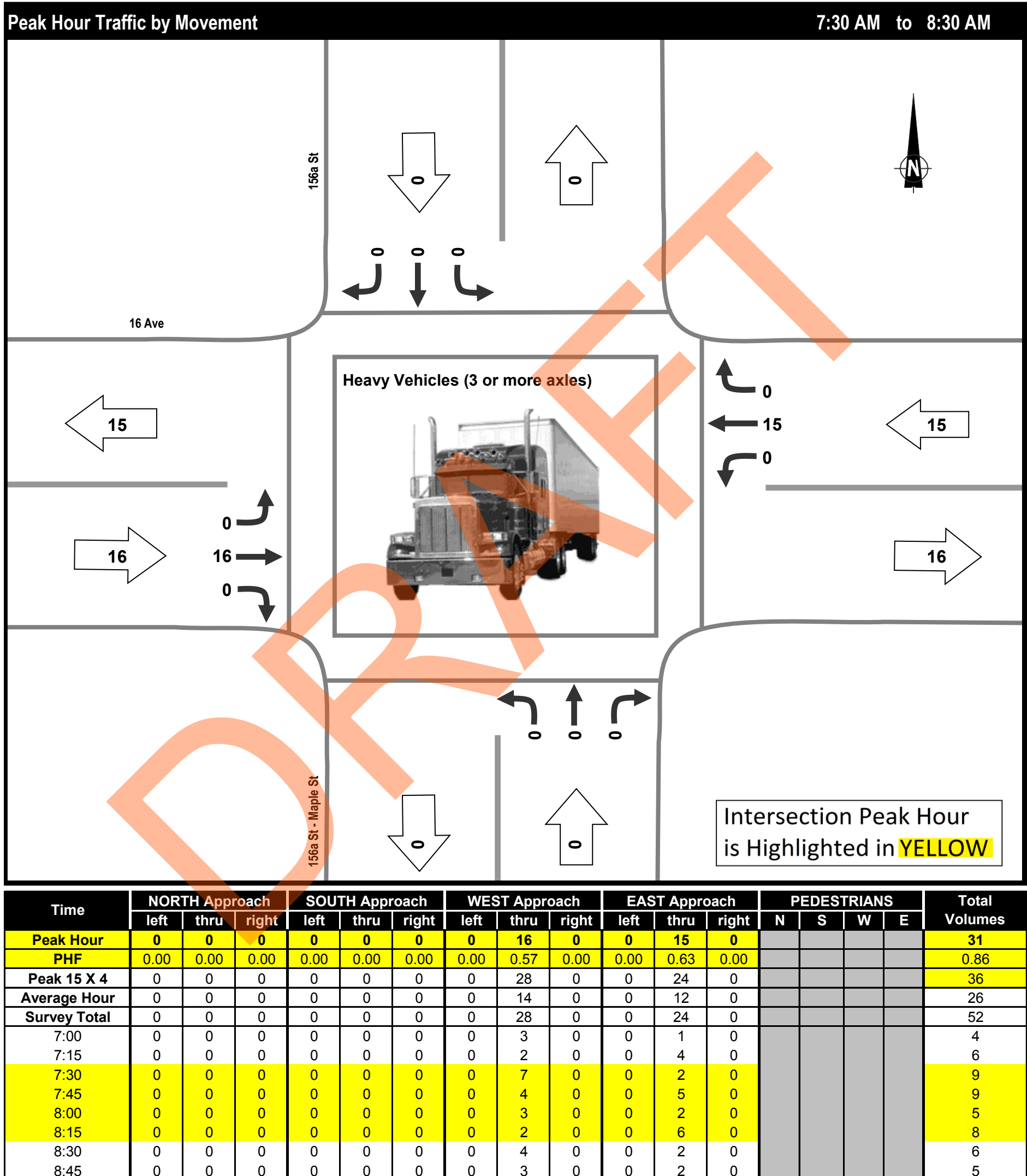
**Morning Peak Period**
**Peak Hour Traffic by Movement**

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 |               |
| <b>Peak Hour</b>    | <b>2</b>       | <b>0</b>    | <b>10</b>   | <b>0</b>       | <b>1</b>    | <b>11</b>   | <b>4</b>      | <b>620</b>   | <b>3</b>    | <b>16</b>     | <b>807</b>   | <b>7</b>    |             |   |   |   | <b>1,481</b>  |
| <b>PHF</b>          | <b>0.50</b>    | <b>0.00</b> | <b>0.63</b> | <b>0.00</b>    | <b>0.25</b> | <b>0.34</b> | <b>0.50</b>   | <b>0.72</b>  | <b>0.75</b> | <b>0.57</b>   | <b>0.79</b>  | <b>0.35</b> |             |   |   |   | <b>0.75</b>   |
| <b>Peak 15 X 4</b>  | <b>4</b>       | <b>0</b>    | <b>16</b>   | <b>0</b>       | <b>4</b>    | <b>32</b>   | <b>8</b>      | <b>856</b>   | <b>4</b>    | <b>28</b>     | <b>1,020</b> | <b>20</b>   |             |   |   |   | <b>1,984</b>  |
| <b>Average Hour</b> | <b>3</b>       | <b>1</b>    | <b>8</b>    | <b>1</b>       | <b>1</b>    | <b>9</b>    | <b>4</b>      | <b>515</b>   | <b>3</b>    | <b>8</b>      | <b>577</b>   | <b>5</b>    |             |   |   |   | <b>1,135</b>  |
| <b>Survey Total</b> | <b>5</b>       | <b>1</b>    | <b>16</b>   | <b>1</b>       | <b>2</b>    | <b>18</b>   | <b>7</b>      | <b>1,030</b> | <b>5</b>    | <b>16</b>     | <b>1,154</b> | <b>9</b>    |             |   |   |   | <b>2,264</b>  |
| 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           |

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

**Morning Peak Period**


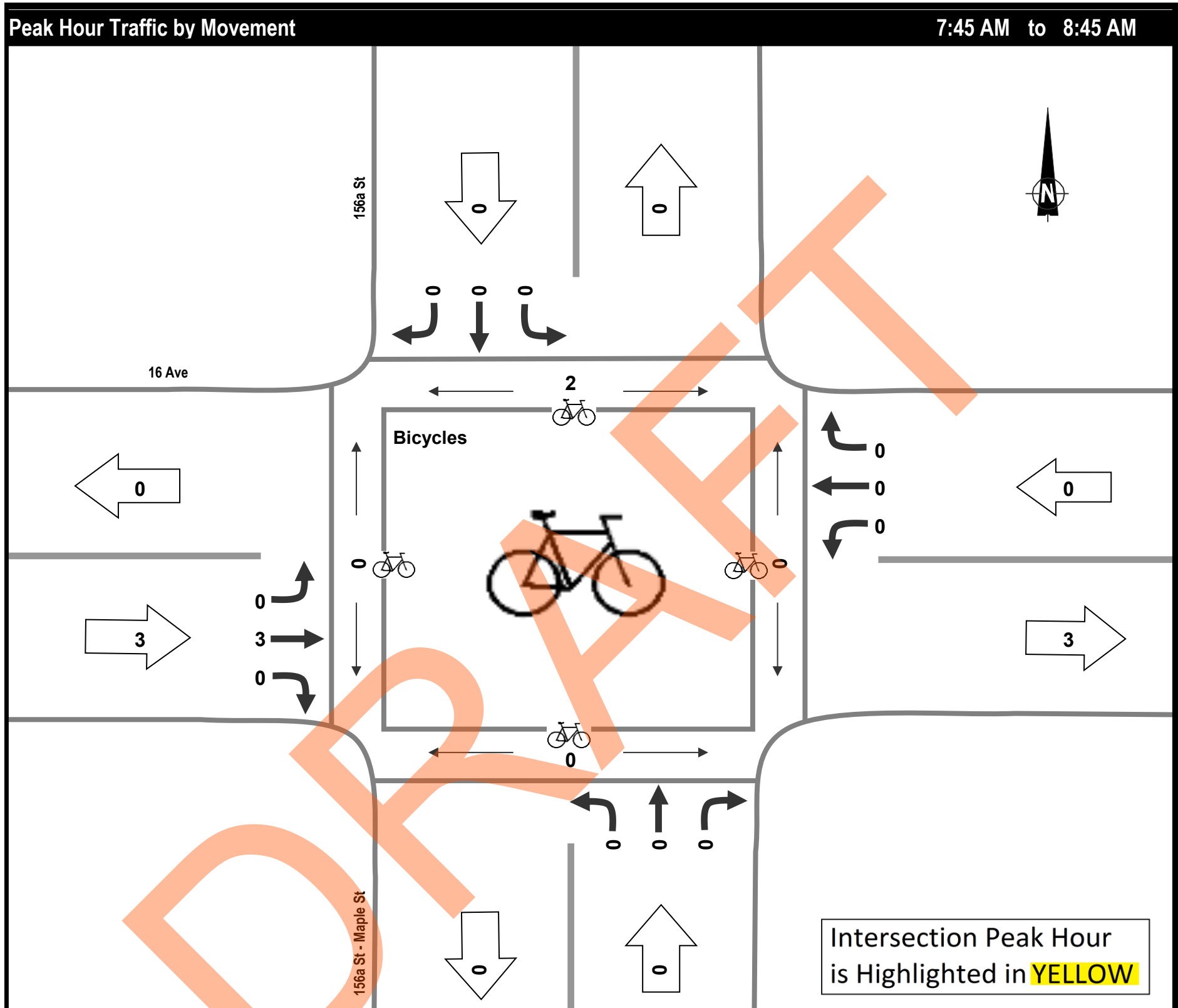
Project: #5740: Russell Ave TIA

Municipality: White Rock

Weather: Clear, Sunny

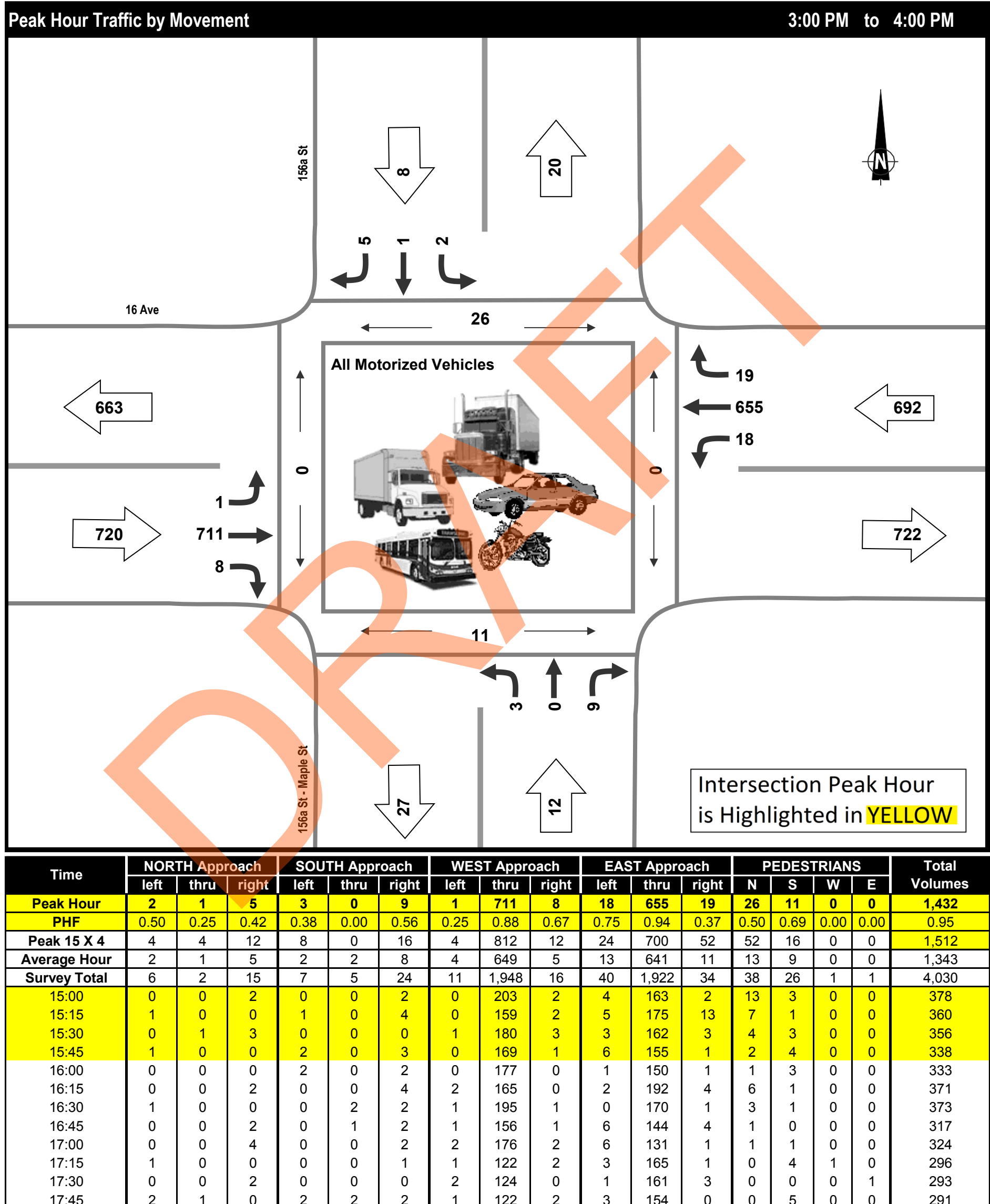
Vehicle Class: Bicycles

Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals

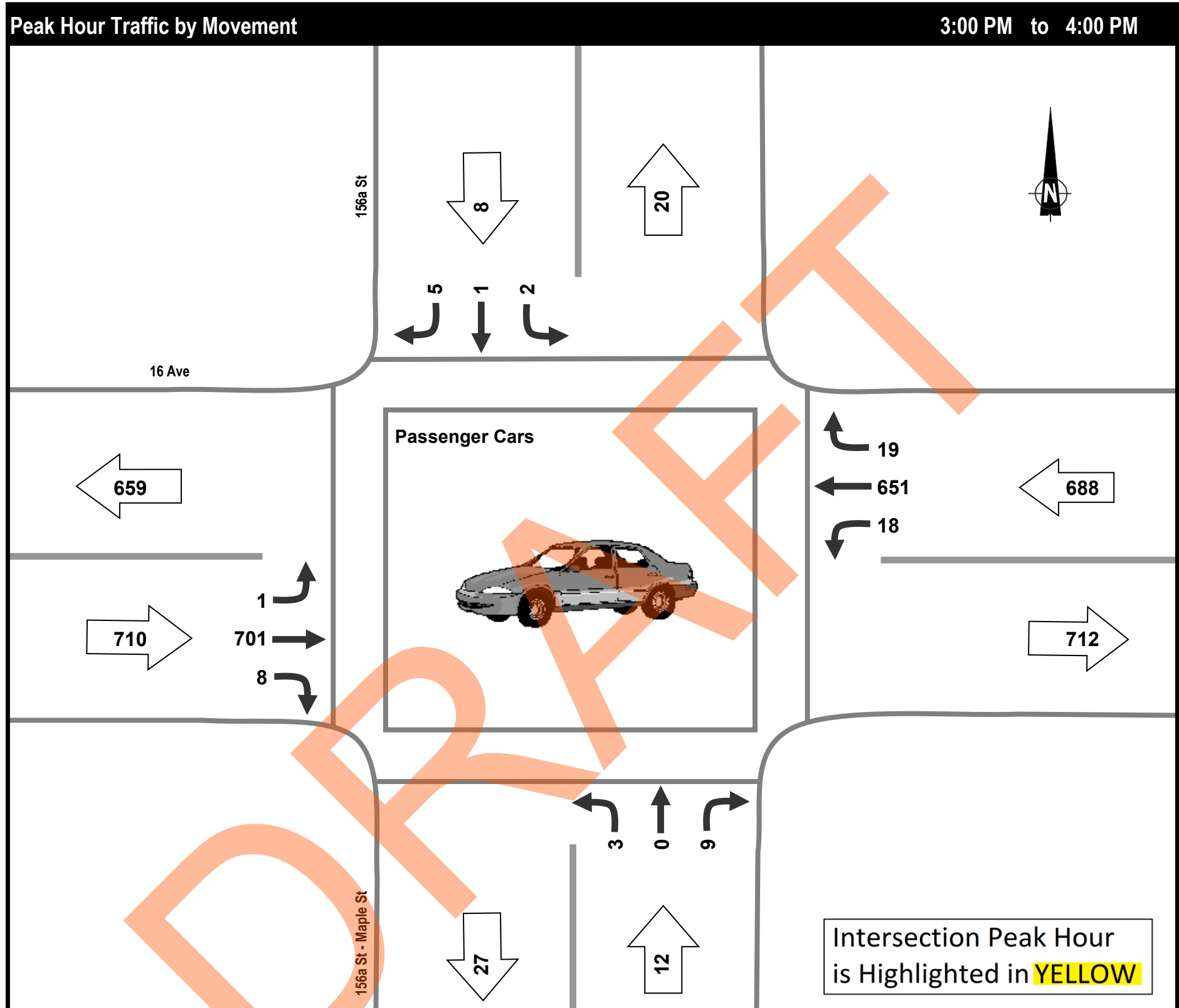


| Time         | NORTH Approach |      |       | SOUTH Approach |      |       | WEST Approach |      |       | EAST Approach |      |       | BIKES in X-WALKS |      |      |      | Total Volumes |
|--------------|----------------|------|-------|----------------|------|-------|---------------|------|-------|---------------|------|-------|------------------|------|------|------|---------------|
|              | 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             |

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

**Afternoon Peak Period**


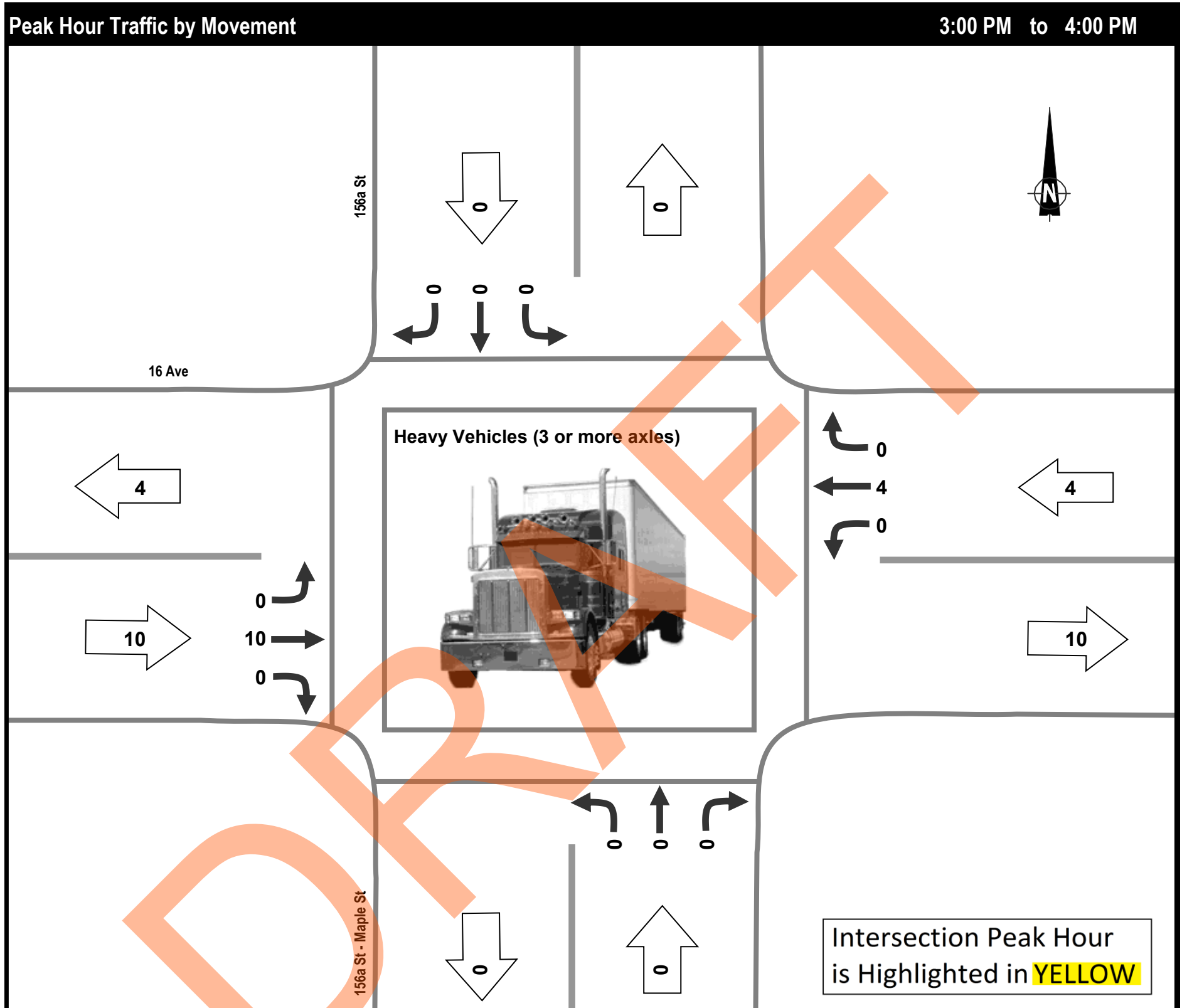
Project: #5740: Russell Ave TIA  
 Municipality: White Rock  
 Weather: Clear, Sunny  
 Vehicle Class: Passenger Cars

**Afternoon Peak Period**


| 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 |               |
| <b>Peak Hour</b>    | 2              | 1    | 5     | 3              | 0    | 9     | 1             | 701   | 8     | 18            | 651   | 19    |             |   |   |   | <b>1,418</b>  |
| <b>PHF</b>          | 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          |
| <b>Peak 15 X 4</b>  | 4              | 4    | 12    | 8              | 0    | 16    | 4             | 800   | 12    | 24            | 700   | 52    |             |   |   |   | 1,488         |
| <b>Average Hour</b> | 2              | 1    | 5     | 2              | 2    | 8     | 4             | 645   | 5     | 13            | 637   | 11    |             |   |   |   | 1,335         |
| <b>Survey Total</b> | 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           |

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

**Afternoon Peak Period**



| 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             |



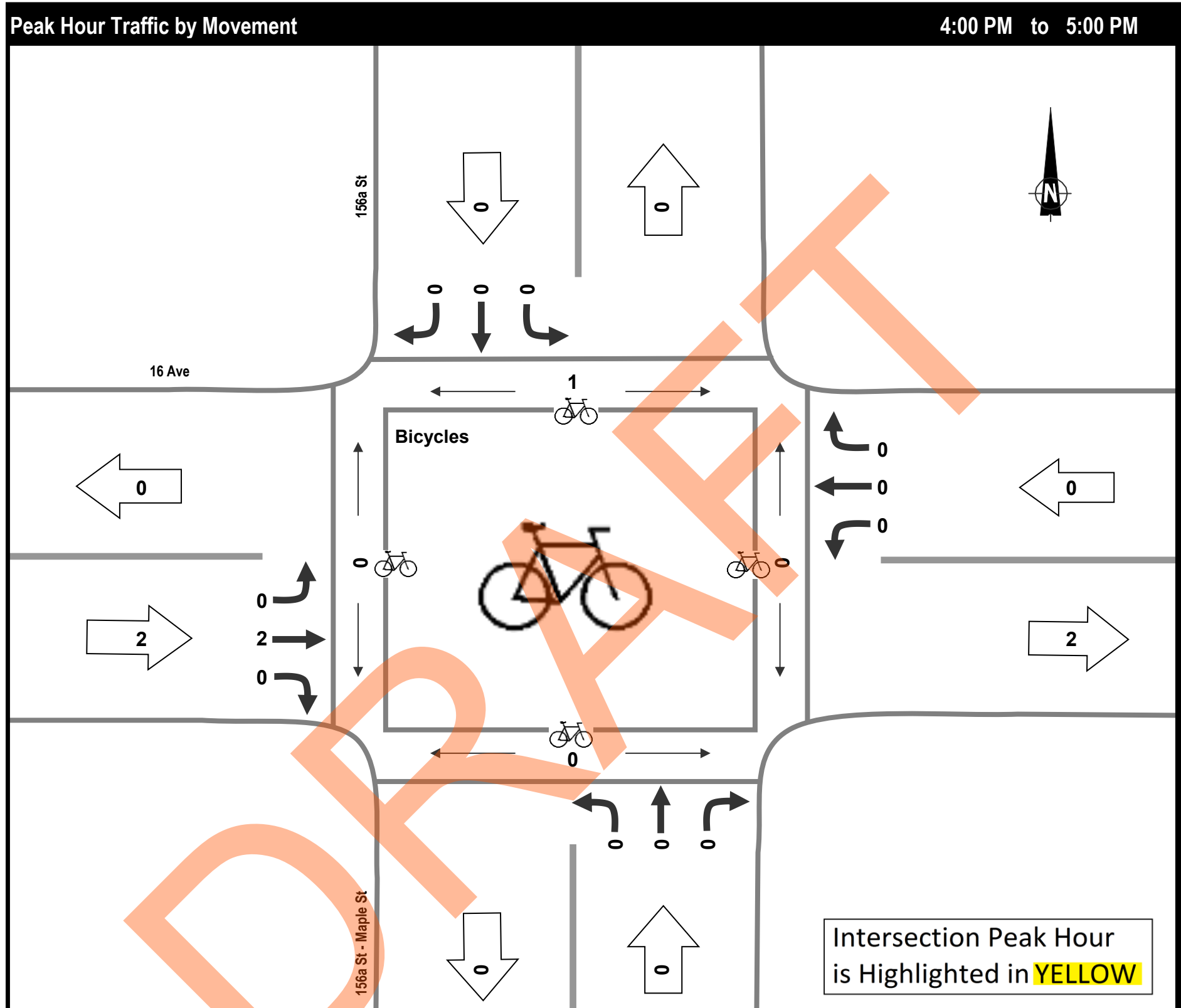
Project: #5740: Russell Ave TIA

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



| 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             |



Vehicle Classification Summary

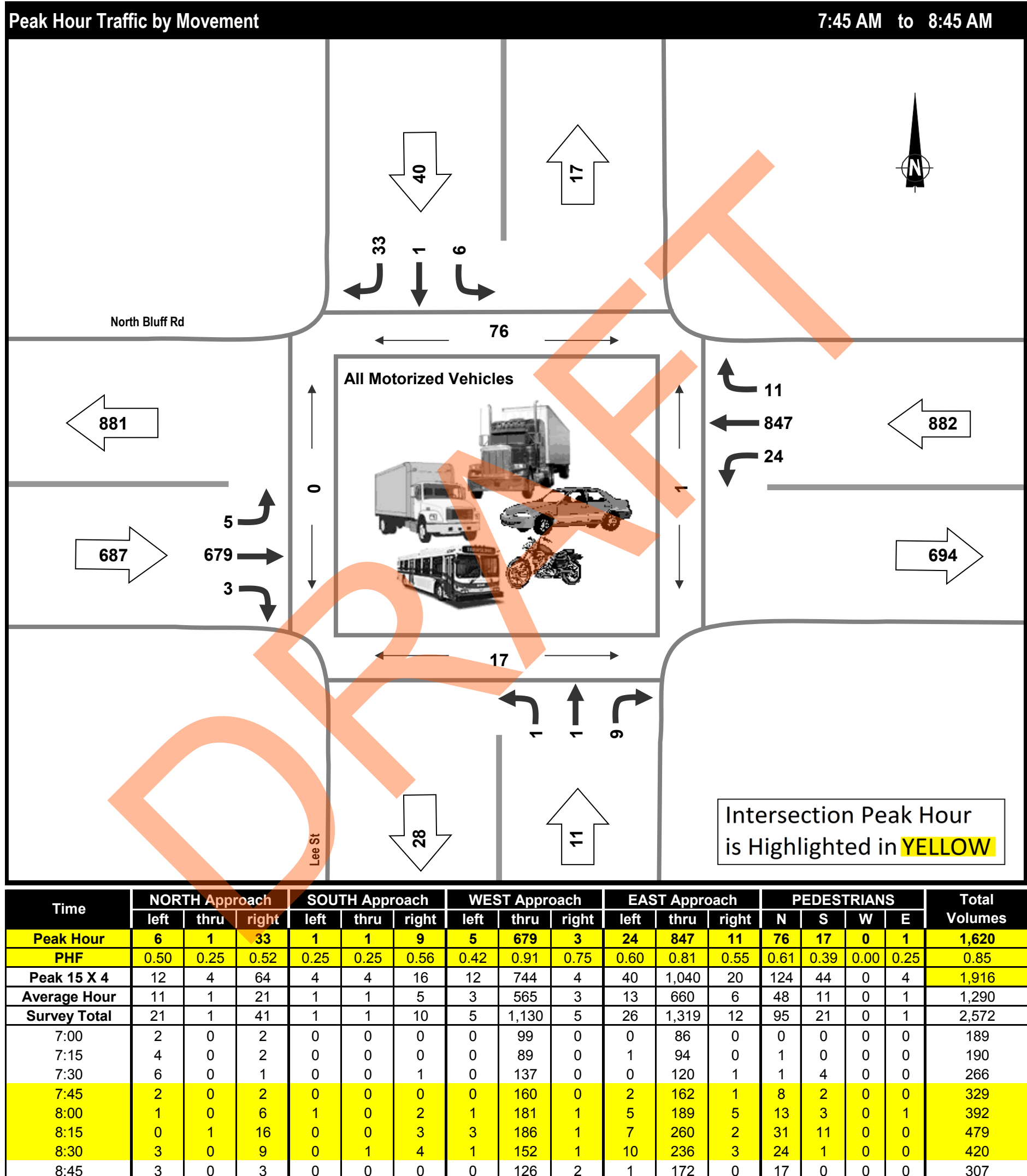
Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy

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

DRAFT

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

**Morning Peak Period**

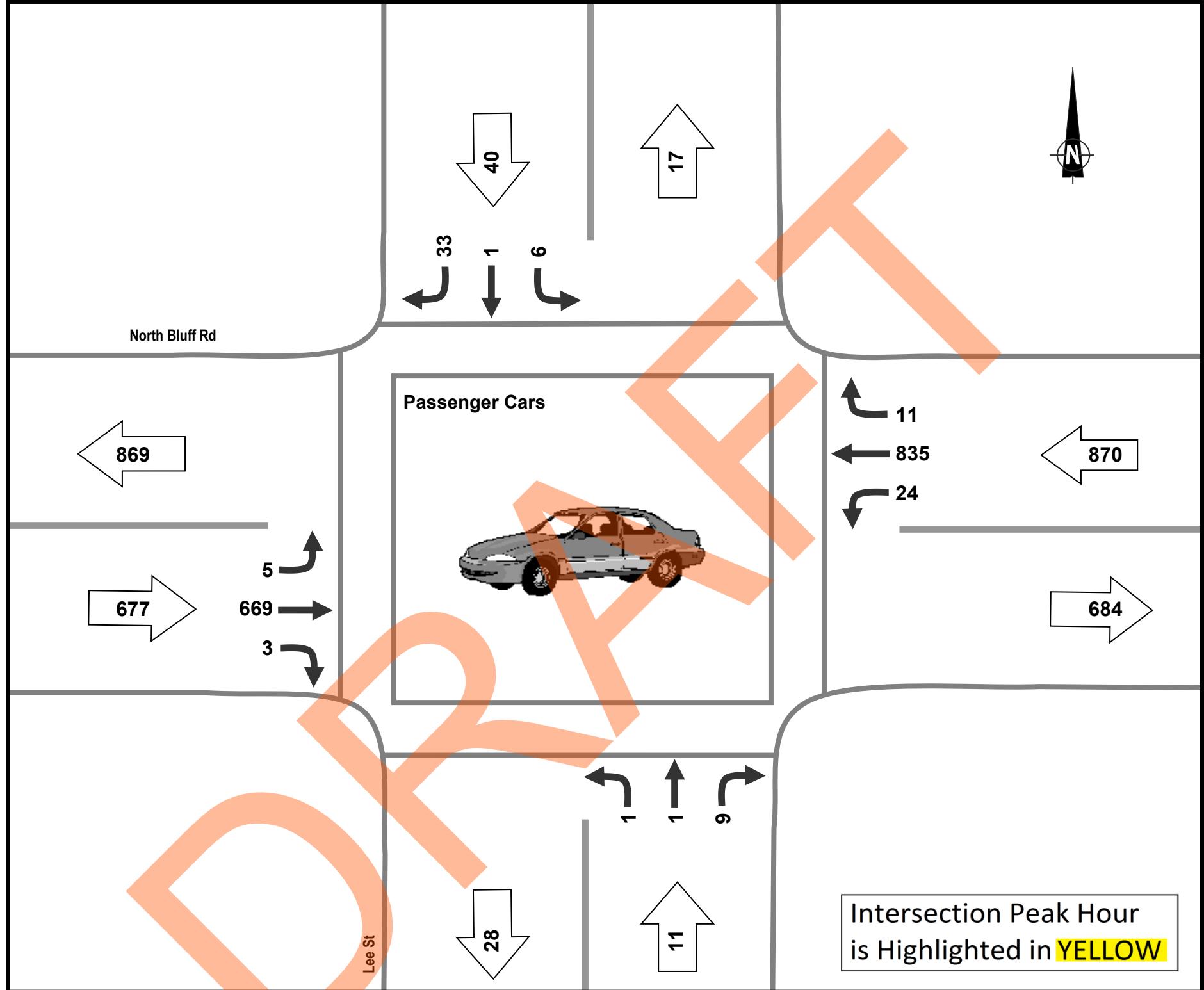


Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy  
Vehicle Class: Passenger Cars

**Morning Peak Period**

**Peak Hour Traffic by Movement**

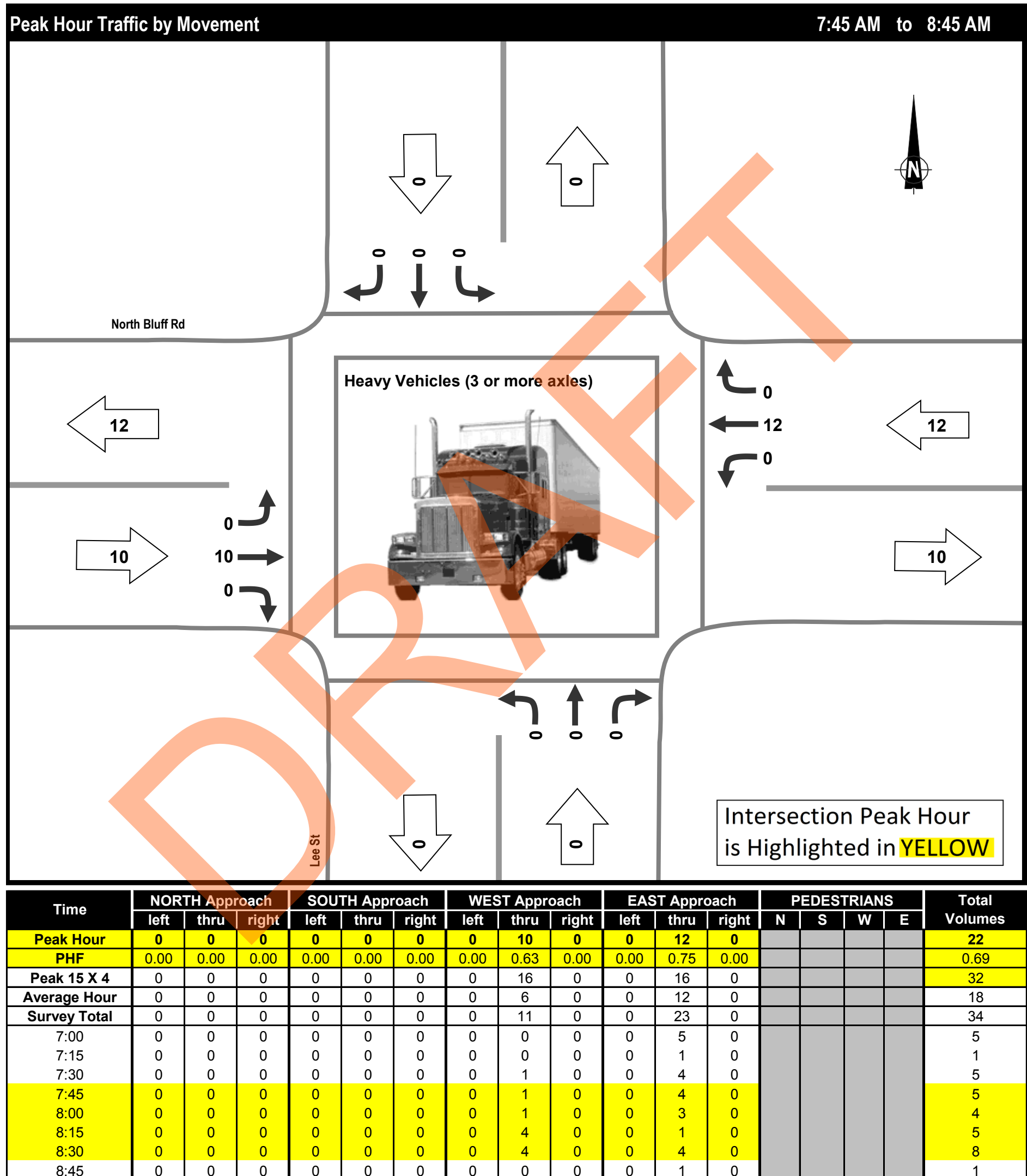
7:45 AM to 8:45 AM



| 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 |               |
| <b>Peak Hour</b>    | <b>6</b>       | <b>1</b>    | <b>33</b>   | <b>1</b>       | <b>1</b>    | <b>9</b>    | <b>5</b>      | <b>669</b>  | <b>3</b>    | <b>24</b>     | <b>835</b>  | <b>11</b>   |             |   |   |   | <b>1,598</b>  |
| <b>PHF</b>          | <b>0.50</b>    | <b>0.25</b> | <b>0.52</b> | <b>0.25</b>    | <b>0.25</b> | <b>0.56</b> | <b>0.42</b>   | <b>0.92</b> | <b>0.75</b> | <b>0.60</b>   | <b>0.81</b> | <b>0.55</b> |             |   |   |   | <b>0.84</b>   |
| <b>Peak 15 X 4</b>  | 12             | 4           | 64          | 4              | 4           | 16          | 12            | 728         | 4           | 40            | 1,036       | 20          |             |   |   |   | <b>1,896</b>  |
| <b>Average Hour</b> | 11             | 1           | 21          | 1              | 1           | 5           | 3             | 560         | 3           | 13            | 648         | 6           |             |   |   |   | <b>1,273</b>  |
| <b>Survey Total</b> | 21             | 1           | 41          | 1              | 1           | 10          | 5             | 1,119       | 5           | 26            | 1,296       | 12          |             |   |   |   | <b>2,538</b>  |
| 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           |
| <b>7:45</b>         | <b>2</b>       | <b>0</b>    | <b>2</b>    | <b>0</b>       | <b>0</b>    | <b>0</b>    | <b>0</b>      | <b>159</b>  | <b>0</b>    | <b>2</b>      | <b>158</b>  | <b>1</b>    |             |   |   |   | <b>324</b>    |
| 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           |

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

**Morning Peak Period**



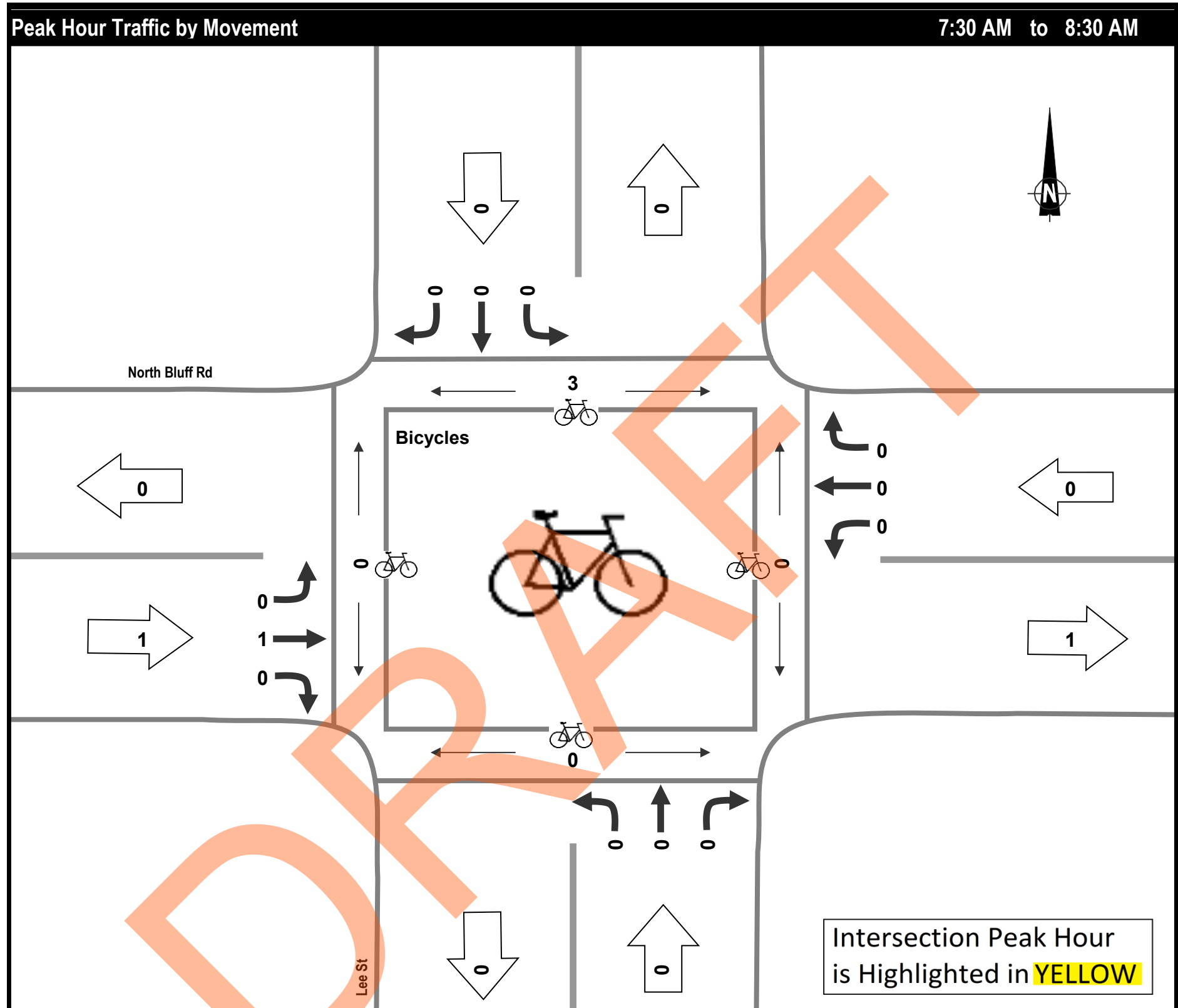
Project: #5935: Beachway Traffic Impact Assessment

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

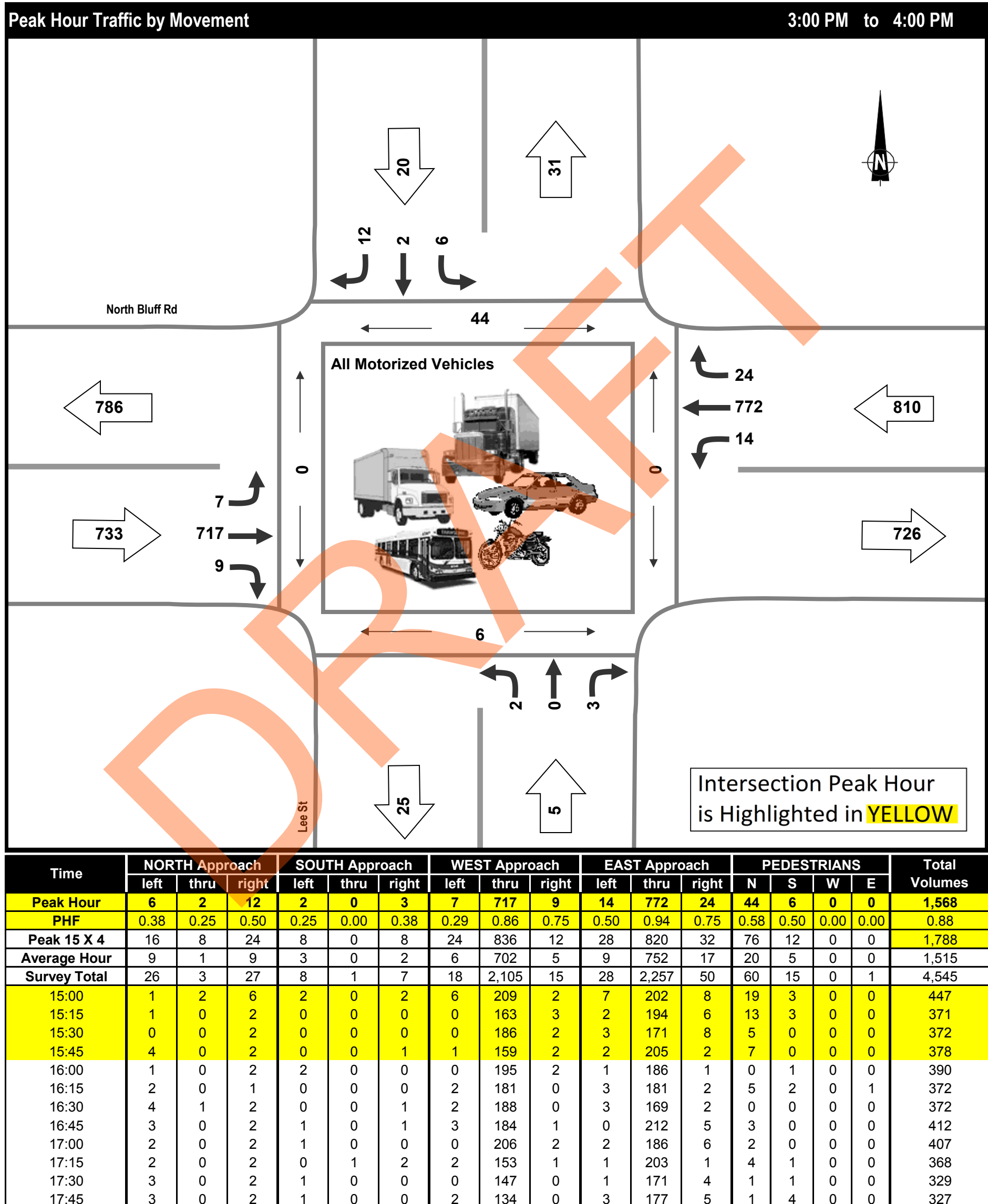


| Time         | NORTH Approach |      |       | SOUTH Approach |      |       | WEST Approach |      |       | EAST Approach |      |       | BIKES in X-WALKS |      |      |      | Total Volumes |
|--------------|----------------|------|-------|----------------|------|-------|---------------|------|-------|---------------|------|-------|------------------|------|------|------|---------------|
|              | 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             |



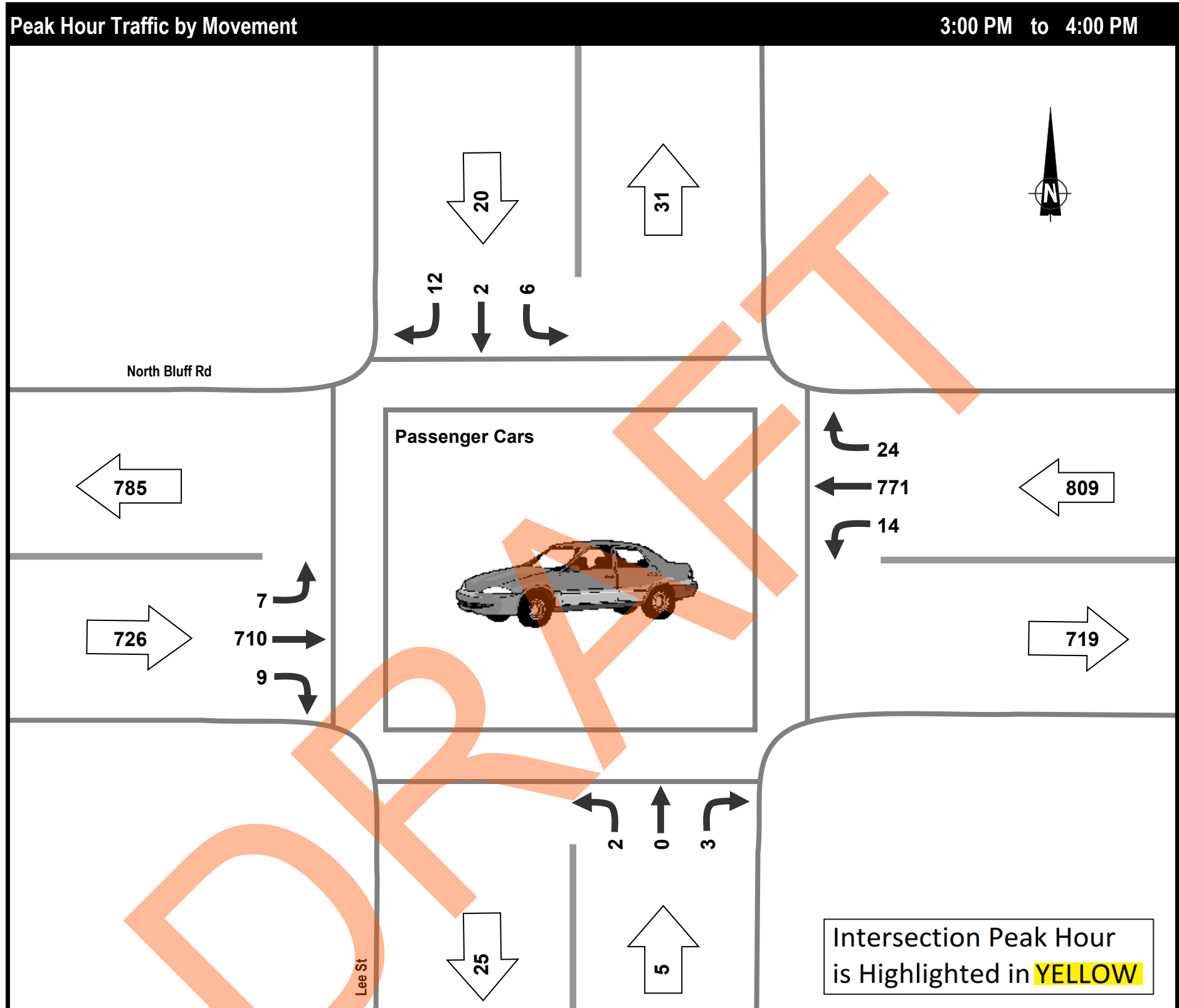
Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy  
Vehicle Class: All Motorized Vehicles

**Afternoon Peak Period**



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

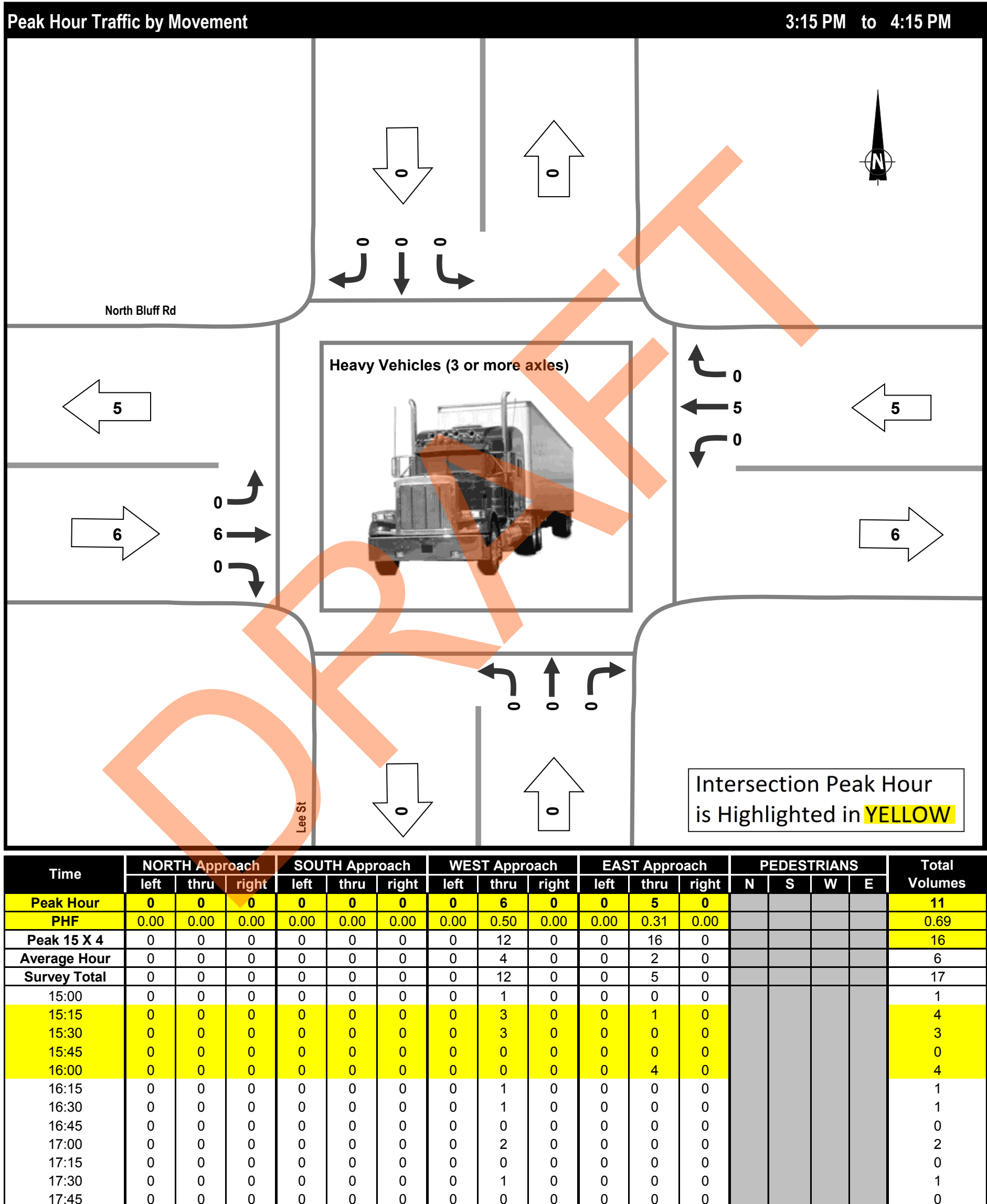
**Afternoon Peak Period**



| 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 |               |
| <b>Peak Hour</b>    | 6              | 2    | 12    | 2              | 0    | 3     | 7             | 710   | 9     | 14            | 771   | 24    |             |   |   |   | <b>1,560</b>  |
| <b>PHF</b>          | 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          |
| <b>Peak 15 X 4</b>  | 16             | 8    | 24    | 8              | 0    | 8     | 24            | 832   | 12    | 28            | 820   | 32    |             |   |   |   | 1,784         |
| <b>Average Hour</b> | 9              | 1    | 9     | 3              | 0    | 2     | 6             | 698   | 5     | 9             | 751   | 17    |             |   |   |   | 1,510         |
| <b>Survey Total</b> | 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           |

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

**Afternoon Peak Period**



Project: #5935: Beachway Traffic Impact Assessment

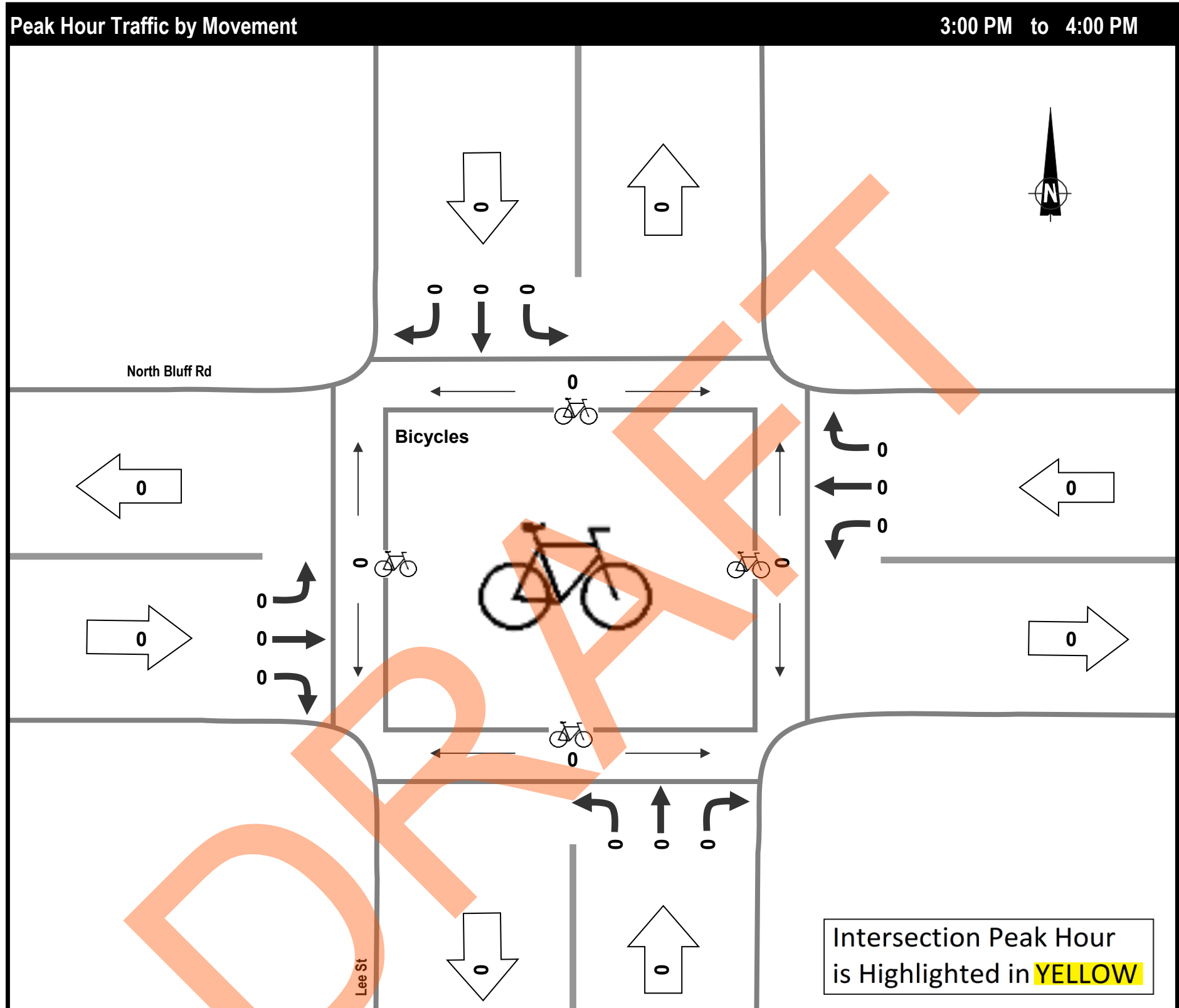
Municipality: White Rock

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

**Afternoon Peak Period**



| 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             |



Vehicle Classification Summary

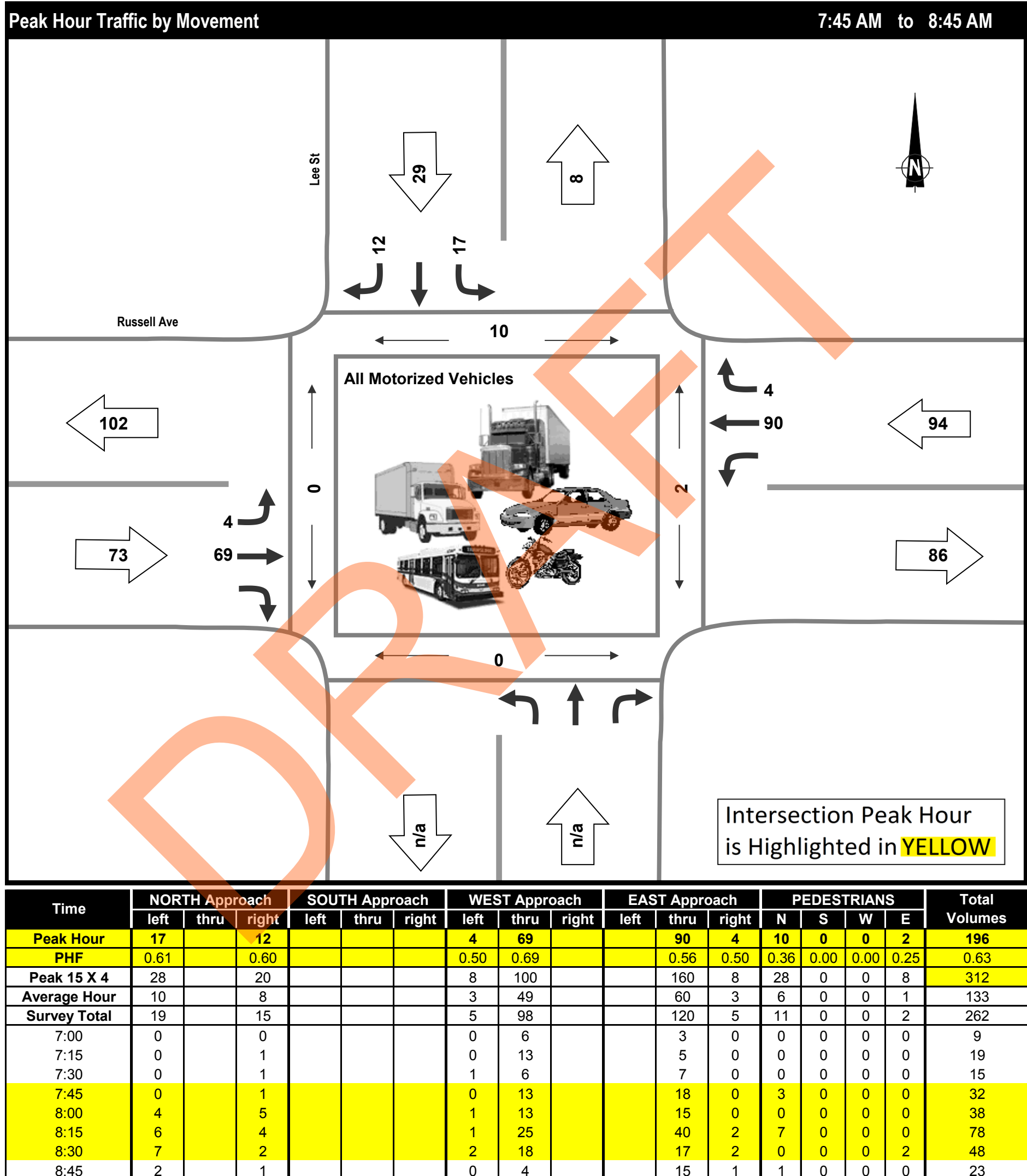
Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy

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

DRAFT

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

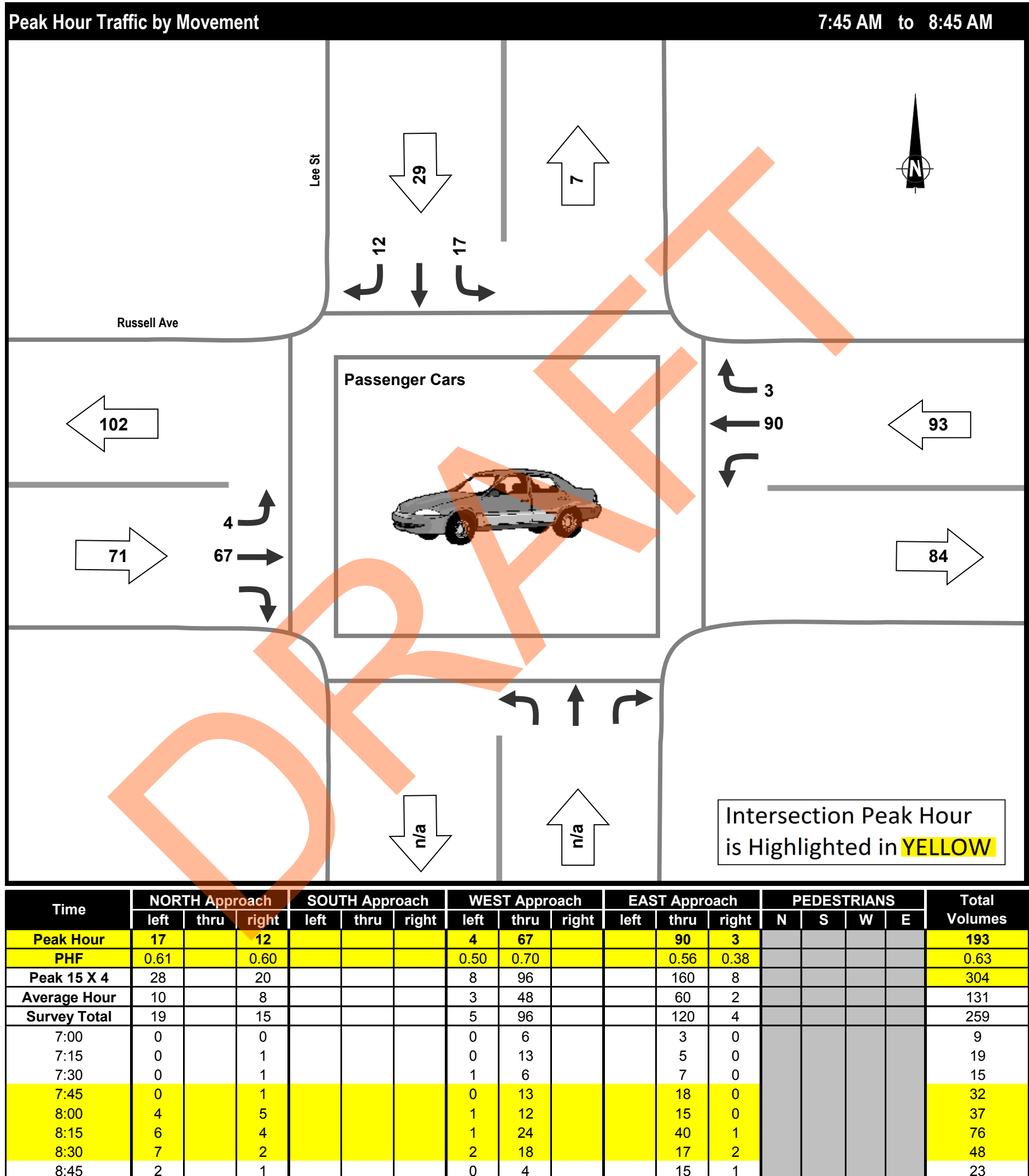
**Morning Peak Period**





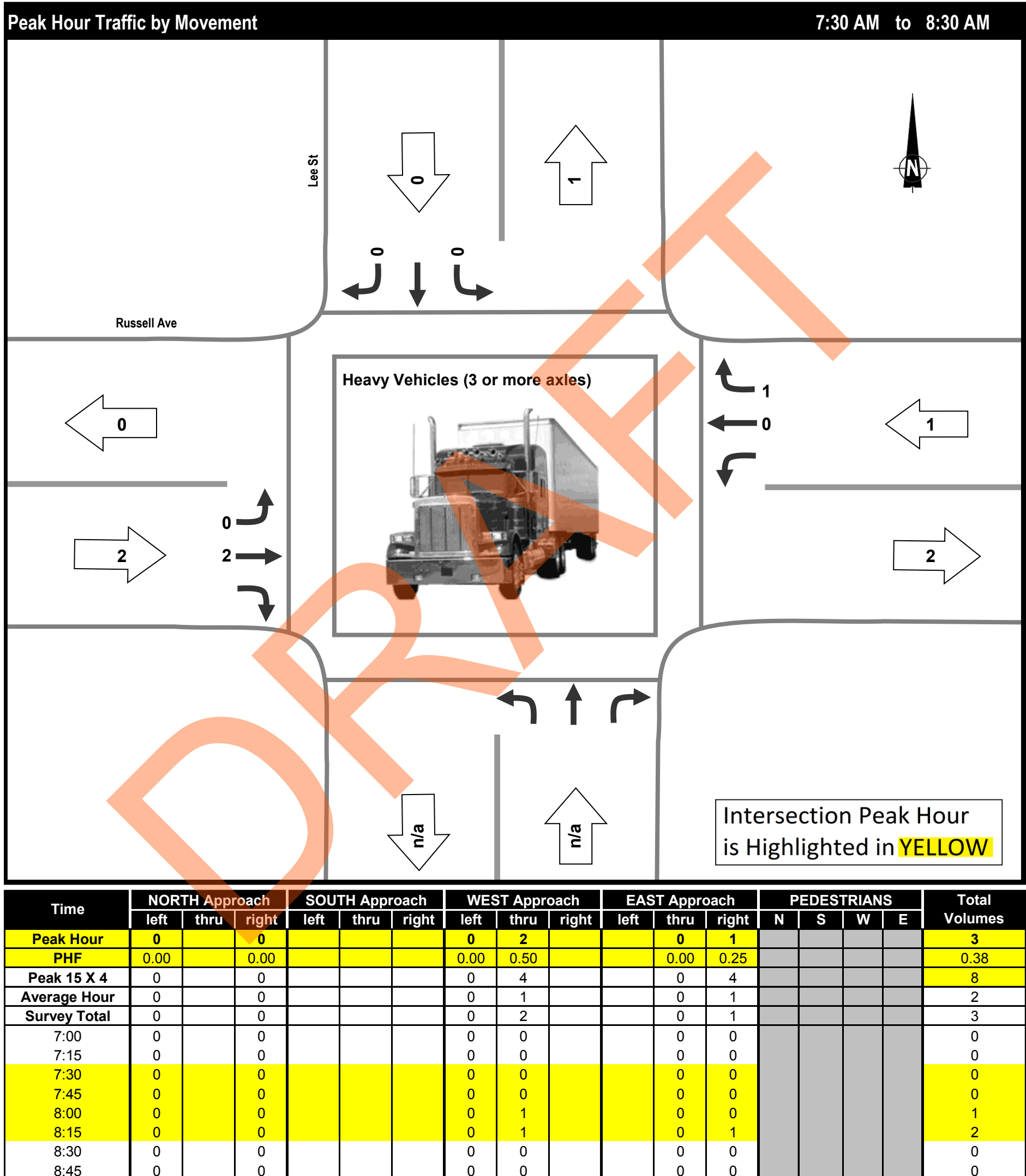
Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy  
Vehicle Class: Passenger Cars

**Morning Peak Period**



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

**Morning Peak Period**



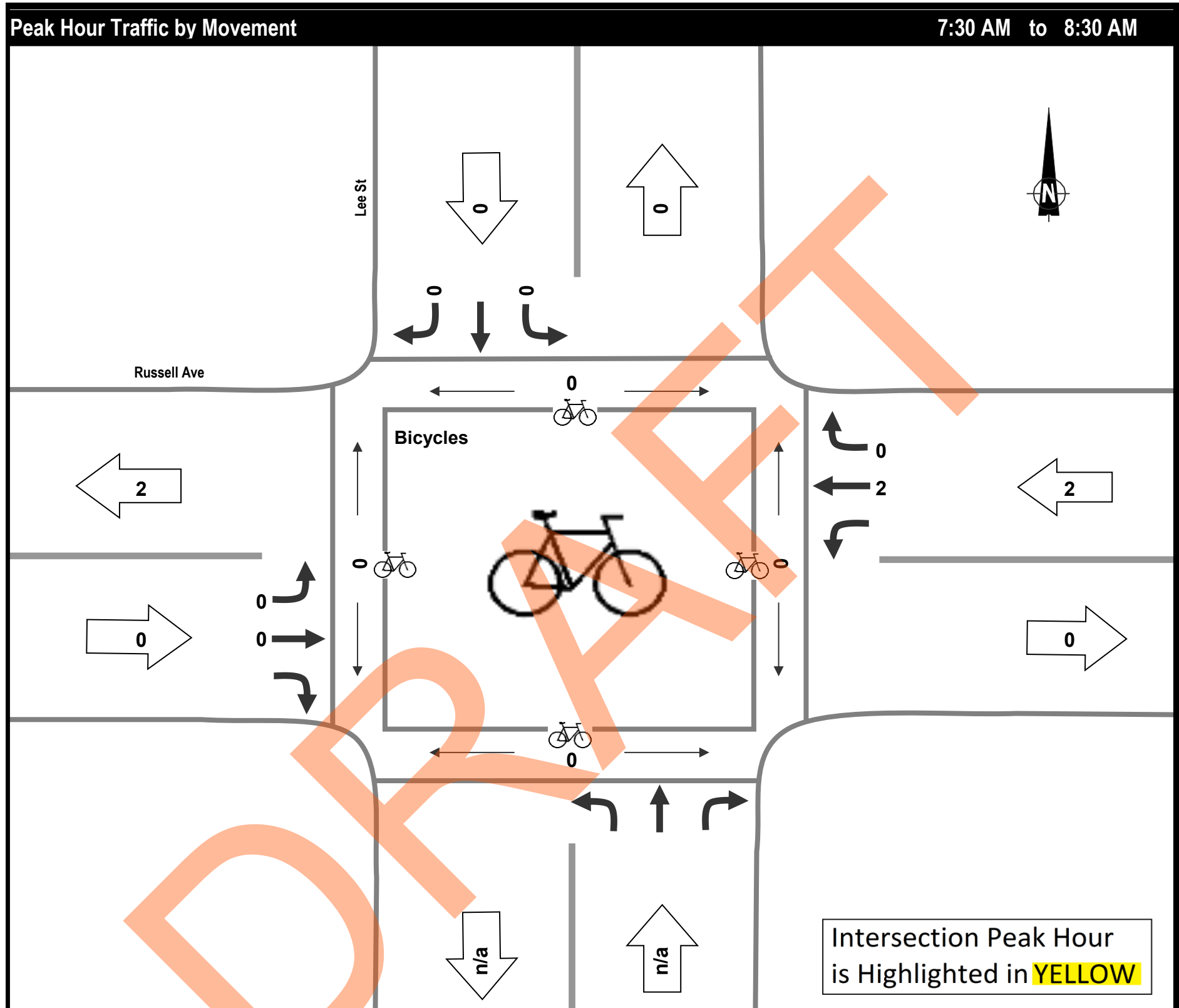
Project: #5935: Beachway Traffic Impact Assessment

Municipality: White Rock

Weather: Cloudy

Vehicle Class: Bicycles

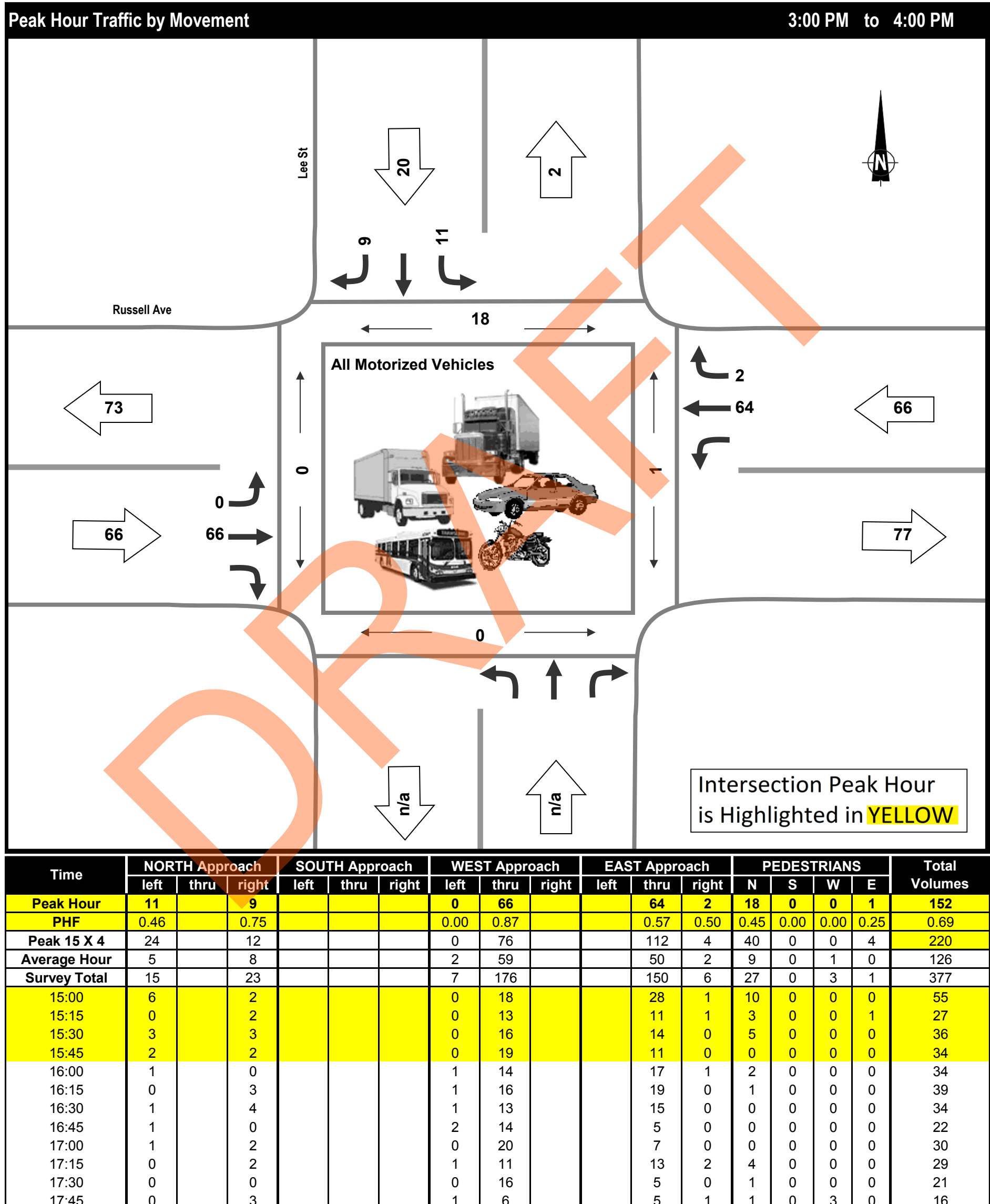
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals



| 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             |

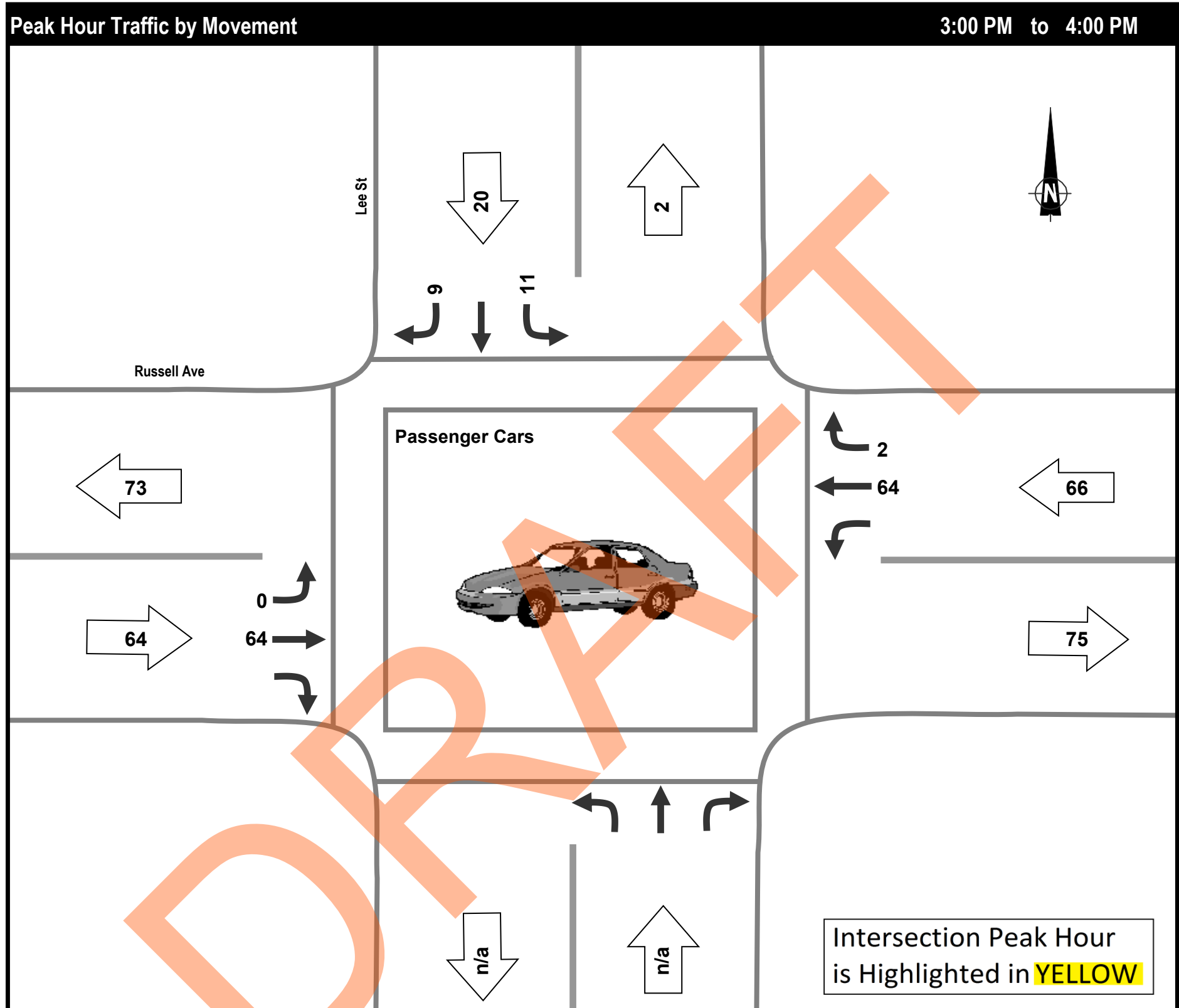
Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy  
Vehicle Class: All Motorized Vehicles

**Afternoon Peak Period**



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

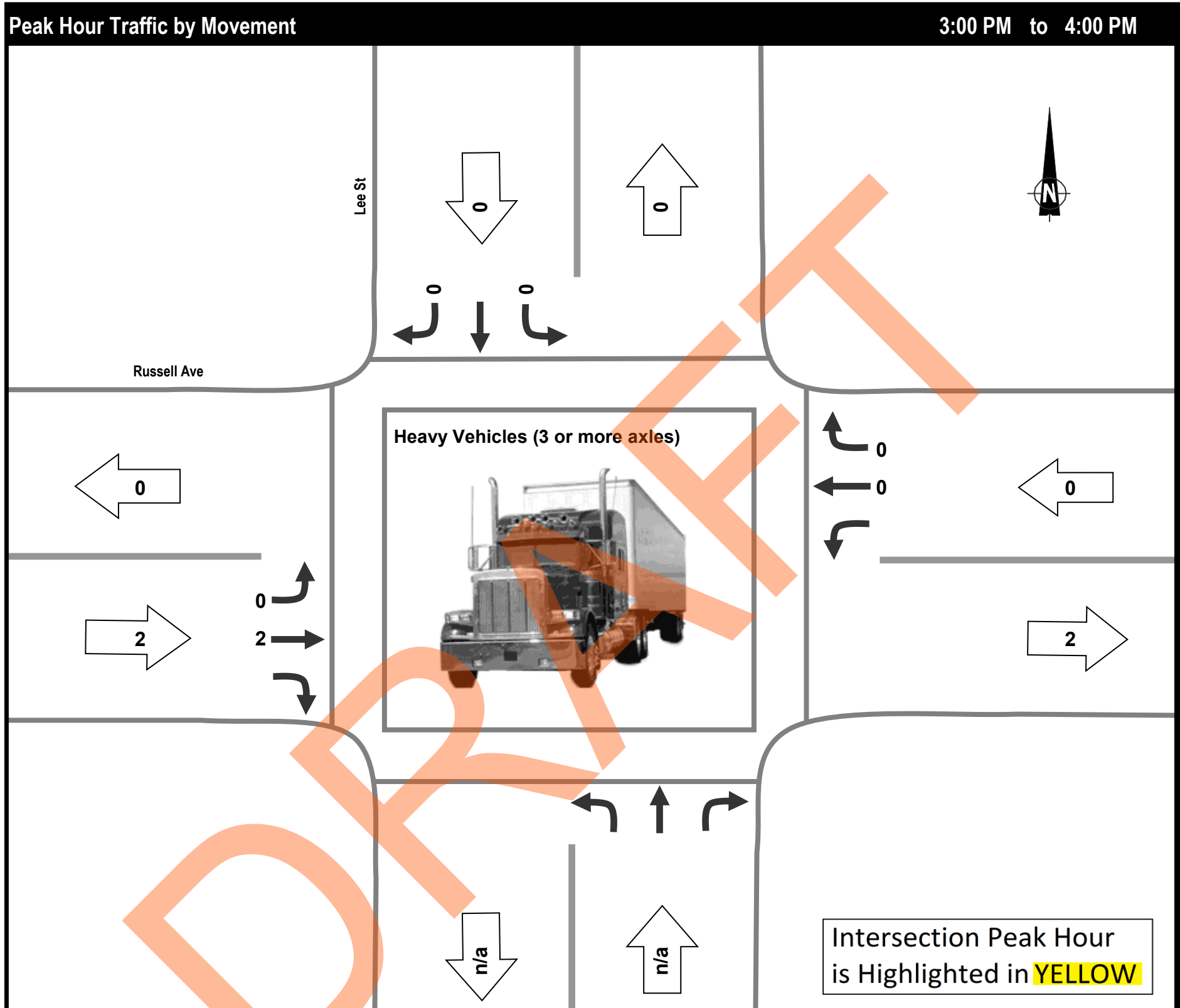
**Afternoon Peak Period**



| 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            |

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

**Afternoon Peak Period**



| 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             |



Project: #5935: Beachway Traffic Impact Assessment

Municipality: White Rock

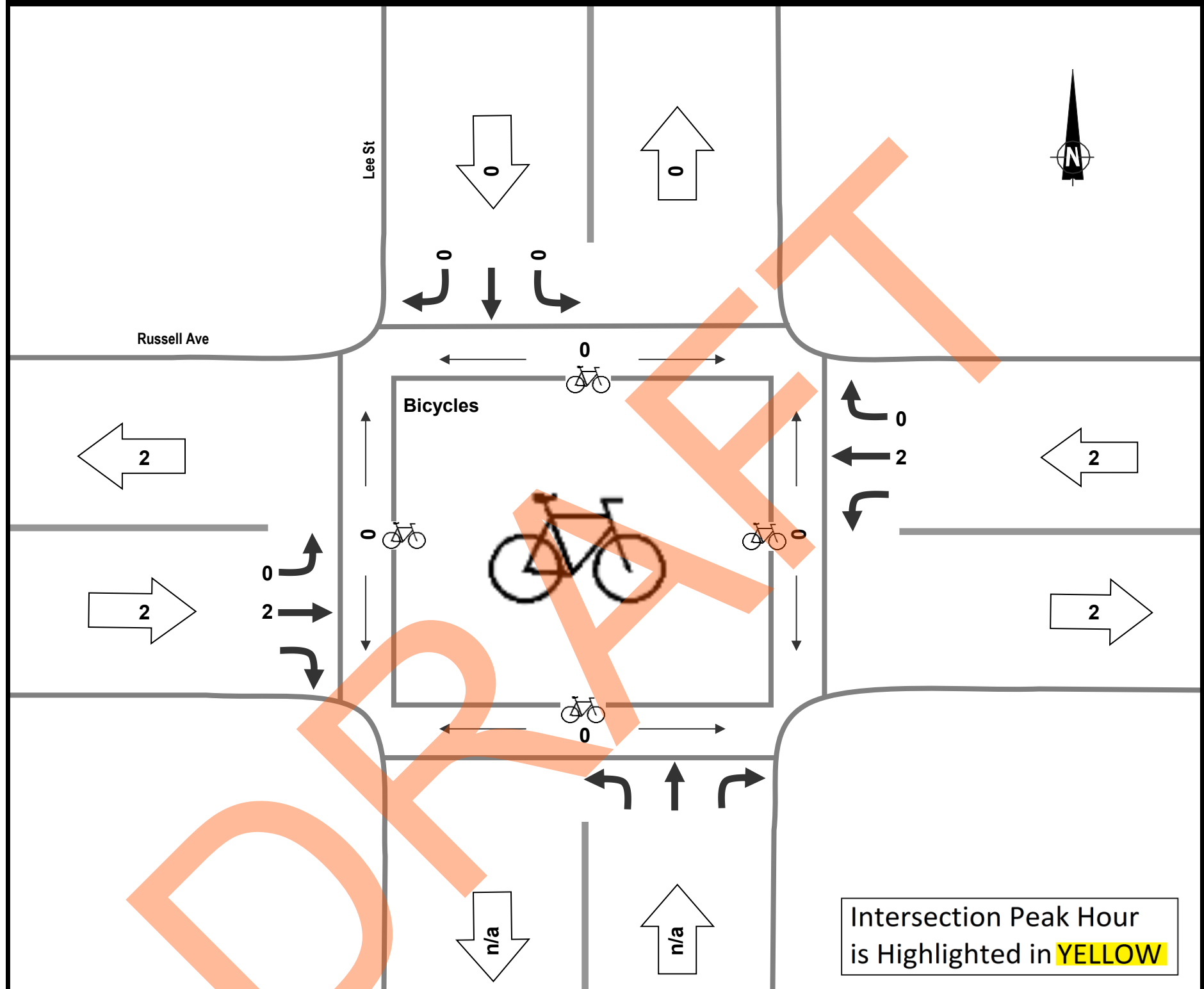
Weather: Cloudy

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

**Afternoon Peak Period**
**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

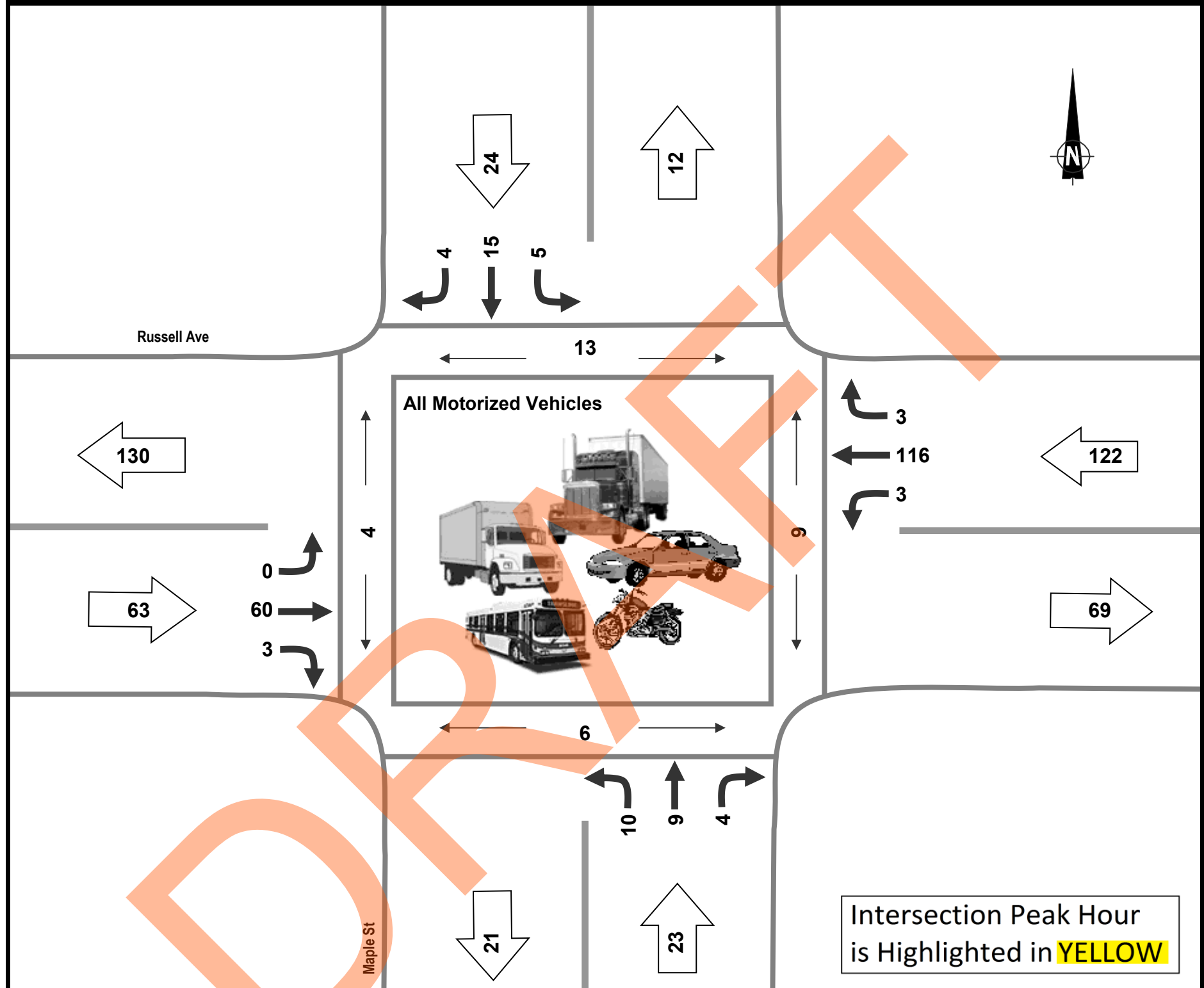
| Time Period                  | Entering Intersection | Vehicle Classification |                                  |  |  |  | Total  |
|------------------------------|-----------------------|------------------------|----------------------------------|--|--|--|--------|
|                             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

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

### Peak Hour Traffic by Movement

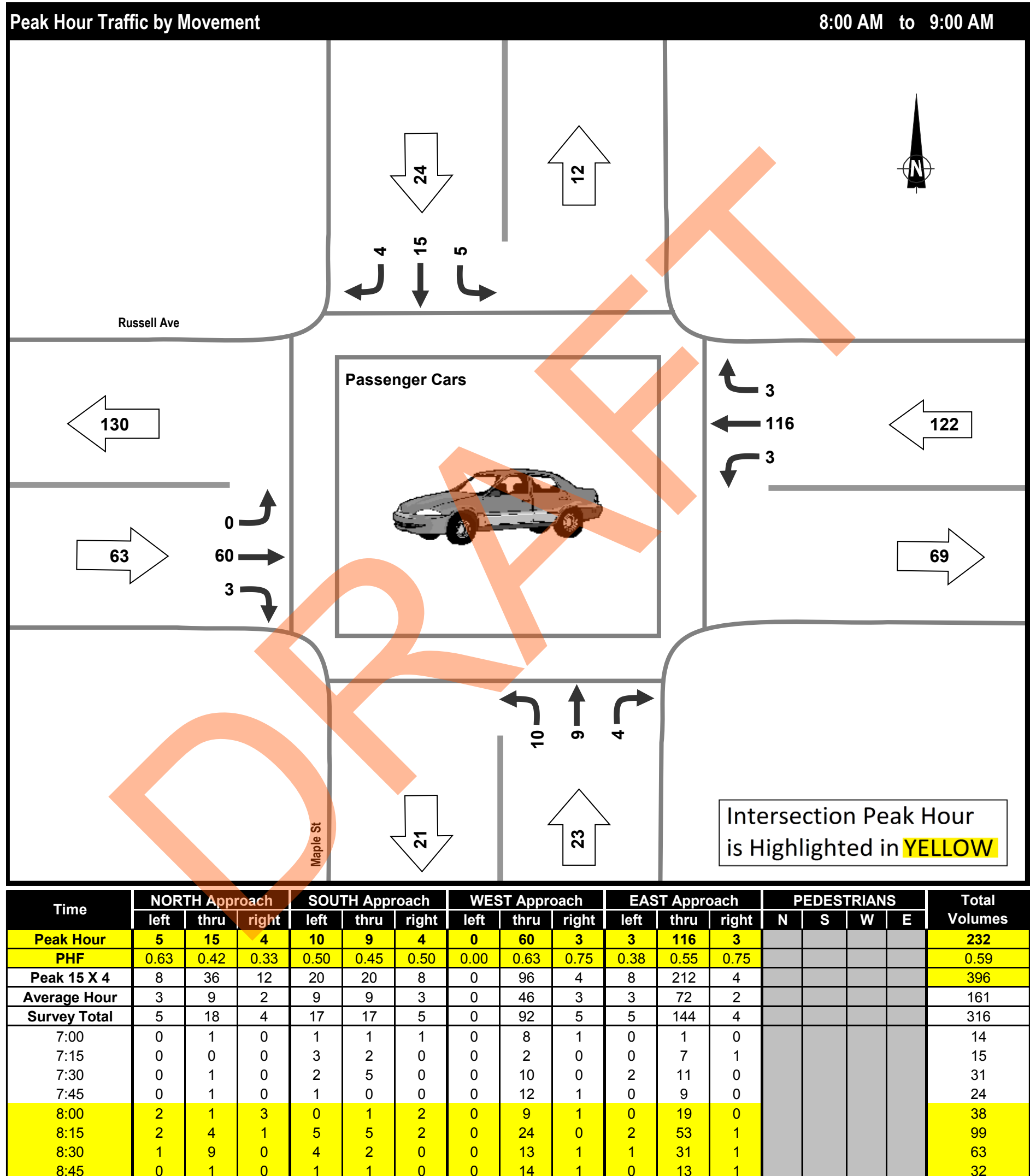
8:00 AM to 9:00 AM



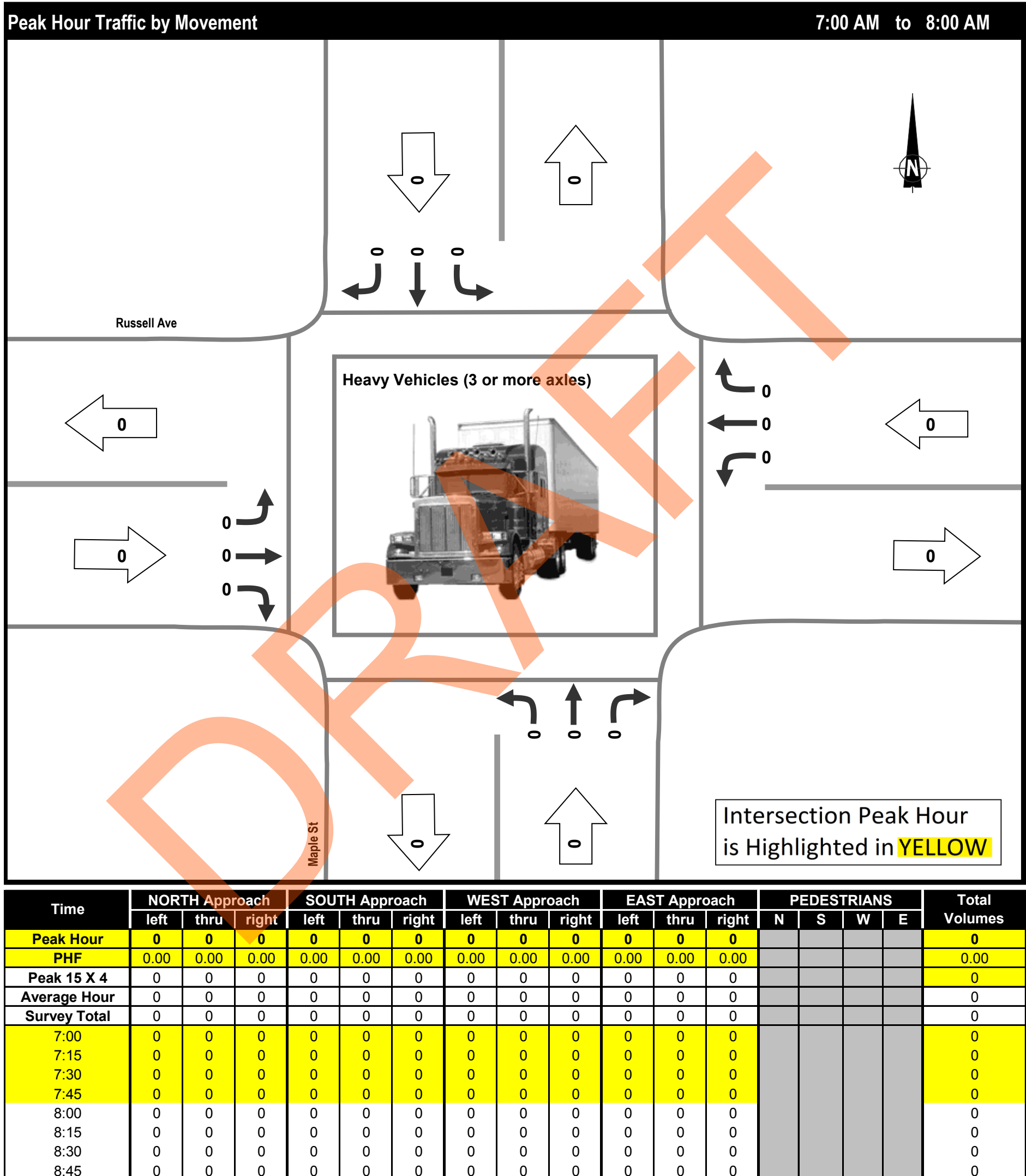
| Time         | NORTH Approach |      |       | SOUTH Approach |      |       | WEST Approach |      |       | EAST Approach |      |       | PEDESTRIANS |      |      |      | Total Volumes |
|--------------|----------------|------|-------|----------------|------|-------|---------------|------|-------|---------------|------|-------|-------------|------|------|------|---------------|
|              | 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            |

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

## Morning Peak Period



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



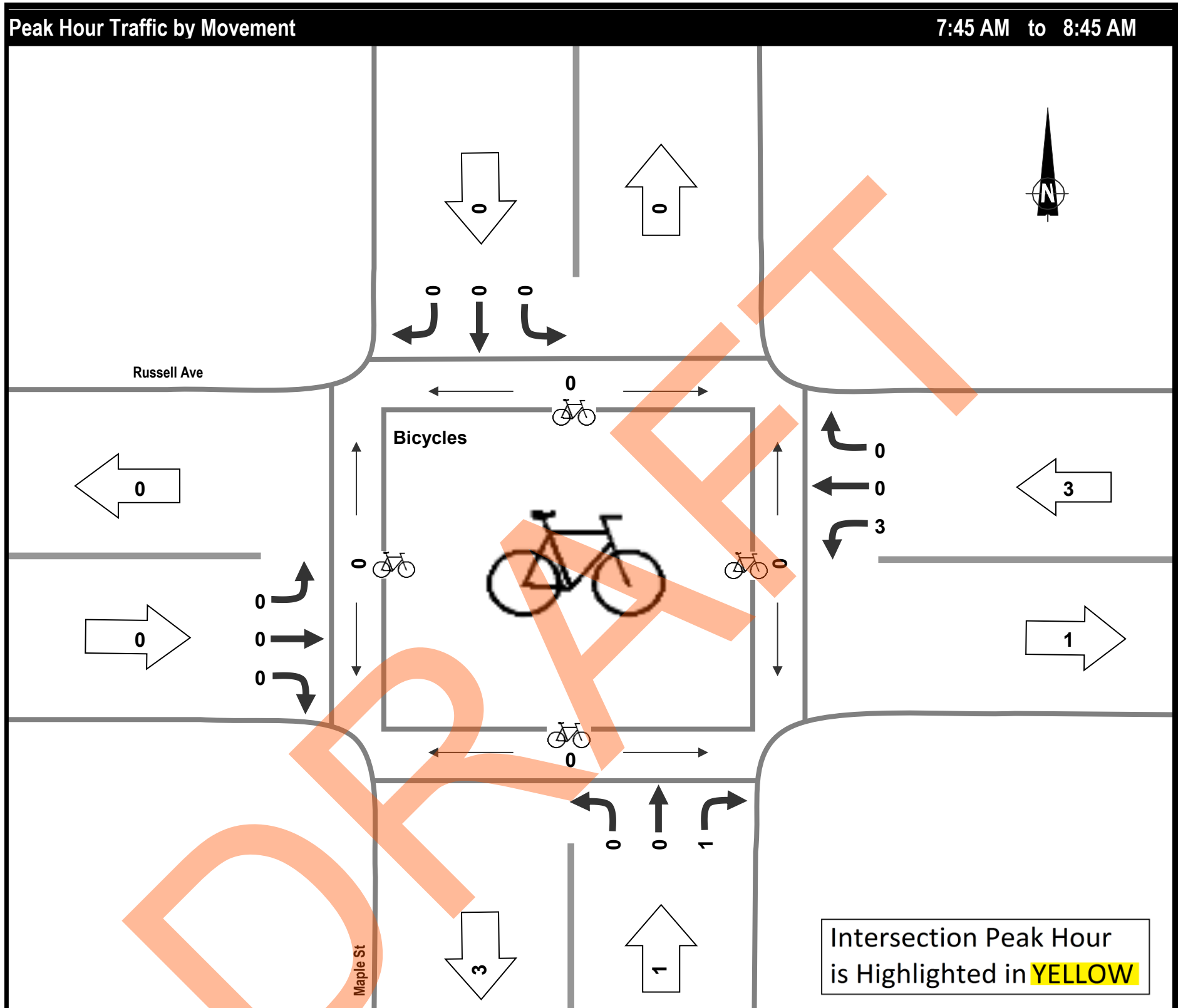
Project: #5740: Russell Ave TIA

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

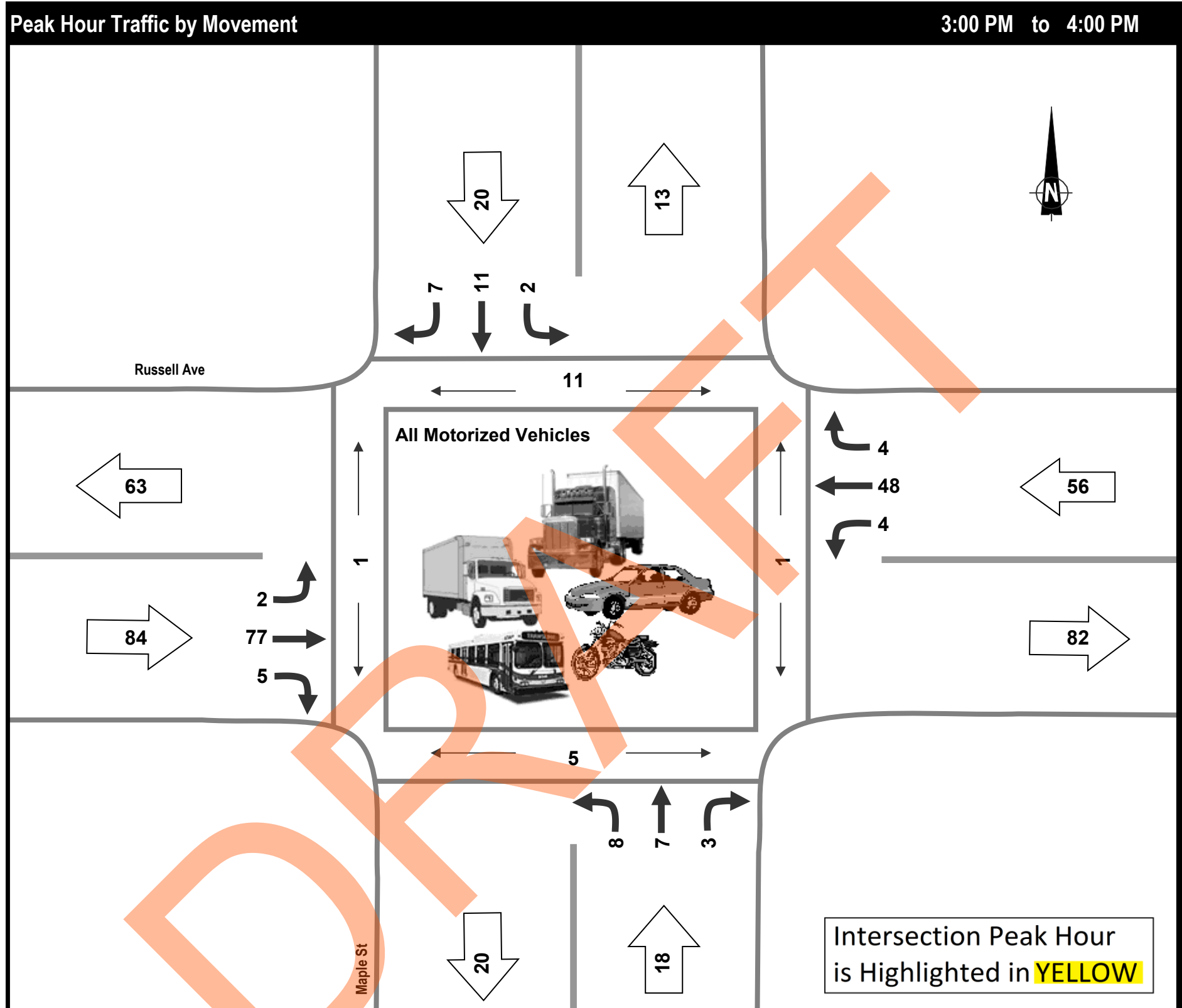


| Time         | NORTH Approach |      |       | SOUTH Approach |      |       | WEST Approach |      |       | EAST Approach |      |       | BIKES in X-WALKS |      |      |      | Total Volumes |
|--------------|----------------|------|-------|----------------|------|-------|---------------|------|-------|---------------|------|-------|------------------|------|------|------|---------------|
|              | 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             |



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

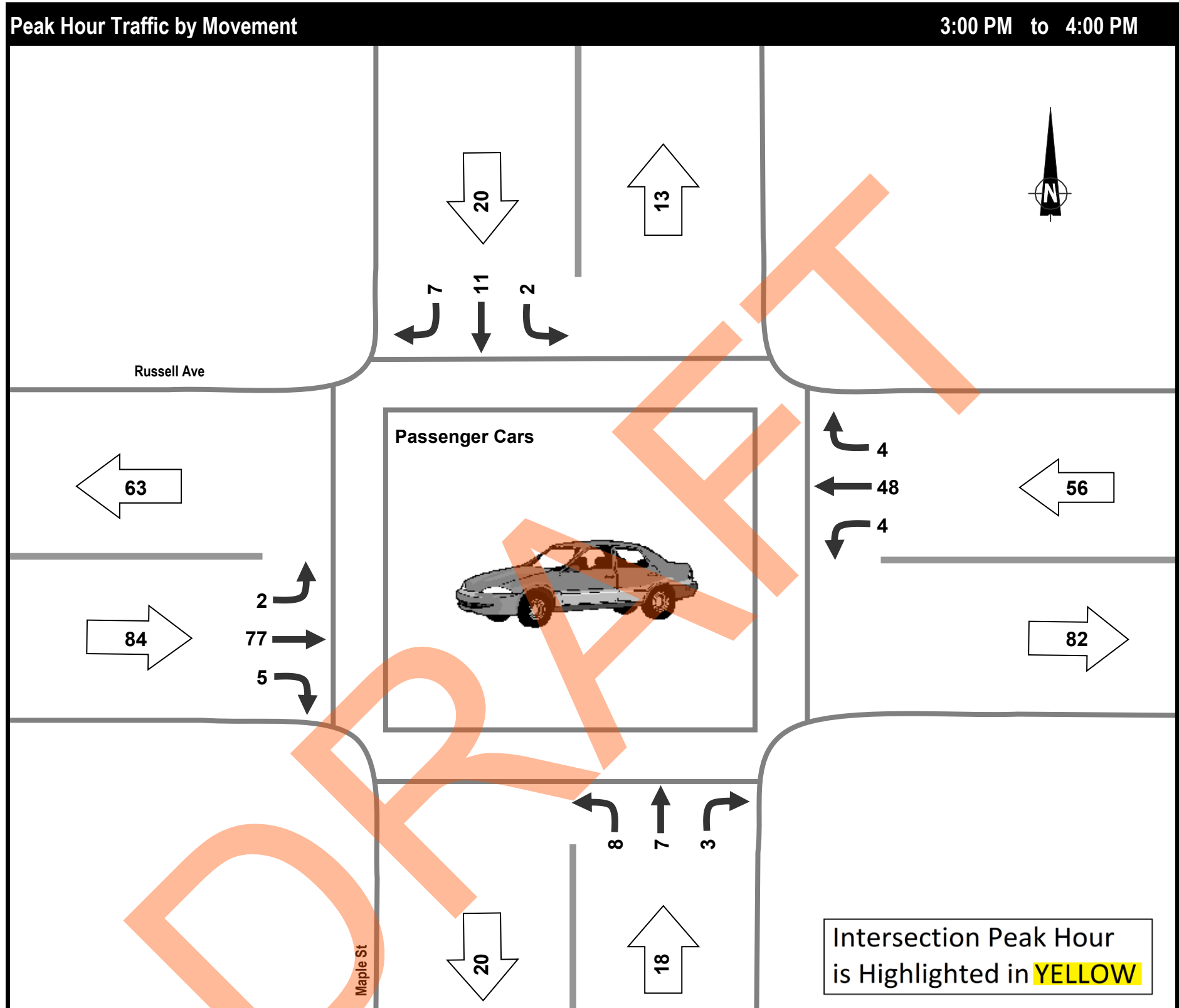
Afternoon Peak Period



| 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            |

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

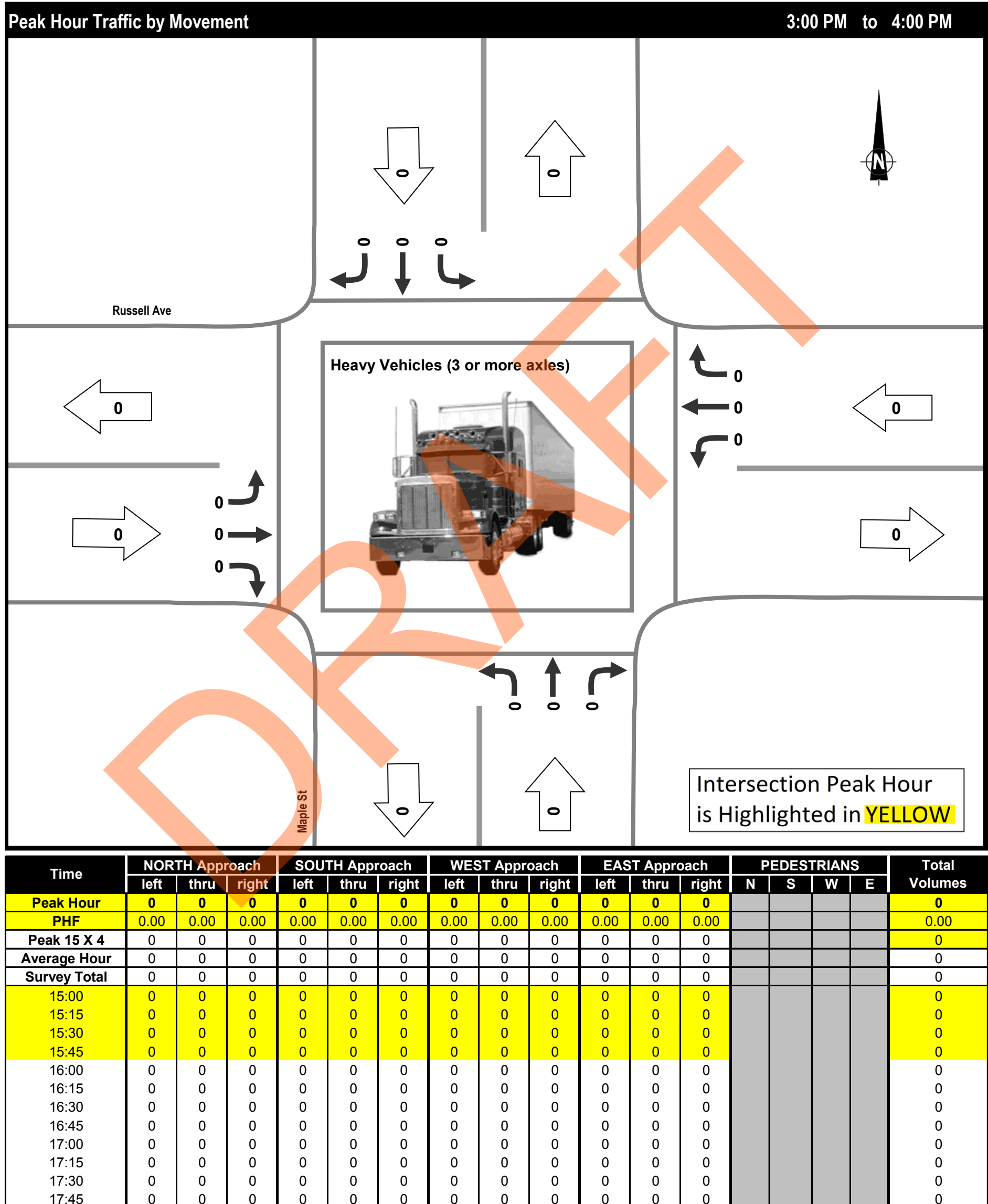
## Afternoon Peak Period



| 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            |

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

**Afternoon Peak Period**



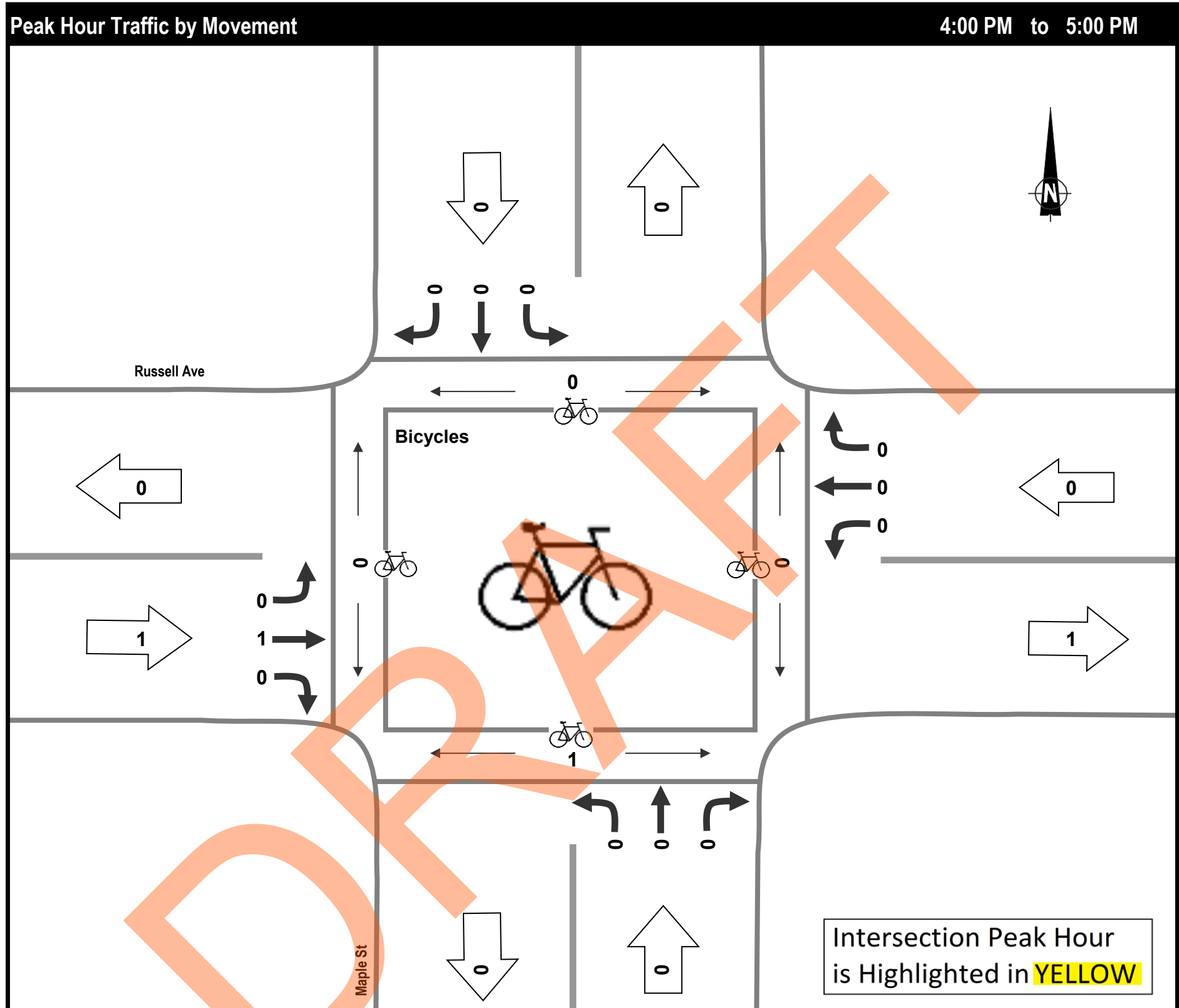
Project: #5740: Russell Ave TIA

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



| 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**

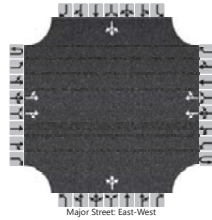
### **Capacity Analysis Worksheets**

DRAFT

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, Q95 (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    |  |  |

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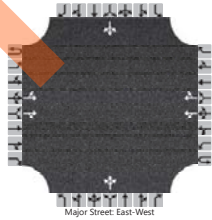
HCS7 TWSC Version 7.6  
Lee St & North Bluff Rd 2018\_AM\_B.txtw

Generated: 12/19/2018 3:19:30 PM

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 <sub>95</sub> (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    |  |  |  |

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HCS7 TWSC Version 7.6  
Lee St & North Bluff Rd 2020\_AM\_B.txtw

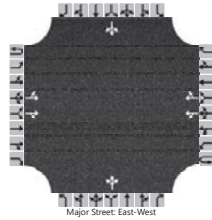
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HCS7 Two-Way Stop-Control Report

| 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



| 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

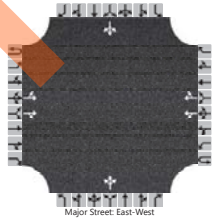
|   |     |      |  |  |     |      |  |  |      |      |  |  |      |      |  |  |
|---|-----|------|--|--|-----|------|--|--|------|------|--|--|------|------|--|--|
| Flow Rate, v (veh/h)                    |     | 8    |  |  |     | 36   |  |  |      | 40   |  |  |      | 55   |  |  |
| Capacity, c (veh/h)                     |     | 539  |  |  |     | 731  |  |  |      | 107  |  |  |      | 143  |  |  |
| v/c Ratio                               |     | 0.01 |  |  |     | 0.05 |  |  |      | 0.38 |  |  |      | 0.38 |  |  |
| 95% Queue Length, Q <sub>95</sub> (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    |      |  |  |

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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 <sub>95</sub> (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          |       |      |      |  |

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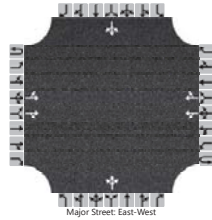
HCS7 TWSC Version 7.6  
Lee St & North Bluff Rd 2030\_AM\_B.txb

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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 |

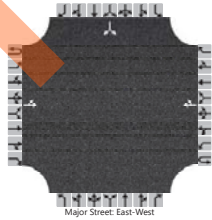
Delay, Queue Length, and Level of Service

|   |     |      |  |  |     |      |  |  |       |       |  |  |       |  |       |  |
|---|-----|------|--|--|-----|------|--|--|-------|-------|--|--|-------|--|-------|--|
| 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 <sub>95</sub> (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     |  |       |  |

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| 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 <sub>95</sub> (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                      |      |      |      |

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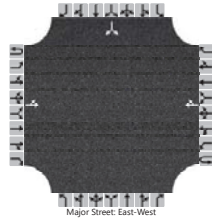
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Lee St & Russell Ave 2018AM\_B.txd

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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 |    |    |   |           |   |   |    |            |   |   |   |            |    |    |    |

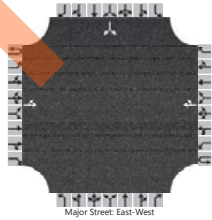
| Critical and Follow-up Headways |  |      |  |  |  |  |  |  |  |  |  |  |  |      |  |      |
|---------------------------------|--|------|--|--|--|--|--|--|--|--|--|--|--|------|--|------|
| Base Critical Headway (sec)     |  | 4.1  |  |  |  |  |  |  |  |  |  |  |  | 7.1  |  | 6.2  |
| Critical Headway (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 <sub>95</sub> (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   |  |      |  |

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| 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 <sub>95</sub> (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                      |      |      |      |

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# HCS7 Two-Way Stop-Control Report

## General Information

|                          |            |
|--------------------------|------------|
| Analyst                  | DG         |
| Agency/Co.               | CTS        |
| Date Performed           | 12/18/2018 |
| Analysis Year            | 2030       |
| Time Analyzed            | AM Base    |
| Intersection Orientation | East-West  |
| Project Description      | Beachview  |

## Site Information

|                            |                        |
|----------------------------|------------------------|
| Intersection               | Maple St & Russell Ave |
| Jurisdiction               | City of White Rock     |
| East/West Street           | Russell Ave            |
| North/South Street         | Lee St                 |
| Peak Hour Factor           | 0.80                   |
| Analysis Time Period (hrs) | 0.25                   |

## 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 <sub>95</sub> (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    |  |      |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2030

AM Base+S

East-West

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Maple St & Russell Ave

City of White ROCK

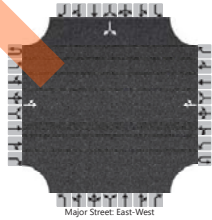
Russell Ave

Lee St

0.80

0.25

Lanes



Major Street: East-West

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 <sub>95</sub> (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    |  |      |  |

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# HCS7 Two-Way Stop-Control Report

## General Information

|                          |             |
|--------------------------|-------------|
| Analyst                  | DG          |
| Agency/Co.               | CTS         |
| Date Performed           | 12/18/2018  |
| Analysis Year            | 2020        |
| Time Analyzed            | AM Base+S   |
| Intersection Orientation | North-South |
| Project Description      | Beachview   |

## Site Information

|                            |                      |
|----------------------------|----------------------|
| Intersection               | Lee St & Site Access |
| Jurisdiction               | City of White Rock   |
| East/West Street           | Site Access          |
| North/South Street         | Lee St               |
| Peak Hour Factor           | 0.80                 |
| Analysis Time Period (hrs) | 0.25                 |

## Lanes

Major Street: North-South

## 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 <sub>95</sub> (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   |      |  |  |  |  |  |  |      |  |  |  |  |  |  |

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General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Lee St & Site Access

City of White ROCK

Site Access

Lee St

0.80

0.25

Beachview

Lanes

Major Street: North-South

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 <sub>95</sub> (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   |  |      |  |  |  |  |  |      |  |  |  |  |  |  |  |

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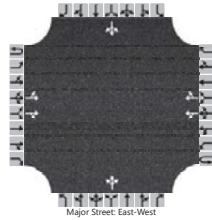
HCS7 TWSC Version 7.6  
Lee St & Site Access 2030AM\_B+S.xtw

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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 <sub>95</sub> (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    |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2020

AM Base

East-West

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Maple St & North Bluff Rd

City of White Rock

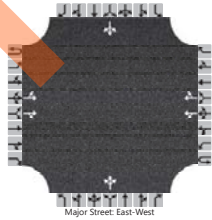
North Bluff Rd

Maple

0.80

0.25

Lanes



Major Street: East-West

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 <sub>95</sub> (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    |      |  |  |

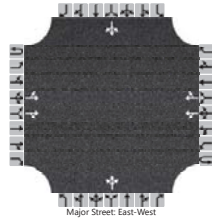
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Maple St & North Bluff Rd 2020\_AM\_8.txb

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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  |            |      |     |    |           |      |     |                            |                           |      |      |      |            |      |      |      |
| <br>Major Street: East-West |            |      |     |    |           |      |     |                            |                           |      |      |      |            |      |      |      |
| 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 <sub>95</sub> (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          |      |      |      |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2020

AM Base

East-West

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Maple St & North Bluff Rd

City of White Rock

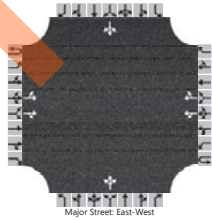
North Bluff Rd

Maple

0.80

0.25

Lanes



Major Street: East-West

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 |    | 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 <sub>95</sub> (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    |      |  |  |

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Maple St & North Bluff Rd 2030\_AM\_B.txtw

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# 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 <sub>95</sub> (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    |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2018

AM Base

East-West

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Maple St & Russell Ave

City of White ROCK

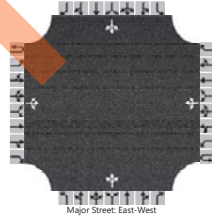
Russell Ave

Maple St

0.80

0.25

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 <sub>95</sub> (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    |  |      |  |

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Maple St & Russell Ave 2018AM\_B.txtw

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# 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

The diagram shows a four-way intersection with a central island. The major street is East-West, indicated by a label at the bottom. The intersection has four approaches, each with two lanes. The lane markings include stop lines, crosswalks, and center lines. The diagram is oriented with the major street running horizontally across the intersection.

## 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      |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |
|                            |           |   |     |   |           |   |     |   |            |    |     |   |            |    |     |    |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

Site Information

Intersection

Jurisdiction

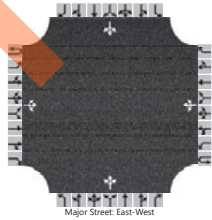
East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

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 <sub>95</sub> (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    |      |  |  |

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HCS7 TWSC Version 7.6  
Maple St & Russell Ave 2020AM\_B+S.txtw

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# 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

The diagram shows a four-way intersection. The major street is East-West, indicated by a large arrow pointing right. The intersection has four approaches: Eastbound, Westbound, Northbound, and Southbound. Each approach has a through lane and a right-turn lane. The diagram is a top-down view of the intersection, with the major street running horizontally across the middle.

## 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 <sub>95</sub> (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    |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

Site Information

Intersection

Jurisdiction

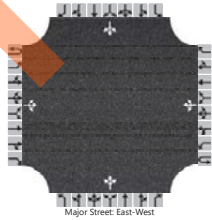
East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

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 <sub>95</sub> (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    |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2020

AM Base+S

North-South

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Maple & Site Access

City of White Rock

Site Access

Maple St

0.80

0.25

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 <sub>95</sub> (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   |      |  |  |  |  |  |  |     |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

DG

Agency/Co.

CTS

Date Performed

12/18/2018

Analysis Year

2030

Time Analyzed

AM Base+S

Intersection Orientation

North-South

Project Description

Beachview

Site Information

Intersection

Maple & Site Access

Jurisdiction

City of White Rock

East/West Street

Site Access

North/South Street

Maple St

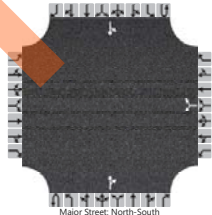
Peak Hour Factor

0.80

Analysis Time Period (hrs)

0.25

Lanes



Major Street: North-South

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 <sub>95</sub> (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   |      |  |  |  |  |  |  |     |  |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

DG

Agency/Co.

CTS

Date Performed

12/18/2018

Analysis Year

2018

Time Analyzed

PM Base

Intersection Orientation

East-West

Project Description

Beachview

Site Information

Intersection

Lee St & North Bluff Rd

Jurisdiction

City of White Rock

East/West Street

North Bluff Rd

North/South Street

Lee St

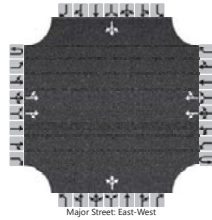
Peak Hour Factor

0.91

Analysis Time Period (hrs)

0.25

Lanes



Major Street: East-West

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 <sub>95</sub> (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    |      |  |  |

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HCS7 TWSC Version 7.6  
Lee St & North Bluff Rd 2018\_PM\_B.txtw

Generated: 12/19/2018 3:03:11 PM

HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2020

PM Base

East-West

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Lee St & North Bluff Rd

City of White Rock

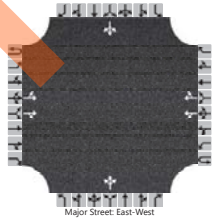
North Bluff Rd

Lee St

0.91

0.25

Lanes



Major Street: East-West

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 <sub>95</sub> (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    |      |  |  |

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HCS7 TWSC Version 7.6  
Lee St & North Bluff Rd 2020\_PM\_B.txtw

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2020

PM Base+S

East-West

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Lee St & North Bluff Rd

City of White Rock

North Bluff Rd

Lee St

0.91

0.25

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 <sub>95</sub> (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    |      |  |  |

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Lee St & North Bluff Rd 2020\_PM\_B+S.txtw

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

DG

Agency/Co.

CTS

Date Performed

12/18/2018

Analysis Year

2030

Time Analyzed

PM Base

Intersection Orientation

East-West

Project Description

Beachview

Site Information

Intersection

Lee St & North Bluff Rd

Jurisdiction

City of White Rock

East/West Street

North Bluff Rd

North/South Street

Lee St

Peak Hour Factor

0.91

Analysis Time Period (hrs)

0.25

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 |   | 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 <sub>95</sub> (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    |      |  |  |

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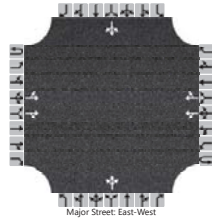
HCS7 TWSC Version 7.6  
Lee St & North Bluff Rd 2030\_PM\_B.txtw

Generated: 12/19/2018 3:02:51 PM

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 |

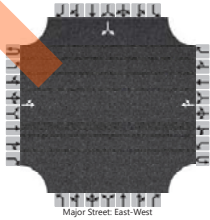
Delay, Queue Length, and Level of Service

|                             |     |      |  |  |     |      |  |  |      |      |  |  |      |      |  |  |
|-----------------------------|-----|------|--|--|-----|------|--|--|------|------|--|--|------|------|--|--|
| 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, Q95 (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    |      |  |  |

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HCS7 TWSC Version 7.6  
Lee St & North Bluff Rd 2030\_PM\_B+S.txd

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| 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 <sub>95</sub> (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        |      |    |   |           |   |    |                            |            |   |   |                        |            |      |      |      |
| Approach LOS  | A          |      |    |   |           |   |    |                            |            |   |   |                        |            |      |      |      |

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Lee St & Russell Ave 2018PM\_B.txd

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2020

PM Base

East-West

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Maple St & Russell Ave

City of White Rock

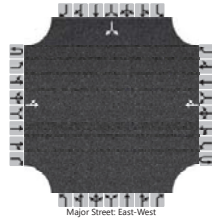
Russell Ave

Lee St

0.91

0.25

Lanes



Major Street: East-West

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 <sub>95</sub> (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   |  |      |  |

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HCS7 TWSC Version 7.6  
Lee St & Russell Ave 2020PM\_B.txt

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

DG

Agency/Co.

CTS

Date Performed

12/18/2018

Analysis Year

2020

Time Analyzed

PM Base+S

Intersection Orientation

East-West

Project Description

Beachview

Site Information

Intersection

Maple St & Russell Ave

Jurisdiction

City of White ROCK

East/West Street

Russell Ave

North/South Street

Lee St

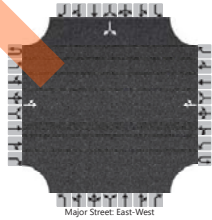
Peak Hour Factor

0.91

Analysis Time Period (hrs)

0.25

Lanes



Major Street: East-West

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 <sub>95</sub> (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   |      |  |  |

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# HCS7 Two-Way Stop-Control Report

## General Information

|                          |            |
|--------------------------|------------|
| Analyst                  | DG         |
| Agency/Co.               | CTS        |
| Date Performed           | 12/18/2018 |
| Analysis Year            | 2030       |
| Time Analyzed            | PM Base    |
| Intersection Orientation | East-West  |
| Project Description      | Beachview  |

## Site Information

|                            |                        |
|----------------------------|------------------------|
| Intersection               | Maple St & Russell Ave |
| Jurisdiction               | City of White Rock     |
| East/West Street           | Russell Ave            |
| North/South Street         | Lee St                 |
| Peak Hour Factor           | 0.91                   |
| Analysis Time Period (hrs) | 0.25                   |

## 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 |  |

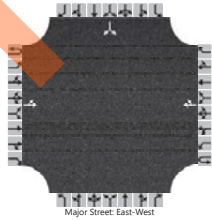
## Delay, Queue Length, and Level of Service

|   |     |      |  |  |  |  |  |  |  |  |  |  |     |  |      |  |
|---|-----|------|--|--|--|--|--|--|--|--|--|--|-----|--|------|--|
| Flow Rate, v (veh/h)                    |     | 0    |  |  |  |  |  |  |  |  |  |  |     |  | 29   |  |
| Capacity, c (veh/h)                     |     | 1456 |  |  |  |  |  |  |  |  |  |  |     |  | 840  |  |
| v/c Ratio                               |     | 0.00 |  |  |  |  |  |  |  |  |  |  |     |  | 0.03 |  |
| 95% Queue Length, Q <sub>95</sub> (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   |  |      |  |

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Lee St & Russell Ave 2030PM\_B.txt

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| 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 <sub>95</sub> (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                      |      |      |      |

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Lee St & Russell Ave 2030PM\_B+S.txt

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2020

PM Base+S

North-South

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Lee St & Site Access

City of White Rock

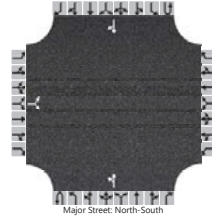
Site Access

Lee St

0.91

0.25

Lanes



Major Street: North-South

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 | 1 | 0  |            | 0 | 1  | 0  |
| Configuration              |           |    |    | LR |           |   |   |   |            |   |   | LT |            |   |    | TR |
| Volume (veh/h)             |           |    | 12 |    |           |   |   |   |            |   | 2 | 7  |            |   | 28 | 18 |
| Percent Heavy Vehicles (%) |           |    | 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  |  |  |  |  |  |  |  | 4.1  |  |  |  |  |  |
| Critical Headway (sec)       |  |  | 6.42 |  |  |  |  |  |  |  | 4.12 |  |  |  |  |  |
| Base Follow-Up Headway (sec) |  |  | 3.5  |  |  |  |  |  |  |  | 2.2  |  |  |  |  |  |
| Follow-Up Headway (sec)      |  |  | 3.52 |  |  |  |  |  |  |  | 2.22 |  |  |  |  |  |

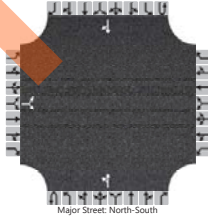
Delay, Queue Length, and Level of Service

|   |  |  |  |      |  |  |  |  |  |  |      |  |  |  |  |  |
|---|--|--|--|------|--|--|--|--|--|--|------|--|--|--|--|--|
| Flow Rate, v (veh/h)                    |  |  |  | 15   |  |  |  |  |  |  | 2    |  |  |  |  |  |
| Capacity, c (veh/h)                     |  |  |  | 964  |  |  |  |  |  |  | 1556 |  |  |  |  |  |
| v/c Ratio                               |  |  |  | 0.02 |  |  |  |  |  |  | 0.00 |  |  |  |  |  |
| 95% Queue Length, Q <sub>95</sub> (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    |  |  |  |  |  |  |      |  |  |  |  |  |

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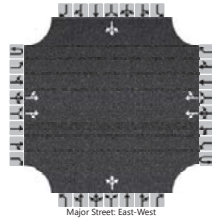
| HCS7 Two-Way Stop-Control Report  |             |           |      |      |           |   |   |                            |            |   |      |                      |            |   |    |    |
|---|-------------|-----------|------|------|-----------|---|---|----------------------------|------------|---|------|----------------------|------------|---|----|----|
| 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 <sub>95</sub> (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         |      |      |           |   |   |                            |            |   |      |                      |            |   |    |    |

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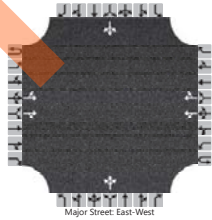
HCS7 Two-Way Stop-Control Report

| 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 <sub>95</sub> (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          |      |      |      |

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| 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         |      |      |                           | 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 <sub>95</sub> (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          |      |      |      |

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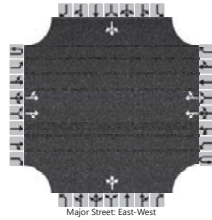
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HCS7 Two-Way Stop-Control Report

| 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 <sub>95</sub> (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    |  |      |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2030

PM Base

East-West

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Maple St & North Bluff Rd

City of White Rock

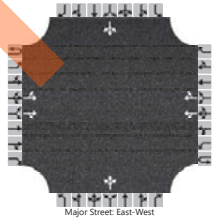
North Bluff Rd

Maple

0.91

0.25

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 <sub>95</sub> (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    |  |  |      |

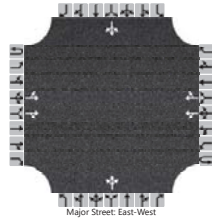
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HCS7 Two-Way Stop-Control Report

| 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 |

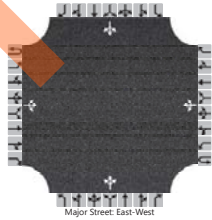
Delay, Queue Length, and Level of Service

|   |     |      |  |  |     |      |  |  |      |      |  |  |      |      |  |  |
|---|-----|------|--|--|-----|------|--|--|------|------|--|--|------|------|--|--|
| 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 <sub>95</sub> (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    |      |  |  |

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| 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 <sub>95</sub> (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                      |      |      |      |

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# HCS7 Two-Way Stop-Control Report

## General Information

|                          |            |
|--------------------------|------------|
| Analyst                  | DG         |
| Agency/Co.               | CTS        |
| Date Performed           | 12/18/2018 |
| Analysis Year            | 2020       |
| Time Analyzed            | PM         |
| Intersection Orientation | East-West  |
| Project Description      | Beachview  |

## Site Information

|                            |                        |
|----------------------------|------------------------|
| Intersection               | Maple St & Russell Ave |
| Jurisdiction               | City of White Rock     |
| East/West Street           | Russell Ave            |
| North/South Street         | Maple St               |
| Peak Hour Factor           | 0.91                   |
| Analysis Time Period (hrs) | 0.25                   |

## Lanes

Major Street: East-West

## 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 <sub>95</sub> (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   |      |  |  |

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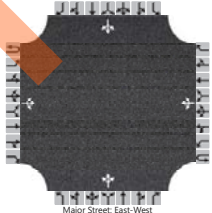
HCS7 TWSC Version 7.6  
Maple St & Russell Ave 2020PM\_B.txtw

Generated: 12/19/2018 3:12:55 PM

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+5       |  |  |  | Peak Hour Factor           |  |  |  | 0.91                   |  |  |  |  |  |  |  |
| Intersection Orientation | East-West  |  |  |  | Analysis Time Period (hrs) |  |  |  | 0.25                   |  |  |  |  |  |  |  |
| Project Description      | Beachview  |  |  |  |                            |  |  |  |                        |  |  |  |  |  |  |  |

Lanes



Major Street: East-West

| 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 <sub>95</sub> (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   |      |  |  |

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# 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 <sub>95</sub> (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    |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

DG

Agency/Co.

CTS

Date Performed

12/18/2018

Analysis Year

2030

Time Analyzed

PM+5

Intersection Orientation

East-West

Project Description

Beachview

Site Information

Intersection

Maple St & Russell Ave

Jurisdiction

City of White ROCK

East/West Street

Russell Ave

North/South Street

Maple St

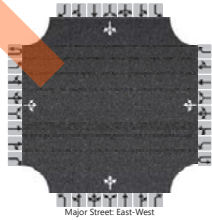
Peak Hour Factor

0.91

Analysis Time Period (hrs)

0.25

Lanes



Major Street: East-West

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 <sub>95</sub> (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    |  |      |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

DG

CTS

12/18/2018

2020

PM Base+S

North-South

Beachview

Site Information

Intersection

Jurisdiction

East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Maple & Site Access

City of White Rock

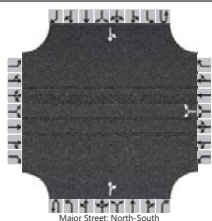
Site Access

Maple St

0.91

0.25

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 <sub>95</sub> (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   |  |      |  |  |  |  |  |     |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

DG

Agency/Co.

CTS

Date Performed

12/18/2018

Analysis Year

2030

Time Analyzed

PM Base+S

Intersection Orientation

North-South

Project Description

Beachview

Site Information

Intersection

Maple & Site Access

Jurisdiction

City of White Rock

East/West Street

Site Access

North/South Street

Maple St

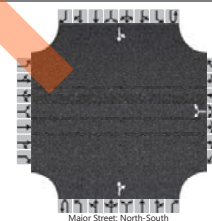
Peak Hour Factor

0.91

Analysis Time Period (hrs)

0.25

Lanes



Major Street: North-South

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 <sub>95</sub> (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   |      |  |  |  |  |  |  |     |      |  |  |

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HCS7 TWSC Version 7.6  
Maple St & Site Access 2030PM\_B+S.xtw

Generated: 12/19/2018 3:14:40 PM

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## **Appendix C**

### **Traffic Count Data**





Vehicle Classification Summary

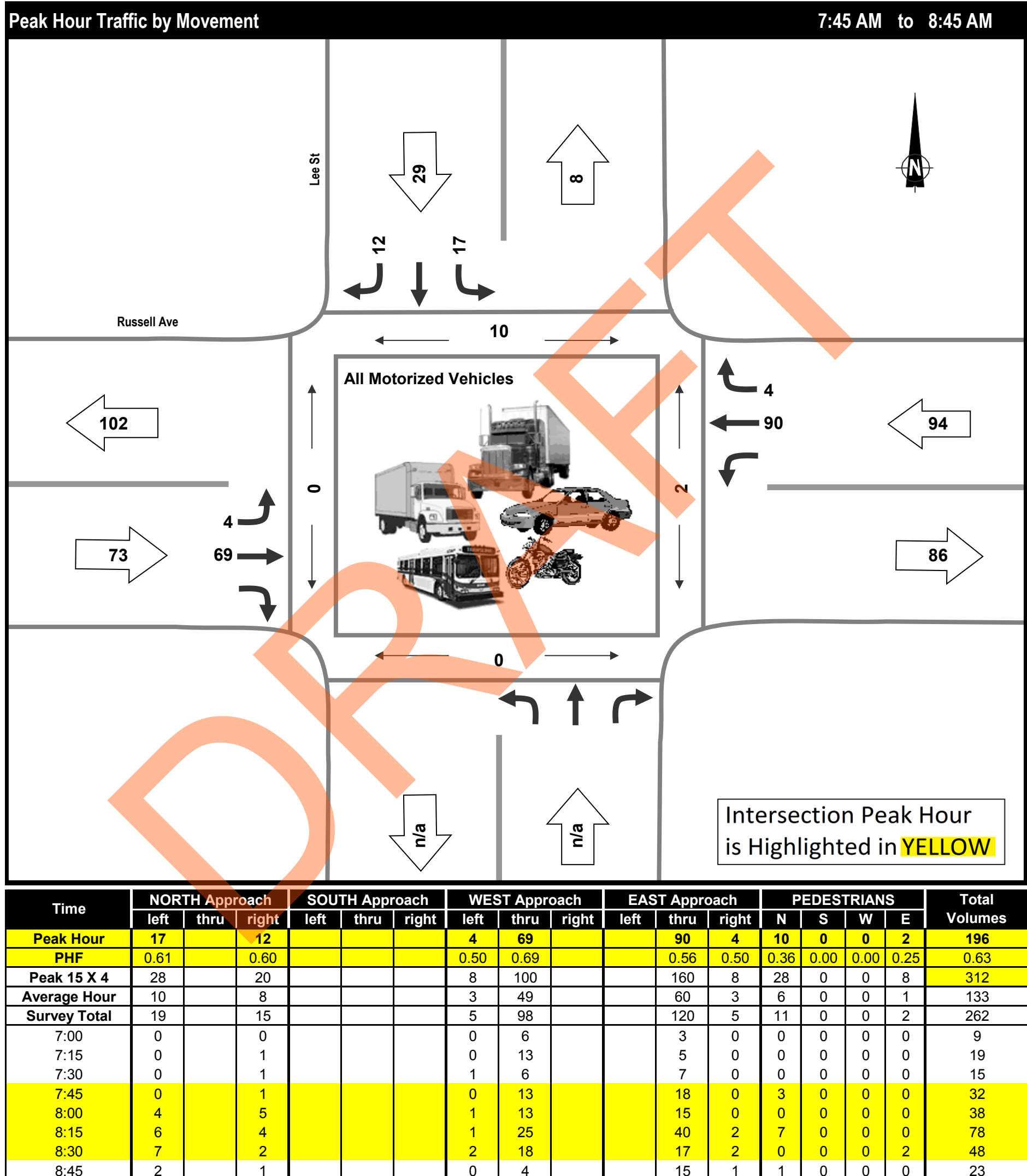
Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy

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

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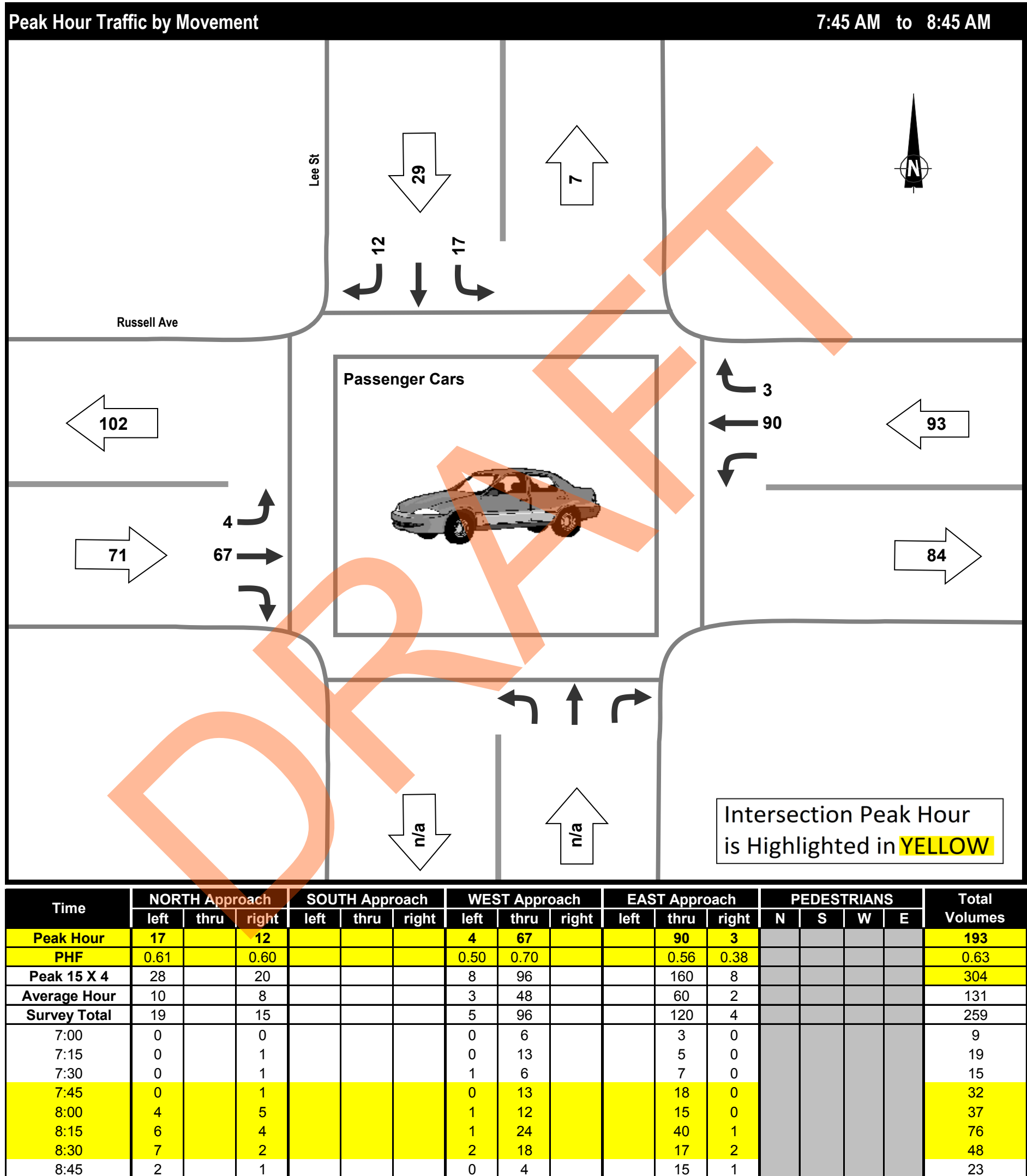
Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy  
Vehicle Class: All Motorized Vehicles

**Morning Peak Period**



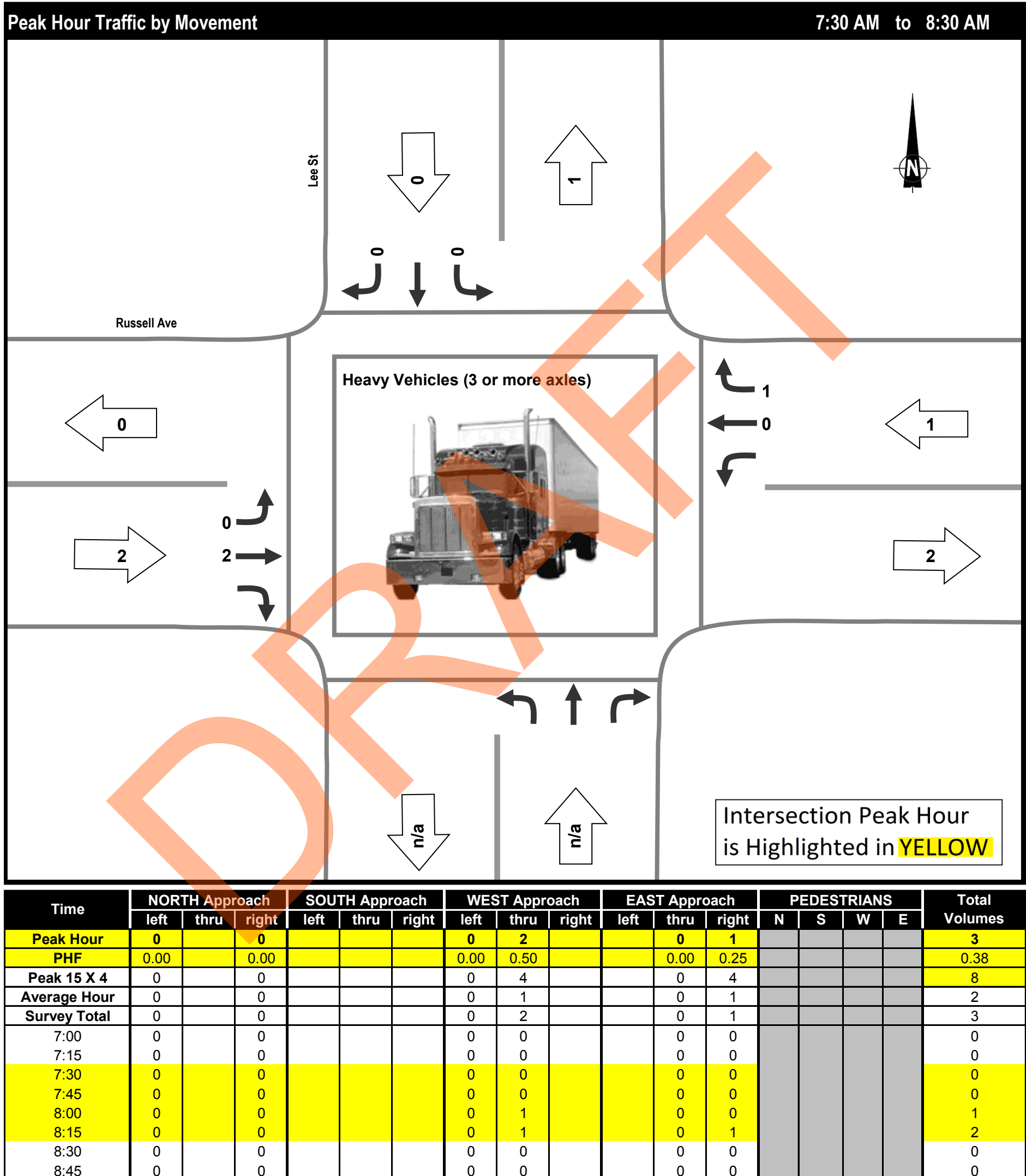
Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy  
Vehicle Class: Passenger Cars

**Morning Peak Period**



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

**Morning Peak Period**



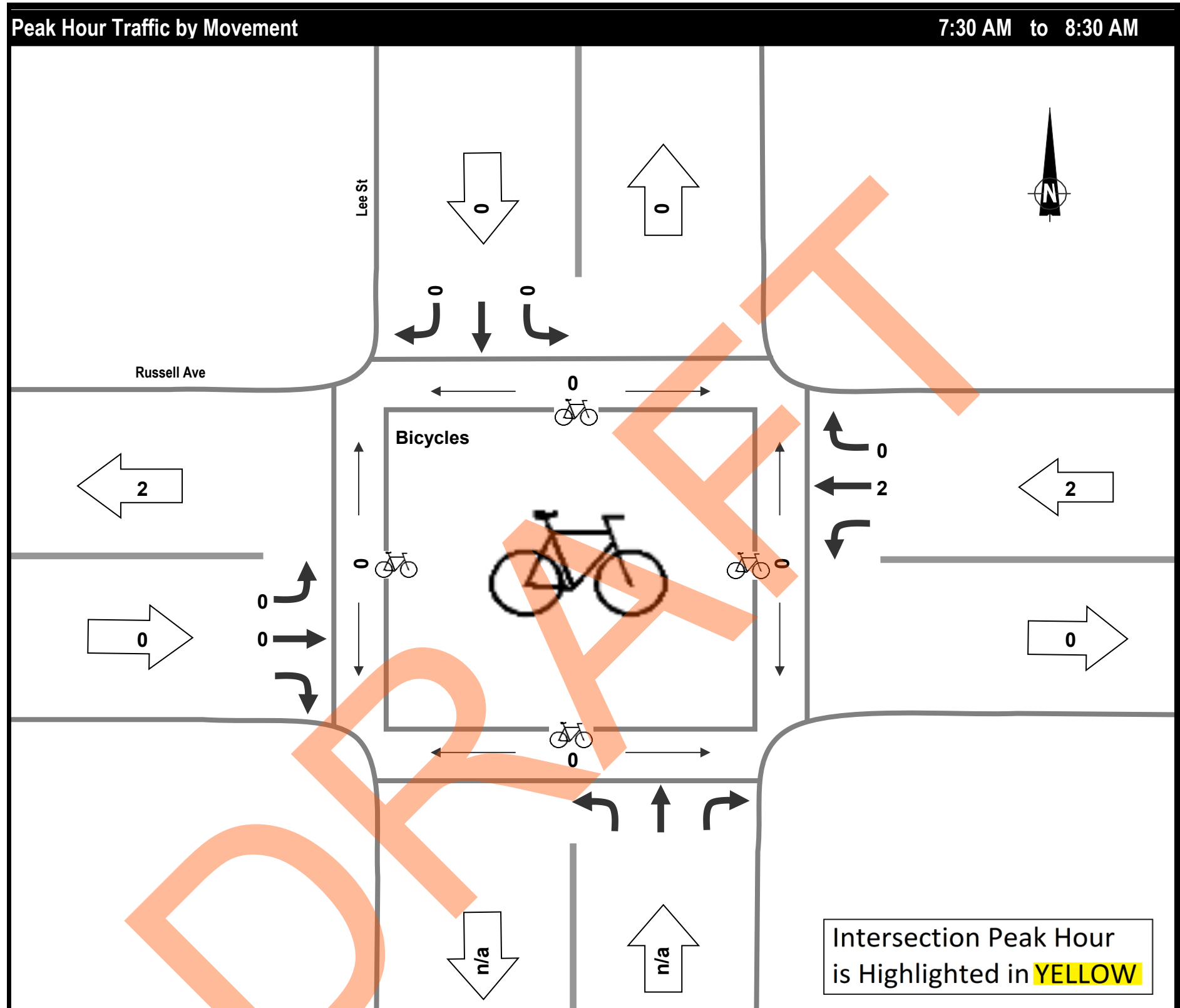
Project: #5935: Beachway Traffic Impact Assessment

Municipality: White Rock

Weather: Cloudy

Vehicle Class: Bicycles

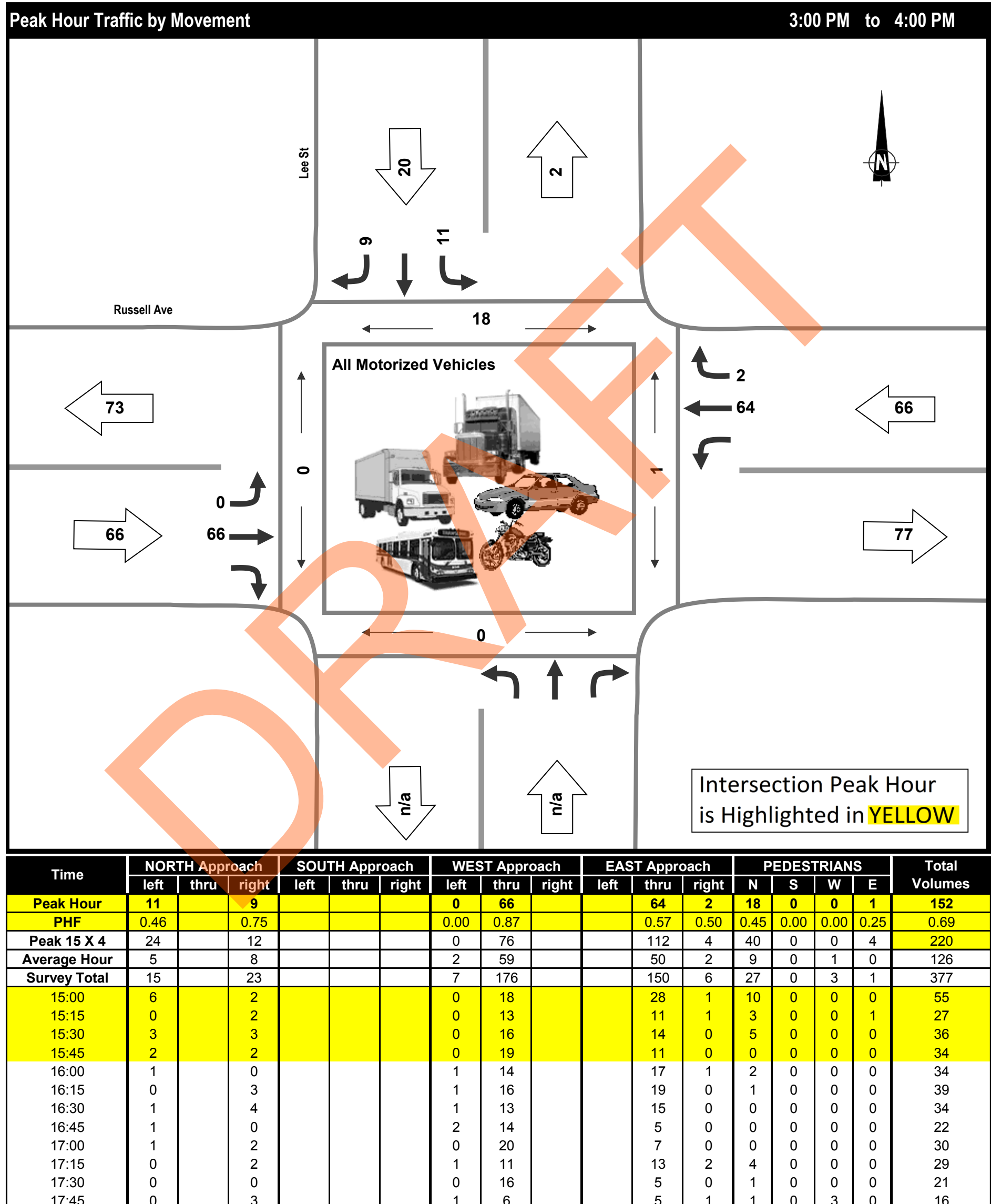
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals



| 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             |

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

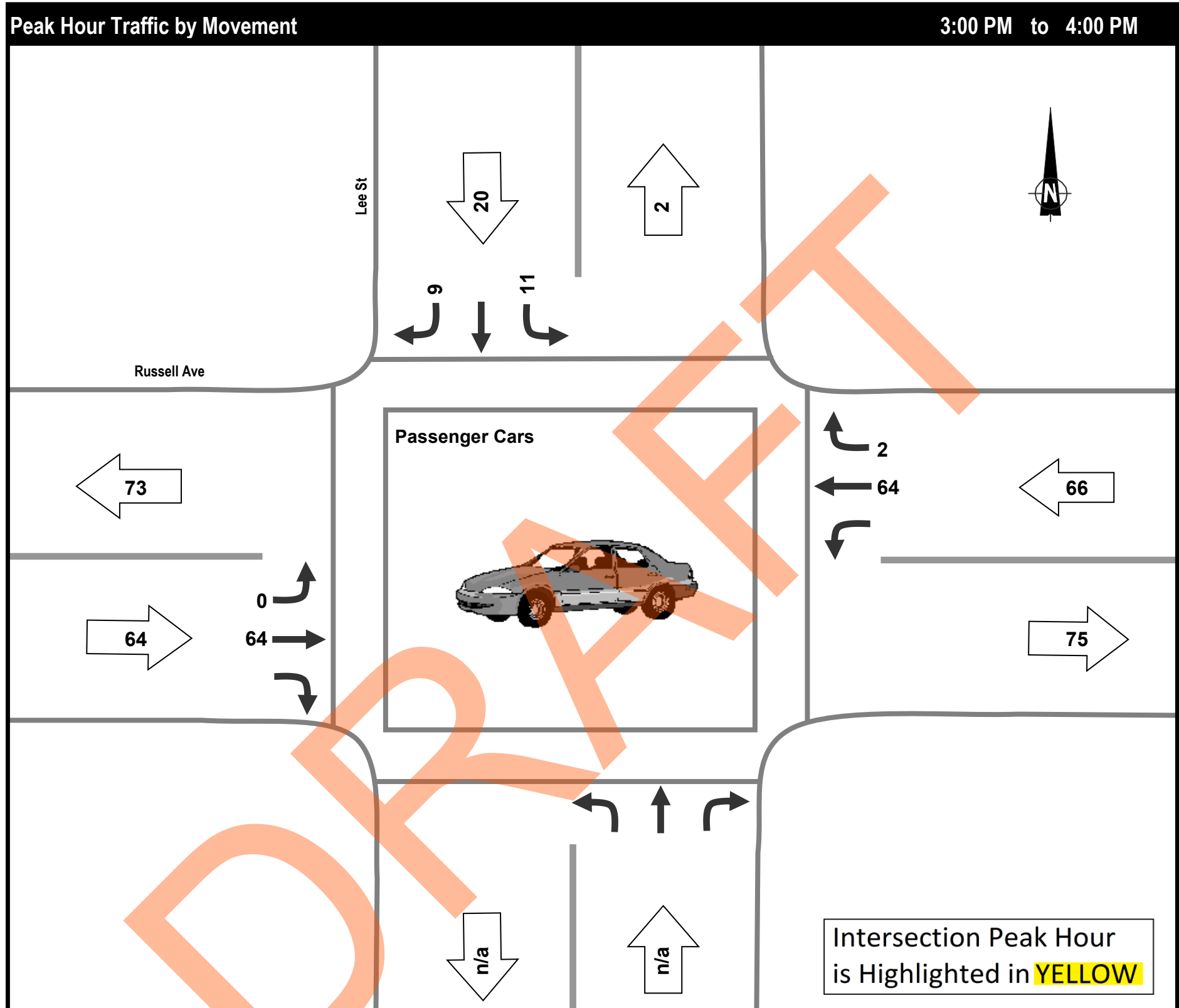
**Afternoon Peak Period**





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

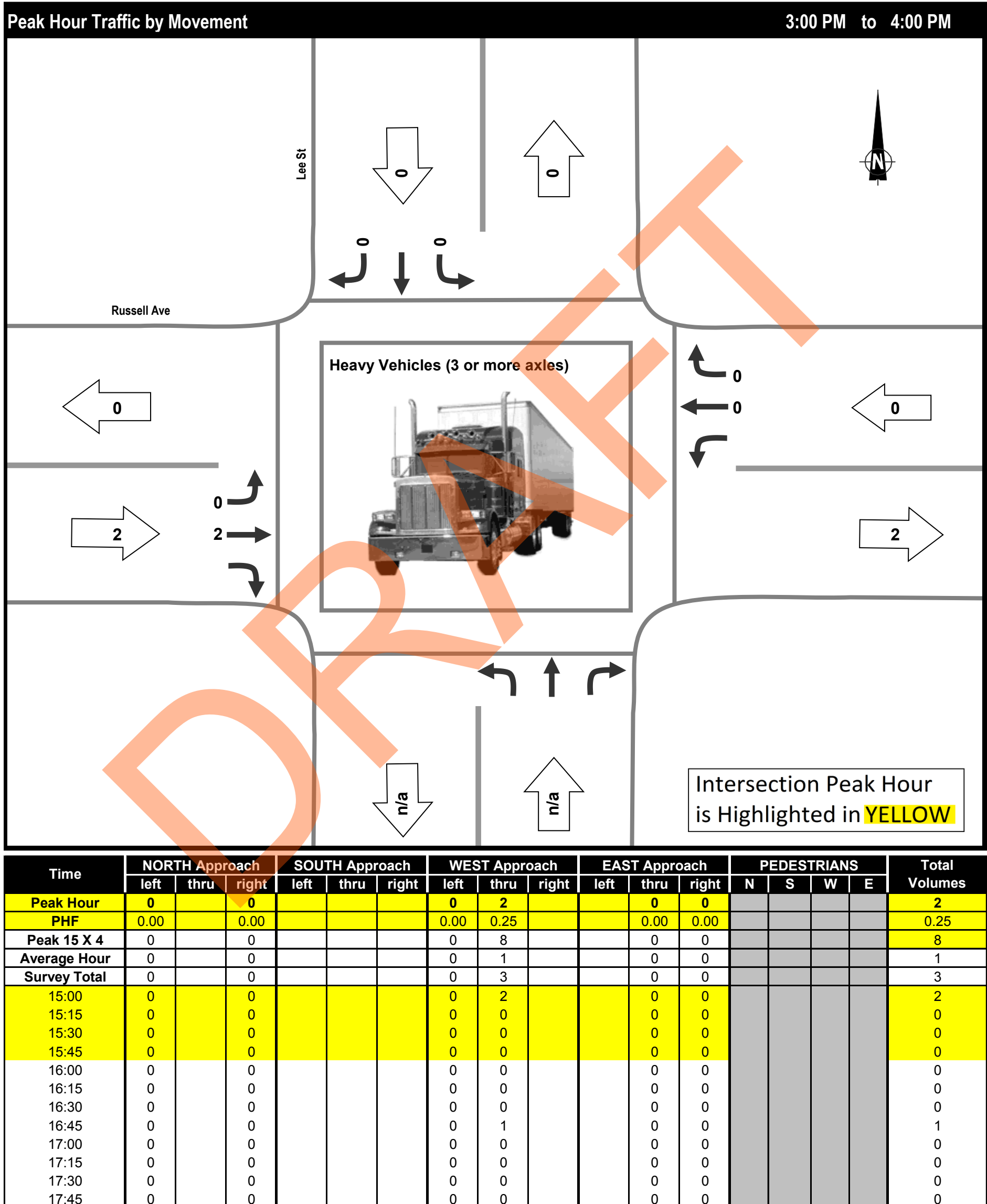
**Afternoon Peak Period**



| 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            |

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

**Afternoon Peak Period**



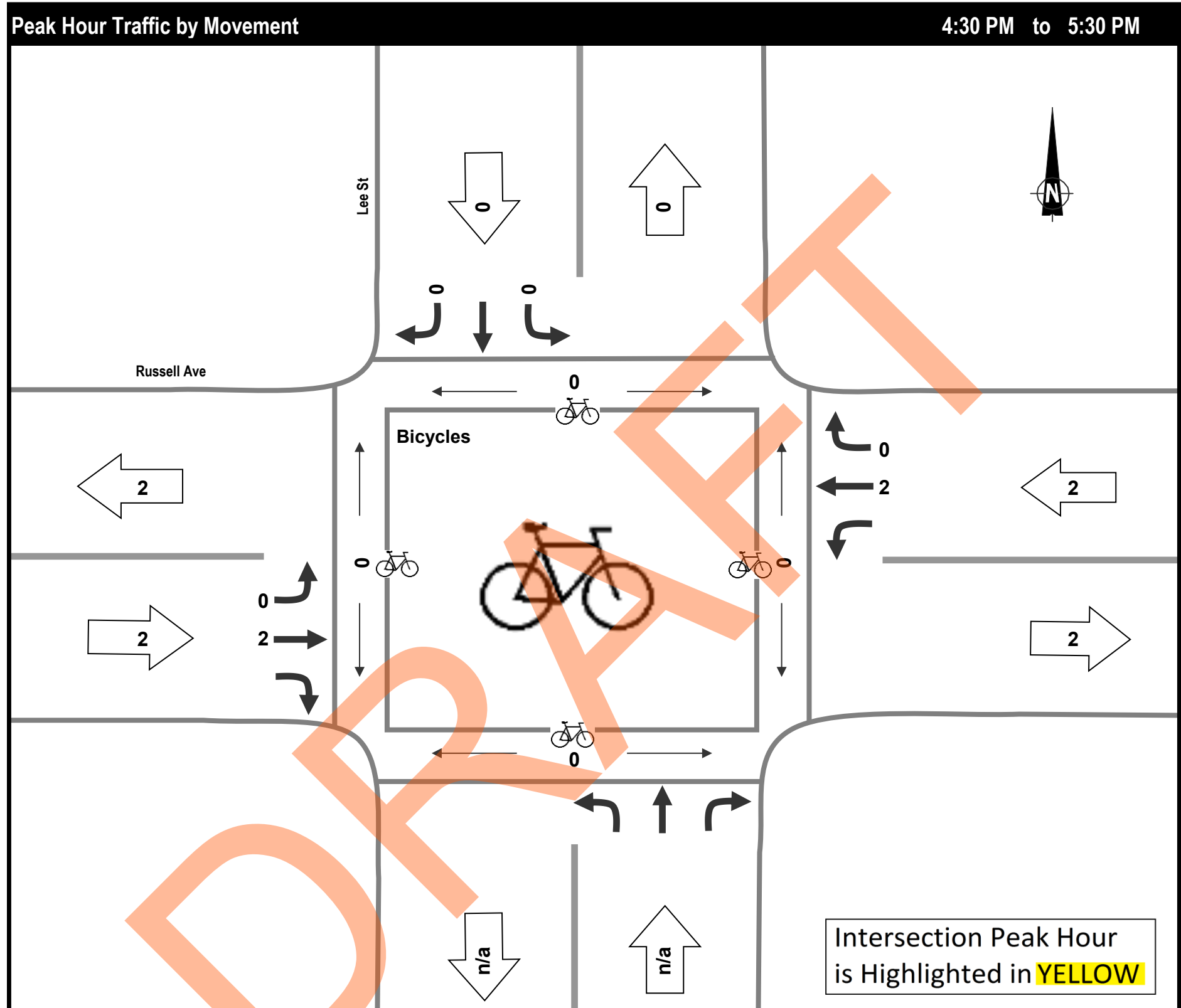
Project: #5935: Beachway Traffic Impact Assessment

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

**Afternoon Peak Period**


| 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             |



Vehicle Classification Summary

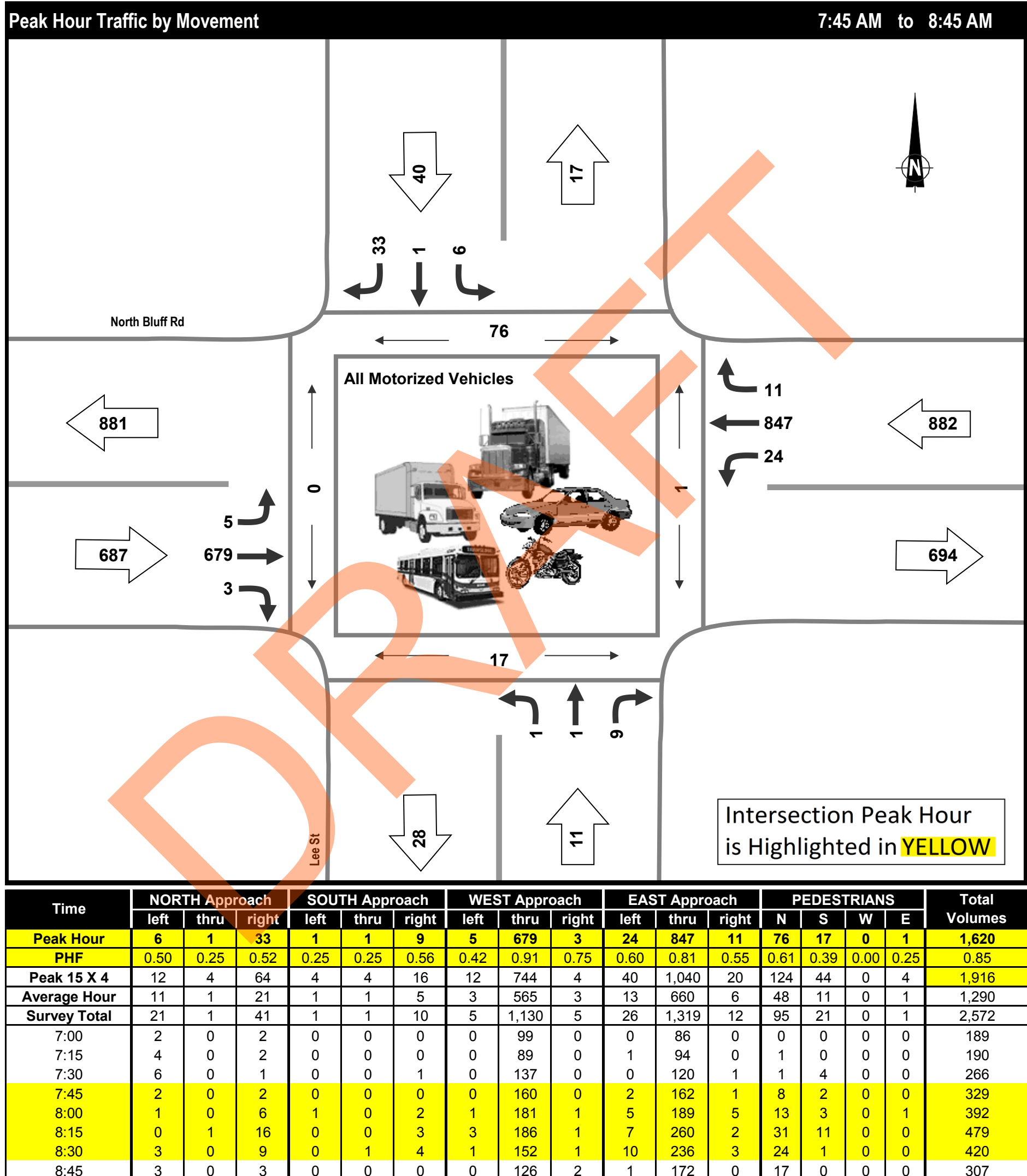
Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy

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

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

**Morning Peak Period**

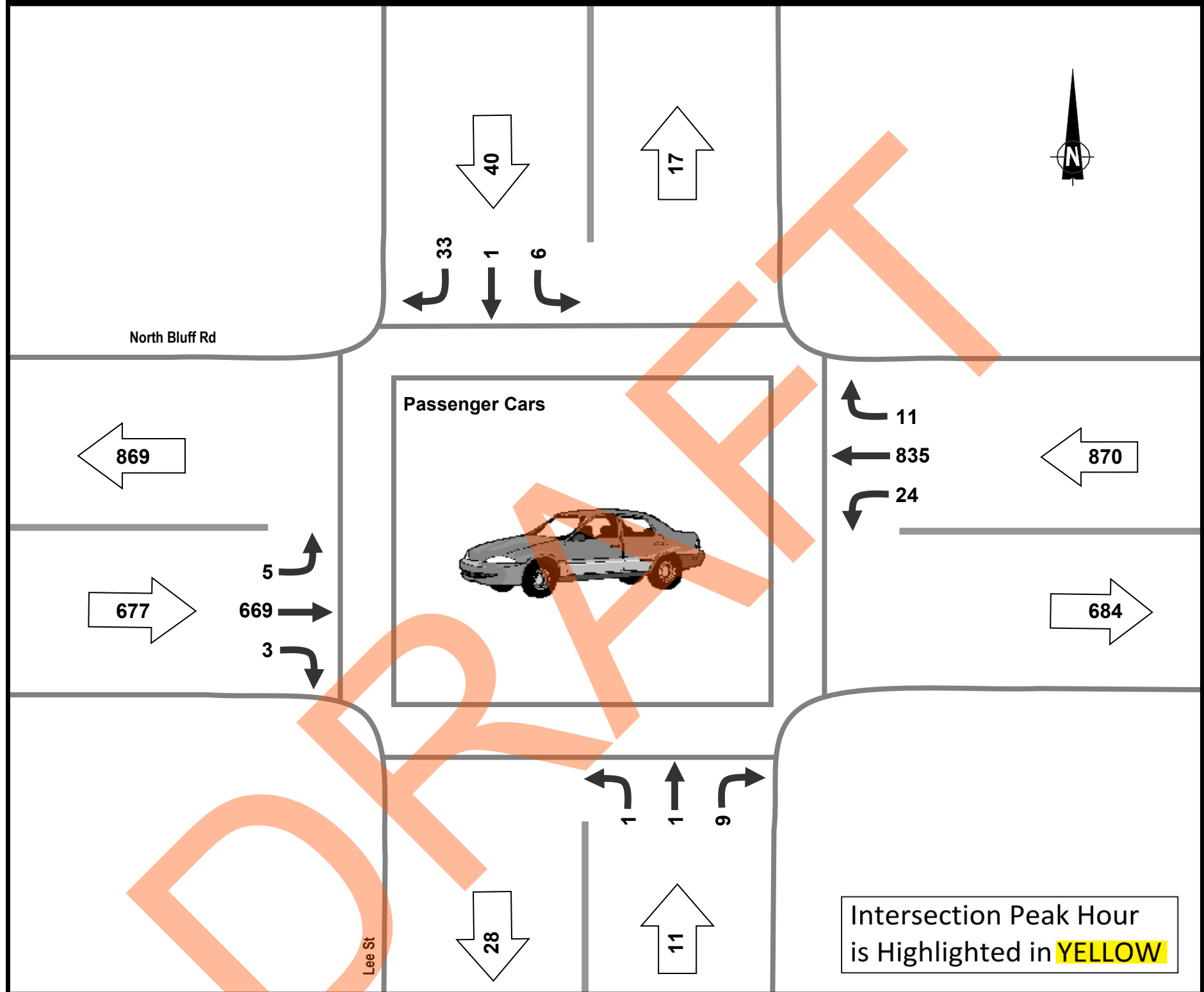


Project: #5935: Beachway Traffic Impact Assessment  
Municipality: White Rock  
Weather: Cloudy  
Vehicle Class: Passenger Cars

**Morning Peak Period**

**Peak Hour Traffic by Movement**

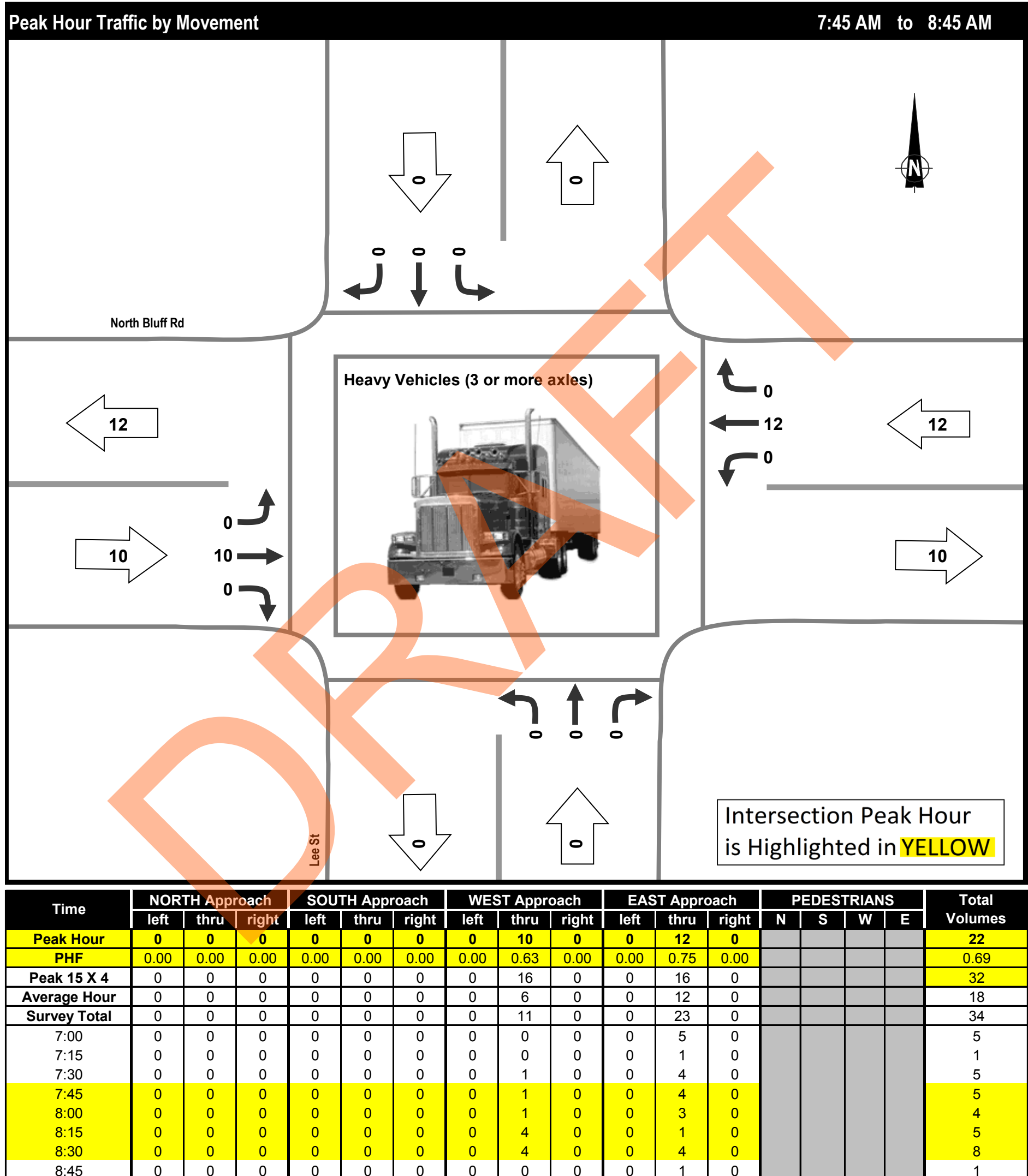
7:45 AM to 8:45 AM



| 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 |               |
| <b>Peak Hour</b>    | <b>6</b>       | <b>1</b>    | <b>33</b>   | <b>1</b>       | <b>1</b>    | <b>9</b>    | <b>5</b>      | <b>669</b>  | <b>3</b>    | <b>24</b>     | <b>835</b>  | <b>11</b>   |             |   |   |   | <b>1,598</b>  |
| <b>PHF</b>          | <b>0.50</b>    | <b>0.25</b> | <b>0.52</b> | <b>0.25</b>    | <b>0.25</b> | <b>0.56</b> | <b>0.42</b>   | <b>0.92</b> | <b>0.75</b> | <b>0.60</b>   | <b>0.81</b> | <b>0.55</b> |             |   |   |   | <b>0.84</b>   |
| <b>Peak 15 X 4</b>  | 12             | 4           | 64          | 4              | 4           | 16          | 12            | 728         | 4           | 40            | 1,036       | 20          |             |   |   |   | <b>1,896</b>  |
| <b>Average Hour</b> | 11             | 1           | 21          | 1              | 1           | 5           | 3             | 560         | 3           | 13            | 648         | 6           |             |   |   |   | 1,273         |
| <b>Survey Total</b> | 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           |

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

**Morning Peak Period**





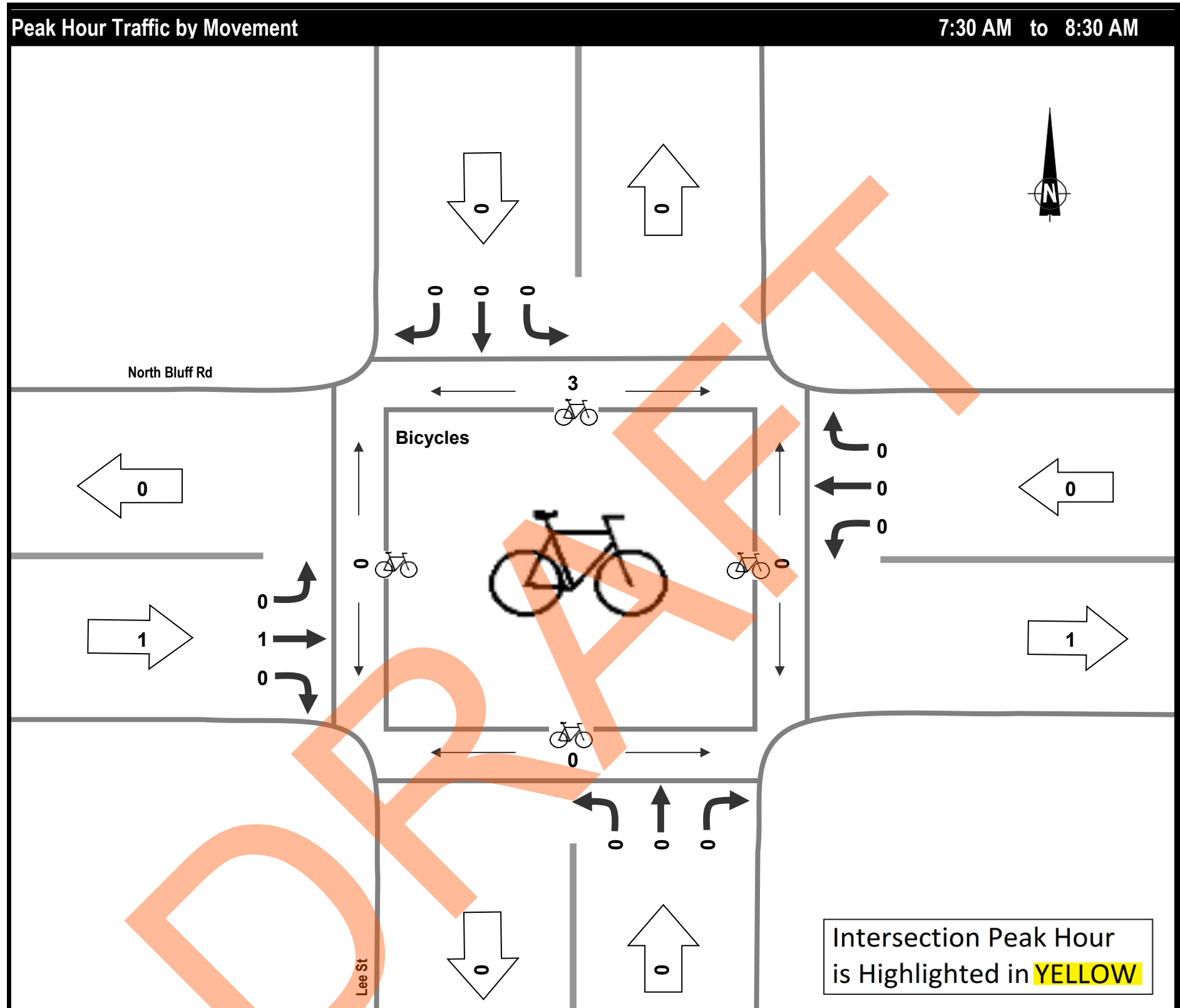
Project: #5935: Beachway Traffic Impact Assessment

Municipality: White Rock

Weather: Cloudy

Vehicle Class: Bicycles

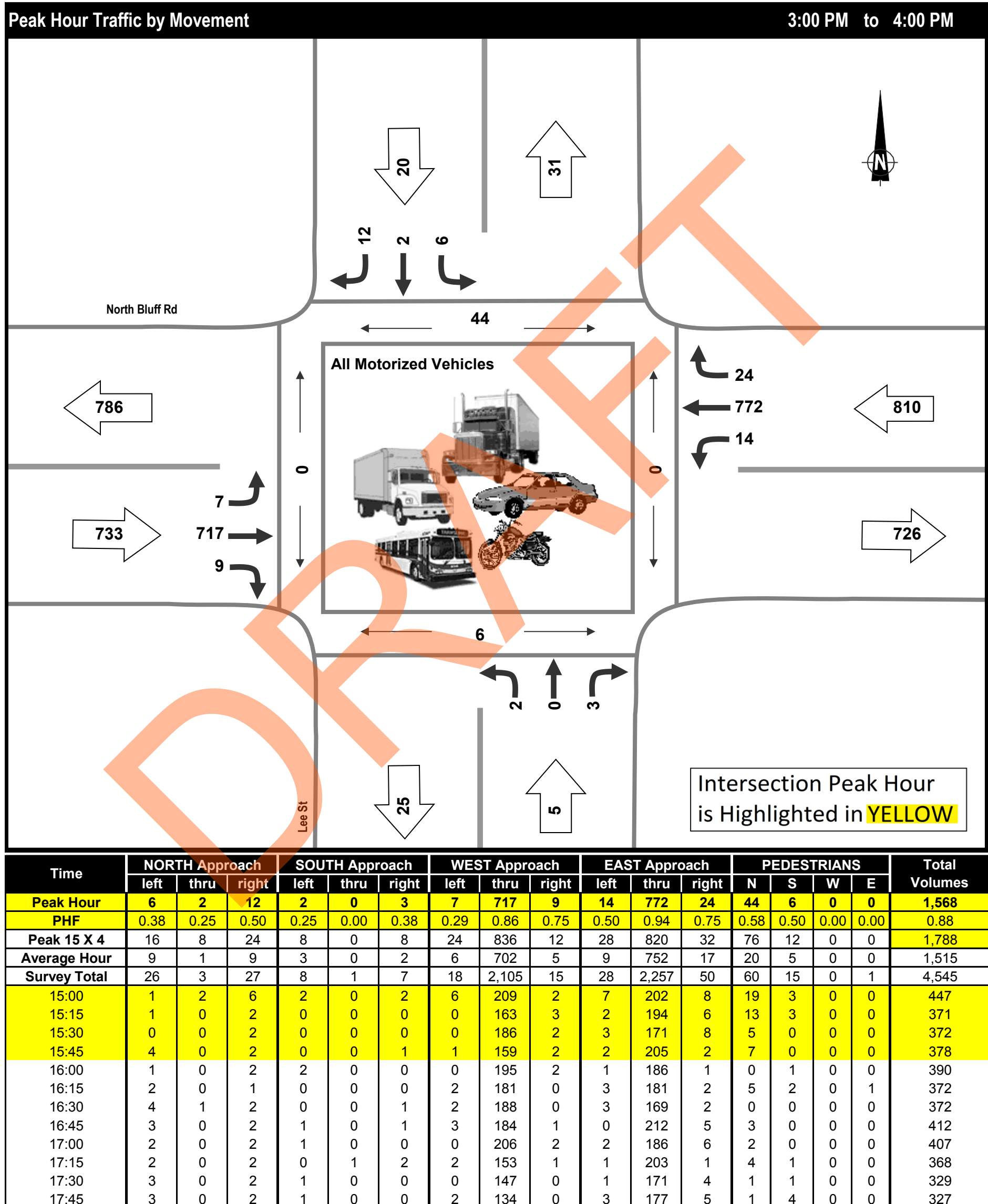
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals



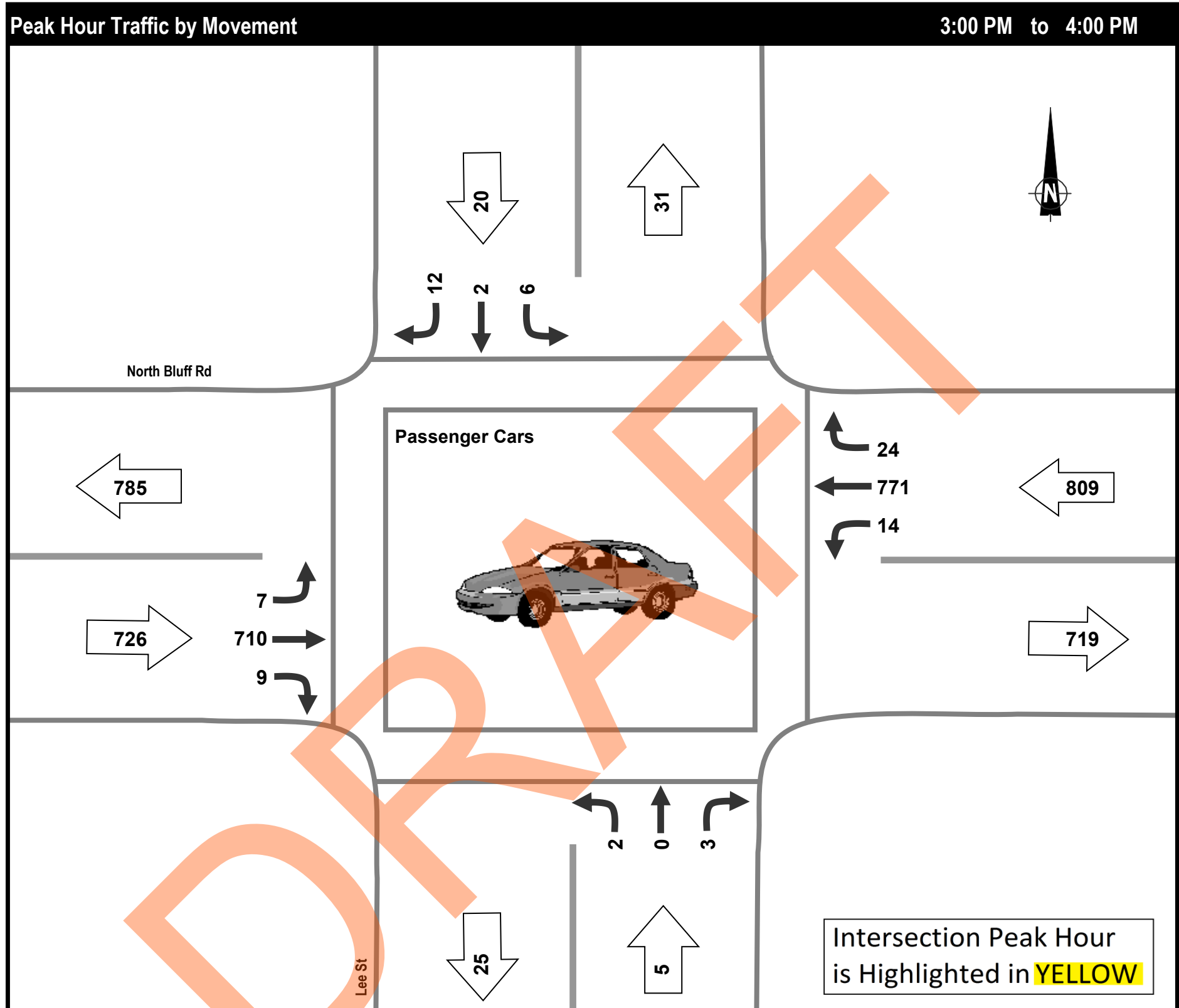
| Time         | NORTH Approach |      |       | SOUTH Approach |      |       | WEST Approach |      |       | EAST Approach |      |       | BIKES in X-WALKS |      |      |      | Total Volumes |
|--------------|----------------|------|-------|----------------|------|-------|---------------|------|-------|---------------|------|-------|------------------|------|------|------|---------------|
|              | 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             |

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

**Afternoon Peak Period**



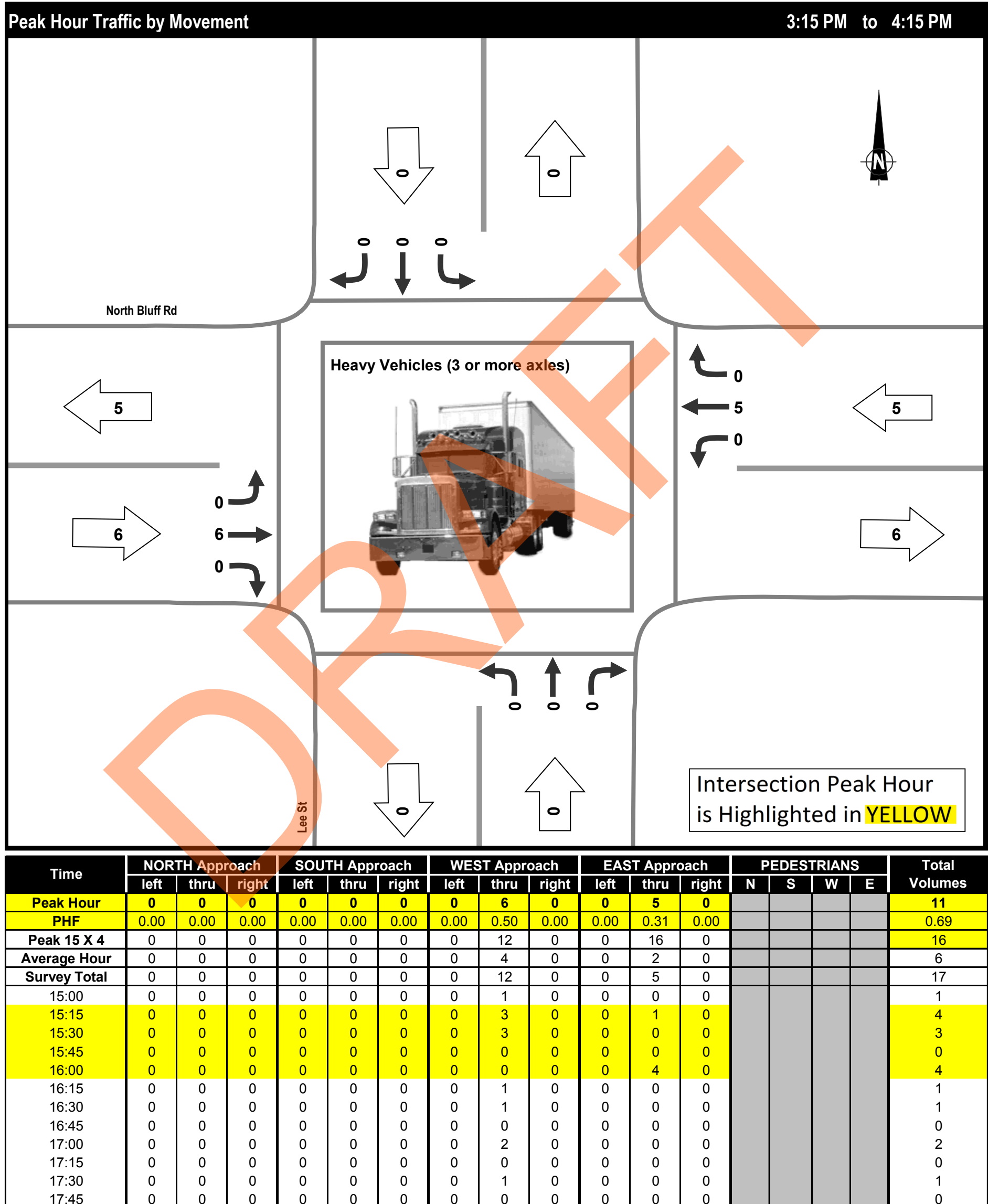
Project: #5935: Beachway Traffic Impact Assessment  
 Municipality: White Rock  
 Weather: Cloudy  
 Vehicle Class: Passenger Cars

**Afternoon Peak Period**


| 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 |               |
| <b>Peak Hour</b>    | 6              | 2    | 12    | 2              | 0    | 3     | 7             | 710   | 9     | 14            | 771   | 24    |             |   |   |   | <b>1,560</b>  |
| <b>PHF</b>          | 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          |
| <b>Peak 15 X 4</b>  | 16             | 8    | 24    | 8              | 0    | 8     | 24            | 832   | 12    | 28            | 820   | 32    |             |   |   |   | 1,784         |
| <b>Average Hour</b> | 9              | 1    | 9     | 3              | 0    | 2     | 6             | 698   | 5     | 9             | 751   | 17    |             |   |   |   | 1,510         |
| <b>Survey Total</b> | 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           |

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

**Afternoon Peak Period**



Project: #5935: Beachway Traffic Impact Assessment

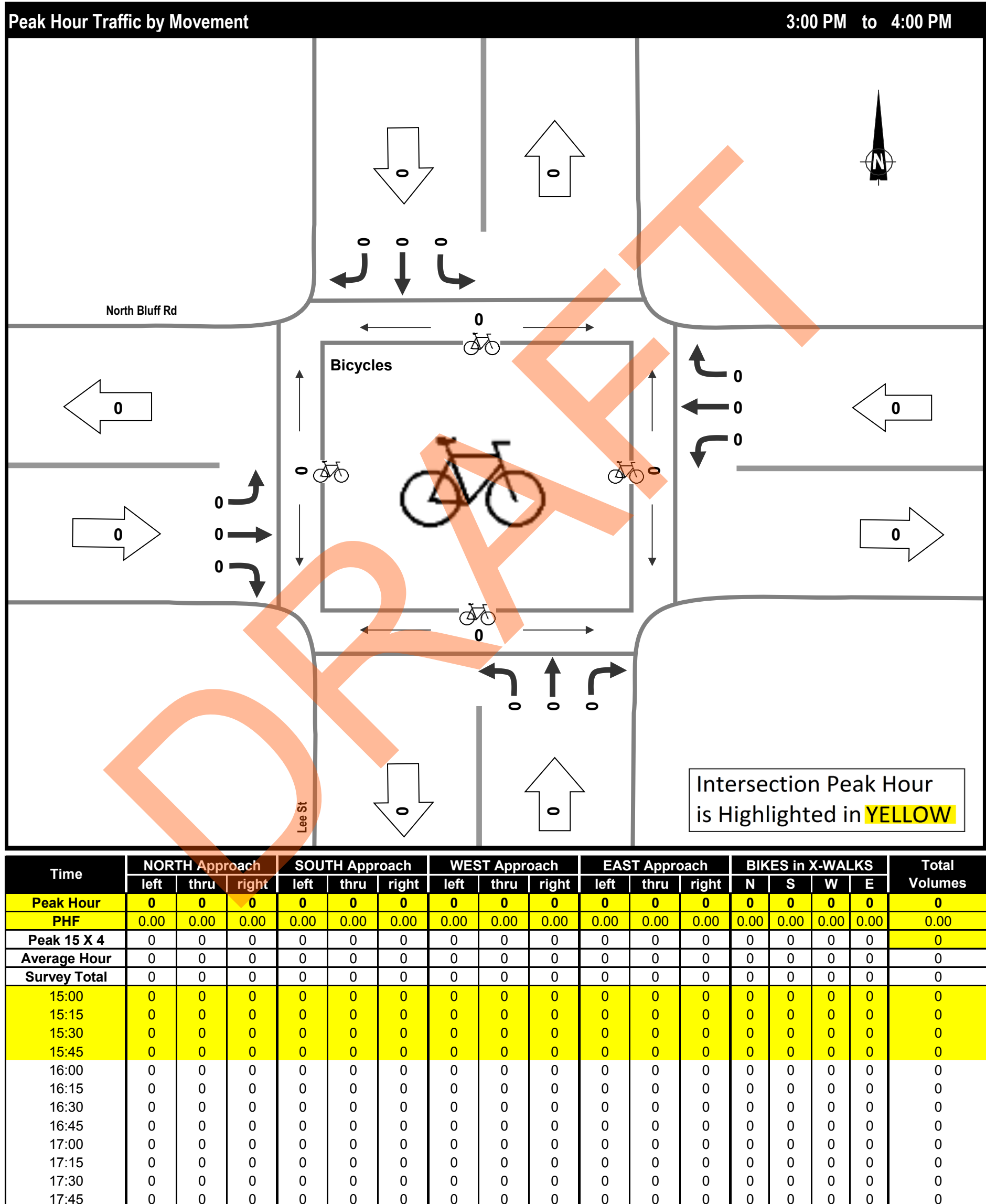
Municipality: White Rock

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

**Afternoon Peak Period**



## **Appendix D**

### **Intersection Capacity Analysis**

# HCS7 Two-Way Stop-Control Report

## General Information

|                          |                       |
|--------------------------|-----------------------|
| Analyst                  | JAL                   |
| Agency/Co.               | CTS                   |
| Date Performed           | 10/10/2019            |
| Analysis Year            | 2019                  |
| Time Analyzed            | AM Base               |
| Intersection Orientation | East-West             |
| Project Description      | 7130 - Beachway 2 TIA |

## Site Information

|                            |                         |
|----------------------------|-------------------------|
| Intersection               | Lee St & North Bluff Rd |
| Jurisdiction               | White Rock              |
| East/West Street           | North Bluff Rd          |
| North/South Street         | Lee St                  |
| Peak Hour Factor           | 0.83                    |
| Analysis Time Period (hrs) | 0.25                    |

## Lanes

The diagram shows a four-way intersection. The major street is East-West, indicated by a horizontal line with arrows pointing left and right. The minor street is North-South, indicated by a vertical line with arrows pointing up and down. The intersection is a T-intersection where the North-South street meets the East-West street. The Eastbound and Westbound lanes of the major street are shown with arrows. The Northbound and Southbound lanes of the minor street are shown with arrows. The diagram also shows the lane markings and the location of the stop lines.

## 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 <sub>95</sub> (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    |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

JAL

Agency/Co.

CTS

Date Performed

10/10/2019

Analysis Year

2019

Time Analyzed

PM Base

Intersection Orientation

East-West

Project Description

7130 - Beachway 2 TIA

Site Information

Intersection

Lee St & North Bluff Rd

Jurisdiction

White Rock

East/West Street

North Bluff Rd

North/South Street

Lee St

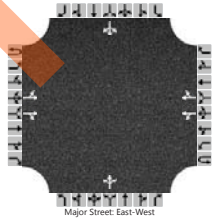
Peak Hour Factor

0.85

Analysis Time Period (hrs)

0.25

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 <sub>95</sub> (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    |  |   |      |

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# HCS7 Two-Way Stop-Control Report

## General Information

|                          |                       |
|--------------------------|-----------------------|
| Analyst                  | JAL                   |
| Agency/Co.               | CTS                   |
| Date Performed           | 10/10/2019            |
| Analysis Year            | 2021                  |
| Time Analyzed            | AM Base               |
| Intersection Orientation | East-West             |
| Project Description      | 7130 - Beachway 2 TIA |

## Site Information

|                            |                         |
|----------------------------|-------------------------|
| Intersection               | Lee St & North Bluff Rd |
| Jurisdiction               | White Rock              |
| East/West Street           | North Bluff Rd          |
| North/South Street         | Lee St                  |
| Peak Hour Factor           | 0.83                    |
| Analysis Time Period (hrs) | 0.25                    |

## 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

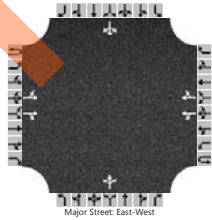
|   |     |      |  |  |     |      |  |  |      |      |  |  |      |      |  |  |
|---|-----|------|--|--|-----|------|--|--|------|------|--|--|------|------|--|--|
| Flow Rate, v (veh/h)                    |     | 11   |  |  |     | 36   |  |  |      | 23   |  |  |      | 63   |  |  |
| Capacity, c (veh/h)                     |     | 613  |  |  |     | 661  |  |  |      | 109  |  |  |      | 143  |  |  |
| v/c Ratio                               |     | 0.02 |  |  |     | 0.05 |  |  |      | 0.21 |  |  |      | 0.44 |  |  |
| 95% Queue Length, Q <sub>95</sub> (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    |      |  |  |

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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 <sub>95</sub> (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          |      |      |      |

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# HCS7 Two-Way Stop-Control Report

## General Information

|                          |                       |
|--------------------------|-----------------------|
| Analyst                  | JAL                   |
| Agency/Co.               | CTS                   |
| Date Performed           | 10/10/2019            |
| Analysis Year            | 2021                  |
| Time Analyzed            | PM Base               |
| Intersection Orientation | East-West             |
| Project Description      | 7130 - Beachway 2 TIA |

## Site Information

|                            |                         |
|----------------------------|-------------------------|
| Intersection               | Lee St & North Bluff Rd |
| Jurisdiction               | White Rock              |
| East/West Street           | North Bluff Rd          |
| North/South Street         | Lee St                  |
| Peak Hour Factor           | 0.85                    |
| Analysis Time Period (hrs) | 0.25                    |

## Lanes

The diagram shows a four-way intersection. The major street, East-West, runs horizontally. It has four lanes: two through lanes (left and right) and two turn lanes (left and right). The minor street, North-South, runs vertically. It has two through lanes (left and right) and two turn lanes (left and right). The intersection is marked with a central cross and arrows indicating the direction of travel for each lane.

## 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      |           |    |     |    |           |    |     |    |            |     |   |   |            |     |    |    |

## 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

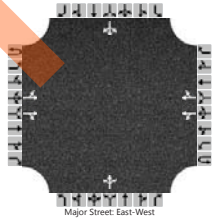
|   |  |      |  |  |  |      |  |  |  |      |  |  |  |      |  |  |
|---|--|------|--|--|--|------|--|--|--|------|--|--|--|------|--|--|
| Flow Rate, v (veh/h)                    |  | 12   |  |  |  | 22   |  |  |  | 12   |  |  |  | 36   |  |  |
| Capacity, c (veh/h)                     |  | 678  |  |  |  | 681  |  |  |  | 136  |  |  |  | 125  |  |  |
| v/c Ratio                               |  | 0.02 |  |  |  | 0.03 |  |  |  | 0.09 |  |  |  | 0.29 |  |  |
| 95% Queue Length, Q <sub>95</sub> (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    |  |  |

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| 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         |      |      |      |
| 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 <sub>95</sub> (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          |      |      |      |

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# HCS7 Two-Way Stop-Control Report

## General Information

|                          |                       |
|--------------------------|-----------------------|
| Analyst                  | JAL                   |
| Agency/Co.               | CTS                   |
| Date Performed           | 10/10/2019            |
| Analysis Year            | 2026                  |
| Time Analyzed            | AM Base               |
| Intersection Orientation | East-West             |
| Project Description      | 7130 - Beachway 2 TIA |

## Site Information

|                            |                         |
|----------------------------|-------------------------|
| Intersection               | Lee St & North Bluff Rd |
| Jurisdiction               | White Rock              |
| East/West Street           | North Bluff Rd          |
| North/South Street         | Lee St                  |
| Peak Hour Factor           | 0.83                    |
| Analysis Time Period (hrs) | 0.25                    |

## 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      |           |    |     |    |           |    |     |    |            |     |   |    |            |     |    |    |

## 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

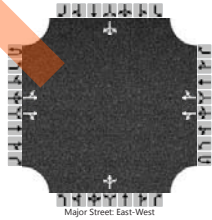
|   |  |      |  |  |  |      |  |  |  |      |  |  |  |      |  |  |
|---|--|------|--|--|--|------|--|--|--|------|--|--|--|------|--|--|
| Flow Rate, v (veh/h)                    |  | 12   |  |  |  | 39   |  |  |  | 24   |  |  |  | 69   |  |  |
| Capacity, c (veh/h)                     |  | 557  |  |  |  | 614  |  |  |  | 83   |  |  |  | 108  |  |  |
| v/c Ratio                               |  | 0.02 |  |  |  | 0.06 |  |  |  | 0.29 |  |  |  | 0.64 |  |  |
| 95% Queue Length, Q <sub>95</sub> (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    |  |  |

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| 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  |                       |      |     |    |           |      |     |                            |            |       |      |                         |            |       |      |      |
| <br>Major Street: East-West |                       |      |     |    |           |      |     |                            |            |       |      |                         |            |       |      |      |
| 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 <sub>95</sub> (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          |       |      |      |

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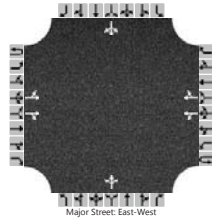
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HCS7 Two-Way Stop-Control Report

| 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



Major Street: East-West

| 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 <sub>95</sub> (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    |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

JAL

Agency/Co.

CTS

Date Performed

10/10/2019

Analysis Year

2026

Time Analyzed

PM Base + Site

Intersection Orientation

East-West

Project Description

7130 - Beachway 2 TIA

Site Information

Intersection

Lee St & North Bluff Rd

Jurisdiction

White Rock

East/West Street

North Bluff Rd

North/South Street

Lee St

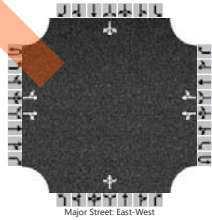
Peak Hour Factor

0.85

Analysis Time Period (hrs)

0.25

Lanes



Major Street: East-West

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

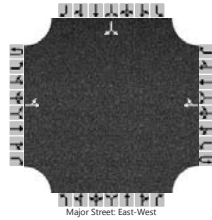
|   |     |      |  |  |     |      |  |  |       |       |  |  |      |      |  |  |
|---|-----|------|--|--|-----|------|--|--|-------|-------|--|--|------|------|--|--|
| Flow Rate, v (veh/h)                    |     | 13   |  |  |     | 45   |  |  |       | 42    |  |  |      | 41   |  |  |
| Capacity, c (veh/h)                     |     | 624  |  |  |     | 618  |  |  |       | 70    |  |  |      | 79   |  |  |
| v/c Ratio                               |     | 0.02 |  |  |     | 0.07 |  |  |       | 0.60  |  |  |      | 0.52 |  |  |
| 95% Queue Length, Q <sub>95</sub> (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    |      |  |  |

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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  |                       |      |    |   |           |   |    |                            |                      |   |   |   |            |      |      |      |
| <br>Major Street: East-West |                       |      |    |   |           |   |    |                            |                      |   |   |   |            |      |      |      |
| 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 <sub>95</sub> (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                   |      |    |   |           |   |    |                            |                      |   |   |   |            |      |      |      |
| Approach LOS   | A                     |      |    |   |           |   |    |                            |                      |   |   |   |            |      |      |      |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

Site Information

Intersection

Jurisdiction

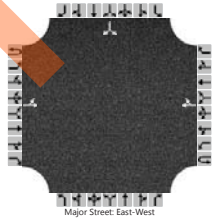
East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Lanes



Major Street: East-West

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 <sub>95</sub> (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   |  |      |    |

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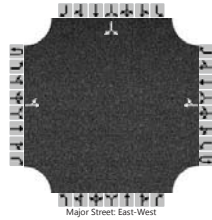
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HCS7 Two-Way Stop-Control Report

| 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



Major Street: East-West

| 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 <sub>95</sub> (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   |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

Site Information

Intersection

Jurisdiction

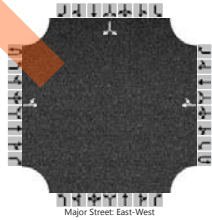
East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Lanes



Major Street: East-West

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 <sub>95</sub> (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   |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

JAL

Agency/Co.

CTS

Date Performed

10/10/2019

Analysis Year

2021

Time Analyzed

PM Base

Intersection Orientation

East-West

Project Description

7130 - Beachway 2 TIA

Site Information

Intersection

Lee St & Russell Ave

Jurisdiction

White Rock

East/West Street

Russell Ave

North/South Street

Lee St

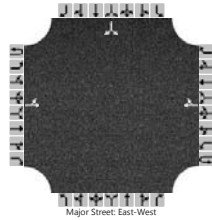
Peak Hour Factor

0.85

Analysis Time Period (hrs)

0.25

Lanes



Major Street: East-West

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 <sub>95</sub> (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   |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

Agency/Co.

Date Performed

Analysis Year

Time Analyzed

Intersection Orientation

Project Description

Site Information

Intersection

Jurisdiction

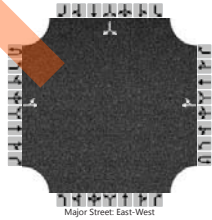
East/West Street

North/South Street

Peak Hour Factor

Analysis Time Period (hrs)

Lanes



Major Street: East-West

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 <sub>95</sub> (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   |  |      |  |

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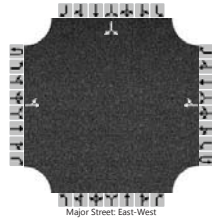
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HCS7 Two-Way Stop-Control Report

| 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 <sub>95</sub> (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   |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

JAL

Agency/Co.

CTS

Date Performed

10/10/2019

Analysis Year

2026

Time Analyzed

AM Base + Site

Intersection Orientation

East-West

Project Description

7130 - Beachway 2 TIA

Site Information

Intersection

Lee St & Russell Ave

Jurisdiction

White Rock

East/West Street

Russell Ave

North/South Street

Lee St

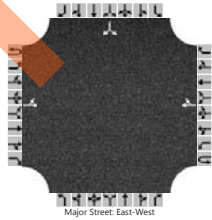
Peak Hour Factor

0.83

Analysis Time Period (hrs)

0.25

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 <sub>95</sub> (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    |      |  |  |

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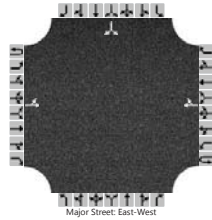
HCS™ TWSC Version 7.8.5  
Lee Russell - 2026 amb.xtw

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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



Major Street: East-West

| 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 <sub>95</sub> (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   |  |      |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

JAL

Agency/Co.

CTS

Date Performed

10/10/2019

Analysis Year

2026

Time Analyzed

PM Base + Site

Intersection Orientation

East-West

Project Description

7130 - Beachway 2 TIA

Site Information

Intersection

Lee St & Russell Ave

Jurisdiction

White Rock

East/West Street

Russell Ave

North/South Street

Lee St

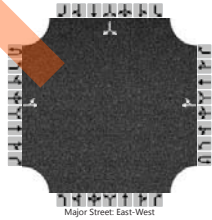
Peak Hour Factor

0.85

Analysis Time Period (hrs)

0.25

Lanes



Major Street: East-West

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 <sub>95</sub> (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   |  |      |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

JAL

Agency/Co.

CTS

Date Performed

10/10/2019

Analysis Year

2021

Time Analyzed

AM Base + Site

Intersection Orientation

North-South

Project Description

7130 - Beachway 2 TIA

Site Information

Intersection

Lee St & Access

Jurisdiction

White Rock

East/West Street

Access

North/South Street

Lee St

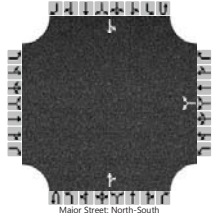
Peak Hour Factor

0.83

Analysis Time Period (hrs)

0.25

Lanes



Major Street: North-South

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 <sub>95</sub> (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   |      |  |  |  |  |  |  |      |  |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

JAL

Agency/Co.

CTS

Date Performed

10/10/2019

Analysis Year

2021

Time Analyzed

PM Base + Site

Intersection Orientation

North-South

Project Description

7130 - Beachway 2 TIA

Site Information

Intersection

Lee St & Access

Jurisdiction

White Rock

East/West Street

Access

North/South Street

Lee St

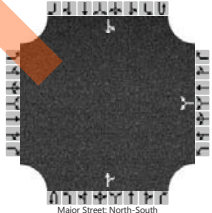
Peak Hour Factor

0.85

Analysis Time Period (hrs)

0.25

Lanes



Major Street: North-South

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 <sub>95</sub> (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   |  |      |  |  |  |  |  |     |  |      |  |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

JAL

Agency/Co.

CTS

Date Performed

10/10/2019

Analysis Year

2026

Time Analyzed

AM Base + Site

Intersection Orientation

North-South

Project Description

7130 - Beachway 2 TIA

Site Information

Intersection

Lee St & Access

Jurisdiction

White Rock

East/West Street

Access

North/South Street

Lee St

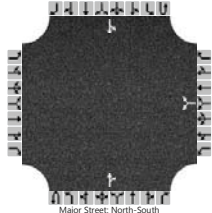
Peak Hour Factor

0.83

Analysis Time Period (hrs)

0.25

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 <sub>95</sub> (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    |  |  |  |  |  |  |      |     |  |

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HCS7 Two-Way Stop-Control Report

General Information

Analyst

JAL

Agency/Co.

CTS

Date Performed

10/10/2019

Analysis Year

2026

Time Analyzed

PM Base + Site

Intersection Orientation

North-South

Project Description

7130 - Beachway 2 TIA

Site Information

Intersection

Lee St & Access

Jurisdiction

White Rock

East/West Street

Access

North/South Street

Lee St

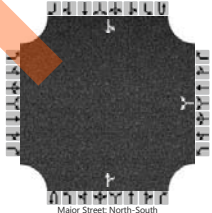
Peak Hour Factor

0.85

Analysis Time Period (hrs)

0.25

Lanes



Major Street: North-South

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 <sub>95</sub> (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   |  |      |  |  |  |  |  |     |      |  |  |

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**The Corporation of the  
CITY OF WHITE ROCK  
BYLAW No. 2435**



A Bylaw to amend the  
"White Rock Zoning Bylaw, 2012, No. 2000" as amended

---

The CITY COUNCIL of the Corporation of the City of White Rock in open meeting assembled  
ENACTS as follows:

1. THAT Schedule C of the *White Rock Zoning Bylaw, 2012, No. 2000* as amended is further amended by rezoning the following lands:

LOT 4, BLOCK 39B, PLAN NWP17402, PART E1/2, SECTION 11, TOWNSHIP 1,  
NEW WESTMINSTER LAND DISTRICT  
PID: 010-289-461

(15770 NORTH BLUFF RD)

LOT 3, PLAN NWP17402, SECTION 11, TOWNSHIP 1, NEW WESTMINSTER LAND  
DISTRICT  
PID: 004-519-043

(15758 NORTH BLUFF RD)

LOT 305, PLAN NWP35289, SECTION 11, TOWNSHIP 1, NEW WESTMINSTER  
LAND DISTRICT  
PID: 007-144-563

(15748 NORTH BLUFF RD)

LOT 2 EXCEPT: PARCEL "K" (REFERENCE PLAN 30172); SECTION 11 TOWNSHIP  
1 NEW WESTMINSTER DISTRICT PLAN 13659  
PID: 009-848-096

(15738 NORTH BLUFF RD)

LOT 1, PLAN NWP13659, PART E1/2, SECTION 11, TOWNSHIP 1, NEW  
WESTMINSTER LAND DISTRICT, EXCEPT PLAN PCL L REF 30172

PID: 009-848-053

(15728 NORTH BLUFF RD)

LOT 2 SECTION 11 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN 18697  
PID:010-427-384

(15724 NORTH BLUFF RD)

LOT 1 SECTION 11 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN 18697  
PID: 010-427-325

(15704 NORTH BLUFF RD)

as shown on Schedule “1” attached hereto, from the ‘RS-1 One Unit Residential Zone’ to the ‘CD-67 Comprehensive Development Zone.’

2. THAT *White Rock Zoning Bylaw, 2012, No. 2000* as amended is further amended:

(1) by adding to the Table of Contents for ‘Schedule B (Comprehensive Development Zones)’, Section 7.62 CD-67 Comprehensive Development Zone’;

(2) by adding the attached Schedule “2” to ‘Schedule B (Comprehensive Development Zones)’ Section 7.62 CD-67 Comprehensive Development Zone’.

3. This bylaw may be cited for all purposes as “*White Rock Zoning Bylaw, 2012, No. 2000, Amendment (CD-67 – 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435*”.

|                                      |                 |                   |        |
|--------------------------------------|-----------------|-------------------|--------|
| Public Information Meeting held this | 9 <sup>th</sup> | day of September, | , 2020 |
| Read a first time this               |                 | day of            | , 2022 |
| Read a second time this              |                 | day of            | , 2022 |
| Considered at a Public Hearing this  |                 | day of            | , 2022 |
| Read a third time this               |                 | day of            | , 2022 |
| Adopted this                         |                 | day of            | , 2022 |

---

Mayor

---

Director of Corporate Administration

DRAFT





## 7.62 CD-67 COMPREHENSIVE DEVELOPMENT ZONE

### INTENT

The intent of this zone is to accommodate the development of multi residential development on a site of approximately 5,366.241 square metres.

1. Permitted Uses:
  - (a) *Townhouse* use
  - (b) *Apartment* use
  - (b) *accessory home occupation* use in accordance with the provisions of section 5.3 and that does not involve clients directly accessing the *principal building*
2. Lot Coverage:
  - (a) *lot coverage* shall not exceed 46%
3. Density:
  - (a) The maximum *gross floor area* shall not exceed 1.5 times the lot area.
  - (b) The maximum number of *dwelling units* must not exceed 87.
5. Building Height:
  - (a) The *principal building* shall not exceed a height of 73.5 metres geodetic.
  - (b) *Ancillary buildings* and *structures* shall not exceed a height of 5.0 metres from the *finished grade*.
6. Siting Requirements:
  - (a) Minimum setbacks are as follows:

|   |              |
|---|--------------|
| (i) Setback from front (east) lot line            | = 4.5 metres |
| (ii) Setback from rear (west) lot line            | = 2.4 metres |
| (iii) Setback from interior side (north) lot line | = 2.0 metres |
| (iv) Setback from interior side (south) lot line  | = 3.5 metres |
  - (b) Notwithstanding the above, the following siting exemptions are permitted:
    - (i) *Ancillary buildings* and *structures* may be located on the subject property in accordance with the Plans prepared by Urban Arts Architecture dated June 17, 2022 that are attached hereto and on file at the City of White Rock, with the exception that no *ancillary buildings* or *structures* are permitted within a 2.0 metre distance from the front (east) lot line
7. Parking:

Parking shall be provided in accordance with Sections 4.14 and 4.17, with the minimum number of spaces required as follows:

- (a) A minimum of one hundred and forty-eight (148) spaces shall be provided for the *multi-unit residential development*:
  - (a) Apartments: 1.2 per unit (54 units) 65
  - (b) Townhouses: 2.0 per unit (33 units) 66
  - (c) Visitors 0.3 per unit (54 units) 17
- (d) A minimum of one (1) of the required forty (40) spaces shall be provided as accessible parking spaces and two (2) van accessible shall be clearly marked in accordance with the B.C. Building Code Requirements.
- (e) A minimum of four (15) stalls must have electric charging capacity.
- (f) A minimum of four (15) stalls must be roughed for electric charging capacity.

8. Bicycle Parking:

Bicycle parking shall be provided in accordance with Section 4.16, with the minimum number of spaces required as follows:

- (a) A minimum of twenty (89) Class I spaces shall be provided
- (b) A minimum of four (24) Class II spaces shall be provided

9. Loading:

- (a) One loading space shall be provided for the *multi-unit residential use* in accordance with Section 4.15

**NOTES:**

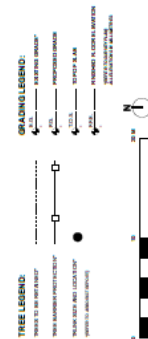
This drawing is the property of *California Architects and Designers* and is to be used for the purpose of illustrating the design of the building and is not to be used for any other purpose. The drawing is the property of *California Architects and Designers* and is to be used for the purpose of illustrating the design of the building and is not to be used for any other purpose.

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Do not scale drawings.

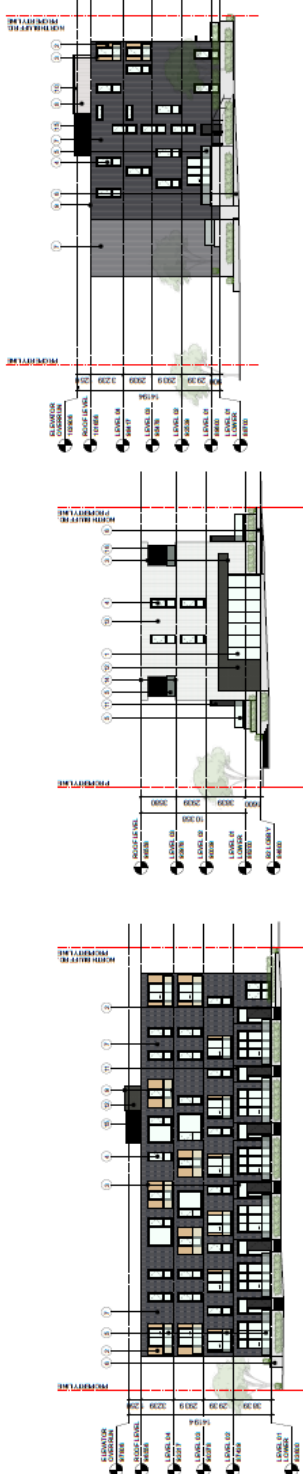
Considerations:

|  |           |               |                   |
|--|-----------|---------------|-------------------|
| W04-MB-2<br><b>COURTYARD<br/>COMMONS</b> | Site Plan | <b>A101</b>   | SCALE: 1/2"=1'-0" |
|  |           |               | CHECK BY: SC      |
| PLOT DATE: 2021.06.14                    |           | DRAWN BY: CSM |                   |



SEAL:

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Consult with Urban Architecture.



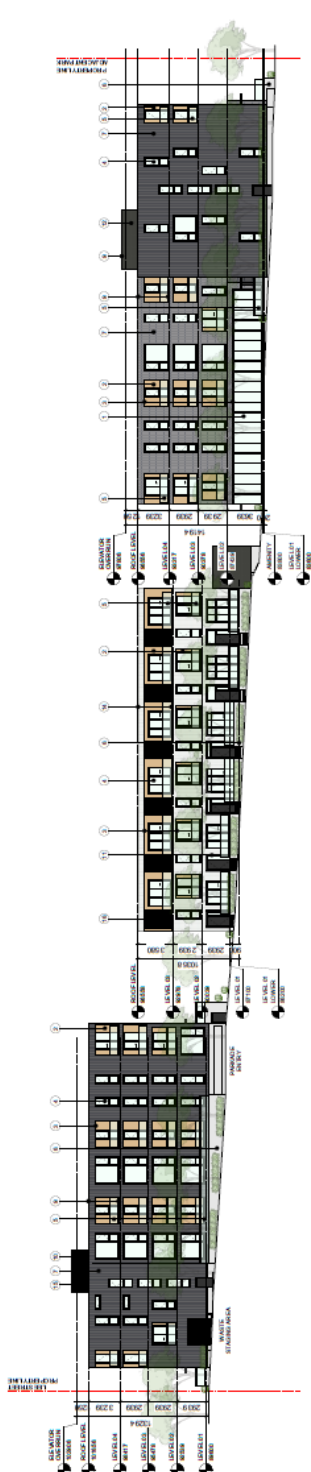
4 BUILDING 1 - EAST ELEVATION  
SCALE: 1/8"=1'-0"

3 BUILDING 2

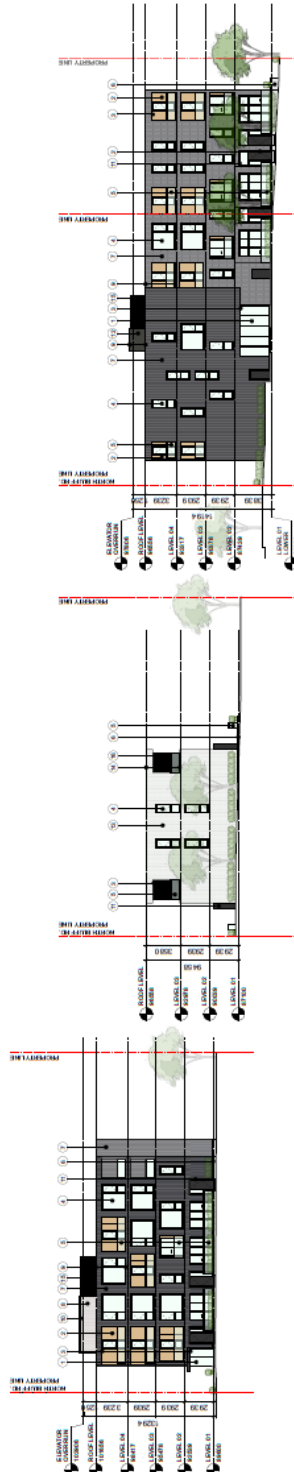
SEAL:

**NOTES:**  
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Drawn by: [Name]  
Checked by: [Name]



1 SOUTH ELEVATION  
Scale: 1:200



2 BUILDING 1 - WEST ELEVATION (LEE STREET)  
Scale: 1:200

3 BUILDING 2 - WEST ELEVATION  
Scale: 1:200

4 BUILDING 3 - WEST ELEVATION  
Scale: 1:200

**MATERIALS LEGEND**

**COMMON MATERIALS:**

1. CLEAR GLASS/CL with LOW-E COATING
2. WOOD-COLOURED FIBRE CONCRETE PANELING
3. WOOD SCOTT
4. VINYL CLADDING FRAMES (DARK COAL GREY)
5. FRAMED GLASS (PAVING)
6. CONCRETE PANELING

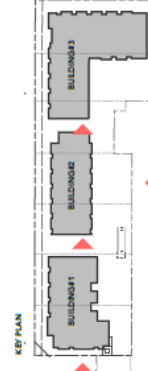
**MATERIALS SPECIFIC TO BUILDING 1A:**

7. MASONRY BRICK CLADDING (DARK GREY)
8. MASONRY BRICK CLADDING (WHITE)
9. METAL CLADDING AT DARK BRICK (CONCRETE)
10. VINYL CLADDING AT WHITE BRICK (WHITE)
11. ALUMINUM COMPOSITE PANEL (SCAR SHAKES)

**MATERIALS SPECIFIC TO BUILDING 2:**

12. FIBRE-CEMENT PANELING (DARK GREY)
13. FIBRE-CEMENT PANELING (WHITE)
14. METAL CLADDING (WHITE)
15. ROOF TOP MECHANICAL EQUIPMENT ENCLOSURE (WHITE)
16. ALUMINUM PRIVACY SCREEN

**NOTES:**  
THIS IS A PRELIMINARY DRAWING. IT IS NOT TO BE USED FOR CONSTRUCTION. ANY REVISIONS TO THIS DRAWING WILL BE MADE IN A SEPARATE DRAWING.



D 2019-04-14 Prepared by: [Name]  
C 2019-04-14 Prepared by: [Name]  
A 2019-04-14 Prepared by: [Name]  
REV: 001 DATE: 03-02-2019

|                                |                  |
|--------------------------------|------------------|
| W01-001-2<br>COURTYARD COMMONS | Elevation        |
| A401                           |                  |
| PLAT DATE: 2019-04-14          | SCALE: 1:100     |
| DRAWN BY: [Name]               | CHECK BY: [Name] |



## **ARBORIST REPORT**

PROJECT:

**WATERSTOCK\_Beachway 2**

SITE ADDRESS:

**15704 – 15770 NORTH BLUFF ROAD, WHITE ROCK, BC**

CLIENT:

**WATERSTOCK PROPERTIES INC.**

PROJECT #

**AR2019-05**

PREPARED BY:

**VDZ + A Consulting Inc.**

**Suite 102, 9181 Church Street  
Fort Langley, BC, V1M 2R8**

**Suite 102, 355 Kingsway  
Vancouver, BC, V5T 3J7**

PROJECT ARBORIST

**Kelly Koome**

Urban Forestry - ISA Certified Arborist, PN-5962A

Tree Risk Assessment Qualified

Wildlife Danger Tree Assessor, #P2546

CONSULTING ARBORIST

**Sarah Bishop**

ISA Certified Arborist, PN-9038A

ISA Member Certified Wildlife Dangerous Tree Assessor, P2515

**September 21st, 2020**





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## **Background**

VDZ + A Consulting Inc. was contracted by Waterstock Properties Inc. to prepare an ISA Certified Arborist Tree Report for the properties at 15704 – 15770 North Bluff Road, White Rock, BC.

## **Assignment**

VDZ + A Consulting Inc. have been retained by the client to prepare a report to assess the tree(s) located at 15704 – 15770 North Bluff Road, White Rock, BC. The Consulting Arborist performed a site review entailing identification and visual assessment of the tree(s) on site. A tree survey of all off-site trees was completed by the client or representative(s).

The Project Arborist will provide recommendations for the retention or removal of tree(s) on this site based on the existing site conditions and the proposed use of the site. Mitigation of development impact on the tree(s) has been considered as part of the tree assessment process.

## **Limits of the Assignment**

The Consulting Arborist's observations were limited to one site visit on April 9, 2019. No tissue or soil samples were sent to a lab for identification or analysis. VDZ + A Consulting Inc. located the trees using existing landmarks and onsite navigation.

## **Testing and Analysis**

The Consulting Arborist used visual tree assessment and mallet sounding to test the trees' health, condition and risk level.

## **Purpose and Use of Report**

The purpose of this report is to assist the property owner in compliance with the City of White Rock Tree Management Bylaw, 2008 No. 1831.

## **Site Review**



Fig. 1 – Aerial view of properties (WROMS, 2019).



### **Proposed Site Development**

Two new residential buildings.

### **Environmental Description**

ISA Certified Arborist Austin Peterson of VDZ + A Consulting Inc. conducted a site review and evaluation of the trees located at the above referenced property on April 9, 2019.

The property consists of 16<sup>th</sup> Avenue to the north, single family homes to the south, Lee Street to the west, and a greenway to the east.

There are no seasonal creeks that transect the property.

There is no evidence of raptors nests, osprey nests or heron colonies on the site. Removal of trees however between March 15 – August 15 (date subject to change depending on seasonal nesting behavior and therefore must be confirmed with City of White Rock) will require a bird nesting survey. This is as prescribed by the federal Migratory Birds Convention Act (MBCA), 1994 and Section 34 of the BC Wildlife Act. It is the responsibility of the owner/developer to ensure they are in compliance with the city's regulations governing nesting birds on sites where development is occurring.

**Off-site Trees** – There are private off-site trees associated with this project.

**Municipal Trees** – There are City of White Rock trees associated with this project.

**Trees Straddling the Property Line** – There are trees straddling the property line associated with this project.

### **Tree Preservation Summary**

All the trees identified on the Tree Retention/Removal Plan and within the Tree Assessment Data Table have been given their Retention/Removal recommendation on a preliminary basis. Final recommendations will be based upon design/construction and grading details. Any City tree that is removed will have replacement tree bonds collected as Cash-in-Lieu. These replacement trees will be planted by the City of White Rock on City lands.

Long-term tree preservation success is dependent on minimizing the impact caused during pre-construction clearing operations, construction and post construction activities. Best efforts must be made to ensure the Tree Protection Zone remains undisturbed.

Ongoing monitoring of retained trees through the development process and implementation of mitigating works (watering, mulching, etc.) is essential for success.

### **Tree Health Care Plan During Construction**

To ensure continued health of the protected trees during construction, the following is recommended:

1. Remove dead, dying, and diseased branches prior to the start of construction.
2. Install tree protection barriers per bylaw specifications.
3. Regular weekly watering of trees between June 1 – October 1.
4. Application of wood chips within the tree protection zone (1-3 inches).
5. Monthly monitoring of protected trees by assigned Arborist.

Retained protected trees will require supplemental watering on a weekly basis (weather dependent), as well as the application of wood chips or mulch to the tree protection zone within the tree protection barriers. Wood chips are preferred to ensure porous movement through soil and protection from



compaction during construction. The mulch or wood chip height should not exceed the root collar (not to exceed 10cm) to avoid moisture retention concentrated on the stem. In addition to the City's requirements, recommendations include the pruning of dead or dying limbs prior to construction for worker safety, as well as monthly monitoring of the trees by an Arborist to ensure the health and well-being of the protected trees.

### **Summary of Findings**

1. Arborist is to monitor any work within 1- meter of a tree protection zone with 72 hours-notice given.
2. Areas identified that require arborist consultation / monitoring:
  - **Trees 016, 017, 018, 019, 020, 021, S1, OS 7** - There will be an on-grade north to south gravel path through the open space / green space. Minor crown raising may be required to accommodate walking clearance. VDZ Arborist to monitor pruning on site.
  - **Trees 020, 021** - A raised timber deck will be installed to the east of these trees. The arborist will advise on the locations of the posts as to avoid roots.
  - **Trees 020, 021** - The patio for unit 113B will require excavation – Arborist to monitor.
  - **Tree OS 1** - Loading zone will require excavation – Arborist to monitor.
  - **Trees 08, 09** – When removing these trees the stumps must be left in the ground in order to limit damage to the roots of adjacent trees – Arborist to monitor.



**Table 1 - Tree Assessment Data:**

| Tree #   | Tag # | Common Name<br><i>Botanical Name</i>                    | DBH (m.)     | C-Rad (m.) | LCR (%) | Comments  | Retain / Remove |
|--|-------|---|--------------|------------|---------|---|-----------------|
| <b>Limitations:</b>  |       |   |              |            |         |   |                 |
| Many deciduous trees were dormant at the time of assessment; therefore, a limited Level 1 Visual Assessment was conducted. |       |   |              |            |         |   |                 |
| <b>The following trees are located on-site.</b>  |       |   |              |            |         |   |                 |
| 001  | 2125  | Apple<br><i>Malus</i> spp.                              | 0.40         | 4.0        | 80      | CROWN – Ivy growing up 80% of stem. Hammock in crown.<br>FIGURE 2<br>WITHIN PROPOSED UNDERGROUND PARKING ENTRANCE   | REMOVE          |
| 002  | 0961  | English holly<br><i>Ilex aquifolium</i>                 | 0.30         | -          | -       | INVASIVE SPECIES – NOT PROTECTED UNDER BYLAW  | REMOVE          |
| 003  | 0960  | Western redcedar<br><i>Thuja plicata</i>                | 0.45         | 4.0        | 90      | CROWN – Flagging present.<br>WITHIN PROPOSED UNDERGROUND PARKING ENTRANCE   | REMOVE          |
| 004  | 0958  | Scots pine<br><i>Pinus sylvestris</i><br>'Chantry blue' | 0.25         | 3.0        | 60      | TRUNK – Leans south 45° before self-correcting.<br>CROWN – Some dieback on ends of branches.<br>UNDERSIZED  | REMOVE          |
| 005  | 0959  | Cypress<br><i>Chamaecyparis</i> spp.                    | 0.30         | 1.0        | 80      | TRUNK – Codominant at 1 meter. Decay column from base to 1 meter on west side.<br>FIGURE 3<br>WITHIN PROPOSED BUILDING ENVELOPE                             | REMOVE          |
| 006  | 3913  | Lawson cypress<br><i>Chamaecyparis lawsonia</i>         | 0.40<br>0.40 | 3.5        | 100     | TRUNK – Ivy growing up base. Codominant stems at base.<br>CROWN – Excessive coning. Some flagging present.<br>FIGURE 4<br>WITHIN PROPOSED BUILDING ENVELOPE | REMOVE          |
| 007  | 3912  | Lawson cypress<br><i>Chamaecyparis lawsonia</i>         | 0.50<br>0.35 | 3.5        | 100     | TRUNK – Ivy growing up base. Codominant stems at base.<br>CROWN – Excessive coning. Some flagging present.<br>FIGURE 4<br>WITHIN PROPOSED BUILDING ENVELOPE | REMOVE          |
| 007A   | 3914  | Mountain-ash<br><i>Sorbus sitchensis</i>                | 0.39         | 4.5        | 75      | TRUNK – Healed wound on south side.<br>LOCATION – Growing next to driveway.<br>WITHIN PROPOSED BUILDING ENVELOPE  | REMOVE          |



| Tree # | Tag # | Common Name<br><i>Botanical Name</i>        | DBH (m.)             | C-Rad (m.) | LCR (%) | Comments  | Retain / Remove |
|--------|-------|---|----------------------|------------|---------|---|-----------------|
| 008    | 0962  | Douglas-fir<br><i>Pseudotsuga menziesii</i> | 0.87                 | 7.5        | 80      | TRUNK – Broken fence leaning on south side.<br>CROWN – Crown weighted to south side. Broken branches in lower crown on north side. Large hanger on east side.<br>LOCATION – Adjacent to shed.<br><b>WITHIN PROPOSED EXCAVATION ZONE FOR BUILDING AND UNDERGROUND PARKING</b><br><br><b>STUMP MUST BE LEFT IN GROUND</b> | REMOVE          |
| 009    | 0963  | Scots pine<br><i>Pinus sylvestris</i>       | 0.58                 | 6.5        | 80      | TRUNK – Ivy growing up 80% of stem.<br>CROWN – Previously topped.<br><b>WITHIN PROPOSED EXCAVATION ZONE FOR BUILDING AND UNDERGROUND PARKING</b><br><br><b>STUMP MUST BE LEFT IN GROUND</b>   | REMOVE          |
| 010    | 2511  | Monkey puzzle<br><i>Araucaria araucana</i>  | 0.15                 | -          | -       | <b>UNDERSIZED</b>   | REMOVE          |
| 011    | 2510  | Monkey puzzle<br><i>Araucaria araucana</i>  | 0.25                 | -          | -       | <b>UNDERSIZED</b>   | REMOVE          |
| 012    | 2512  | Butterfly bush<br><i>Buddleia</i> spp.      | 0.05<br>–<br>0.15    | 5.0        | 95      | TRUNK – Multi-stem at 1 meter. Leans south before self-correcting.<br><b>WITHIN PROPOSED BUILDING ENVELOPE</b>  | REMOVE          |
| 013    | 2514  | Magnolia<br><i>Magnolia</i> spp.            | 0.25<br>0.20<br>0.20 | 6.0        | 75      | TRUNK – Codominant stems at base.<br><b>WITHIN PROPOSED EXCAVATION ZONE FOR BUILDING AND UNDERGROUND PARKING</b>  | REMOVE          |
| 014    | 2513  | English holly<br><i>Ilex aquifolium</i>     | 0.25                 | -          | -       | <b>UNDERSIZED</b>   | REMOVE          |
| 015    | 2502  | Douglas-fir<br><i>Pseudotsuga menziesii</i> | 0.85                 | 7.5        | 90      | Declining<br>CROWN – Excessive coning. Pruned on north side for Hydro clearance.<br>FIGURE 5<br><b>WITHIN PROPOSED EXCAVATION ZONE FOR BUILDING AND UNDERGROUND PARKING</b>   | REMOVE          |



| Tree # | Tag # | Common Name<br><i>Botanical Name</i>            | DBH<br>(m.)       | C-Rad<br>(m.) | LCR<br>(%) | Comments  | Retain /<br>Remove |
|--------|-------|---|-------------------|---------------|------------|---|--------------------|
| 016    | 2506  | Paper birch<br><i>Betula papyrifera</i>         | 0.36              | 4.0           | 40         | Declining<br>TRUNK – Holly growing up 60% of stem.<br>FIGURE 6  | REMOVE             |
| 017    | 2505  | Paper birch<br><i>Betula papyrifera</i>         | 0.31              | 4.0           | 40         | TRUNK – Conks present. Lean north. Past stems trimmed at base on south side.<br>CROWN – Broken top. Likely decay column in broken top from Bronze Birch Borer.<br>FIGURE 6<br>RETAIN WITH TREE PROTECTION FENCING<br>SUITABLE FOR RETENTION                           | RETAIN             |
| 018    | 2504  | Paper birch<br><i>Betula papyrifera</i>         | 0.30<br>0.30      | 4.0           | 50         | TRUNK – Conks present. Lean north. Past stems trimmed at base on south side. Codominant stems at base.<br>CROWN – Broken top. Likely decay column in broken top from Bronze Birch Borer.<br>FIGURE 6<br>RETAIN WITH TREE PROTECTION FENCING<br>SUITABLE FOR RETENTION | RETAIN             |
| 019    | 2509  | English holly<br><i>Ilex aquifolium</i>         | 0.25              | -             | -          | UNDERSIZED  | RETAIN             |
| 020    | 2508  | Monkey puzzle<br><i>Araucaria<br/>araucana</i>  | 0.40              | 6.0           | 90         | RETAIN WITH TREE PROTECTION FENCING<br>SUITABLE FOR RETENTION   | RETAIN             |
| 021    | 2503  | Douglas-fir<br><i>Pseudotsuga<br/>menziesii</i> | 0.80              | 8.0           | 90         | ROOTS – Structural roots exposed.<br>CROWN – Dieback present. Flagging present.<br>SUITABLE FOR RETENTION   | RETAIN             |
| 022    | 0957  | Western hemlock<br><i>Tsuga heterophylla</i>    | 0.10<br>–<br>0.20 | 3.0           | 50         | TRUNK – Four codominant stems at base.<br>FIGURE 7<br>WITHIN PROPOSED EXCAVATION ZONE FOR BUILDING AND<br>UNDERGROUND PARKING   | REMOVE             |
| 023    | 0956  | Douglas-fir<br><i>Pseudotsuga<br/>menziesii</i> | 0.15<br>0.15      | 3.0           | 40         | CROWN – No foliage in lower crown.<br>FIGURE 7<br>WITHIN PROPOSED EXCAVATION ZONE FOR BUILDING AND<br>UNDERGROUND PARKING   | REMOVE             |





| Tree #   | Tag # | Common Name<br><i>Botanical Name</i>                | DBH (m.)          | C-Rad (m.) | LCR (%) | Comments  | Retain / Remove |
|--|-------|---|-------------------|------------|---------|---|-----------------|
| 024  | 0955  | English holly<br><i>Ilex aquifolium</i>             | -                 | -          | -       | INVASIVE SPECIES – NOT PROTECTED UNDER BYLAW<br>FIGURE 7  | REMOVE          |
| 025  | 0952  | Western redcedar<br><i>Thuja plicata</i>            | 0.50              | 5.5        | 80      | CROWN – Pruned on north side for Hydro clearance. Flagging in upper crown.<br>WITHIN PROPOSED EXCAVATION ZONE FOR BUILDING AND UNDERGROUND PARKING. PROJECT ARBORIST TO MONITOR   | REMOVE          |
| 026  | 0953  | Western redcedar<br><i>Thuja plicata</i>            | 0.30              | 2.5        | 100     | RETAIN WITH TREE PROTECTION FENCING<br>SUITABLE FOR RETENTION   | RETAIN          |
| The following trees are located off-site. All off-site trees were assessed onsite and were separated by fencing. The off-site assessment therefore was limited by these factors. |       |   |                   |            |         |   |                 |
| OS 1   | -     | Willow<br><i>Salix</i> spp.                         | 0.25<br>0.10      | 6.0        | 70      | TRUNK – Leans north. Codominant stems at base. Bend in trunk north at 0.5 meters.<br>ROOTS – Debris piled against stem.<br>EXCAVATION WITHIN THE TPZ PERMITTED WITH ARBORIST SUPERVISION. RETAIN WITH TREE PROTECTION FENCING<br>SUITABLE FOR RETENTION | RETAIN          |
| OS 2   | -     | SPECIES COULD NOT BE IDENTIFIED DUE TO IVY COVERAGE | 0.80              | 5.0        | -       | TRUNK – Ivy covering entire stem.<br>SPECIES COULD NOT BE IDENTIFIED DUE TO IVY COVERAGE<br>RETAIN WITH TREE PROTECTION FENCING<br>SUITABLE FOR RETENTION   | RETAIN          |
| OS 3   | -     | Eastern white cedar<br><i>Thuja occidentalis</i>    | 0.15<br>–<br>0.30 | 4.5        | 95      | TRUNK – Five codominant stems at base.<br>CROWN – Previously pruned on north side.<br>RETAIN WITH TREE PROTECTION FENCING<br>SUITABLE FOR RETENTION   | RETAIN          |
| OS 4   | -     | Mountain-ash<br><i>Sorbus sitchensis</i>            |                   |            |         | TRUNK – Multi-stem at base. Fence leaning on north side of trunk.<br>RETAIN WITH TREE PROTECTION FENCING<br>SUITABLE FOR RETENTION  | RETAIN          |



| Tree #   | Tag # | Common Name<br><i>Botanical Name</i>         | DBH (m.)          | C-Rad (m.) | LCR (%) | Comments  | Retain / Remove |
|--|-------|--|-------------------|------------|---------|---|-----------------|
| OS 5   | -     | Western redcedar<br><i>Thuja plicata</i>     | 0.15<br>–<br>0.35 | 3.5        | 100     | TRUNK – Five codominant stems at base.<br>CROWN – Flagging present. Excessive coning.<br><b>RETAIN WITH TREE PROTECTION FENCING<br/>SUITABLE FOR RETENTION</b>  | RETAIN          |
| OS 6   | -     | English walnut<br><i>Juglas regia</i>        | 0.45<br>0.35      | 5.0        | 80      | TRUNK – Codominant stems at 1 meter. North stem growing through fence onto onsite property.<br>FIGURE 9<br><b>RETAIN WITH TREE PROTECTION FENCING<br/>SUITABLE FOR RETENTION</b>  | RETAIN          |
| OS 7   | -     | Douglas-fir<br><i>Pseudotsuga menziesii</i>  | 0.60              | 6.5        | 80      | <b>RETAIN WITH TREE PROTECTION FENCING<br/>SUITABLE FOR RETENTION</b>   | RETAIN          |
| <b>The following trees are straddling the property line.</b> |       |  |                   |            |         |   |                 |
| S 1  | 0951  | English laurel<br><i>Prunus laurocerasus</i> | 0.15              | -          | -       | <b>UNDERSIZED</b>   | RETAIN          |
| S 2  | 2507  | English holly<br><i>Ilex aquifolium</i>      | 0.15              | -          | -       | <b>UNDERSIZED</b>   | RETAIN          |
| S 3  | 0954  | Douglas-fir<br><i>Pseudotsuga menziesii</i>  | 0.40              | 4.5        | 90      | LOCATION – Adjacent to fence.<br>CROWN – Pruned on east side. Sparse foliage.<br>FIGURE 8<br><b>STRADDLING TREE REQUIRES CITY PERMISISON TO REMOVE<br/>– REPLACEMENTS HANDLED CASH IN LIEU<br/>WITHIN PROPOSED EXCAVATION ZONE FOR BUILDING AND<br/>UNDERGROUND PARKING</b> | REMOVE          |



## **APPENDIX A – GLOSSARY OF KEY TERMS**

**Abutment:** A structure built to support the lateral pressure of an arch or span, e.g., at the ends of a bridge.

**Adapted Trunk Diameter Method:** This method uses the trees age and tolerance to construction damage to determine the factor that will be multiplied by the diameter to provide a sufficient tree protection zone given these factors.

**Age:** The relative age (young, intermediate, mature) within the particular stand of trees or forest.

**Algae:** Is a simple, nonflowering plant (includes seaweeds and many single-celled forms). They do contain chlorophyll (but lack true stems, roots, and vascular tissue)

**ALR:** The Agricultural Land Reserve in which agriculture is recognized as the priority.

**Bole:** The stem or trunk of a tree.

**Chlorotic:** Yellowing of plant tissues caused by nutrient deficiency &/or pathogen.

**Co-dominant Leaders:** Forked dominant stems nearly the same size in diameter, arising from a common junction.

**Co-dominant Within Stand:** Individual tree whose height is generally equal to trees (regardless of species) within the same stand.

**Compaction:** Compression of the soil that breaks down soil aggregates and reduces soil volume and total pore space, especially macropore space.

**Conk:** A fungal fruiting structure typically found on trunks and indicating internal decay.

**Dead Standing:** A tree that has died but is still standing erect.

**DBH:** The Diameter of the tree at 1.40 meters above the ground.

**Dominant Within Stand:** Individual tree whose height is significantly greater than adjacent trees (regardless of species) within the same stand.

**C-rad:** Crown radius, is the dripline measured from the edge of the trunk to the outermost branches of the crown.

**CRT:** Critical Root Zone

**CRZ:** Critical Root Zone - The area between the trunk and to the end of the Drip Line.

**Fair:** Healthy but has some defects such as co-dominant trunk, dead branches.

**Feeder Roots:** The smaller roots responsible for water and nutrient absorption and gas exchange. These roots can extend far beyond the Drip Line (or outer canopy) of the tree.

**Fungus (singular) / Fungi (plural):** Unicellular, multicellular or syncytial spore-producing organisms that feed on organic matter (including molds, yeast, mushrooms and toadstools)

**Girdling Root:** Root that encircles all or part of the trunk of a tree or other roots and constricts the vascular tissue and inhibits secondary growth and the movement of water.

**Good:** Good form and structure, healthy with no defects.

**Hazardous:** Significant hazard exists with a high risk of immediate failure; which could result in serious damage to property or person(s).

**Height:** Height of tree is approximate.

**LCR:** Live Crown Ratio – The ratio of crown length to total tree length.

**Level 1 Limited Visual Assessment:** Limited visual assessment looking for obvious defects such as, but not limited to dead trees, large cavity openings, large dead or broken



branches, fungal fruiting structures, large cracks, and severe leans.

**Level 2 Basic Visual Assessment:** Detailed visual inspection (aboveground roots, trunk, canopy) of tree(s) may include the use of simple tools to perform assessment (i.e. sounding mallet, trowel, measuring tape, binoculars). The assessment does not include advanced resistance drilling of trunk.

**Level 3 Advanced Assessment:** To provide detailed information about specific tree parts, defects, targets, or side conditions. May included aerial inspection, resistance drilling of tree parts, laboratory diagnosis of fungal or plant tissue.

**Mildew:** Is a minute powdery or web-like fungi (of different colours) that is found on diseased or decaying substances.

**Moss:** A small, green, seedless plant that grows on stones, trees or ground.

**No Disturbance Zone:**  $(\text{Trunk Diameter} \times 6) + \text{Trunk Radius} + (60 \text{ cm excavation zone})$ . For example, a 50-cm diameter tree would have a No Disturbance Zone = 3.85 meters measured from the edge of the trunk.

**Poor:** multiple defects, disease, poor structure and or form, root and or canopy damage.

**Phloem:** Plant vascular tissue that transports sugar and growth regulators. Situated on the inside of the bark, just outside the cambium. Is bidirectional (transports up and down). Contrast with xylem.

**Phototropic:** Growth toward light source or stimulant.

**Retain & Monitor:** Monitor health and condition of tree every 12 months for signs of deterioration.

**Root Crown:** Also, called the root collar, it includes the flare at the base of the trunk and the initial roots that develop below the trunk. These roots generally taper and subdivide rapidly to form the root system of the tree.

**SPEA:** Streamside Protection and Enhancement Area

**Spiral Decline:** The health and condition of the tree is deteriorating.

**Sub-dominant Within Stand:** Individual tree whose height is significantly less than adjacent trees (regardless of species) within the same stand.

**Suppressed:** Individual tree whose growth, health and condition is negatively impacted by adjacent tree(s).

**TPZ:** Tree Protection Zone - The area between the trunk and the Tree Protection Barrier.

**Wildlife Tree:** A tree or a group of trees that are identified to be retained to provide future wildlife habitat. Wildlife habitat can exist in tree risks (cavities, dead snags, broken tops). Often times the tree risk to potential targets (people & property) is reduced by removing that part of the tree posing the risk of failure, but the tree (or portion of) is retained to provide future habitat.

**Witches Broom:** A dense mass of shoots growing from a single point, with the resulting structure resembling a broom or a bird's nest.

**Xylem:** Thin overlapping cells that helps provide support and that conducts water and nutrients up

ward from the roots all the way to the leaves.





## APPENDIX B – PHOTOS



Fig. 2 – Tree 001 with ivy growing throughout crown.



Fig. 3 – Tree 005 with decay from base to 1 meter.



Fig. 4 – View of Trees 006 and 007.

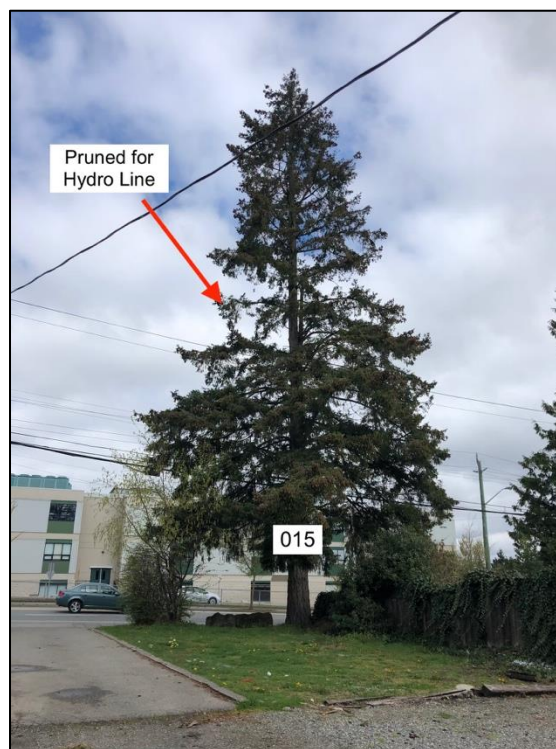
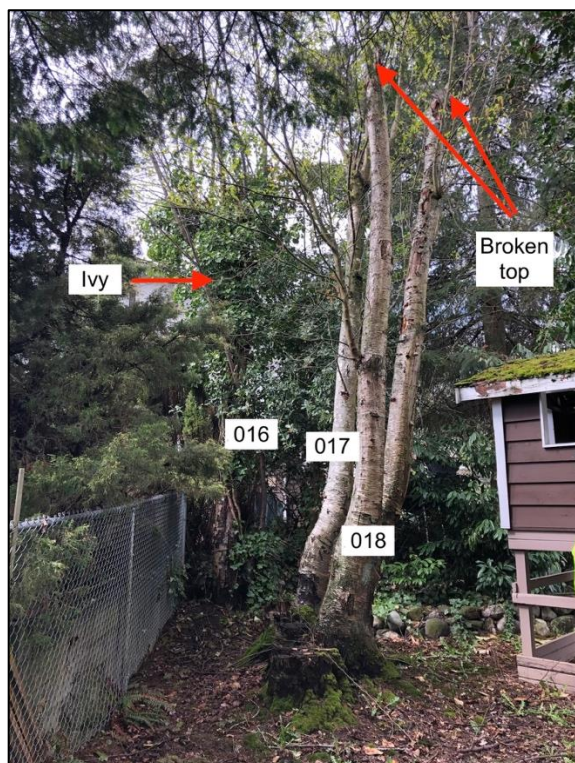
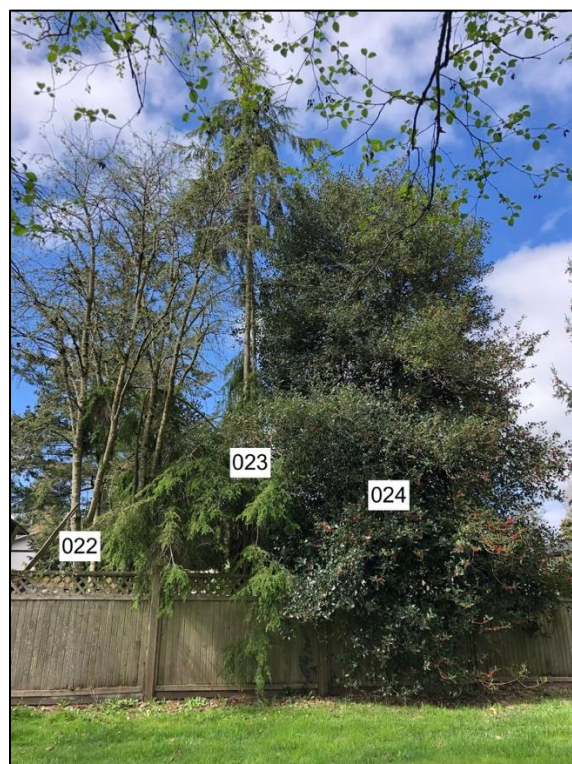


Fig. 5 – Tree 015 with pruning on north side.

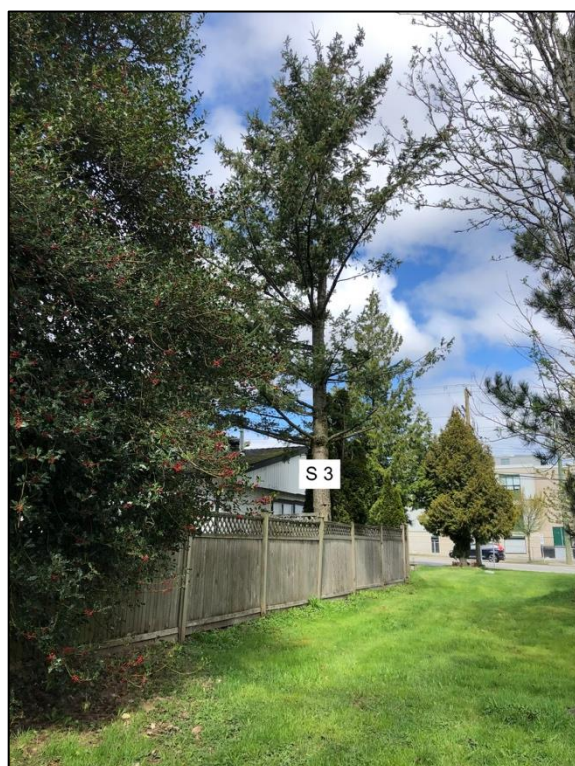




**Fig. 6** – Trees 016, 017, and 018 in poor condition.



**Fig. 7** – West view of Tree 022, 023, and 024.



**Fig. 8** – Tree S 3 with crown weighted to west side.



**Fig. 9** – Tree OS 6 growing through fence.



## **TREE REPLACEMENT SUMMARY**

### **White Rock Tree Management Bylaw, 2008, No. 1831**

The number and size of the replacement trees is dependent upon the size of the protected tree removed. Replacement trees shall be required according to the following:

- (a) Less than 50 cm DBH protected tree removed – Two replacement trees
- (b) 51 cm to 65 cm DBH protected tree removed – Three replacement trees
- (c) 66 cm to 75 cm DBH protected tree – Four replacement trees
- (d) 76 cm to 85 cm DBH protected tree – Five replacement trees
- (e) Greater than 85 cm DBH protected tree – Six replacement trees

| <b>Size</b>               | <b>Removed</b> | <b>Replacement Trees</b> |
|---------------------------|----------------|--------------------------|
| <b>Less then 50cm DBH</b> | <b>10</b>      | <b>20</b>                |
| <b>51-65cm DBH</b>        | <b>3</b>       | <b>9</b>                 |
| <b>66-75 DBH</b>          | <b>0</b>       | <b>0</b>                 |
| <b>76-85cm DBH</b>        | <b>1</b>       | <b>5</b>                 |
| <b>85cm+ DBH</b>          | <b>1</b>       | <b>6</b>                 |
| <b>Undersize Trees</b>    | <b>7</b>       | <b>0</b>                 |
|                           | <b>Total</b>   | <b>40</b>                |

40 Total Replacement Trees Required, 2 of which will be handled by Cash in Lieu as Tree S3 is straddling city property.

### **Recommended Replacement Species**

It is recommended that the landscape architect use a mix of the following species in the replanting plan:

- Acer Griseum 6 cm cal. 1.2m Std.
- Nyssa Sylvatica ‘Tupelo Tower’ 6 cm cal. 1.2m std.
- Picea Omorika “Bruns” 3m
- Stewartia Pseudocamellia 6 cm cal. 1.2m Std.





## **APPENDIX C – TREE RETENTION AND REMOVAL PLAN**

Inserted at original size Print at 11X17



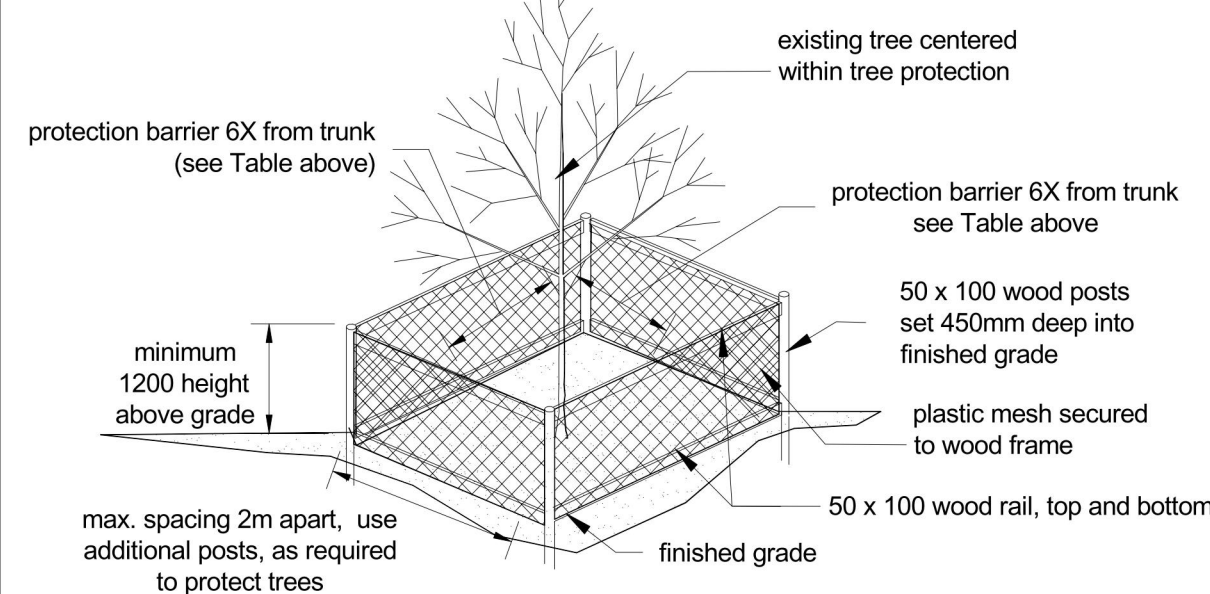
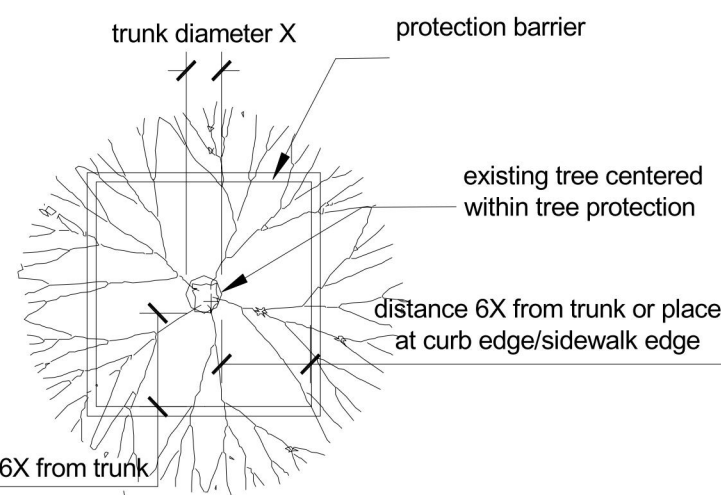
## Drawing Title:



VDZ Project #:

Drawing #:

| TRUNK DIAMETER<br>(CM) | MINIMUM<br>PROTECTION DISTANCE<br>(M FROM TRUNK) |
|------------------------|--|
| X                      | 6X   |
| 20                     | 1.2  |
| 25                     | 1.5  |
| 30                     | 1.8  |
| 35                     | 2.1  |
| 40                     | 2.4  |
| 45                     | 2.7  |
| 50                     | 3.0  |
| 55                     | 3.3  |
| 60                     | 3.6  |
| 75                     | 4.5  |
| 90                     | 5.0  |
| 100                    | 6.0  |



**NOTES** Install tree protection barrier before construction begins and keep in place until landscape installation is complete.

Storage of building materials & litter within or against protection barrier is prohibited. Developer/Owner responsible for maintenance within Tree Protection Barrier.

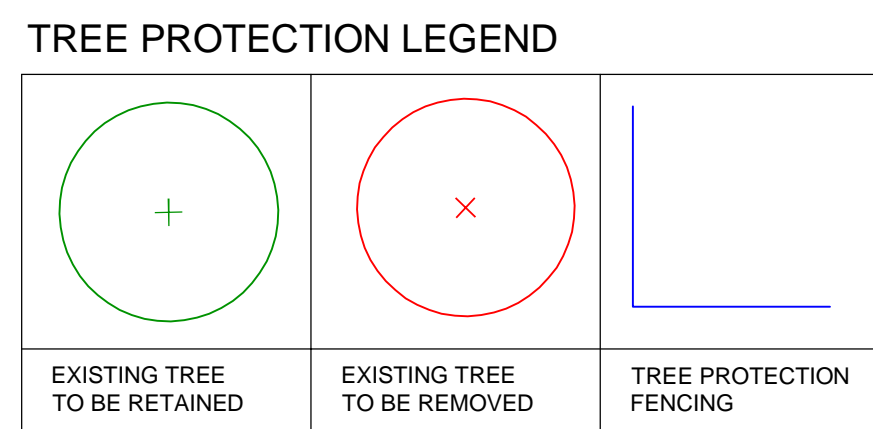
Damaged trees will be replaced at Developer/Owner's cost.

Maintain existing grades at protection barrier for all protected retained and existing trees.

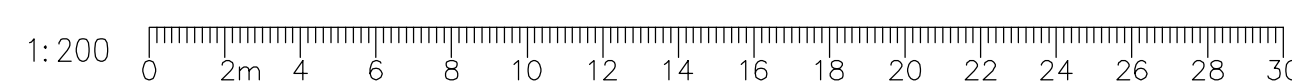
Regrading outside of protection barrier should not adversely compromise protected retained and existing trees.

## STREET TREE PROTECTION DETAIL

Parks Department  
City of White Rock



## NOTES



TREE PROTECTION NOTES:

1. Contact the Arborist (Kelly Koome, 778-885-6777, kkoome@vdc.ca) for inspection 72 hrs prior to any work within the Tree Protection Zone.
2. Contractor to provide root protection zone coverage to edge of dripline of all trees to be retained.
3. Contractor to notify Landscape Architect when tree protection fencing has been installed.
4. Landscape Architect to inspect tree protection fencing and provide approval before any site clearing or construction may commence.
5. 'Significant Tree' denotes all trees with a trunk diameter equal to or greater than 30cm measured 1.4m above the highest point of the natural grade of the ground measured from the base of tree.

|     |     |                  |                  |
|-----|-----|------------------|------------------|
|     |     |                  |                  |
|     |     |                  |                  |
|     |     |                  |                  |
|     |     |                  |                  |
|     |     |                  |                  |
|     |     |                  |                  |
| 4   | KM  | Issue for review | August 11th 2019 |
| 3   | SH  | Issue for review | Sep 05, 2019     |
| 2   | SH  | Issue for review | August 9, 2019   |
| 1   | AK  | Issue for review | Apr 23, 2019     |
| No. | By: | Description      | Date             |

## REVISIONS TABLE FOR DRAWINGS

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|     |     |                       |              |
|-----|-----|-----------------------|--------------|
|     |     |                       |              |
| 1   | SH  | Tree Protection Fence | Sep 23, 2019 |
| No. | By: | Description           | Date         |

## REVISIONS TABLE FOR SHEET

Project:

### Multi-family Development

Location:

15704-15770 North Bluff Road,  
White Rock, B.C.

|      |
|------|
| Draw |
| AK   |

Checked:  
DJ

Approved:  
KK

Scale:  
1:150

|        |
|--------|
| Stamp: |
|--------|

Original Sheet Size:  
24"x36"

CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING. ALL DRAWINGS AND SPECIFICATIONS ARE THE EXCLUSIVE PROPERTY OF THE OWNER AND MUST BE RETURNED AT THE COMPLETION OF THE WORK. ALL REZONING/DPP/PA/FHA/BP DRAWINGS MUST NOT BE PRICED FOR CONSTRUCTION UNLESS LABELED ISSUED FOR TENDER/CONSTRUCTION.

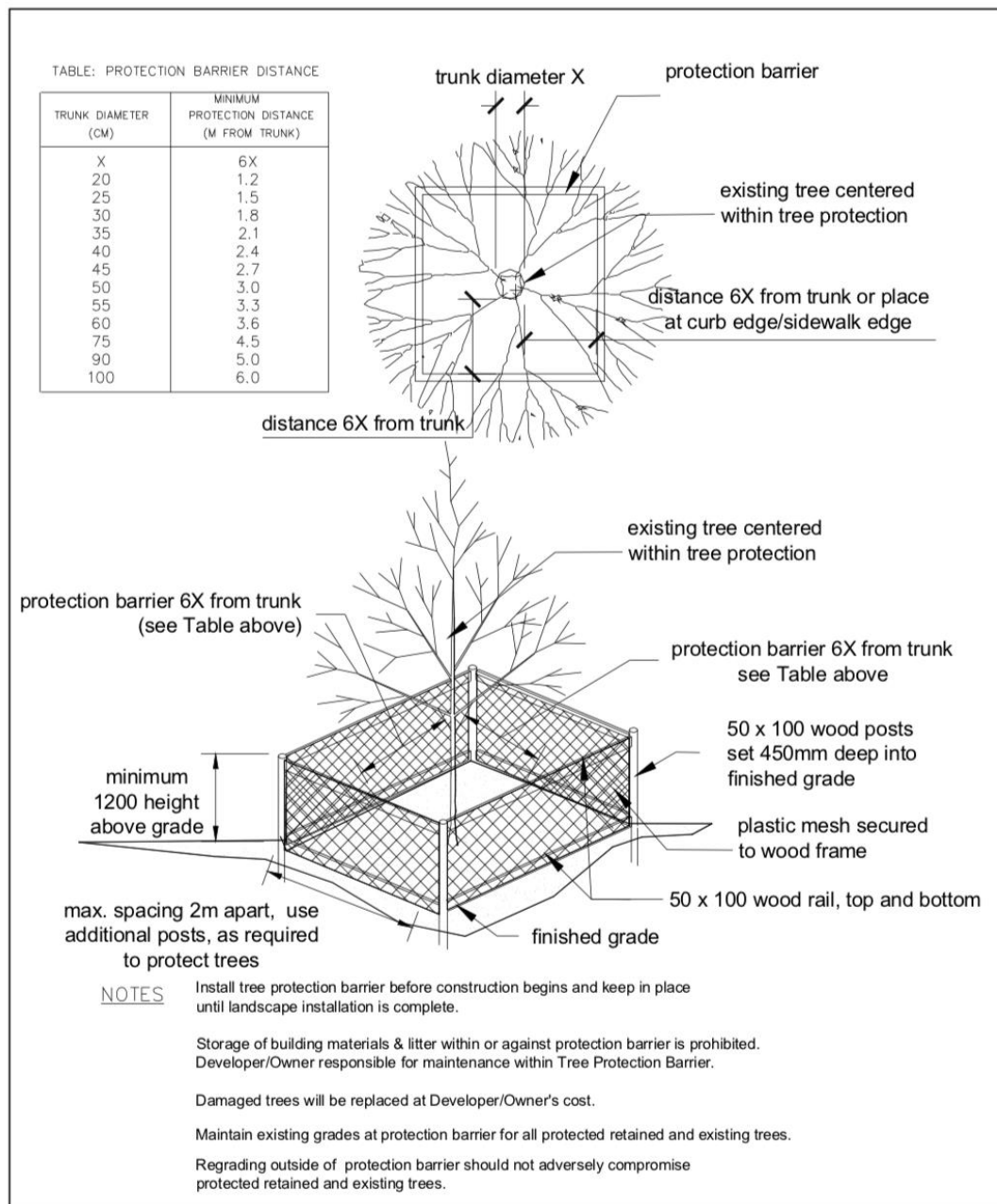




## APPENDIX D – CONSTRUCTION ACTIVITY AROUND TREE PROTECTION ZONE

### Tree Protection Fencing

#### Specifications for Tree Protection Barriers





## **General Requirements and Limitations for Operations Within the Tree Protection Zone**

- The Contractor shall not engage in any construction activity within the Tree Protection Zone (TPZ) without the approval of the Project Arborist including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree Protection Zone maybe indicated on the drawings along with any required remedial activity as listed below.
- In the event that construction activity is unavoidable within the Tree Protection Zone, notify the Project Arborist and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree Protection Zone from the activity. Remedial actions shall include but shall not be limited to the following:
- In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and/or Air Spade. If any excavation work is required within the Tree Protection Zone (TPZ), the Project Arborist must be present during excavation, and a trench should be 'hand dug' to a depth of 60 cm outside the Drip Line, to uncover any potential roots. The Project Arborist should cleanly prune roots and recommend the appropriate treatment for any structural roots encountered.
- Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots soil.
- When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the Project Arborist. Excavation shall be tunnelled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
- Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be RETAINED when specifically indicated by the Project Arborist. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboriculture practices (ANSI A300, part 8) and be performed under supervision of the Project Arborist.
- Do not permit foot traffic, scaffolding or the storage of materials within the Tree Protection Zone.
- Protect the Tree Protection Zone at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Project Arborist of any spills, compaction or damage and take corrective action immediately using methods approved by the Project Arborist.



## **APPENDIX E – LIMITATIONS**

This report is valid for the day the trees were reviewed. This report is not to be re-printed, copied, published or distributed without prior approval by VDZ + A Consulting Inc.

Sketches, diagrams and photographs contained in this report being intended as visual aids, should not be construed as engineering reports or legal surveys.

Only the subject tree(s) was inspected and no others. This report does not imply or in any other way infer that other trees on this site or near this site are sound and healthy.

The tendency of trees or parts of trees to fall due to environmental conditions and internal problems are unpredictable. Defects are often hidden within the tree or underground. The project arborist has endeavored to use his skill, education and judgment to assess the potential for failure, with reasonable methods and detail. It is the owner's responsibility to maintain the trees and inspect the trees to reasonable standards and to carry out recommendations for mitigation suggested in this report.

## **APPENDIX F – REFERENCES**

Bond, Jerry & Buchanan, Beth (2006) Best Management Practices: Tree Inventories, International Society of Arboriculture, Champaign, IL.

Dunster, Dr. Julian (2003) *Preliminary Species Profiles for Tree Failure Assessment*. ISA Pacific Northwest Chapter, Silverton, OR, USA

Dunster, Dr. Julian & Edmonds, Dr. R. (2014) Common Fungi Affecting Pacific Northwest Trees, ISA Pacific Northwest Chapter, Silverton, OR, USA

Fite, Kelby & Smiley, E. Thomas (2016) Best Management Practices: Managing Trees During Construction, International Society of Arboriculture, Champaign, IL.

Sibley, David Allen (2009) *The Sibley Guide to Trees*. Alfred A. Knopf, New York, NY

Smiley, E.T., Matheny, N., Lilly, S. (2011) Best Management Practices: Tree Risk Assessment. International Society of Arboriculture, Champaign, IL.

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**MINUTE EXTRACTS REGARDING BYLAW 2435: WHITE ROCK ZONING BYLAW, 2012, NO. 2000, AMENDMENT (CD ZONE 67 - 15704, 15724/28/38/48/58/70 NORTH BLUFF ROAD) BYLAW, 2022, NO. 2435**

**Advisory Design Panel – October 20, 2020**

**4.2. Application: 15704, 15724, 15728, 15783, 15748, 15758, 15770 [Beachway II]**

City staff provided an introduction to the proposal including reference to the: OCP land use designation, housing-related OCP policies applicable to the project, particularly those enabling additional floor area, and applicable East Side Large Lot Infill development permit area guidelines.

The applicant presented the policy context applicable to the proposal, including reference to the City of Surrey's Semiahmoo Town Centre Plan. Additional reference was given to the context of the development lands, the supply of parking, access to the site, efforts to retain mature trees, opportunities to increase the affordable housing supply in White Rock, and design components that will contribute to the overall environmental sustainability of the project. Additional information was provided regarding the design inspiration for the project and its ties to the City of White Rock.

The following items were discussed by the Panel:

- Encouraged by the use of timber;
- Appreciation expressed for context provided at the outset by the proponent;
- General support offered for the form and massing of the buildings;
- What is the surface between buildings 2 and 3? It would be a different paver (colour);
- Demarcation of open spaces between Buildings 1 and 2 more semi-private in its design due to the private balconies which access the space; the space between Buildings 2 and 3 are more open and publically accessible;
- Concerns raised about the façade, including coloured glass, and how it would look in many years – later discussed by Panel with support for the use of colour and the “playfulness” it adds to the development;
- Limited parking supply identified as a concern – reduction may be too aggressive – may require additional supply (“excavation”) – alternative opinion regarding the opportunity presented by the proposal in looking at efforts to change auto-reliance;
- Would like to see more (100%) of the parking spaces roughed in for electrical vehicles;
- Garbage collection details including location for pickup and terms of pick-up (internal garbage storage tied to each building);
- Separation of laneway/garbage loading and children's play-area – grade differential (less than 5%) and plantings used to separate the two activities / spaces;
- Applicant states that “all” rainwater to be reused – that would be excellent but needs to be confirmed or clarified through City's review of stormwater management;

- Accessibility of units- how many are there and can the proposed units be converted to accessible units in the future;
- Accessibility of units- how many are there and can the proposed units be converted to accessible units in the future;
- Rain-screen assembly (brick as cladding with air gap, exterior insulation, wood stud, vapor barrier, and dry wall) – looking as mass timber for the floor structure, roof structure and elevator core with wood stud infill;
- Configuration and design of the rental units (Building 1);
- Design of the mansard roof with Building 1 – provides variability in the design and accommodates some stepping of height moving west to east;
- Design of floors, mass timber with concrete topping to help with sound attenuation and additional space for insulation to keep rainwater out of the building;
- How will rainwater management facilities impact the design of the roof of Building 2 – intent is to manage rainwater through plumbing within the party walls or to hide the infrastructure if required on the exterior of the building;
- Management of market and non-market buildings, ideally, undertaken by same entity so that there is a cohesive management direction between buildings;
- Construction materials should weather well in the White Rock context;
- Compliment for use of renderings and variability / breaks in massing;
- Building 1 and 2 are similar in design and material, and may be read as a single large building – perhaps worth looking at materiality to create some additional variation between buildings;
- Comments made regarding the need for a location for service vehicles, e.g. food delivery or taxis, to stop near the buildings and overall accessibility (or distance) from portions of the overall development site;
- Landscape plan has good flow of spaces and fits the configuration of the property well; would like to see the pedestrian path between Buildings 2 and 3 made wider (~1 foot wider) and in southeast corner of the site; would like stepping stones south of Building 3 to be evaluated in terms of the impact that trees (roots) may have on the area over time and the type of stepping stones used in terms of their longevity (larger basalt stones may be a better option)

**It was MOVED and SECONDED**

THAT the Advisory Design Panel recommends that the application for the development proposal at 15704, 15724, 15728, 15738, 15748, 15758, 15770 North Bluff Road [Beachway II] be referred to Council subject to the applicant giving consideration to:

- Adequacy of parking supply;
- Adequacy of location of spaces for deliveries / drop-offs;
- Management of stormwater;
- Further development of the landscape proposal in the Southeast corner of the site.

**CARRIED**

**Land Use and Planning Committee – June 27, 2022 (DRAFT/UNAPPROVED)**

**4. WHITE ROCK ZONING BYLAW, 2012, NO. 2000, AMENDMENT (CD ZONE 67 - 15704, 15724/28/38/48/58/70 NORTH BLUFF ROAD) BYLAW, 2022, NO. 2435**

Corporate report dated June 27, 2022 from the Director of Planning and Development Services titled "White Rock Zoning Bylaw, 2012, No. 2000, Amendment (CD Zone 67 - 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435."



The Director of Planning and Development Services provided a PowerPoint that gave an overview of the application.

The following discussion point was noted:

- At the Advisory Design Panel meeting there were comments regarding the stepping stones, staff will provide clarification on this

**Motion Number: 2022-LU/P-020** It was MOVED and SECONDED

**THAT the Land Use and Planning Committee recommend that Council:**

- 1.Receive for information the corporate report dated June 27, 2022, from the Director of Planning and Development Services, titled " White Rock Zoning Bylaw, 2012, No 2000, Amendment (CD Zone 67 – 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435"; and**
- 2.Give first and second readings to "White Rock Zoning Bylaw, 2012, No. 2000, Amendment (CD Zone 67 – 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435" as presented, and direct staff to schedule the required Public Hearing;**
- 3.Direct staff to resolve the following issues prior to final adoption, if Bylaw No. 2435 is given third reading after the public hearing:**
  - a.Ensure that all engineering requirements and issues, are addressed to the satisfaction of the Director of Engineering and Municipal Operations;**
  - b.Confirm and ensure the recommendations of the final arborist report, approved by the Director of Planning and Development Services and, more specifically the City's Arboricultural Technician, are implemented and maintained through future demolition and construction activities.**

**Motion CARRIED (6 to 0)**

**Regular Council – June 27, 2022 (DRAFT/UNAPPROVED)**

- 8.1.b BYLAW 2435: WHITE ROCK ZONING BYLAW, 2012, NO. 2000, AMENDMENT (CD ZONE 67 - 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435"**

Bylaw 2435: A Bylaw to amend the "White Rock Zoning Bylaw, 2012, No. 2000" to allow for a multi-building development at 15074, 15724/28/38/48/58/70 North Bluff Road.

**Motion Number: 2022-290** It was MOVED and SECONDED

**THAT Council give first and second readings to "White Rock Zoning Bylaw, 2012, No. 2000, Amendment (CD Zone 67 – 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435" as presented.**

**Motion CARRIED (6 to 0)**

**Motion Number: 2022-291**

It was MOVED and SECONDED

**THAT Council direct staff to schedule the required Public Hearing for "*White Rock Zoning Bylaw, 2012, No. 2000, Amendment (CD Zone 67 – 15704, 15724/28/38/48/58/70 North Bluff Road) Bylaw, 2022, No. 2435*" as presented.**

**Motion CARRIED (6 to 0)**

**Motion Number: 2022-292** It was MOVED and SECONDED

**THAT Council direct staff to resolve the following issues prior to final adoption, if Bylaw No. 2435 is given third reading after the public hearing:**

- a. **Ensure that all engineering requirements and issues, are addressed to the satisfaction of the Director of Engineering and Municipal Operations;**
- b. **Confirm and ensure the recommendations of the final arborist report, approved by the Director of Planning and Development Services and, more specifically the City's Arboricultural Technician, are implemented and maintained through future demolition and construction activities.**

**Motion CARRIED (6 to 0)**

**Motion Number: 2022-293** It was MOVED and SECONDED

**THAT Council endorse the June 27, 2022 Regular Council meeting be extended past 9:30 p.m. until the completion of all agenda topics.**

Voted in the negative (1): Councillor Manning

**Motion CARRIED (5 to 1)**