



# Committee of Council Agenda

Tuesday, March 17, 2020

2:00 p.m.

Council Chambers

3rd Floor City Hall, 2580 Shaughnessy Street, Port Coquitlam, BC

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Pages

1. CALL TO ORDER

2. ADOPTION OF THE AGENDA

2.1 Adoption of the Agenda

Recommendation:

*That the Tuesday, March 17, 2020, Committee of Council Meeting Agenda be adopted as circulated.*

3. CONFIRMATION OF MINUTES

3.1 Minutes of Committee of Council

1

Recommendation:

*That the minutes of the following Committee of Council Meetings be adopted:*

- *December 17, 2019*
- *March 3, 2020.*

4. REPORTS

4.1 Tyner Street/Kingsway Avenue Intersection Review

9

Recommendation:

*That Committee of Council direct staff to remove the intersection improvements at Tyner Street/Kingsway Avenue from the scope of work for the PCCC off-site works, and include the work as part of the Kingsway Avenue corridor improvements.*

4.2 Q4 2019 Workplan Updates

98

Recommendation:

*None.*

**4.3 Parks Bylaw Signage - Follow Up**

Recommendation:

*That Committee of Council direct staff to proceed with parks bylaw sign installation as per the template included within the March 17, 2020 report.*

**5. COUNCILLORS' UPDATE**

**6. MAYOR'S UPDATE**

**7. CAO UPDATE**

**8. RESOLUTION TO CLOSE**

**8.1 Resolution to Close**

Recommendation:

*That the Committee of Council Meeting of Tuesday, March 17, 2020, be closed to the public pursuant to the following subsections(s) of Section 90(1) of the Community Charter:*

Item 5.1

*c. labour relations or other employee relations.*

Item 5.2

*e. the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality.*

Item 5.3

*l. discussions with municipal officers and employees respecting municipal objectives, measures and progress reports for the purposes of preparing an annual report under section 98 [annual municipal report].*

**9. ADJOURNMENT**

**9.1 Adjournment of the Meeting**

Recommendation:

*That the Tuesday, March 17, 2020, Committee of Council Meeting be adjourned.*

**10. MEETING NOTES**



# Committee of Council Minutes

Tuesday, December 17, 2019

Heritage Room

3rd Floor, City Hall, 2580 Shaughnessy Street, Port Coquitlam, BC

Present: Chair - Mayor West  
Councillor Darling  
Councillor Dupont  
Councillor McCurrach  
Councillor Penner  
Councillor Pollock  
Councillor Washington

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## 1. CALL TO ORDER

The meeting was called to order at 2:00 p.m.

## 2. ADOPTION OF THE AGENDA

### 2.1 Adoption of the Agenda

Moved-Seconded:

*That the Tuesday, December 17, 2019, Committee of Council Meeting Agenda be adopted as circulated.*

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Penner, and Councillor Pollock

Absent (1): Councillor Washington

Carried

## 3. CONFIRMATION OF MINUTES

### 3.1 Minutes of Committee of Council

Moved-Seconded:

*That the minutes of the following Committee of Council Meetings be adopted:*

- *December 3, 2019.*

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Penner, and Councillor Pollock

Absent (1): Councillor Washington

Carried

#### **4. REPORTS**

##### **4.1 2020 Draft Utility Rates**

###### Moved-Seconded:

*That Committee of Council direct staff to prepare the 2020 utility rate bylaws based on the draft budget as presented in the December 17, 2020, staff report, "2020 Draft Utility Rates".*

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Penner, and Councillor Pollock

Absent (1): Councillor Washington

###### Carried

##### **4.2 Watercourse and Development Permits - 1528 Broadway Street**

###### Moved-Seconded:

*That Committee of Council:*

1. *Approve Watercourse Development Permit DP000387 to provide for watercourse protection and enhancement at 1528 Broadway Street.*
2. *Approve Development Permit DP000377, which regulates an industrial development at 1528 Broadway Street.*

In Favour (7): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Penner, Councillor Pollock, and Councillor Washington

###### Carried

#### **5. COUNCILLORS' UPDATE**

No update.

#### **6. MAYOR'S UPDATE**

No update.

#### **7. CAO UPDATE**

No update.



## 8. RESOLUTION TO CLOSE

### 8.1 Resolution to Close

#### Moved-Seconded:

*That the Committee of Council Meeting of Tuesday, December 17, 2019, be closed to the public pursuant to the following subsections(s) of Section 90(1) of the Community Charter:*

#### Item 5.1

*k. negotiations and related discussions respecting the proposed provision of a municipal service that are at their preliminary stages and that, in the view of the council, could reasonably be expected to harm the interests of the municipality if they were held in public.*

#### Item 5.2

*e. the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality;*

*k. negotiations and related discussions respecting the proposed provision of a municipal service that are at their preliminary stages and that, in the view of the council, could reasonably be expected to harm the interests of the municipality if they were held in public.*

#### Item 5.3

*e. the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality;*

*k. negotiations and related discussions respecting the proposed provision of a municipal service that are at their preliminary stages and that, in the view of the council, could reasonably be expected to harm the interests of the municipality if they were held in public.*

#### Item 5.4

*i. the receipt of advice that is subject to solicitor-client privilege, including communications necessary for that purpose;*

*l. discussions with municipal officers and employees respecting municipal objectives, measures and progress reports for the purposes of preparing an annual report under section 98 [annual municipal report].*

In Favour (7): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Penner, Councillor Pollock, and Councillor Washington

#### Carried

**9. ADJOURNMENT**

**9.1 Adjournment of the Meeting**

Moved-Seconded:

*That the Tuesday, December 17, 2019, Committee of Council Meeting be adjourned at 4:31 p.m.*

In Favour (7): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Penner, Councillor Pollock, and Councillor Washington

Carried

**10. MEETING NOTES**

Councillor Washington joined the meeting during Item 4.2 (2:30 p.m.).

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Mayor

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Corporate Officer



# Committee of Council Minutes

Tuesday, March 3, 2020

Council Chambers

3rd Floor City Hall, 2580 Shaughnessy Street, Port Coquitlam, BC

Present:	Chair - Mayor West Councillor Darling Councillor Dupont	Councillor Penner Councillor Pollock
Absent:	Councillor McCurrach	Councillor Washington

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## 1. CALL TO ORDER

The meeting was called to order at 3:00 p.m.

## 2. ADOPTION OF THE AGENDA

### 2.1 Adoption of the Agenda

Moved-Seconded:

*That the Tuesday, March 3, 2020, Committee of Council Meeting Agenda be adopted as circulated.*

In Favour (5): Mayor West, Councillor Darling, Councillor Dupont, Councillor Penner, and Councillor Pollock

Absent (2): Councillor McCurrach, and Councillor Washington

Carried

## 3. CONFIRMATION OF MINUTES

### 3.1 Minutes of Committee of Council

Moved-Seconded:

*That the minutes of the following Committee of Council Meetings be adopted:*

- *February 18, 2020.*

In Favour (5): Mayor West, Councillor Darling, Councillor Dupont, Councillor Penner, and Councillor Pollock

Absent (2): Councillor McCurrach, and Councillor Washington

Carried

## **4. REPORTS**

### **4.1 Bear Management**

#### Moved-Seconded:

*That Committee of Council approve:*

*I. allocating \$125,000 from the Cart Reserve to 2020 Cart and Lock replacement capital project to facilitate the distribution of 120L locks; and*

*II. allocating \$225,000 from the Cart Reserve to 2020 Cart and Lock replacement capital project to facilitate the distribution of 240L & 360L locks; and*

*III. allocating \$13,600 from accumulated surplus for a direct mail out to remaining homes which have not received a cart lock, and*

*IV. allocating \$8,000 from accumulated surplus to complete a bear hazard assessment Amending the financial plan accordingly; and*

*That Committee of Council recommend Council give first three readings to Bylaw Notice Enforcement Amendment Bylaw No.4166, and Ticket Information Utilization Amendment Bylaw No. 4167, which will increase the Solid Waste Bylaw infractions for unsecured waste from a \$150 fine per infraction to a \$500 fine per infraction.*

In Favour (5): Mayor West, Councillor Darling, Councillor Dupont, Councillor Penner, and Councillor Pollock

Absent (2): Councillor McCurrach, and Councillor Washington

#### Carried

### **4.2 BC Games 2024 and 2026**

Staff presented a review of invitation to bid on the upcoming 2024 & 2026 BC Games and answered questions from Council. The City will not be submitting an application for this intake.

### **4.3 January 2020 Community Centre Update**

Staff provided an update and answered questions from Council.

## **5. COUNCILLORS' UPDATE**

None.

## **6. MAYOR'S UPDATE**

None.

## **7. CAO UPDATE**

None.

## **8. RESOLUTION TO CLOSE**

### **8.1 Resolution to Close**

Moved-Seconded:

*That the Committee of Council Meeting of Tuesday, March 3, 2020, be closed to the public pursuant to the following subsections(s) of Section 90(1) of the Community Charter:*

Item 5.1

*g. litigation or potential litigation affecting the municipality;*

Item 5.2

*f. law enforcement, if the council considers that disclosure could reasonably be expected to harm the conduct of an investigation under or enforcement of an enactment;*

Item 5.3

*g. litigation or potential litigation affecting the municipality;*

Item 5.4

*g. litigation or potential litigation affecting the municipality.*

In Favour (5): Mayor West, Councillor Darling, Councillor Dupont, Councillor Penner, and Councillor Pollock

Absent (2): Councillor McCurrach, and Councillor Washington

Carried

## **9. ADJOURNMENT**

### **9.1 Adjournment of the Meeting**

Moved-Seconded:

*That the Tuesday, March 3, 2020, Committee of Council Meeting be adjourned at 3:45 p.m.*

In Favour (5): Mayor West, Councillor Darling, Councillor Dupont, Councillor Penner, and Councillor Pollock

Absent (2): Councillor McCurrach, and Councillor Washington

Carried

**10. MEETING NOTES**

None.

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Mayor

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Corporate Officer

### **RECOMMENDATION:**

*That Committee of Council direct staff to remove the intersection improvements at Tyner Street/Kingsway Avenue from the scope of work for the PCCC off-site works, and include the work as part of the Kingsway Avenue corridor improvements.*

### **PREVIOUS COUNCIL/COMMITTEE ACTION**

None.

### **REPORT SUMMARY**

This report summarizes the progression of analysis relating to the Tyner Street/Kingsway Avenue intersection, which started with a review of the road network as part of the off-site works for the new community centre, and has more recently been re-assessed in the context of the overall Kingsway Avenue corridor. The report recommends that the scope of work currently approved for the intersection (a roundabout scheduled for 2021) be removed from the community centre off-site works, and be discussed/considered as part of the Kingsway Avenue corridor improvements projects (tentatively scheduled for 2022).

### **BACKGROUND**

A traffic impact assessment (TIA) was undertaken as part of the initial project planning in 2016 for both the new Port Coquitlam Community Centre as well as the neighboring Quantum development. The traffic study assessed the traffic operations before construction commenced, after opening the facility and completing the neighboring development (2021), as well as 5-years later (2026). The full report can be found in Attachment 1. The assessment was limited to the area directly adjacent to the two properties, and did not include analysis of the remainder of the Kingsway corridor. It also did not assume specific redevelopments along Kingsway, but rather applied overall estimated traffic growth to the network.

This analysis was used to inform the scope of work for the off-site upgrades, and while there were some concerns about how the two roundabouts would operate (at Kelly and Tyner) given their close proximity, ultimately the City chose to include construction of a roundabout at Tyner Street and Kingsway Avenue as part of the scope of the off-site works that are currently scheduled for completion in 2021.

## Tyner Street/Kingsway Avenue Intersection Review

Since the 2016 TIA was completed, the City has received a number of development applications along the corridor, which prompted the City to undertake a comprehensive review of the corridor to plan for upgrades to meet the City's long term needs. This review included an analysis of the near future (2029) conditions, as well as a longer term (2044) conditions; longer time horizons than the previous TIA. The review was informed from details of known re-developments along the corridor, and their specific traffic demands, and considers the entire corridor from Tyner to the Mary Hill Bypass. This corridor review can be found in Attachment 2. Staff presented the recommendations for the corridor to Committee on February 18, 2020, and committee has provided feedback to further refine the plans before proceeding to detailed design.

One of the key areas that Committee discussed was the Tyner Street/Kingsway Avenue intersection, where staff has changed our recommended approach from a roundabout, to a right-in/right-out access only. Based on the information presented, Committee was not comfortable with the impacts this would have, and requested additional information.

However, the roundabout is currently included with the off-site works for the community centre project, which will be finalized very soon. As such, staff requested that Committee delete this scope of work from the community centre works (scheduled for 2021) and include them with the Kingsway Avenue works tentatively planned for 2022. This would allow for further discussion of this intersection as part of the overall corridor plans. Committee directed staff to bring forward the previous work completed for consideration and identify what has changed, prior to considering this request.

### **DISCUSSION**

The key issue associated with the roundabout that was noted in both studies, is the spillback from one roundabout to the other due to the limited spacing between the intersections of Kingsway Avenue/Kelly Avenue, and Kingsway Avenue/Tyner Street. As volumes increase, the spillback and queueing will increase which limits the available movements at the intersection. Both studies conclude that the Kingsway Avenue/Tyner Street roundabout will function at a reasonable level of service, until spillback conditions start to exist during peak periods causing the roundabouts to fail. The updated assessment that reflects the growth along the corridor, as well as the longer time frame, predicts this is likely to occur by 2026.

Roundabout operations are based on several variables including: wait times, volume versus capacity and queue lengths. When volume exceeds capacity, the intersection essentially operates like a stop controlled intersection instead of free flowing with a lower level of service. Specifically at roundabouts, motorists must make judgments about entering gaps; these judgments become more challenging at higher volume to capacity ratios because priority is given to motorists within the roundabout. Back up and queueing into roundabouts further causes motorists to stop at the entry legs.

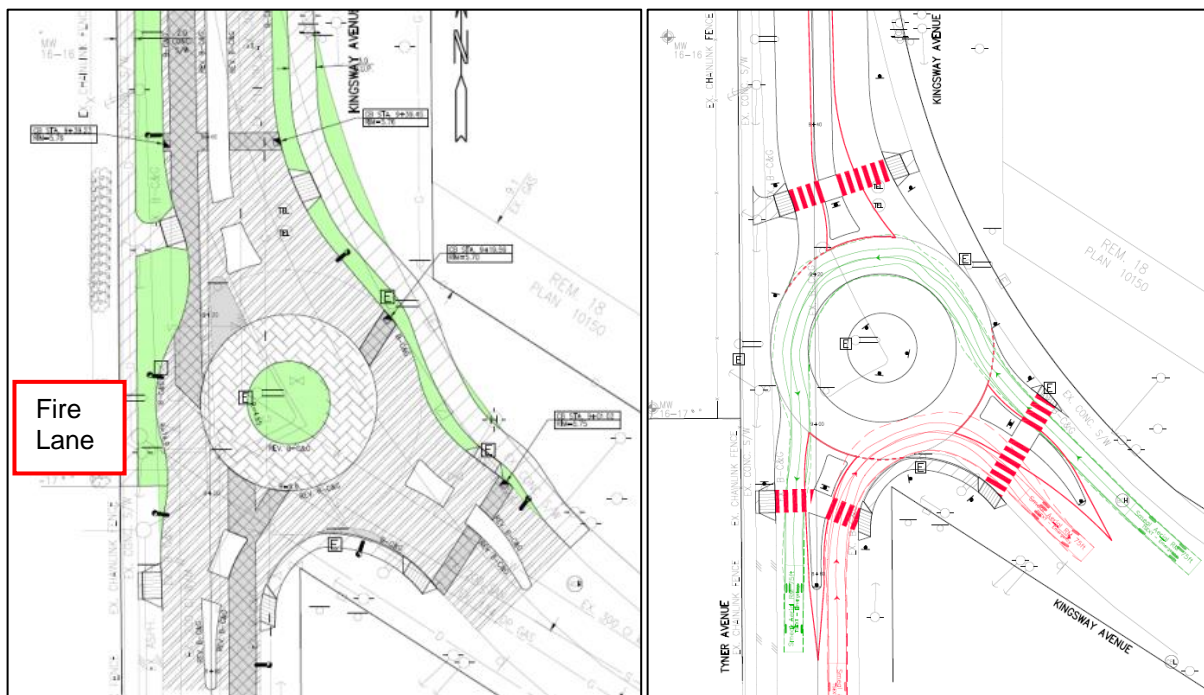


## Tyner Street/Kingsway Avenue Intersection Review

In addition, now that further design work has been concluded, there are some challenges identified with the turning movements at the Tyner Street/Kingsway Avenue that the Committee should be aware of and consider. Given the skew of the intersection and limited land available for the radius of the roundabout, it will be challenging for larger trucks (including fire trucks) to make the westbound left turn onto Tyner and the westbound thru movements along Kingsway Avenue without mounting adjacent curbs, or the interior truck apron. This will have maintenance implications for this infrastructure in the long term.

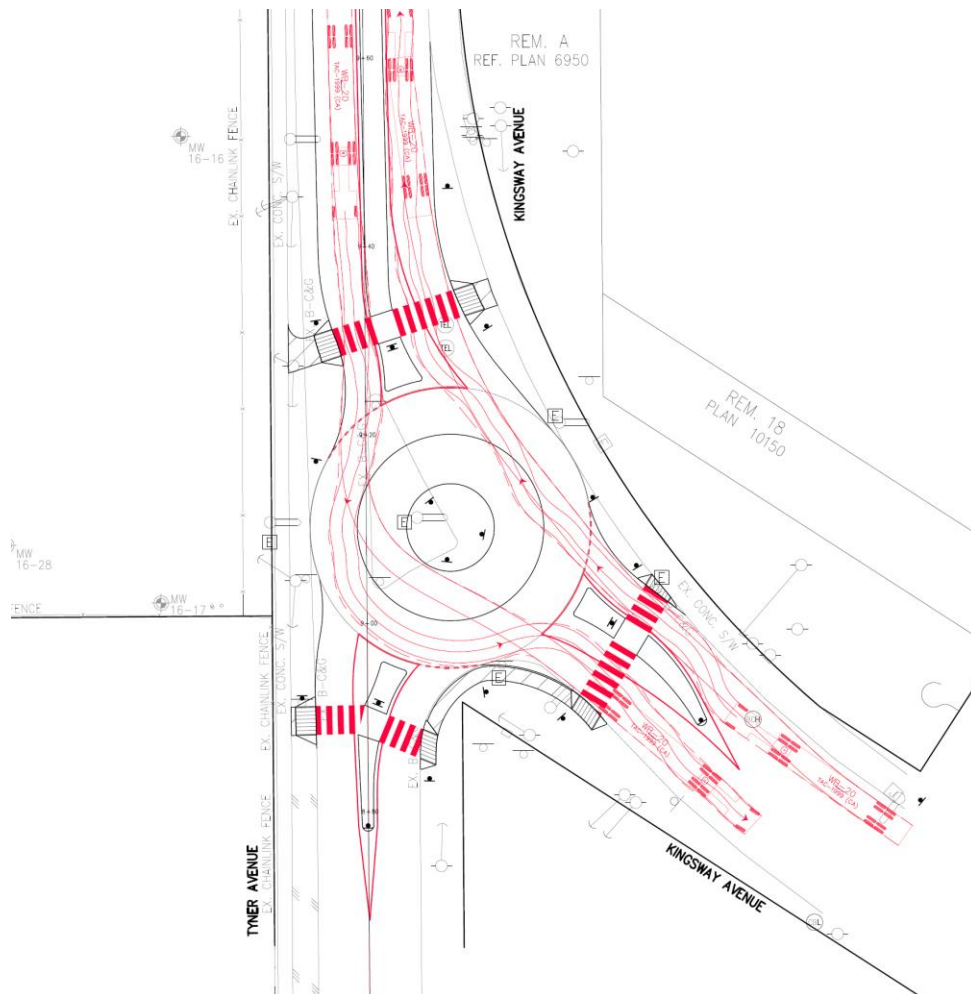
And finally, subsequent to completion of this design (and through the building permit process for the adjacent Quantum development), we now know that lane access is required to the rear of the Quantum site (this would be restricted to fire access only). If the City proceeds with a roundabout, modifications will be required to allow for Fire access to this new lane.

The draft design drawings and turning template for the fire truck are shown below.



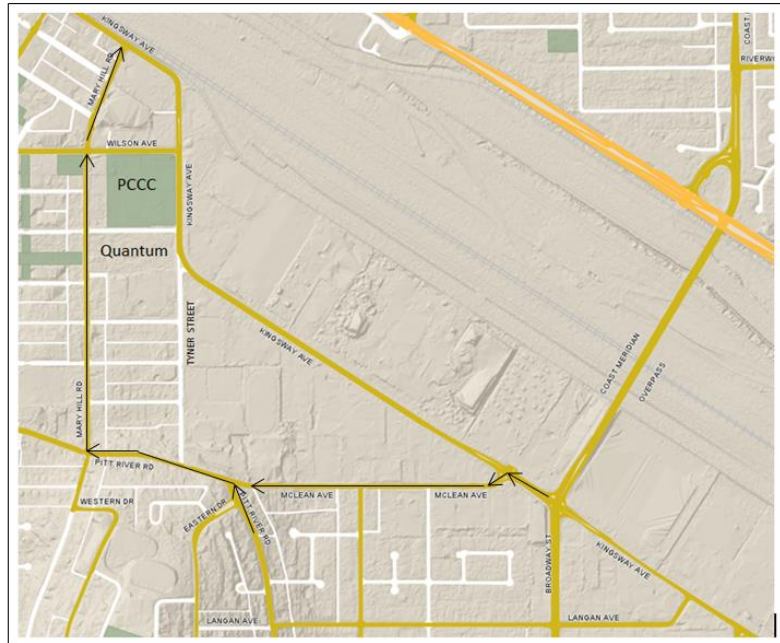
## Tyner Street/Kingsway Avenue Intersection Review

The draft design drawings and turning template for a tractor trailer are shown below:



## Tyner Street/Kingsway Avenue Intersection Review

One of the key concerns that staff heard from Committee in the discussion of this specific intersection, was the limited option to re-route traffic who would no longer be able to make left turns. A map of the road network in and around this area is shown below.



The traffic assessments estimate that approximately 65 vehicles are making the left on to Tyner Street, and approximately 60 off of Tyner Street on to Kingsway, during the peak hours. The alternate routes would be as follows:

- For limited local traffic that is already on Tyner Street and wishing to head north on Kingsway Avenue, the alternate routes are via Hawthorne, Central or Rindall Avenues, to Mary Hill Road, which connects to Kingsway Avenue.
- For traffic coming from the south (ex. via Pitt River Road), the alternate route would be to stay on Pitt River Road, to Mary Hill Road, to Kingsway.
- For traffic heading westbound on Kingsway that currently turns left on to Tyner Street, the alternate routes would be either to turn left at McLean Avenue/Pitt River Road, and then right on Tyner Street. Or alternatively, to stay on Kingsway, left on Wilson Avenue, left on Mary Hill Road, and then access the area using any one of the local streets.

Re-routing this limited traffic has no impact on the level of service of the alternate routes.

## Tyner Street/Kingsway Avenue Intersection Review


As noted in the most recent traffic impact assessment, the current level of service for the intersection is acceptable (ie. there is no imminent need to change/upgrade the intersection). Therefore, staff recommend that the intersection work be removed from the PCCC off-site scope of works, and be considered with the overall corridor improvements. Alternatively, if Committee believes that something must be done at this intersection sooner than later, staff would recommend that the restriction to right-in/right-out be included in the scope of work for the off-site works (and constructed in 2021 with the other works).

Committee may also wish to consider continuing with the current scope of work (roundabout) as part of the PCCC off-sites, recognizing the level of service will be reduced over time as traffic volumes increase in the area.

### **FINANCIAL IMPLICATIONS**

Under current market conditions, the additional costs to construct a roundabout instead of a right-in/right-out configuration is approximately \$300,000.

### **OPTIONS** (✓ = Staff Recommendation)

	#	Description
	1	Remove the Tyner Street/Kingsway Avenue intersection from the PCCC offsite scope of work, and assess/complete with the Kingsway Avenue corridor improvements.
	2	Revise the scope of work to construct the RIRO at Tyner Street and Kingsway Avenue as part of the PCCC offsite work
	3	Continue with current plans including a roundabout at Tyner Street and Kingsway Avenue as part of the PCCC off-site works.

### **ATTACHMENTS**

Att#1: 2017-05-30 Traffic Impact Assessment

Att#2: 2020-02-13 Traffic Impact Assessment

**Lead author(s):** Forrest Smith

**Contributing author(s):** Jason Daviduk, Kristen Dixon






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# FINAL REPORT - Traffic Analysis Report

## Port Coquitlam Recreation Complex

### Port Coquitlam, BC

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Howes Technical Advantage Ltd.  
April 2017

This report was prepared by Howes Technical Advantage Ltd. for the City of Port Coquitlam and Ventana Construction Corporation. The scope of work and related responsibilities are defined in the Conditions of Assignment. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Decisions made or actions taken as a result of this work shall be the responsibility of the parties directly involved in the decisions or actions.

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Appendix A – Traffic Count Data – (provided separately as an electronic file)

Appendix B – Synchro Results – (provided separately as an electronic file)

Appendix C – New Recreation Complex Site Plan



## 1. Introduction

Howes Technical Advantage Ltd. was retained by Ventana Construction Corporation (Ventana) to complete a Traffic Analysis Report for the proposed development of the Port Coquitlam Recreation Complex (Complex).

### 1.1. Background and Proposed Development

The redevelopment of the Complex has been under review for a number of years. A new facility will be built on the same site and replaces the existing Complex. Proposed residential and seniors housing will be developed to the south of the site at the location of the previous works yard. Ventana has been hired by the City of Port Coquitlam (the City) to develop the site as a design-build contract.

The existing Recreation Complex is located on the site bounded by Wilson Ave in the north, Mary Hill Road to the west, Kingsway Ave to the east and Kelly Ave to the south. The proposed residential development will be located south of Kelly Ave between Kingsway Ave and Mary Hill Road. There are also few lots north of Kelly Ave which are proposed to be residential development. The site location is shown in **Figure 1**.

The land use around the site includes a West Coast Express (WCE) station located to the north-east of the site as well as the Coast Mountain Bus Company (CMBC) bus depot. The main commercial area is located west and north of the site with a large industrial area to the east of the site.

There is an existing agreement to allocate 30 parking spaces for WCE users on the existing Complex lot. The actual allocated spaces are closer to 100.

The new Complex will replace the existing facility, including the Wilson Centre and Terry Fox Library, and a new facility will be built on the same site providing a wide range of recreation facilities as well as a new library and senior facilities. The new building will also include three sheets of ice, an indoor leisure pool and new fitness facilities.

### 1.2. Study Area

The study area is shown in **Figure 1** together with the study intersections.

#### Existing Road network:

The existing road network is described below<sup>1</sup>:

- |                |   |
|----------------|---|
| ▪ Wilson Ave   | This two-lane collector road runs east-west from Reeve St in the west to the intersection with Kingsway Ave to the north-east of the site. This is a main bus route accessing the bus depot. The road pavement is 12m wide with one lane in each direction and parking allowed on both sides. |
| ▪ Mary Hill Rd | This is a two-lane collector road running north-south from Kingsway in the north connecting south into the residential neighbourhoods. This road also has transit routes. The road pavement is 11m wide with one lane in each direction and parking is allowed on both sides.                 |
| ▪ Kingsway Ave | This is an arterial road and is an important truck route for the City and connects to the Coast Meridian Road and Mary Hill Bypass to the south east. The route connects west through the north of the City Centre to   |

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<sup>1</sup> OCP Bylaw No. 3838

- Kelly Ave  
Lougheed Highway in Coquitlam. The road pavement is 13m wide and there is one lane in each direction with parking allowed on both sides in some places.  
This is a local road connecting from Kingsway Ave in the east to the City neighbourhoods to the west. The road pavement is 10m wide and there is one lane in each direction with parking allowed on both sides in some places.

**Study Area Intersections:**

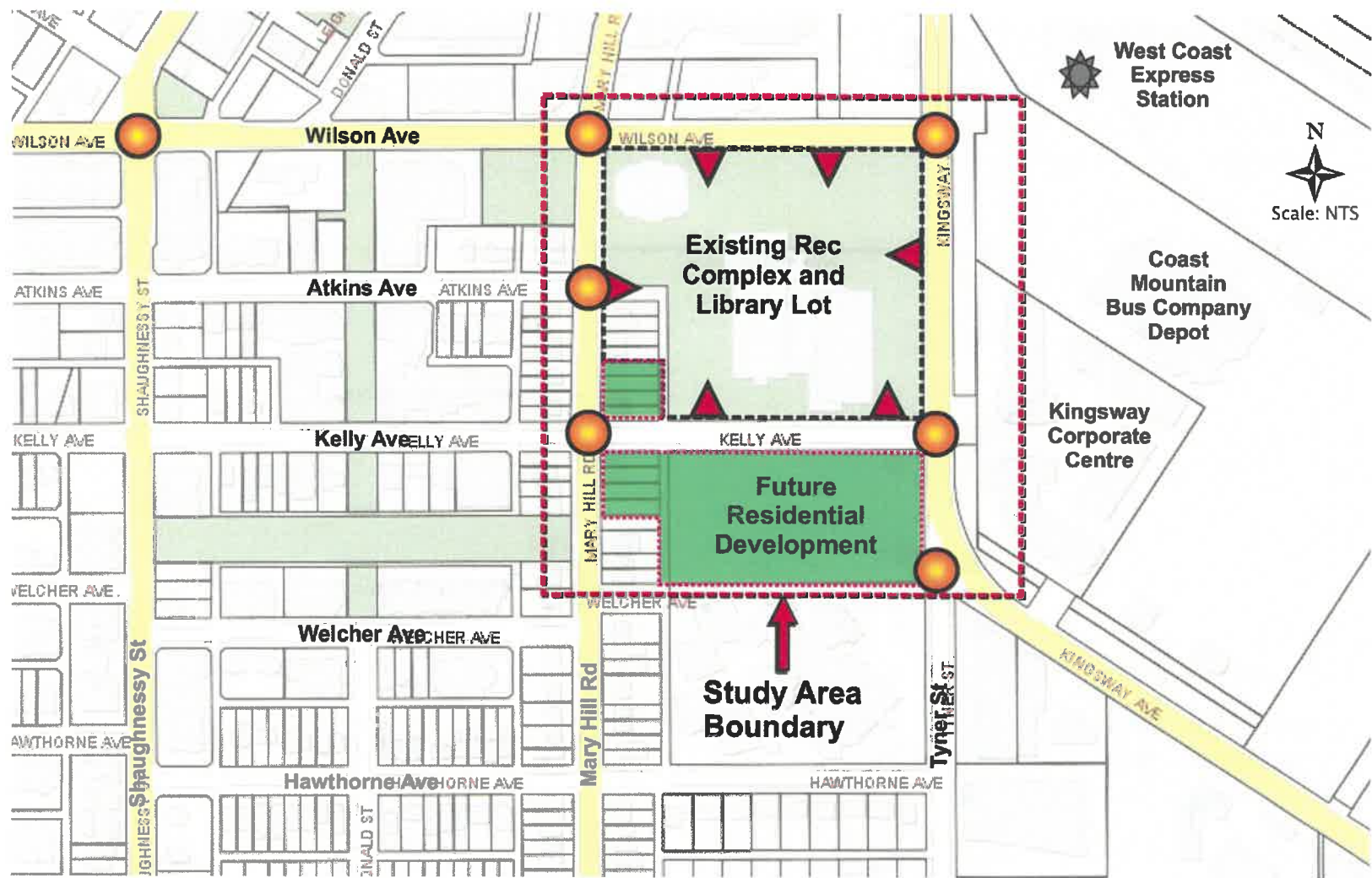
The study area for the traffic study includes this entire area and has 6 main intersections which include:

- Wilson Ave/Mary Hill Rd - signalized
- Wilson Ave/Kingsway Ave - signalized
- Kingsway Ave/Kelly Ave
- Kelly Ave/Mary Hill Rd
- Atkins Ave/Mary Hill Rd (the new Complex entrance is located south of Atkins Ave)
- Kingsway Ave/Tyner St

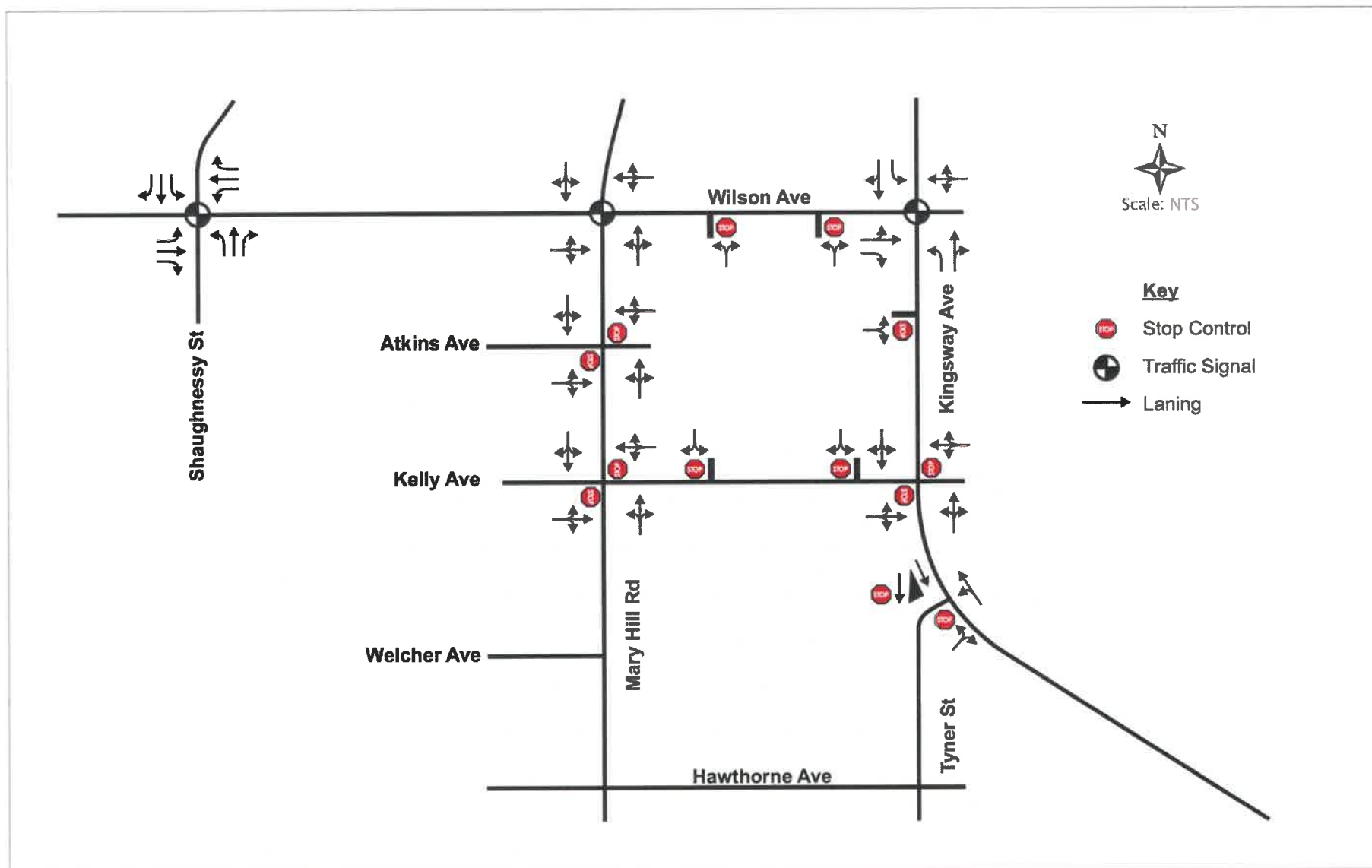
There are also 5 driveway locations to the existing Complex which form part of the review.

The intersection of Wilson Ave and Shaughnessy Street (signalized) was also reviewed although it was not in the immediate study area.

The existing laning and traffic control for the existing network is shown in **Figure 2**.



**Figure 1**  
**Study Area**



## 2. Analysis Methodology and Assumptions

### 2.1. Analysis Horizon

This study analyzed three time horizons:

- 2016 Existing conditions
- 2021 Total Traffic Opening Day
- 2026 Total Traffic Conditions

### 2.2. Analysis Methodology

The methodology used is described below in the following steps:

1. Existing traffic data (December 2016) was collected for all the study intersections and driveways.
2. Proxy data was also collected (January 2017) from two other Recreation Complexes in order to establish the future trip generations.
3. The peak hour was determined from the data collected and the street PM peak hour was determined to be the worst case scenario.
4. The trips to the existing Complex were also higher in the PM peak period.
5. The existing traffic was balanced on the existing network to allow for a solid base for analysis.
6. In order to develop the Future Background traffic:
  - a. The existing Complex traffic was removed
  - b. Existing traffic was increased by the background growth factor
7. The future site traffic was established using the proxy data and the existing Complex data.
8. The future network includes the closing of Kelly Ave and including two main accesses to the new Complex off Mary Hill Rd (West Access) and off Kelly Ave from the east (East Access).
9. The future site traffic was assigned to the network using assumptions based on existing traffic patterns.
10. The total traffic for the future years was completed by adding the future background traffic to the future site traffic.
11. Analysis was undertaken using software tools, engineering judgement and assessment.

### 2.3. Synchro Analysis

The SYNCHRO<sup>2</sup> software suite was used for the traffic analysis for the existing and future analyses. This analysis is based on the procedure and methods of the Highway Capacity Manual (HCM) for signalized and unsignalized intersections.

The key outputs for intersection analysis for each movement and for the overall intersection are:

- Level of Service (LOS): range A – very good to F – very poor
- Volume to capacity ratio v/c
- Average delay per vehicle in seconds
- Queue length in metres (95%) – where the average space for a car is 7m.

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<sup>2</sup> Synchro Software – Version 9.1

The v/c ratio is a ratio of the factored volume to the calculated capacity. Typically in an urban centre, a v/c ratio of 0.90 or lower is desirable for the overall intersection and for critical traffic movements.

The LOS is determined as a function of the average delay per vehicle (reference HCM). The criterion upon which LOS is determined differs for signalized and unsignalized intersections. Typically, a LOS of “D” or better is desirable. Table 1 shows the relationships between LOS and average vehicle delay.

**Table 1: LOS Criteria**

LOS	Average delay for UNSIGNALIZED intersection movements (seconds per vehicle)	Average delay for SIGNALIZED intersection movements (seconds per vehicle)
A	0-10	0-10
B	> 10-15	> 15-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

SYNCHRO results reflect conditions using traffic volumes for a 60 minute period; the peak hour. While SYNCHRO results may not reflect the worst or best conditions that may occur during the hour, it does provide a good comparative tool to identify differences in operating conditions related to volume changes, laning changes or signal timing/phasing changes.

For ease of reference only LOS and Queue length were tabulated in the body of the report. All the detailed outputs are shown in Appendix B.

## 2.4. Analysis Assumptions

For analysis purposes the following assumptions were made:

- **Growth Rate:** An annual background growth rate of 1.5% per year was used as confirmed by the City.
- **Network:**
  - The layout and laning for the street network was used as per Existing network.
  - The future network included the closure of Kelly Ave.
- **Laning and configuration:** with the following details:
  - Existing lane widths – actual lane widths vary considerably; existing lane widths were used as actual from 3.0m to a maximum of 3.6m wide (some lanes are wider); measurements were taken from the City GIS and Google Maps.
  - Future lane widths – Minimum of 3.3m for general purpose lanes with 3.1m min for left turn lanes.
  - Grade 0%
  - Heavy vehicles 1% (actual counts <1%)
- **Signal timing:**
  - Signal timings as per City timing sheets.
  - Analysed signal as actuated and un-coordinated.
  - Peak Hour Factor (PHF) – the actual count intersection PHF was used for existing; the future PHF used was 0.92.

- **Pedestrians:**
  - Pedestrians were included as per the peak hour for that intersection (this is conservative as the WCE pedestrian peak is earlier than the street peak).
- **Cyclists:** Very low bicycle use – was included in the vehicle count.
- **Study times of day:**
  - The street peak hour for the AM is between 8:00 and 9:00AM and for the PM is between 4:30 and 5:30PM.



### 3. Existing Conditions

#### 3.1. Observations

The following observations were made from numerous site visits as well as input from the City staff:

1. Traffic currently circulates well through the network.
2. The multiple accesses from the Complex dissipate the traffic across the network.
3. Vehicle and pedestrian volumes in the morning reflect a peak hour that ties in with the WCE departures.
4. The on-site WCE parking is fully utilized.
5. The on street parking which does not have a time limit appears to be used by WCE customers or employees of the Complex.
6. The interconnected parking areas allow on-site circulation for drivers searching for parking at peak times.
7. The well-defined, conveniently located front door drop-off/pick up system at the Complex appears to provide adequate space for this function.
8. It is difficult to make a left turn onto Kingsway Ave at Kelly Ave and at Tyner St at peak times.

#### 3.2. Data Collection

The existing AM and PM traffic volumes, pedestrians, bicycles and heavy vehicles were counted on Wednesday December 7, 2016 and the midday peak for Saturday December 3, 2016. All intersections and driveways were counted as shown in **Figure 1**. The counts were undertaken from 7:00 to 10:00AM and 3:00 to 7:00PM on Wednesday; and 12:00 to 3:30PM on Saturday. The Saturday counts were significantly lower than the weekday peak periods. The weekday counts are shown in **Figure 3**. The count data is included in **Appendix A**.

Based on a review of the data, the street peak hours are from 8:00 to 9:00AM and from 4:30 to 5:30PM. The worst case scenario is the PM peak hour. ***All further analysis includes only the PM peak hour.***

#### 3.3. Existing PM 2016 Traffic Volumes

The existing PM traffic data for the study area was adjusted to the street peak hour and balanced to establish the existing background traffic. This is shown in **Figure 4**.

The 2016 PM peak hour traffic volumes were analyzed based on the existing laning configuration, signal timings and network. The Synchro analysis results showing the Level of service (LOS) and the 95 percentile queue (95% Q) are shown in **Table 2**. The acronyms used as described as follows: EB – eastbound, WB – westbound, SB – southbound, ND – northbound; L – left, T – through, R – right.

The current network operates generally very well. The majority of the intersection movements are operating at LOS D or better except for the left turn movements onto Kingsway Ave at the unsignalized intersections.

- **Wilson Ave/Mary Hill Rd:**
  - The SB movement has a long queue build of close to 100m. This could be mitigated with a signal timing adjustment as well as adding a left turn pocket lane.
- **Wilson Ave/Kingsway Ave:**
  - The SB movement has a long queue of 115m. This needs to be monitored with redevelopment. Some adjustments to the signal time may reduce this slightly.



- ***Kelly Ave/Kingsway Ave:***
  - The WB LT movement fails with an associated queue build up. This is due to the lack of gaps on Kingsway for this movement.
  - The EB movement also experiences delay but drivers at Kelly Ave also have options to exit via another driveway and avoid the left turn delay.
- ***Tyner St/Kingsway Ave:***
  - The EB LT fails with a 50m 95 percentile queue. This is due to the high through movements at this location on Kingsway and the lack of gaps to make the turn.
- ***Wilson Ave/Shaghnessy St:***
  - The NB through movement has a long queue build of ~ 150m. This could be mitigated with a signal timing adjustment and needs to be monitored.

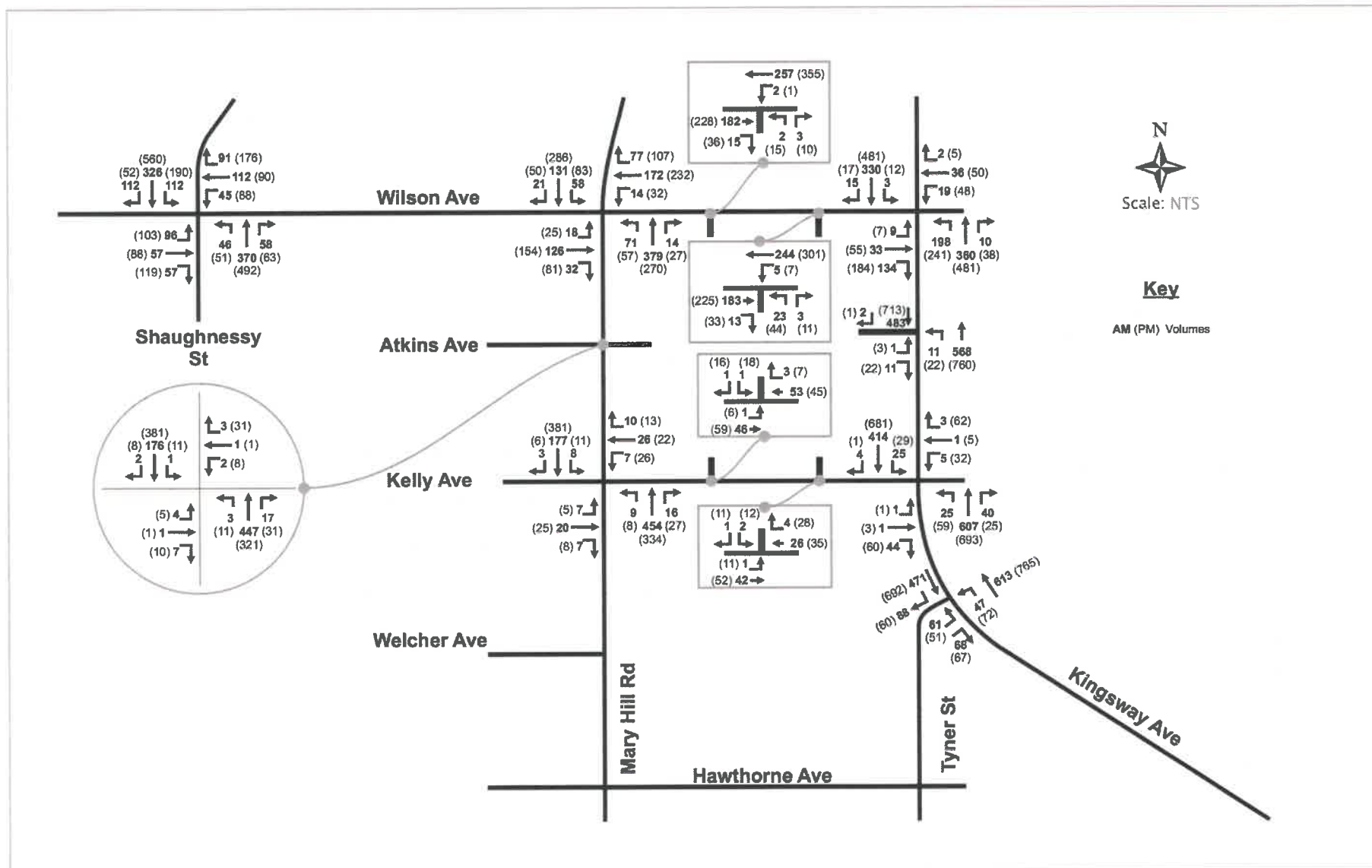
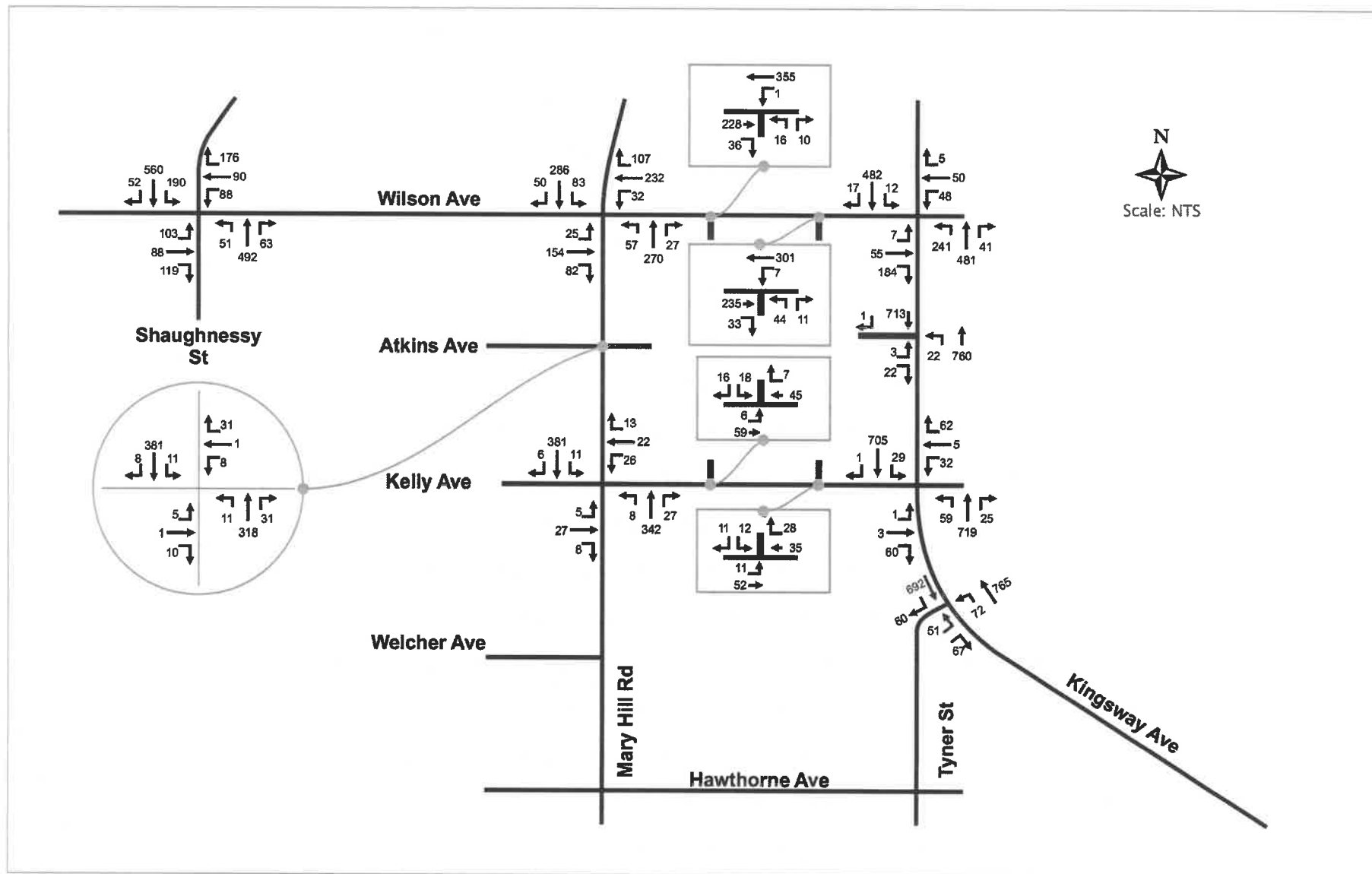


Figure 3  
Existing Weekday Peak Hour Traffic



**Figure 4**  
**Existing 2016 Weekday PM Peak Hour Traffic - Balanced**

**Table 2: 2016 Existing PM Peak Hour Analysis**

Intersection	Movement	PM Pk Hr	
		LOS	95% Q
Wilson Ave/Mary Hill Rd	EB LTR	B	42
	WB LTR	C	67
	NB LTR	B	68
	SB LTR	C	98
	Overall	C	
Wilson Ave/Kingsway Ave	EB LT	C	21
	EB R	B	13
	WB LTR	D	31
	NB L	B	39
	NB TR	A	61
	SB L	B	5
	SB TR	C	115
	Overall	B	
Kingsway Ave/Kelly Ave	EB LTR	D	12
	WB L	F	98
	NB LTR	A	3
	SB LTR	A	2
	Overall		
Kelly Ave/Mary Hill Rd	EB LTR	D	8
	WB LTR	D	14
	NB LTR	A	1
	SB LTR	A	1
	Overall		
Atkins Ave/Mary Hill Rd	EB LTR	C	2
	WB LTR	C	4
	NB LTR	A	1
	SB LTR	A	1
	Overall		
Kingsway Ave/Tyner St <sup>3</sup>	EB L	F	50
	EB R	C	7
	NB L	B	4
	Overall		
Wilson Ave/Shaghnessy St	EB L	D	32
	EB T	C	26
	EB R	A	12
	WB L	D	30
	WB T	C	27
	WB R	A	14
	NB L	B	16
	NB T	C	146
	NB R	A	5
	SB L	B	27
	SB T	B	102
	SB R	A	6
	Overall	B	

<sup>3</sup> Laning allowed for NB left turn pocket lane and EB left turn pocket lane

## 4. Site Traffic

### 4.1. New Development and Network

The new Recreation Complex will replace the existing Complex. The current plan for the development is attached in **Appendix C**. The road network will be changed so that Kelly Ave becomes two short cul-de-sacs – one from Mary Hill and one from Kingsway. The new Complex will have two accesses – the west access will connect as a T-junction to Mary Hill Rd between Atkins Ave and Kelly Ave. This west access will have two lanes exiting with a 50m left turn bay. The east access will connect to Kelly Ave in the east. This east access will lead to the west leg of Kelly Ave and Kingsway which will have two lanes approaching Kingsway Ave.

The residential portion of the development has access to the west and east segments of Kelly Ave.

### 4.2. Site trip generation – New Recreation Complex

The trip generation used for this study was based on a number of inputs.

Traffic data was collected at the existing Recreation Centre in early December 2016. This is shown in **Figure 5**. Additional data was collected at two locations for Proxy data. These were chosen as they had similar facilities to the proposed expansion of the Recreational Complex. These two Proxy sites were:

1. Hyde Creek Recreation Centre, City of Port Coquitlam – see **Figure 6**
2. Edmonds Recreation Centre, City of Burnaby – see **Figure 7**

The net floor area for each of these facilities was calculated with input from the City, City of Burnaby and the design team. The types of uses were categorized with associated net floor space. The summary is shown in **Table 3**.

**Table 3: Summary and Comparison of Land Use**

Description	Edmunds Recreation Complex	Hyde Creek Recreation Complex	Existing Recreation Complex	New Recreation Complex
	<i>Net Floor area sq ft</i>	<i>Net Floor area sq ft</i>	<i>Net Floor area sq ft</i>	<i>Net Floor area sq</i>
<b>EXISTING USES</b>				
Library			8,073	8,073
Rinks			32,725	64,575
Offices	4,868		1,594	6,259
Multi-purpose room	915		8,886	4,989
Program Room 1		529	851	714
Program Room 2		646	950	470
Activity Room 1	1,087	768	472	1,399
Activity Room 2	1,485	540	439	1,269
Concession		300	557	633
Café			801	716
Senior Lounge	818		1,677	2,695
Games/Lounge	1,744		956	1,228
Youth Lounge	915	1,584	840	
Preschool program	1,712	460	4,945	2,516
<b>SUB TOTAL #1</b>	<b>13,544</b>	<b>4,827</b>	<b>63,766</b>	<b>95,536</b>
<b>NEW USES</b>				
Pool	17,557	8,255		4,062
Gymnasium	13,918	5,520		6,106
Fitness	3,412	1,345		2,353
Spinning				1,000
Weight Room	7,352	2,500		8,908
Physio		973		1,285
Meeting room 1	226	570		130
Meeting room 2	215	220		142
Meeting room 3	409			764
Sports Hall		1,419		
Racketball ct		800		
Squash ct		620		
Arts Studio	1,519			
<b>SUB TOTAL #2</b>	<b>44,608</b>	<b>22,222</b>	<b>0</b>	<b>24,750</b>
<b>TOTAL</b>	<b>58,152</b>	<b>27,049</b>	<b>63,766</b>	<b>120,286</b>

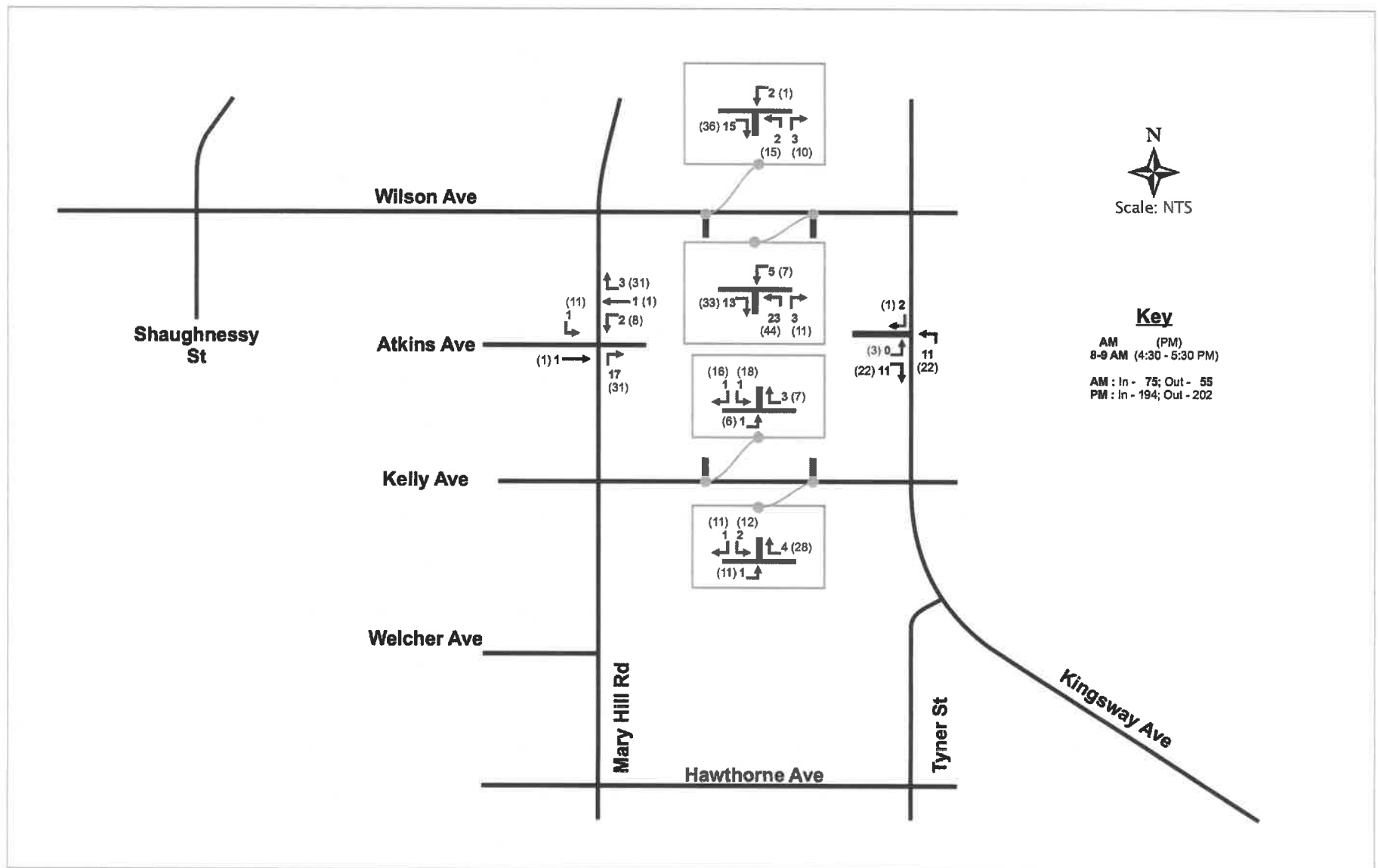


Figure 5  
**Existing Recreation Complex Trip Generation  
 Weekday Peak Hour Traffic**

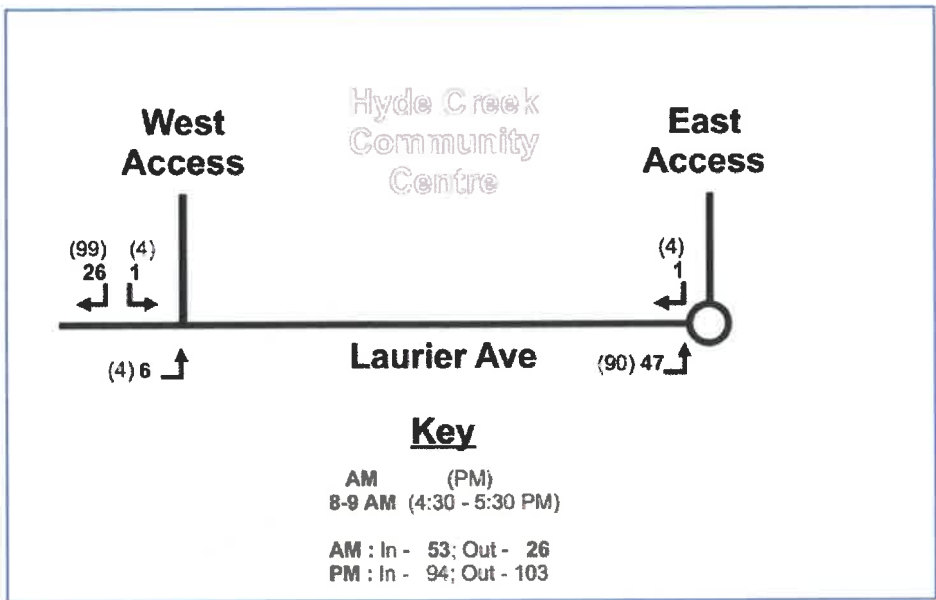


Figure 6: Hyde Creek Recreation Complex – Existing Weekday Peak Hour Traffic

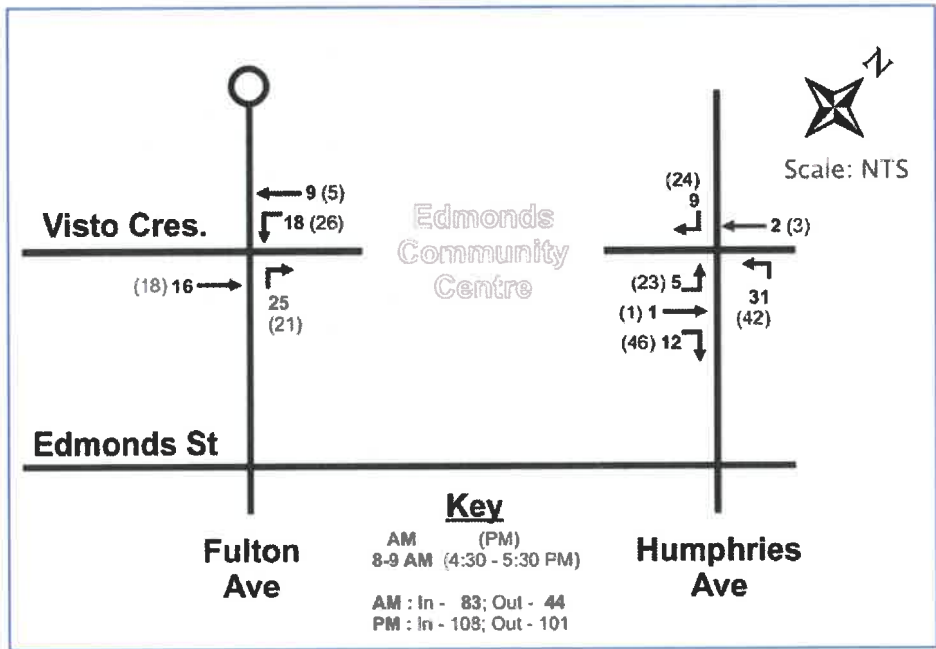


Figure 7: Edmonds Recreation Complex – Existing Weekday Peak Hour Traffic



The trips in and out of the centres were also reviewed and the associated trip rate calculated. This is shown in Table 4.

**Table 4: Trips generated by Recreation Complexes**

Description	Edmunds Recreation Complex	Hyde Creek Recreation Complex	Existing Recreation Complex	New Recreation Complex
<b>TOTAL Net Floor Area</b>	<b>58,152</b>	<b>27,049</b>	<b>63,766</b>	<b>120,286</b>
<b>Trip Generation</b>	<b>Trips</b>	<b>Trips</b>	<b>Trips</b>	<b>Trips calculated</b>
<b>AM Street Peak: 8-9AM</b>				
IN	83	53	75	174
OUT	44	26	55	114
TOTAL	127	79	130	288
%IN	65	67	58	60
%OUT	35	33	42	40
<b>PM Street Peak: 4:30-5:50PM</b>				
IN	108	94	194	404
OUT	101	103	201	425
TOTAL	209	197	395	829
%IN	52	48	49	49
%OUT	48	52	51	51
AM Peak - Trips per Net 1000 sq ft	2.18	2.92	2.04	2.39
PM Peak - Trips per Net 1000 sq ft	3.59	7.28	6.19	6.89

The data was assessed together with the trips rates and the follows approach was suggested and confirmed by the City and design team:

1. The current uses at the Existing Recreation Complex are expanded to 50% larger in the new Complex.
2. Hyde Creek is a better comparator that Edmunds based on:
  - a. the categories of uses and size
  - b. similar trip generation to the current Recreation Complex
3. Trip generation rates were calculated for the new Recreation Complex as follows:
  - a. Using the existing trip generated for the existing Recreation Complex and multiply this by 1.5.
  - b. Add the Hyde Creek trips as per count.
  - c. Add on an additional 5% of the total trips to be conservative.
4. The resulting trip rate for the New Complex falls between the Existing Complex and the Hyde Creek trip rate.

The data and associated trips are summarized in Table 5.

**Table 5: Summary of Site Trips**

	Hyde Creek	Existing Rec Complex	Future Rec Complex
Existing uses	4,800 sqft	63,800 sqft	95,600 sqft
Future uses	22,300 sqft		24,750 sqft
Existing trips AM	79	130	
Existing trips PM	197	395	
Future trips AM			288
Future trips PM			829

The future PM peak hour trips for the Complex are 829 with 404 inbound and 425 outbound.

### 4.3. Site trip generation – Residential and Senior use

Trip generations were established for the residential site to the south of the Complex. The current plan for the development is attached in **Appendix C**. There are three residential areas which will be developed. Firstly, a Seniors Facility is planned on the west side of the site with access only from Kelly Ave off Mary Hill Ave. Secondly, a rental apartment block is planned opposite the Seniors Facility south of Kelly Ave with access only from Kelly Ave off Mary Hill Ave. Thirdly, a residential development in the form of multi-family is proposed on the site south of Kelly Avenue between Mary Hill Ave and Kingsway Ave. This development will have an east and west access off Kelly Ave.

The trip generation used in this analysis was based rates from the ITE<sup>4</sup> trip general manual. As such the rates are conservative and no allowance has been made for trip reduction based on alternative mode use (such as using transit, cycling or walking) and live/work apartments.

The trips were calculated for each land use type using the preferred trip generation rates. A modified rate was used for the Apartment rental based on lower car ownership in rental compared to the United States. The application of the trip rates and the resulting trip generation is presented in **Table 6**.

<sup>4</sup> Institute of Transportation Engineers Trip Generation Manual, 9th Edition.

**Table 6: Trip generation – Residential and Seniors**

LAND USE TYPE			TRIP RATES					
			AM			PM		
ITE Category	per	Source	In	Out	Two way	In	Out	Two way
High Rise Residential Condo/TH	unit	ITE232	0.06	0.28	0.34	0.24	0.14	0.38
% entering			19%			62%		
% leaving			81%			38%		
High Rise Residential Condo/TH	328	ITE232	21	90	112	78	47	125

LAND USE TYPE			TRIP RATES					
			AM			PM		
ITE Category	per	Source	In	Out	Two way	In	Out	Two way
Seniors Living	unit	ITE250	0.07	0.13	0.2	0.14	0.12	0.25
% entering			34%			54%		
% leaving			66%			46%		
Seniors Living	54	ITE250	4	7	11	8	6	14

LAND USE TYPE			TRIP RATES					
			AM			PM		
ITE Category	per	Source	In	Out	Two way	In	Out	Two way
Apartment - rental - ITE 220 modified	unit	mod	0.06	0.28	0.34	0.33	0.21	0.54
% entering			19%			62%		
% leaving			81%			38%		
Apartment - rental - ITE 220 modified	54	mod	3	15	18	18	11	29

TOTAL TRIPS			AM			PM		
			In	Out	Two way	In	Out	Two way
			28	112	141	104	64	168

The future PM peak hour trips for residential, seniors and rental is a total of 168 with 104 inbound and 64 outbound.

#### 4.4. Total site trips

In summary, the new Recreation Complex will generate 829 trips in the PM Peak (inbound and outbound) and the residential development will generate 168 trips in the PM Peak (inbound and outbound). Therefore the total development will generate a total of 997 trips in the PM Peak (inbound and outbound).

#### 4.5. Trip distribution and Assignment – PM Peak

##### Recreational Complex:

There was limited information available regarding the origin and destination of recreation users of the Complex. In order to make assumptions on the future trips distribution, a closer review of the current operation and the split between approaches was undertaken. The existing road network in the vicinity was also taken into account.

The current trips using the existing driveways were reviewed in relation to approach and volume. The review revealed the following:

- Accesses off Wilson:
  - The majority of the trips approach from and depart to the west.
  - Very few trips approach from Kingsway Ave in the east.
- Accesses off Kingsway:
  - Very low left turn movement north onto Kingsway.
  - Higher demand of right turn movements to the south.

- Accesses off Kelly Ave:
  - The peak hour demand is influenced by WCE users accessing the south western side of the parking lot.
  - The majority of traffic using Kelly is destined for the Complex.
- Access off Mary Hill Rd at Atkins Ave:
  - Traffic is distributed both north and south.

With the new Recreation Complex, Kelly Avenue will be closed to through traffic and the only accesses to the Complex are off Mary Hill Rd (west access) and off Kelly Ave (east access). The distribution process took into account the approaches to the current accesses and the redistribution of this with the new accesses.

The existing arterial road network includes a strong connection via Kingsway Ave to Coast Meridian Road in the east. This provides a strong access point for users approaching to and from the north eastern parts of Port Coquitlam and Coquitlam.

The new distribution was calculated with the following approach:

- The percentage of trips using the 6 accesses in the existing centre was calculated for each driveway.
- These percentages were redistributed to the new driveway locations in the following way:
  - Wilson accesses:
    - to and from the west were assigned to the Mary Hill Access
    - to and from the east were assigned to the Kelly Ave access
  - Kingsway access: assigned to Kelly Ave Access
  - Kelly Ave west access: assigned to Mary Hill Access
  - Kelly Ave east access: assigned to Kelly Ave Access
  - Through traffic on Kelly Ave was reassigned to Hawthorne and Tyner.
  - Trips approaching the intersection of Wilson Ave at Mary Hill Rd were distributed 50/50 to and from the north and to and from the west.
  - Trips approaching the intersection of Wilson Ave at Kingsway to and from the south were distributed to and from the north only.

The reassigned percentage distribution for the site trips was used for the assignment of future site trips for the Recreation Complex. This is shown in **Figure 8**.

#### **Residential – Condos:**

The new distribution was calculated with the following assumptions:

- The trips were split 50/50 between the east and west access off Kelly Ave.
- Trips to and from the south are mainly work oriented trips.
- Trips to and from the north are mainly leisure, entertainment, shopping oriented.
- The majority of the trips will be to and from the south.
- Inbound trips: from the south - 70%; from the north – 30%.
- Outbound trips: to the south - 30%; to the north – 70%.

#### **Residential – Seniors:**

The new distribution was calculated with the following assumptions:

- There is only one access which is the west access off Kelly Ave.
- Trips to and from the south are mainly work oriented trips.
- Trips to and from the north are mainly leisure, entertainment, shopping oriented.
- The majority of the trips will be to and from the north.

- Inbound trips: from the south - 30%; from the north – 70%.
- Outbound trips: to the south - 30%; to the north – 70%.

**Residential – Apartment (Rental):**

The new distribution was calculated with the following assumptions:

- There is only one access which is the west access off Kelly Ave.
- Trips to and from the south are mainly work oriented trips.
- Trips to and from the north are mainly leisure, entertainment, shopping oriented.
- The majority of the trips will be to and from the south.
- Inbound trips: from the south - 70%; from the north – 30%.
- Outbound trips: to the south - 30%; to the north – 70%.

The percentage distribution for the residential site trips is shown in **Figure 9**. Error! Reference source not found.

**4.6. Total Site Traffic**

The total site traffic includes the new Complex traffic together with the Residential (Condos and Seniors) and is shown in **Figure 10**.

The west access at Mary Hill Road has a high percentage of the trips approaching and departing the Complex. The underground parking lot connects to both accesses and it is likely that traffic will redistribute with time, based on the time of the day, programming of the Complex and the operation of the access points.

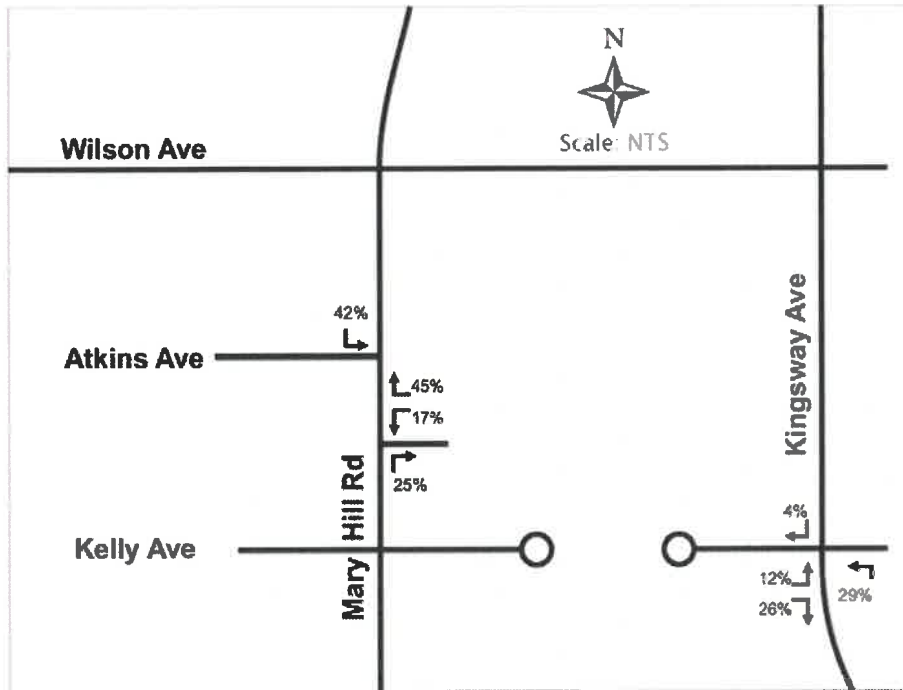


Figure 8: Future Residential Development – PM Trip Distribution Percentages

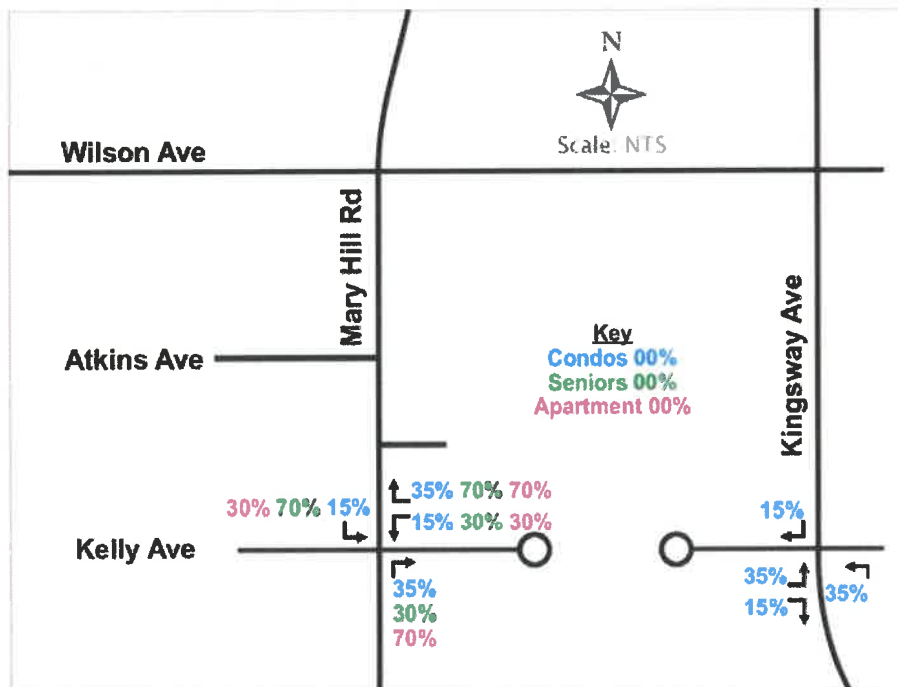


Figure 9: Future Residential Development – PM Trip Distribution Percentages

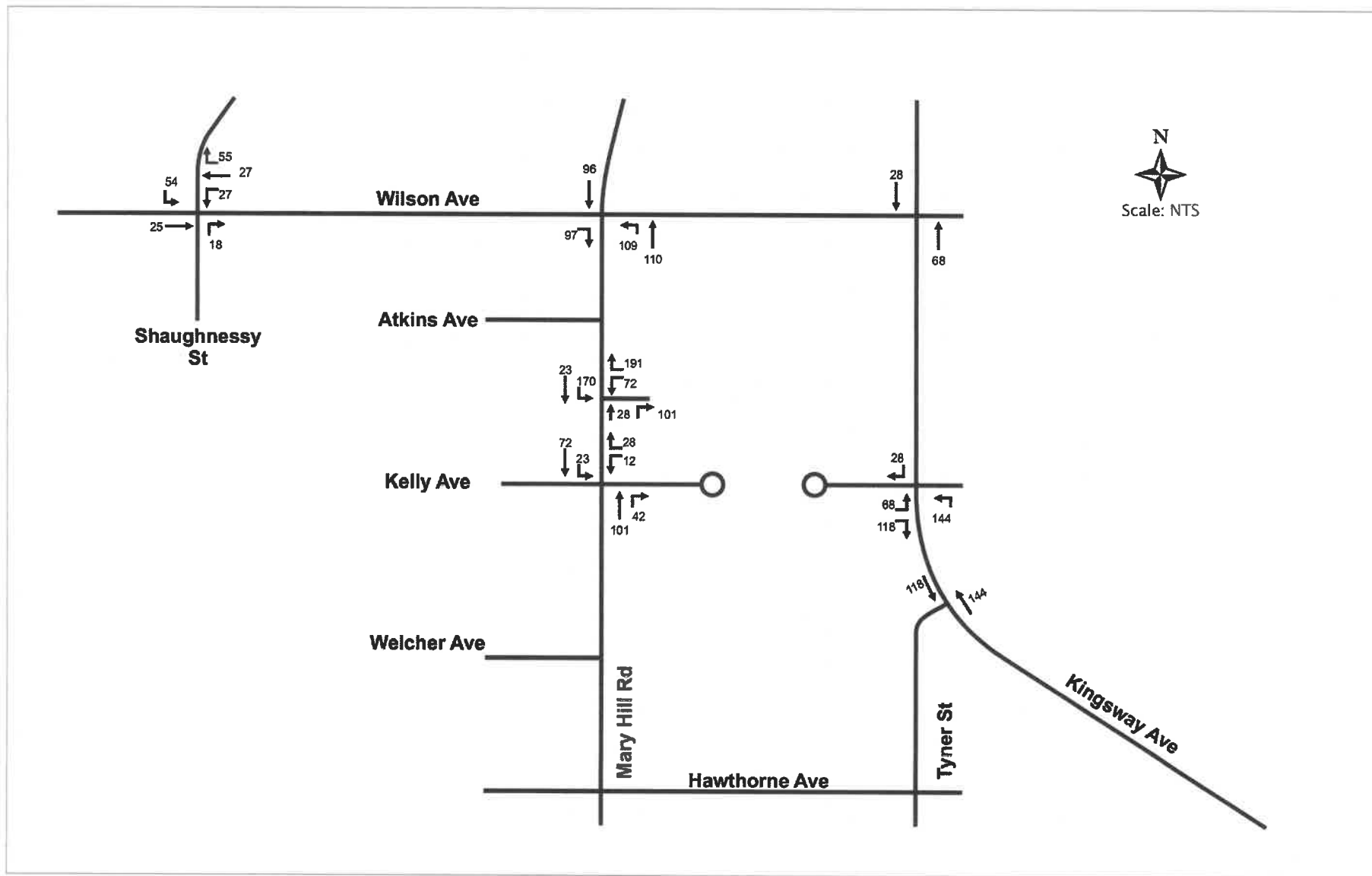


Figure 10  
Future Development Total PM Site Traffic

## 5. Future Background Traffic

### 5.1. Future PM 2021 Background Trips

The future background traffic was developed using the existing PM trips and removing the trips related to the existing Complex. Some of the background trips were also reassigned based on the new network with Kelly Ave being closed. The through trips on Kelly were reassigned via Hawthorne to Tyner St.

This new existing background base was then increased by the background growth rate of 1.5% per year over 5 years.

The resulting 2021 PM background trips is shown in **Figure 11**.

### 5.2. Future PM 2021 Background Analysis

The Future PM 2021 background traffic volumes were analyzed based on the existing laning configuration and signal timings with the new network. Only key intersections were analyzed for reference. The results are shown in **Table 7**.

The results show that the network operates reasonably well but the issues observed in the existing scenario continue even without the Complex traffic. There are also some improvements in operation based on the removal of the Complex traffic.

Intersections that have operational deficiencies that need to be mitigated or monitored are listed below:

- **Wilson Ave/Kingsway Ave:**
  - The SB movement has a long queue build of 126m. This needs to be monitored with redevelopment.
- **Kelly Ave/Kingsway Ave:**
  - The WB LT movement fails with associated queue build up. This is due to the lack of gaps on Kingsway for this movement.
- **Tyner St/Kingsway Ave:**
  - The EB LT also fails with a ~ 50m 95 percentile queue. This is due to the high through movements at this location on Kingsway and the lack of gaps to make the turn.

This analysis shows that many of the operational issues will occur with time even if the traffic demand related to the Complex is removed.



**Table 7: 2021 Future PM Background Analysis**

Intersection	Movement	PM Pk Hr	
		LOS	95% Q
Wilson Ave/Mary Hill Rd	EB LTR	B	37
	WB LTR	C	62
	NB LTR	B	59
	SB LTR	B	75
	Overall	B	
Wilson Ave/Kingsway Ave	EB LT	C	22
	EB R	B	17
	WB LTR	D	33
	NB L	B	41
	NB TR	A	66
	SB L	B	5
	SB TR	C	126
	Overall	B	
Kingsway Ave/Kelly Ave	EB LTR		
	WB L	F	47
	NB LTR		
	SB LTR	A	2
	Overall		
Kingsway Ave/Tyner St <sup>5</sup>	EB L	F	42
	EB R	C	8
	NB L	B	4
	Overall		

<sup>5</sup> Laning allowed for NB left turn pocket lane and EB left turn pocket lane

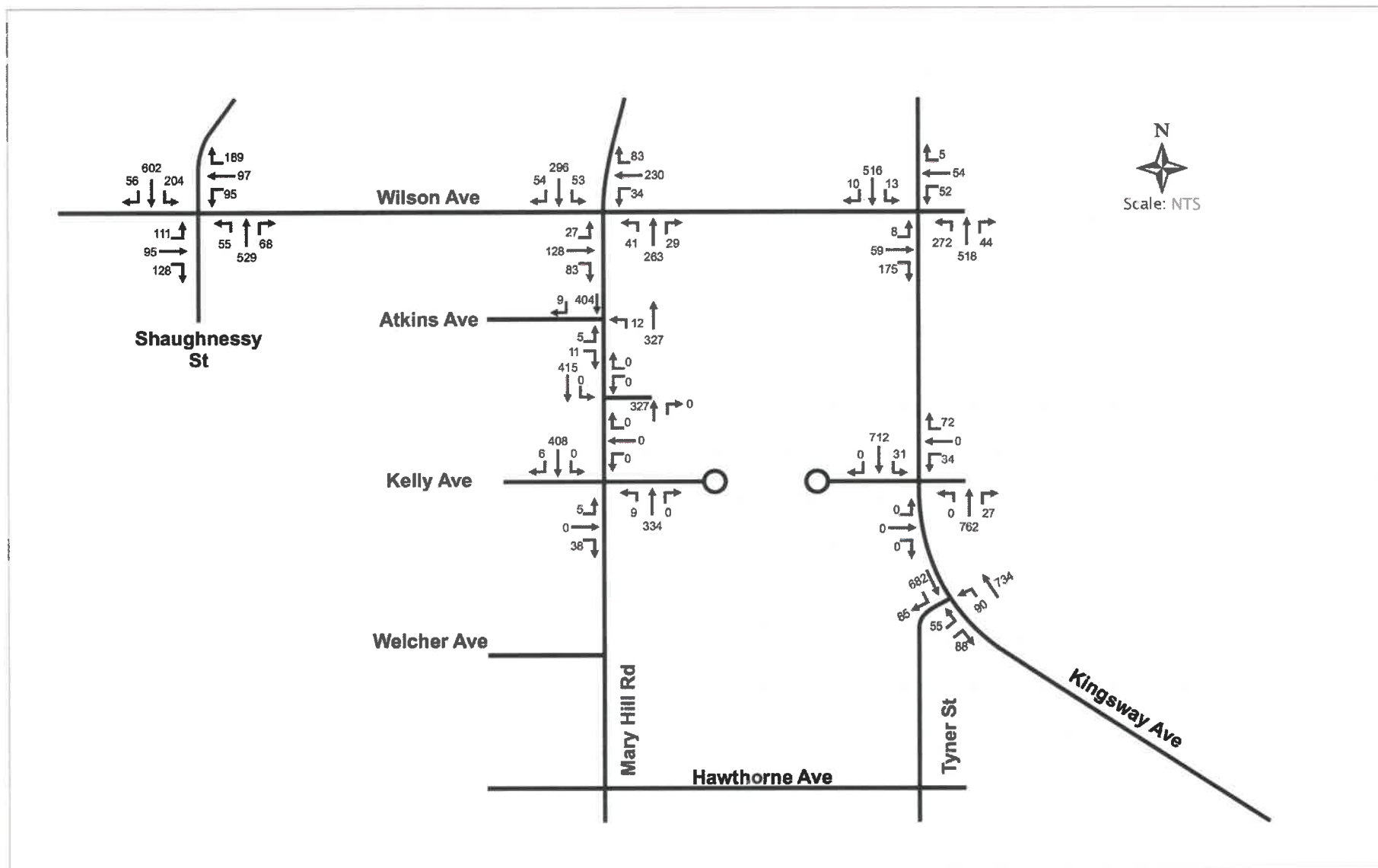


Figure 11  
Future 2021 PM Background Traffic

## 6. Future Total Traffic

### 6.1. Future PM 2021 Total Traffic – no improvements

The 2021 Future Total PM traffic was developed by adding the Total Site PM traffic to the 2021 Background PM traffic. This is shown in **Figure 12**.

Analysis was undertaken using the future volumes, the existing signal timing and the existing laning. The results are tabulated below in **Table 8**.

The discussion of the analysis and possible mitigation measures follows:

- **Wilson Ave/Mary Hill Rd:**
  - There are long queue build-ups for north and southbound. This could be mitigated with a signal timing adjustment as well as adding left turn pocket lanes. In addition, east and westbound short right turn lanes could provide some additional capacity to the north-south signal movement.
- **Wilson Ave/Kingsway Ave:**
  - The SB movement queue continues to grow with time. A signal timing adjustment to the east-west movement could add capacity north-south.
- **Kelly Ave/Kingsway Ave:**
  - This intersection fails with high delays and long queues for both the east and west movements.
  - As this is one of the main access to the Complex as well as a future link to the multi-use trail east of Kingsway Ave, signalization is recommended.
- **Kelly Ave/ Mary Hill Road:**
  - This intersection operates well.
  - There is some delay for the westbound movements but these volumes are low. There is less westbound traffic approaching this intersection than in the existing scenario.
- **Mary Hill Rd/West Access:**
  - The WB LT fails at this location.
  - This is the result of the high movements at this location.
  - Users of the centre, with time, will distribute their access based on time of day, delays at accesses and programming.
  - It is proposed that this intersection is monitored and possible future signalization may be necessary.
- **Tyner St/Kingsway Ave:**
  - The EB LT also fails with a long 95 percentile queue. This is due to the high through movements at this location on Kingsway and the lack of gaps to make the turn.
  - Signalization at Kelly Ave and Kingsway Ave will provide some gaps in traffic flow on Kingsway Ave.
  - A review of the intersection layout may provide some ability to access Kingsway with less delay.
- **Wilson Ave/Shaghnessy St:**
  - The NB through movement continues to have a queue build up. This could be mitigated with a signal timing adjustment and needs to be monitored.



**Table 8: 2021 Future PM Peak Hour Analysis – no improvements**

Intersection	Movement	PM Pk Hr	
		LOS	95% Q
Wilson Ave/Mary Hill Rd	EB LTR	B	50
	WB LTR	C	61
	NB LTR	D	159
	SB LTR	C	120
	Overall	C	
Wilson Ave/Kingsway Ave	EB LT	C	22
	EB R	B	18
	WB LTR	D	34
	NB L	B	42
	NB TR	A	73
	SB L	B	5
	SB TR	C	140
	Overall	B	
Kingsway Ave/Kelly Ave	EB LTR	F	Err
	WB L	F	Err
	NB LTR	A	7
	SB LTR	A	2
	Overall		
Kelly Ave/Mary Hill Rd	EB LTR	C	5
	WB LTR	D	8
	NB LTR	A	1
	SB LTR	A	1
	Overall		
Mary Hill Rd/West Access	EB L	F	27
	EB R	B	13
	NB TR		
	SB LT	A	6
	Overall		
Kingsway Ave/Tyner St <sup>6</sup>	EB L	F	64
	EB R	C	12
	NB L	B	5
	Overall		
Wilson Ave/Shaghnessy St	EB L	D	35
	EB T	C	34
	EB R	A	15
	WB L	D	38
	WB T	C	35
	WB R	B	22
	NB L	B	17
	NB T	C	161
	NB R	A	9
	SB L	B	46
	SB T	B	114
	SB R	A	7
	Overall	C	

<sup>6</sup> Laning allowed for NB left turn pocket lane and EB left turn pocket lane

## 6.2. Future Planning in Port Coquitlam

The 2013 Master Transportation Plan identified a few items in the study area that were included in the review. The Plan identified the following:

- *Kingsway Avenue: Wilson to Broadway Ave Mixed Use Trail:* This trail is planned for the east side of Kingsway within the BC Hydro right of way.
- *Downtown to Westwood St Bicycle Route:* This route is planned to connect along Kelly Ave and would be an east-west connection to the Kingsway trail in the east.
- *Signal at Tyner St/Kingsway Ave:* This has been identified for future signalization on Map 10 of the report. However the description refers to the CMBC access which is further east of Tyner.

## 6.3. Trips reduction through use of alternative modes and TDM

The analysis undertaken in this report does not take into account trip reduction factors due to use of alternative modes or terrific demand management (TDM). This analysis is conservative and trip reduction factors can be applied with input from the City.

## 6.4. Future PM 2021 Total Traffic – with improvements

Improvements were made to the future network to assist with mitigating some of the problems identified. Based on this review and the analysis results, the following improvements were added and the resulting operations were analyzed:

- *Wilson Ave/Mary Hill Rd:*
  - EB – added EB RT lane – 20m
  - WB – added WB RT lane – 10m
  - NB – added LT bay – 25m
  - SB – added LT bay – 20m
  - Some parking may need to be removed to allow for turn bays.
  - No road widening is required – only signs and markings.
- *Wilson Ave/Kingsway Ave:*
  - WB – added WB LT lane – 15m
  - No road widening is required – only signs and markings.
- *Kelly Ave/Kingsway Ave:*
  - New signal with pedestrian crossings on west, north and east legs
  - EB – added EB LT lane – 40m
  - WB – adjusted laning to WB LT and shared WB Th+R
  - NB – added LT bay – 40m
  - SB – added LT bay – 40m
  - No road widening is required – only signs and markings.
- *Tyner St/Kingsway Ave:*
  - Added a centre median island on Kingsway Ave which allows for left turn movements out of Tyner Street to take place into a refuge area before merging into northbound traffic.
  - Wider radius added for south leg to allow for a separate left and right turn lane on Tyner St.
  - Some civil works are required but no property impact is envisaged.

The concept layout for Kingsway is shown in **Figure 13**. The majority of the changes suggested can be accommodated within the existing road pavement. The signal improvement will need to include accommodation for cycle and pedestrian traffic accessing the trail on the east side of Kingsway Ave. The work at Tyner St will require some civil work to improve the geometry and add some width. This concept is for illustration purposes only and further design review is required to confirm feasibility.

The suggestions for improvements and conceptual layouts, as noted in this section, need to be confirmed in the field and additional review and design is required to confirm the geometry, impact on utilities, impact on landscaping, impact on the current road network, etc.

The resultant analysis is shown in **Table 9**. This table also shows that the individual movements satisfy the target of LOS D or better.

The discussion of the analysis follows:

- **Wilson Ave/Mary Hill Rd:**
  - The additional turn lanes reduced the queues significantly for the north-south movements.
- **Wilson Ave/Kingsway Ave:**
  - The addition of the WB LT pocket lane and adjustment to the signal timing reduced the SB queue slightly.
  - This intersection will need to be monitored.
- **Kelly Ave/Kingsway Ave:**
  - The signalization improves the operation with all movements at a LOS C or better.
  - The additional turn lanes are needed to provide this additional capacity at the intersection.
- **Kelly Ave/ Mary Hill Road:**
  - This intersection operates well.
  - There is some delay for the westbound movements but these volumes are low.
- **Mary Hill Rd/West Access:**
  - The WB LT fails at this location which is a result of the high movements at this location.
  - Users of the centre, with time, will distribute their access based on time of day, delays at accesses and programming.
  - It is proposed that this intersection is monitored and possible future signalization may be necessary.
- **Tyner St/Kingsway Ave:**
  - The installation of the signal at Kelly and Kingsway allows for slightly better operation.
  - The overall LOS of the intersection improves from a LOS F to D with the conceptual layout geometry. The EB LT is still delayed with LOS E but the queue is significantly shorter.
- **Wilson Ave/Shaghnessy St:**
  - All movements operate at LOS D or better.
  - The NB through movement continues to have a queue build up. This could be mitigated with a signal timing adjustment and needs to be monitored.
  - The SB L movement has a queue length that exceeds the bay length. This could be mitigated with a signal timing adjustment and needs to be monitored.

**Table 9: 2021 Future PM Peak Hour Analysis – with improvements**

Intersection	Movement	PM Pk Hr	
		LOS	95% Q
Wilson Ave/Mary Hill Rd	EB LT	B	27
	EB R	A	12
	WB LT	C	45
	WB R	A	10
	NB L	B	28
	NB TR	B	51
	SB L	A	9
	SB TR	B	59
	Overall	B	
Wilson Ave/Kingsway Ave	EB LT	D	24
	EB R	B	19
	WB L	D	20
	WB RT	C	21
	NB L	B	29
	NB TR	A	67
	SB L	B	5
	SB TR	C	131
	Overall	B	
Kingsway Ave/Kelly Ave	EB L	C	18
	EB TR	A	6
	WB L	C	11
	WB TR	A	1
	NB L	B	30
	NB TR	B	145
	SB L	A	5
	SB TR	A	102
	Overall	B	
Kelly Ave/Mary Hill Rd	EB LTR	B	3
	WB LTR	C	4
	NB LTR	A	1
	SB LTR	A	1
	Overall		
Mary Hill Rd/West Access	EB L	F	26
	EB R	B	13
	NB TR		
	SB LT	A	6
	Overall		
Kingsway Ave/Tyner St <sup>7</sup>	EB L	E	15
	EB R	C	12
	NB L	B	5
	Overall		
Wilson Ave/Shaghnessy St	EB L	D	35
	EB T	C	34
	EB R	A	15
	WB L	D	38
	WB T	C	35
	WB R	B	22
	NB L	B	17
	NB T	C	155
	NB R	A	8
	SB L	B	48
	SB T	B	114
	SB R	A	7
	Overall	C	

<sup>7</sup> Laning allowed for NB left turn pocket lane and EB left turn pocket lane; NB through traffic excluded



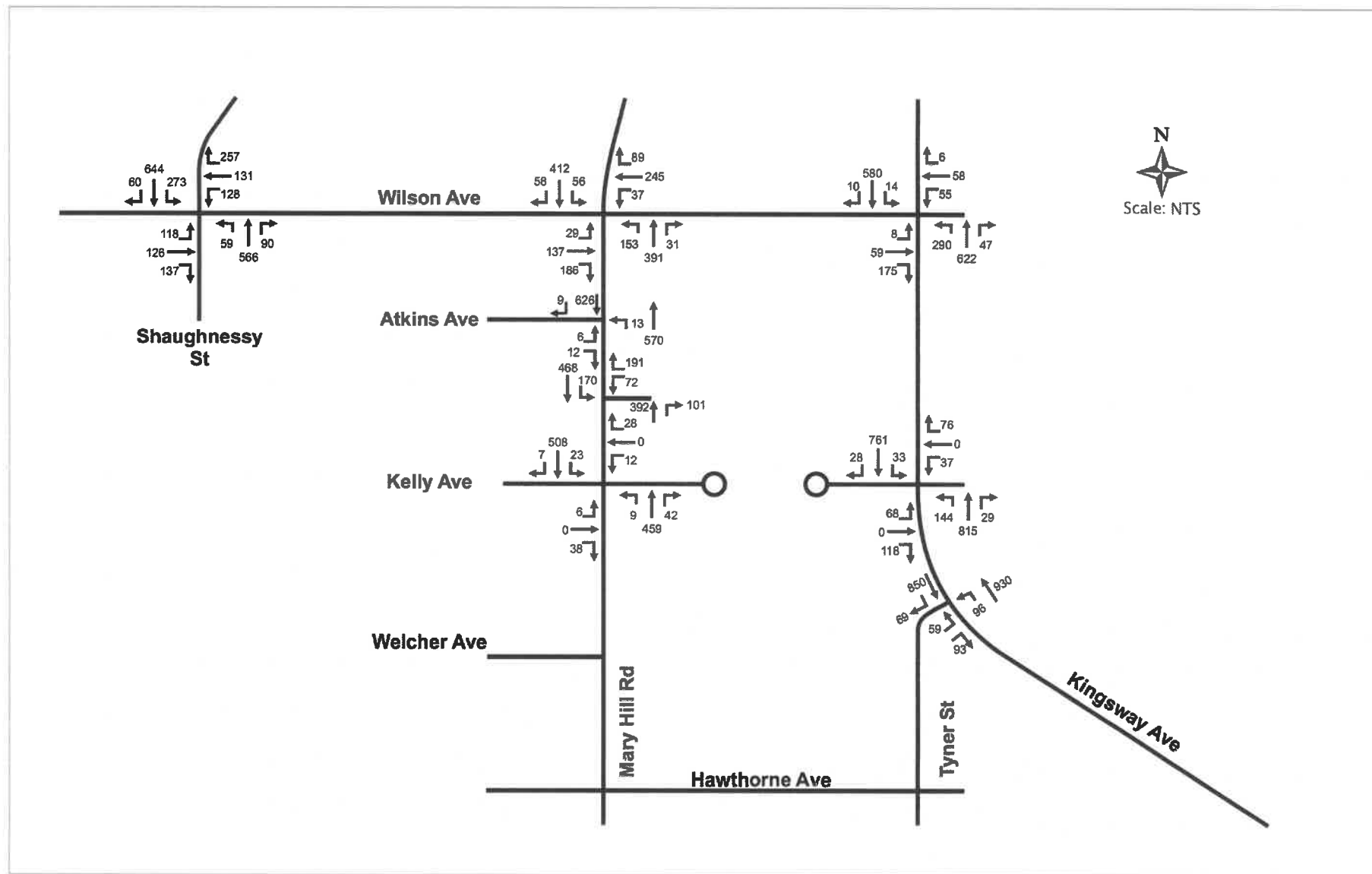


Figure 13  
Future 2026 PM Total Traffic

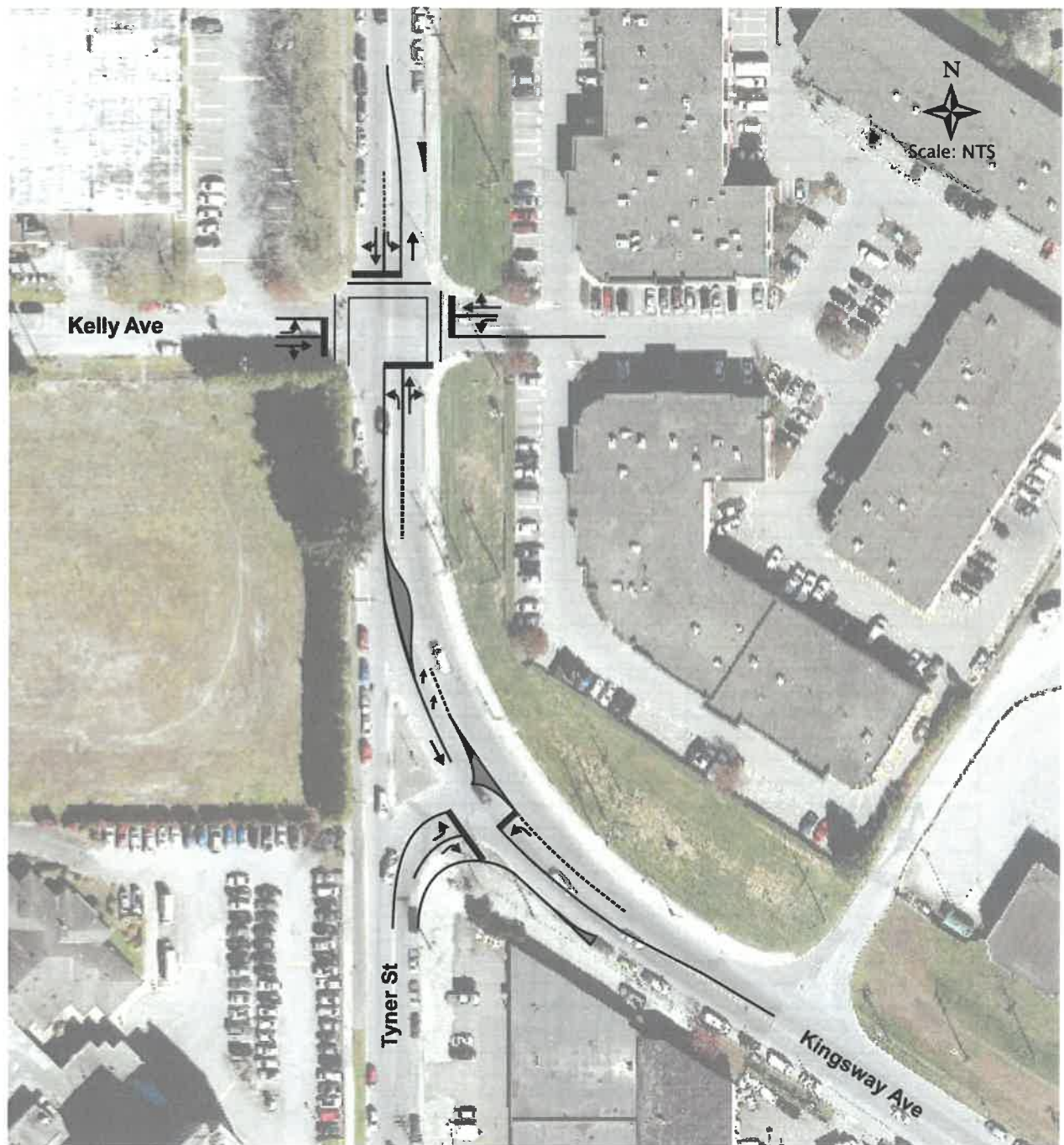
## 6.5. Future PM 2026 Total Traffic – with improvements

The 2026 Future Total PM traffic was developed by adding the Total Site PM traffic to the 2026 Background PM traffic. This is shown in **Figure 14**.

Analysis was undertaken using the future volumes and the future network improvements as noted previously. The results are tabulated below in **Table 10**.

The operation of the network in 2026 is slightly worse than in 2021 but the majority of the movements LOS are D or better. The discussion of the analysis follows:

- **Wilson Ave/Mary Hill Rd:**
  - The intersection continues to operate effectively. Monitoring of the queues is recommended. Some on-street parking may need to be removed in the future
- **Wilson Ave/Kingsway Ave:**
  - The SB movement queue continues to grow with time. A signal timing adjustment to the east-west movement could add capacity north-south.
  - The NB left turn queue extends close to the storage length of the bay. This bay may need to be extended so that left turning traffic does not impede through traffic.
- **Kelly Ave/Kingsway Ave:**
  - This intersection continues to operate well.
  - The north-south queues do build with time. The queues need to be monitored so they do not affect the upstream and downstream intersection operations.
- **Kelly Ave/ Mary Hill Road:**
  - This intersection operates similar to the 2021 scenario.
  - There is some delay for the westbound movements but these volumes are low.
- **Mary Hill Rd/West Access:**
  - The WB LT fails at this location. This is the result of the high movements at this location.
  - Users of the centre, with time, will distribute their access based on time of day, delays at accesses and programming.
  - It is proposed that this intersection is monitored and possible future signalization may be necessary.
- **Tyner St/Kingsway Ave:**
  - The installation of the signal at Kelly and Kingsway allows for slightly better operation.
  - The overall LOS of the intersection is about the same as in 2021.
- **Wilson Ave/Shaghnessy St:**
  - All movements operate at LOS D or better.
  - The NB through movement continues to have a queue build up. This could be mitigated with a signal timing adjustment and needs to be monitored.
  - The SB L movement has a queue length that exceeds the bay length. This could be mitigated with a signal timing adjustment and needs to be monitored.



**Figure 13**  
**Concept Layout Kingsway**

**Table 10: 2026 Future PM Peak Hour Analysis – with improvements**

Intersection	Movement	PM Pk Hr	
		LOS	95% Q
Wilson Ave/Mary Hill Rd	EB LT	B	29
	EB R	A	12
	WB LT	C	49
	WB R	A	11
	NB L	B	30
	NB TR	B	55
	SB L	A	10
	SB TR	B	63
	Overall	B	
Wilson Ave/Kingsway Ave	EB LT	D	24
	EB R	B	19
	WB L	D	21
	WB RT	C	22
	NB L	B	42
	NB TR	A	75
	SB L	B	6
	SB TR	C	158
	Overall	B	
Kingsway Ave/Kelly Ave	EB L	C	18
	EB TR	A	8
	WB L	C	11
	WB TR	A	3
	NB L	B	39
	NB TR	B	163
	SB L	A	6
	SB TR	B	146
	Overall	B	
Kelly Ave/Mary Hill Rd	EB LTR	C	6
	WB LTR	D	9
	NB LTR	A	1
	SB LTR	A	1
	Overall		
Mary Hill Rd/West Access	EB L	F	30
	EB R	B	14
	NB TR		
	SB LT	A	6
	Overall	E	
Kingsway Ave/Tyner St <sup>8</sup>	EB L	E	14
	EB R	C	11
	NB L	B	5
	Overall	D	
Wilson Ave/Shaghnessy St	EB L	D	37
	EB T	C	36
	EB R	A	16
	WB L	D	40
	WB T	C	37
	WB R	B	26
	NB L	B	18
	NB T	D	175
	NB R	A	9
	SB L	C	72
	SB T	B	129
	SB R	A	8
	Overall	C	

<sup>8</sup> Laning allowed for NB left turn pocket lane and EB left turn pocket lane; NB through traffic excluded



## 6.6. Future Traffic Control – Signalization vs Roundabouts

The City requested a review of the possibility of roundabouts for the future traffic control for the intersections of Kelly Ave at Kingsway and Tyner St at Kingsway. A conceptual layout was developed using TORUS software<sup>9</sup>. This software allows for conceptual layouts of geometry on base plans. The current road right of way together with the BC Hydro utility corridor indicates that there is space to accommodate the roundabouts. The layout is shown in Figure 15.

An inscribed circle diameter of ~28m was used for both roundabouts. This can accommodate movements for trucks and buses.



**Figure 15: Roundabout layout at Kelly Ave and Tyner St at Kingsway**

Analysis was undertaken using the future volumes for the 2021 and 2026 PM scenarios. The previous improvements suggested were included with the roundabouts at the two intersections. The software Sidra was used for this analysis. The results are tabulated below in Table 11 and Table 12. The intersections operate well with the roundabout configuration. The southbound queue will also extend but should not interfere with the operation of Wilson/Kingsway. The north-south queues at Kelly / Kingsway are significantly less than the queues for the signal option. However, it should be noted that the northbound queue at Kelly/Kingsway does extend for 83m. The two roundabouts are about 95m apart so this queue would need to be monitored.

<sup>9</sup> TORUS software is developed by TranSoft Solutions for conceptual roundabout design  
<http://www.transoftsolutions.com/road-design/torus-roundabouts/>

**Table 11: 2021 Future PM Peak Hour Analysis – with roundabouts**

Intersection	Movement	PM Pk Hr	
		LOS	95% Q
Kingsway Ave/Kelly Ave	EB	B	23
	WB	C	17
	NB	A	83
	SB	A	63
	Overall	A	
Kingsway Ave/Tyner St	EB	B	16
	NB	A	92
	SB	A	70
	Overall	A	

**Table 12: 2026 Future PM Peak Hour Analysis – with roundabouts**

Intersection	Movement	PM Pk Hr	
		LOS	95% Q
Kingsway Ave/Kelly Ave	EB	B	23
	WB	C	28
	NB	A	97
	SB	A	80
	Overall	A	
Kingsway Ave/Tyner St	EB	B	21
	NB	A	110
	SB	A	84
	Overall	A	

A comparison of the pros and cons of a traffic signal and that of a roundabout is listed in **Table 13** and **Table 14**.

**Table 13: Traffic Signals – Pros and Cons**

Criteria	Traffic Signal	
	<b>PROS</b>	<b>CONS</b>
Delay		Need to provide min green times – time intervals created where no vehicles are entering the intersection.
Timing	Timing can be programmed to allow access for minor streets.	Need time of day timing plans to meet demands.
Space	Needs less ROW at intersection	Need more ROW for left turn lanes and storage
Safety		Higher crash rate. Higher cost and higher risk crash statistics
Pedestrians	Clearer crossing right of way	
Cyclists	Can determine crossing areas with bicycle boxes and bicycle lanes.	
Sustainability		Higher emissions, higher vehicle wear and tear, higher noise.
Cost	Lower land costs.	Higher construction costs and higher maintenance costs.

**Table 14: Roundabouts – Pros and Cons**

Criteria	Roundabout	
	<b>PROS</b>	<b>CONS</b>
Delay	Traffic can keep moving. Less delay overall as vehicles can enter the intersection if there is a gap.	
Timing	Can accommodate a wide range of vehicle approach volumes.	Does not operate well with imbalanced traffic flow.
Space	Needs less ROW for laning	Need for more ROW at intersection
Safety	Crash rate is lower. Lower cost and lower risk crash statistics. Reduced chance of head-on collisions.	
Pedestrians		Can be confusing and crosswalks need to be set well back from entrance to rbt.
Cyclists		Can be confusing – need to differentiate cycle path and crossings.
Sustainability	Less braking therefore lower emissions, lower wear and tear and lower noise	
Design	Can include an entrance feature	
Cost	Construction costs lower. Lower long term costs and maintenance lower	Land cost higher.

The benefits of a roundabout include the following:

- Improved safety: roundabouts are safer than traditional signal-controlled intersections; less collisions, lower severity.
- Low travel speed: act as a traffic calming device; no light to beat
- Reduce delay, improve traffic flow: up to 20% reduction compared to traffic signal
- Less expensive: over lifetime plus not affected by power outages
- Aesthetics: landscaped central island.

The conceptual layouts, as noted in this section, need to be confirmed in the field and additional review and design is required to confirm the geometry, impact on utilities, impact on landscaping, impact on the current road network, etc.

## 7. Summary and Conclusions

1. The current network operates reasonably well but there are delays associated with left turn access onto Kingsway Avenue at Kelly Ave and Tyner St.
2. The PM Peak hour is the street network peak as well as the Complex peak operating condition.
3. The existing Complex generates a total of 395 trips in the PM peak (inbound and outbound).
4. The new Complex is estimated to generate a total of 829 trips in the PM Peak (inbound and outbound).
5. The proposed residential development is estimated to generate a total of 168 trips in the PM Peak (inbound and outbound).
6. Total trips for the new development is estimated at 997 trips in the PM Peak (inbound and outbound).
7. The new development road network includes the closure of Kelly Ave as a through road. Access to the Complex will be through a new west access off Mary Hill Rd and to the east through Kelly Ave at Kingsway.
8. The west access at Mary Hill Road has a high percentage of the trips approaching and departing the Complex. It is likely that traffic will redistribute with time, based on the time of the day, programming of the Complex and the operation of the access points.
9. The future background traffic was developed for 2021 without the Complex and the results show that the network operates reasonably well. Issues related to operation along Kingsway in the existing scenario continue even without the Complex traffic.
10. The analysis of the total traffic for 2021 in the PM peak assigned to the existing network indicated that a signal is required at Kelly Ave/Kingsway Ave and that Tyner St/Kingsway Ave needs modifications to improve operations. A conceptual layout has been developed for further design review. The signal improvement will need to include accommodation for cycle and pedestrian traffic accessing the future trail on the east side of Kingsway Ave.
11. Other improvements include:
  - Added turn lanes at Wilson Ave/Mary Hill Rd: EB and WB RT bays; NB and SB LT bays.
  - Added westbound LT lane at Wilson Ave/Kingsway Ave
12. The majority of the off-site improvements can be accommodated within the current pavement width.
13. The analysis of the total traffic for 2021 PM peak with the improvements indicates that the network is operating at LOS D or better in the majority of the key traffic movements. The west access from the Complex is showing delays for the westbound left turn. It is assumed that some of the traffic will redistribute to Kelly Ave which will be a signalized intersection.
14. The 2026 PM peak analysis with the improvements shows that the network will continue to operate well after Opening Day.
15. A conceptual review of the option for roundabouts at the intersections of Kelly Ave and Tyner St with Kingsway shows that there is sufficient space to accommodate all movements.
16. The roundabout analysis shows that the operation operates well in the 2021 and 2026 PM peak traffic conditions.



**APPENDIX A**  
**TRAFFIC COUNT DATA**  
**(Provided separately as an electronic file)**

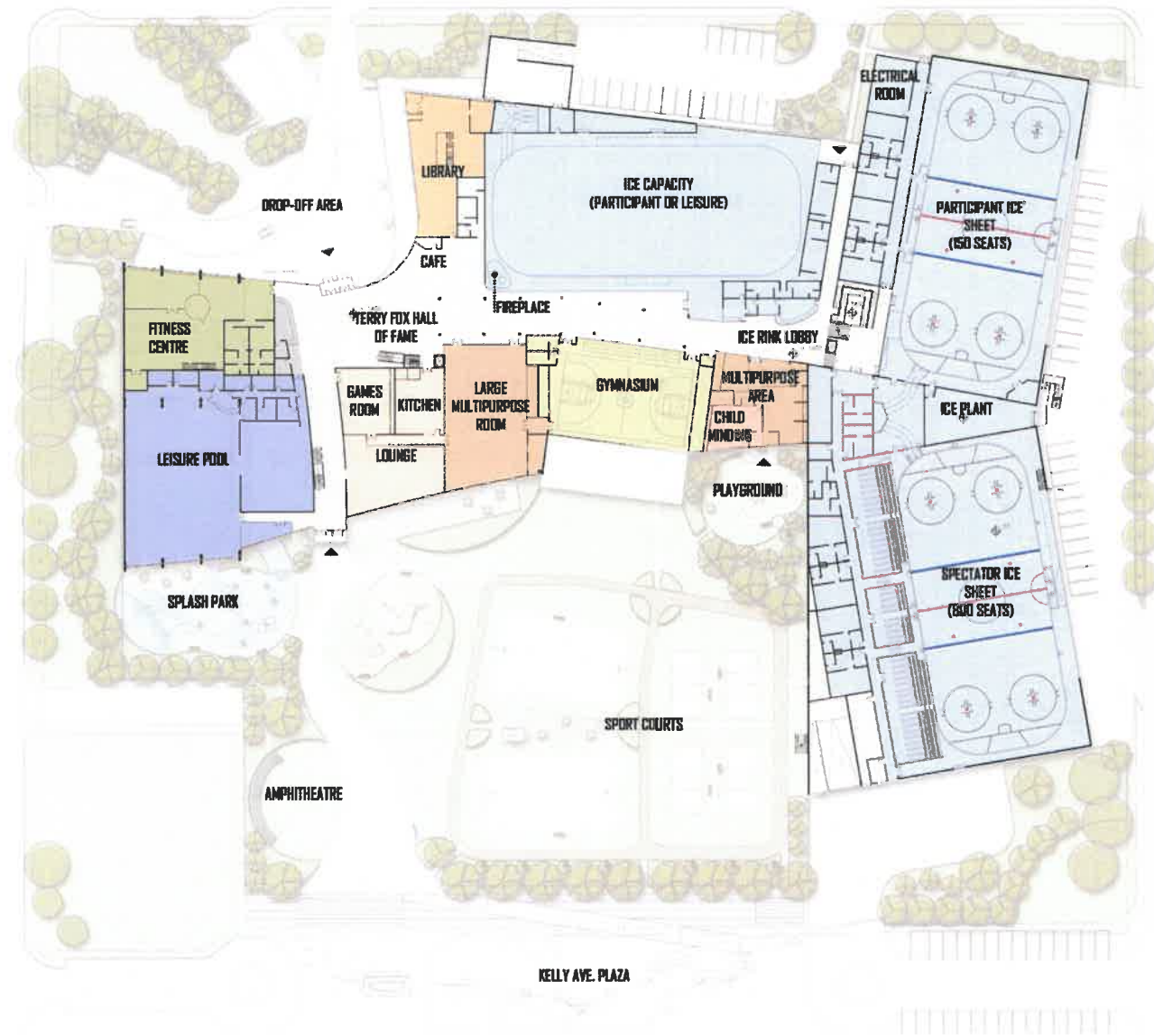
**APPENDIX B**  
**SYNCHRO RESULTS**  
**(Provided separately as an electronic file)**

## **APPENDIX C**

### **NEW DEVELOPMENT SITE PLANS**

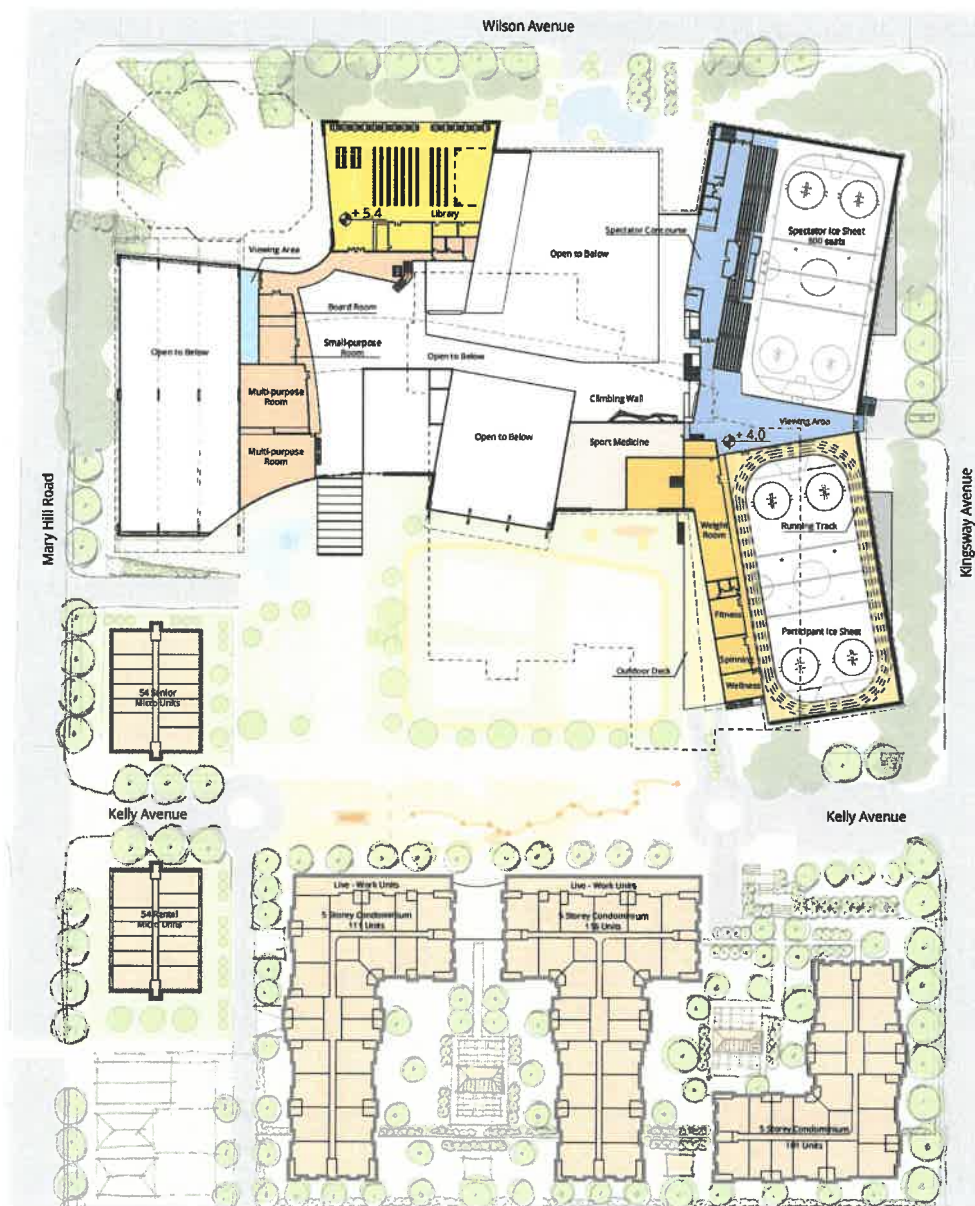
## GROUND FLOOR PLAN

NOTE: FLOOR PLANS ARE SUBJECT TO A DETAILED DESIGN REVIEW AND CITY APPROVAL. FINAL CONSTRUCTION DRAWINGS MAY DIFFER.





## SECOND FLOOR PLAN



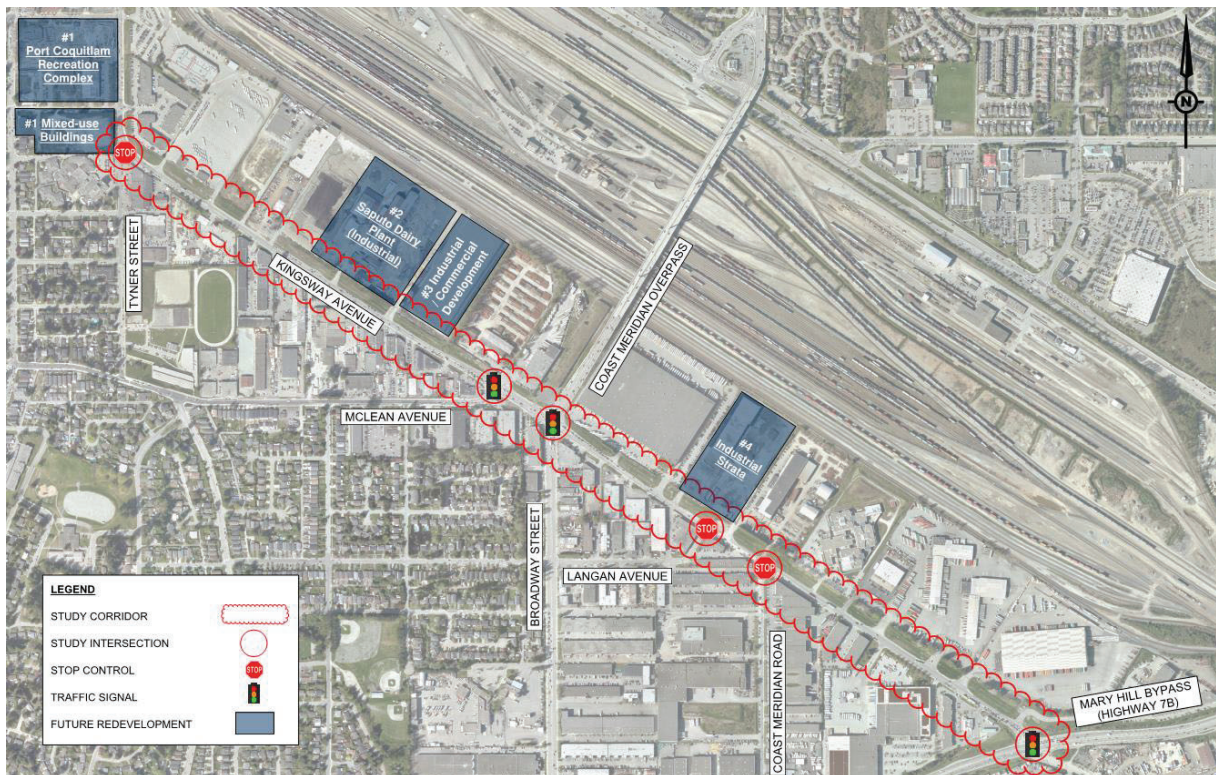


To: **City of Port Coquitlam** Date: **February 13, 2020**  
 Attention: **Jason Daviduk, P. Eng.** Project No.: **32340**  
 Cc: **Melony Burton, ASCT, MBA**  
 Reference: **Kingsway Avenue Conceptual Design – Traffic Study and Planning Memorandum Final**  
 From: **Neal Cormack, P. Eng., ENV SP**  
 Cc: **Chris Boit, P.Eng.**

## 1.0 Introduction

### 1.1 Background

ISL Engineering and Land Services Ltd. (ISL) was retained by the City of Port Coquitlam (the City) to develop a suitable concept (interim and ultimate) for the road cross section along Kingsway Avenue between Tyner Street and Mary Hill Bypass (Highway 7B), as shown in **Figure 1.1**, to provide an efficient movement of vehicles, people, and goods. According to the City's *2013 Master Transportation Plan*, Kingsway Avenue is classified as an arterial, which connects Westwood Street to Mary Hill Bypass. Currently, the study corridor has two travel lanes (one lane in each direction) with turning bays and lanes (dedicated and shared). It is surrounded mainly by industrial developments on both sides, and it is designated as a truck route as well as part of TransLink's Major Road Network (MRN).



**Figure 1.1 Study Area**



## 1.2 Objective

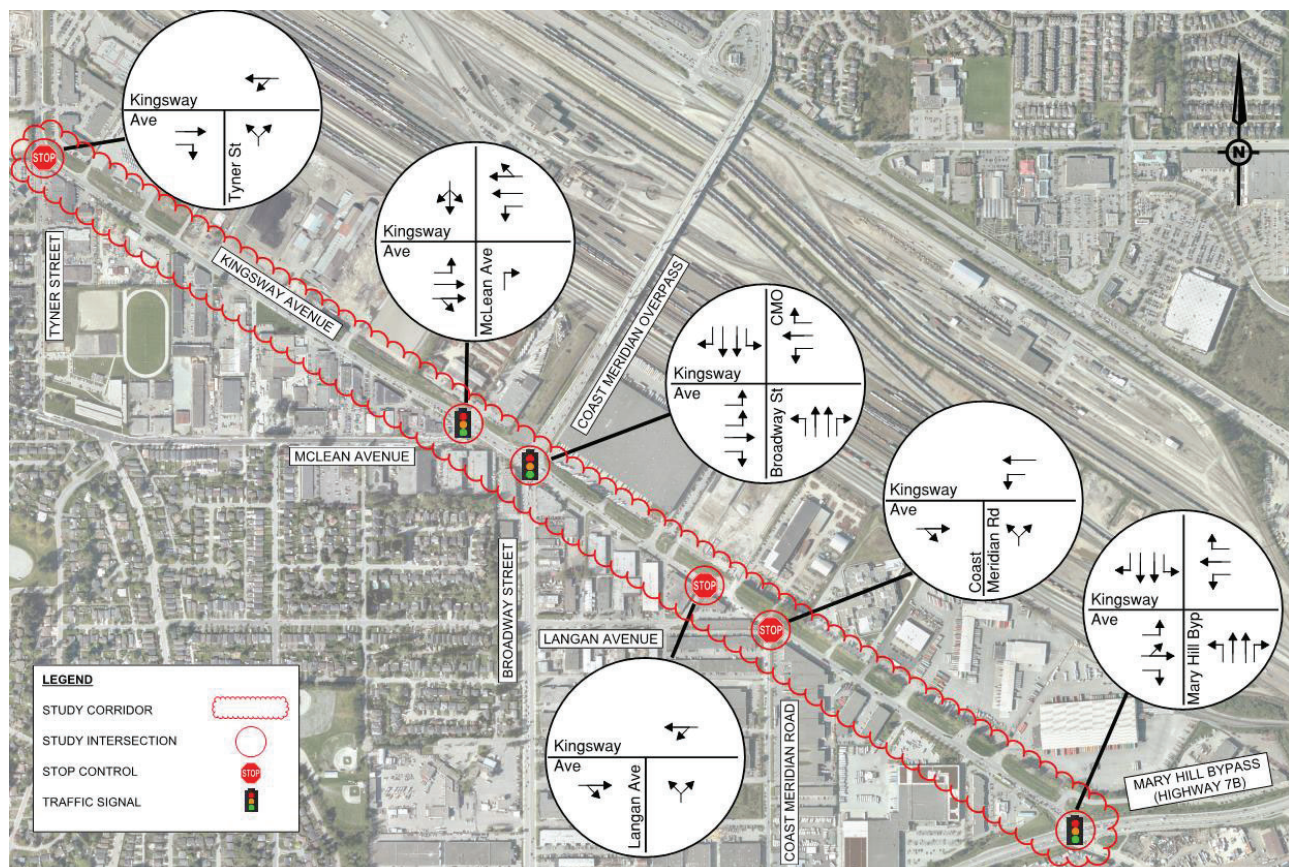
This Traffic Study and Planning Memorandum is intended to support and use as input for the engineering work of roadway cross-section design. The objectives of this technical memorandum are to assess the existing traffic condition (2019) and to identify the future traffic performances of the study corridor, and hence to recommend and justify the preferred design criteria for the interim (2029, 10-year) and ultimate (2044, 25-year) horizons.

## 1.3 Study Intersection

There are six key intersections located along the study corridor, namely from west to east with road classification and designation of the side street and existing traffic control type:

- Tyner Street (local road) – stop-controlled
- McLean Avenue (arterial) – signalized
- Coast Meridian Overpass / Broadway Street (both arterials and part of truck route and MRN) – signalized
- Langan Avenue (collector) – stop-controlled
- Coast Meridian Road (collector) – stop-controlled
- Mary Hill Bypass (highway) – signalized (managed by BC Ministry of Transportation and Infrastructure)

Along with the above intersection characteristics, the existing lane configuration can be found in **Figure 1.3**.



**Figure 1.3** Existing Intersection Traffic Control and Lane Configuration (as of June 2019)

## 2.0 Existing Traffic Volume (2019)

Multi-year (2016-2018) traffic counts of the study intersections, including the number of crossing pedestrians and cyclists, and corridor sections were collected from the City. For this study, all surveyed traffic volumes were projected to 2019, using the same annual background growth rate from recent traffic studies of nearby redevelopments. A linear annual growth rate of 1.5% was applied to the available data, and the estimated 2019 traffic volumes along the study corridor were balanced based on the existence of industrial driveways between intersections. The 2019 turning movement volumes during the weekday AM and PM peak hours are shown in **Table 2**.

**Table 2** 2019 Estimated Traffic Volume

Study Intersection (along Kingsway Ave)	Eastbound			Westbound			Northbound			Southbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM													
Tyner St	-	495	95	50	645	-	65	-	75	-	-	-	1,425
McLean Ave	10	459	40	485	660	15	-	-	290	11	5	5	1,980
CMO / Broadway St	245	300	215	40	479	25	109	270	35	70	525	572	2,885
Langan Ave	-	430	25	55	495	-	5	-	60	-	-	-	1,070
Coast Meridian Rd	-	410	80	65	535	-	40	-	35	-	-	-	1,165
Mary Hill Byp	255	135	95	20	60	25	90	1,085	20	135	2,005	735	4,660
PM													
Tyner St	-	725	65	80	800	-	55	-	75	-	-	-	1,800
McLean Ave	5	799	55	355	665	3	-	-	376	5	10	5	2,278
CMO / Broadway St	570	420	190	485	497	160	46	375	350	45	395	480	4,013
Langan Ave	-	530	15	60	545	-	10	-	75	-	-	-	1,235
Coast Meridian Rd	-	570	45	55	550	-	55	-	90	-	-	-	1,365
Mary Hill Byp	400	305	55	40	85	170	55	2,300	20	30	1,110	445	5,015

Based on the link volumes data provided by the City, approximately 5% and 7% of total traffic volumes along the study corridor were heavy vehicles during the weekday AM and PM peak hours, respectively. The same heavy vehicle percentages were applied for all traffic analyses in this study.

## 3.0 Future Development Traffic

Based on the available information, the following four major traffic generators in the vicinity of the study corridor will be developed and opened within the interim 10-year horizon (numbers are in reference to Figure 1.1):

1. Port Coquitlam Recreation Complex along with Mixed-use Buildings at 2150 Wilson Avenue – consists of 120,286 square feet (sq. ft.) gross floor area (GFA) of a new recreation complex (to be replaced the existing one), plus 328 high-rise residential condominiums and 45 senior living units. As the development is located out of the study area, based on a previous traffic study, only a portion (about 25%) of the generated trips will be travelling through the study corridor to enter/exit the development site.
2. Saputo Dairy Plant (Industrial) at 1855/1889/1925 Kingsway Avenue – consists of 292,393 sq. ft. GFA of warehouse space and 5,508 sq. ft. GFA of auxiliary office space.
3. Industrial / Commercial Development at 1845 Kingsway Avenue – consists of 13 wholesale units, each unit with 12,620 sq. ft. GFA of warehouse space and 4,610 sq. ft. GFA of auxiliary office space.
4. Industrial Strata at 1545/1575/1579 Kingsway Avenue – consists of 178,420 sq. ft. GFA of warehouse space and 55,783 sq. ft. GFA of auxiliary office space.



To forecast vehicle trips generated inbound and outbound from future industrial and mixed-use developments during both weekday AM and PM peak periods, when unavailable from recent traffic studies, the Institute of Transportation Engineers (ITE) *Trip Generation Manual (10<sup>th</sup> Edition)* was considered. The ITE trips rates were established using Land Use Code 150 (Warehousing) and 712 (Small Office Building), similar to recent study findings. Associated directional splits (percentages of inbound and outbound traffic) for each land use type were also extracted from the ITE *Manual*. **Table 3** shows the summary of inbound and outbound generated traffic volumes during both peak hours for future major developments. In total, the four major developments will generate 420 and 615 vehicle trips during weekday AM and PM peak hours, respectively.

**Table 3 Peak Hour Trip Generation from Future Major Developments**

#	Development	Land Use	Classification (Land Use Code)	Unit	Extent	Peak Hour	Trip Rate	2-Way Trip	Directional Split		Total Trip	
									In	Out	In	Out
1	Port Coquitlam Recreation Complex & Mixed-use Buildings	Trips using Kingsway Ave to enter/exit the site				AM		107	56%	44%	60	47
						PM		262	55%	45%	144	118
2	Saputo Dairy Plant (Industrial)	Industrial	Warehousing (150)	ft² GFA	292,393	AM	0.17	50	77%	23%	38	12
						PM	0.19	56	27%	73%	15	41
		Office	Small Office Building (712)	ft² GFA	5,508	AM	1.92	11	83%	17%	9	2
						PM	2.45	14	32%	68%	4	10
3	Industrial / Commercial Development	Industrial	Warehousing (150)	ft² GFA	12,620	AM	0.17	3	77%	23%	2	1
						PM	0.19	3	27%	73%	1	2
		Office	Small Office Building (712)	ft² GFA	4,610	AM	1.92	9	83%	17%	7	2
						PM	2.45	11	32%	68%	4	7
		Total (13 Wholesale Units)				AM		156			117	39
						PM		182			65	117
4	Industrial Strata	Industrial	Warehousing (150)	ft² GFA	178,420	AM	0.17	30	77%	23%	23	7
						PM	0.19	34	27%	73%	9	25
		Office	General Office Building (710)	ft² GFA	55,783	AM	1.16	65	86%	14%	56	9
						PM	1.15	64	16%	84%	10	54
Total						AM		419			303	116
						PM		612			247	365

Regarding the trip distributions of future developments, it is understood that City's new recreation complex along with mixed-use buildings would have different traffic patterns comparing with the industrial developments within the study area. Using the existing traffic patterns and engineering judgements, the following assumptions were made to distribute the generated trips appropriately:

- As Port Coquitlam Recreation Complex will generate and attract various trip purposes, the generated trips (25% of total trips) were distributed based on the existing traffic volumes at the study intersections, which is as follows during both weekday peak periods:
  - Inbound traffic – 50% from north through Coast Meridian Overpass, 40% from east through Mary Hill Bypass, and 10% from south through Broadway Street
  - Outbound traffic – 40% to north through Coast Meridian Overpass, 35% to east through Mary Hill Bypass, 20% to south through Broadway Street, and 5% to south through Tyner Street
- For the three future industrial developments:
  - During the AM peak – 50% from/to east through Mary Hill Bypass, 20% from/to northwest through Kingsway Avenue, 15% from/to south through Broadway Street, 10% from/to southwest through McLean Avenue (and Tyner Street due to right-out configuration at McLean Avenue), and 5% from/to north through Coast Meridian Overpass

- During the PM peak hour – 40% from/to east through Mary Hill Bypass, 35% from/to south through Broadway Street, 15% from/to northwest through Kingsway Avenue, 5% from/to southwest through McLean Avenue (and Tyner Street due to right-out configuration at McLean Avenue), and 5% from/to north through Coast Meridian Overpass

## 4.0 Future Traffic Volume (2029 and 2044)

To estimate the future traffic conditions, 10-year (2029) and 25-year (2044) horizon traffic patterns were studied for this cross-section design. In order to consider background traffic growth that is not generated by future developments, a linear annual growth rate of 1.5% was also applied to 2019 traffic volumes. Existing traffic volumes with background traffic growth and development generated trips were summed to determine the combined traffic volumes for both weekday peak hours of the horizon year 2029 and 2044, as shown in **Table 4.1** and **Table 4.2**.

**Table 4.1 2029 Estimated Traffic Volume**

Study Intersection (along Kingsway Ave)	EB			WB			NB			SB			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
AM													
Tyner St	-	662	110	60	818	-	75	-	108	-	-	-	1,832
McLean Ave	15	626	57	561	937	20	-	-	344	15	10	10	2,595
CMO / Broadway St	306	411	267	53	664	31	161	315	48	89	605	698	3,648
Langan Ave	-	555	30	66	704	-	12	-	72	-	-	-	1,375
Coast Meridian Rd	-	524	97	75	766	-	55	-	45	-	-	-	1,563
Mary Hill Byp	324	171	119	25	72	30	120	1,250	25	160	2,310	979	5,586
PM													
Tyner St	-	969	75	95	1,098	-	65	-	95	-	-	-	2,396
McLean Ave	10	1,169	79	414	984	5	-	-	436	10	15	10	3,133
CMO / Broadway St	716	598	302	574	679	189	99	435	409	55	455	631	5,141
Langan Ave	-	741	22	72	745	-	16	-	90	-	-	-	1,686
Coast Meridian Rd	-	807	61	65	735	-	67	-	105	-	-	-	1,840
Mary Hill Byp	538	406	81	50	114	200	77	2,645	25	35	1,280	590	6,041

**Table 4.2 2044 Estimated Traffic Volume**

Study Intersection (along Kingsway Ave)	EB			WB			NB			SB			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
AM													
Tyner St	-	777	135	70	963	-	90	-	123	-	-	-	2,157
McLean Ave	15	731	62	671	1,087	25	-	-	409	15	10	10	3,035
CMO / Broadway St	361	481	317	58	769	36	181	375	53	104	725	828	4,288
Langan Ave	-	655	35	81	819	-	12	-	87	-	-	-	1,527
Coast Meridian Rd	-	614	112	90	886	-	60	-	50	-	-	-	1,813
Mary Hill Byp	384	201	144	30	87	35	140	1,495	30	190	2,760	1,144	6,641
PM													
Tyner St	-	1,134	90	110	1,278	-	80	-	110	-	-	-	2,801
McLean Ave	10	1,349	94	494	1,134	5	-	-	521	10	15	10	3,643
CMO / Broadway St	841	693	347	684	789	224	109	520	489	65	545	741	6,046
Langan Ave	-	861	27	87	865	-	16	-	105	-	-	-	1,961
Coast Meridian Rd	-	932	71	80	860	-	82	-	125	-	-	-	2,150
Mary Hill Byp	628	471	96	55	134	235	92	3,165	30	45	1,530	690	7,171

## 5.0 Capacity Analysis

To determine the future roadway cross sections and lane configurations at the study intersections and corridor, intersection capacity analyses were conducted.

### 5.1 Link Volume and Corridor Capacity

To identify the future road cross sections, the estimated traffic demands (link traffic volumes) were compared with the existing study corridor capacity. *Highway Capacity Software (HCS)* was used to calculate volume over capacity (V/C) ratio for the existing and future demands considering the existing lane configurations. In *HCS*, V/C ratios are calculated based on various inputs, such as length of the road, the number of through lanes, lane width, two-way hourly volume, link volume directional split, and heavy truck percentage. It is assumed that if the V/C ratio surpasses 0.9, road improvement should be considered.

To better assess the traffic conditions, the study corridor was divided into five sections for *HCS*. Due to the short spacing between McLean Avenue and Coast Meridian Overpass / Broadway Street, it was assumed that the cross-section design of this section of the corridor should be determined from intersection operation performance and queue length analysis. Therefore, the peak hour link volumes, capacities, and V/C ratios for the other four road sections in each study horizon can be found in **Table 5.1** as well as **Figures 5.1**, **Figure 5.2**, and **Figure 5.3**.

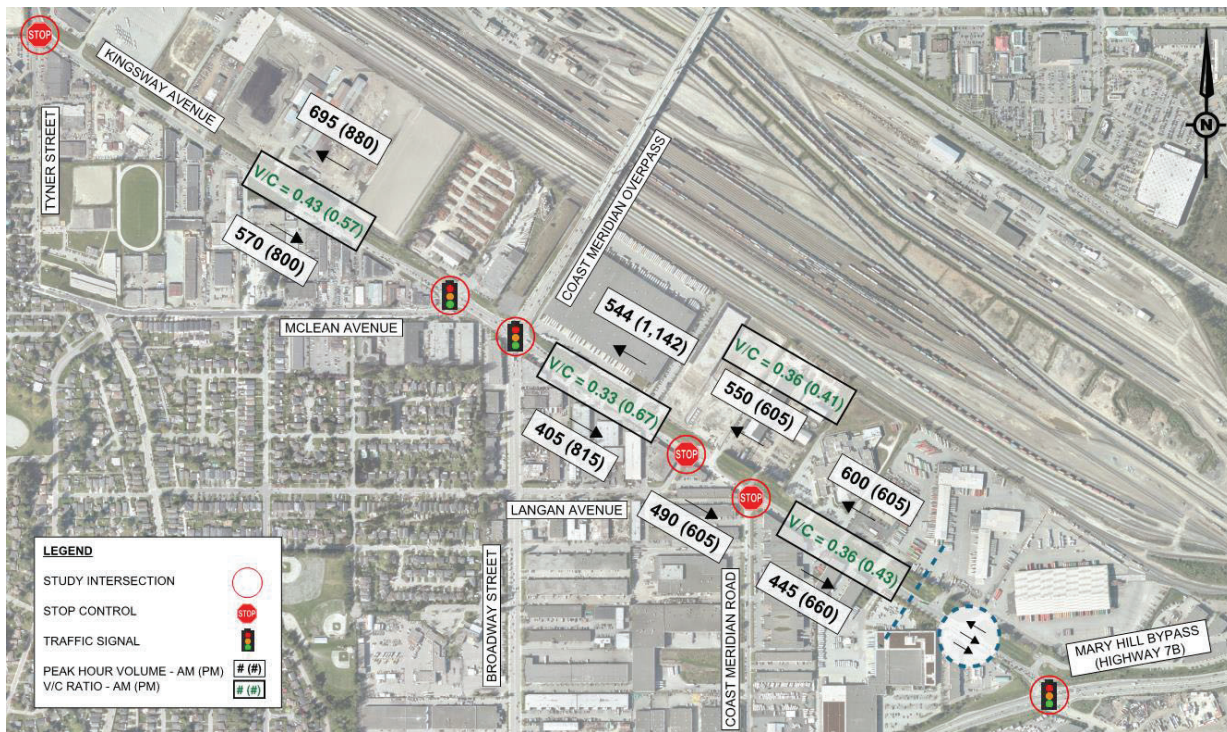
**Table 5.1** Kingsway Avenue Link Capacity, Peak Hour Volume, and V/C ratio for 2019, 2029, and 2044

Road Section (along Kingsway Ave) Between	Link Capacity (VEH/HR)	Peak Hour	2019				2029				2044			
			Link Volume			V/C	Link Volume			V/C	Link Volume			V/C
			EB	WB	2-way		EB	WB	2-way		EB	WB	2-way	
Tyner St & McLean Ave	2,945	AM	570	695	1,265	0.43	770	878	1,648	0.56	900	1,033	1,933	0.66
		PM	800	880	1,680	0.57	1,063	1,193	2,256	0.77	1,243	1,388	2,631	0.90
CMO / Broadway St & Langan Ave	2,899	AM	405	544	949	0.33	548	748	1,296	0.44	638	863	1,501	0.51
		PM	815	1,142	1,957	0.67	1,062	1,442	2,504	0.86	1,247	1,697	2,944	1.01
Langan Ave & Coast Meridian Rd	2,920	AM	490	550	1,040	0.36	627	770	1,397	0.48	742	900	1,642	0.56
		PM	605	605	1,210	0.41	831	817	1,648	0.56	966	952	1,918	0.66
Coast Meridian Rd & Mary Hill Byp	2,922	AM	445	600	1,045	0.36	569	841	1,400	0.48	664	976	1,640	0.56
		PM	660	605	1,265	0.43	912	800	1,712	0.59	1,057	940	1,997	0.68

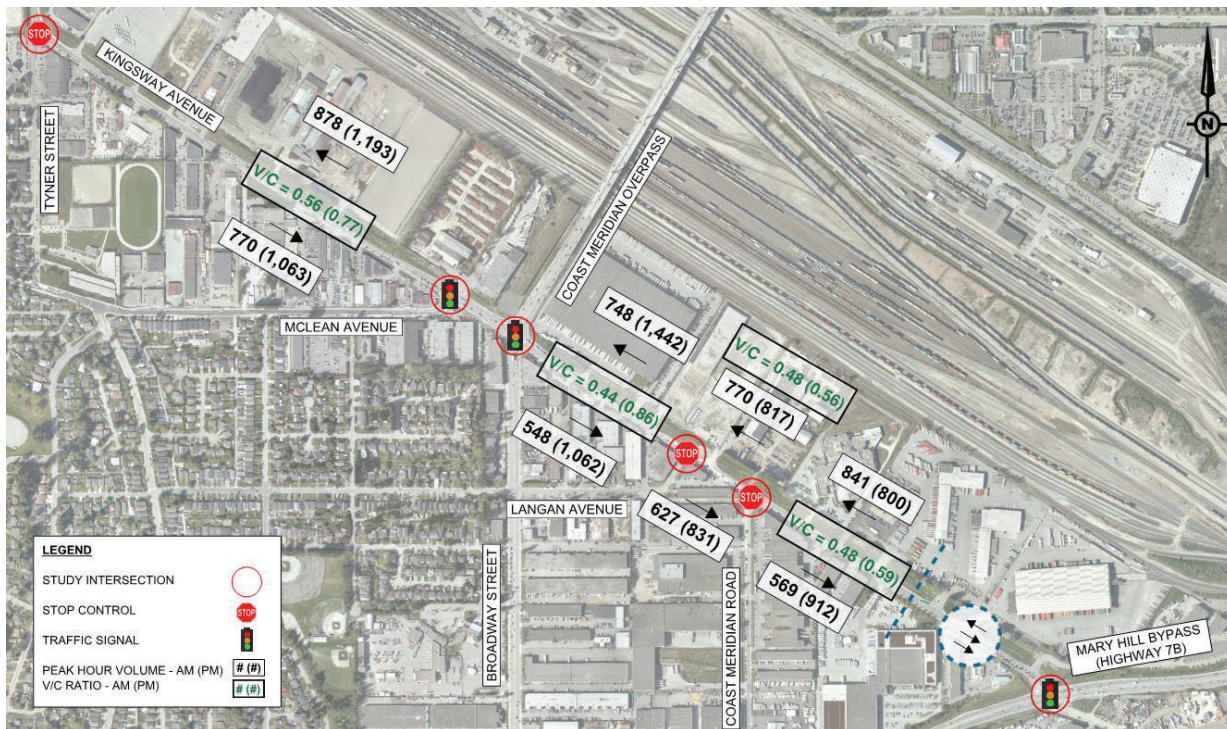
As shown in the above table, it is expected that with the existing lane configuration, the road capacity at all four road sections along Kingsway Avenue would be able to meet the traffic demands until 2029.

In 2044, during the weekday PM peak hour, the road section between Tyner Street and McLean Avenue would have a V/C ratio at the threshold (0.90), and the section between Coast Meridian Overpass / Broadway Street and Langan Avenue would have a capacity deficiency (V/C > 1.00).



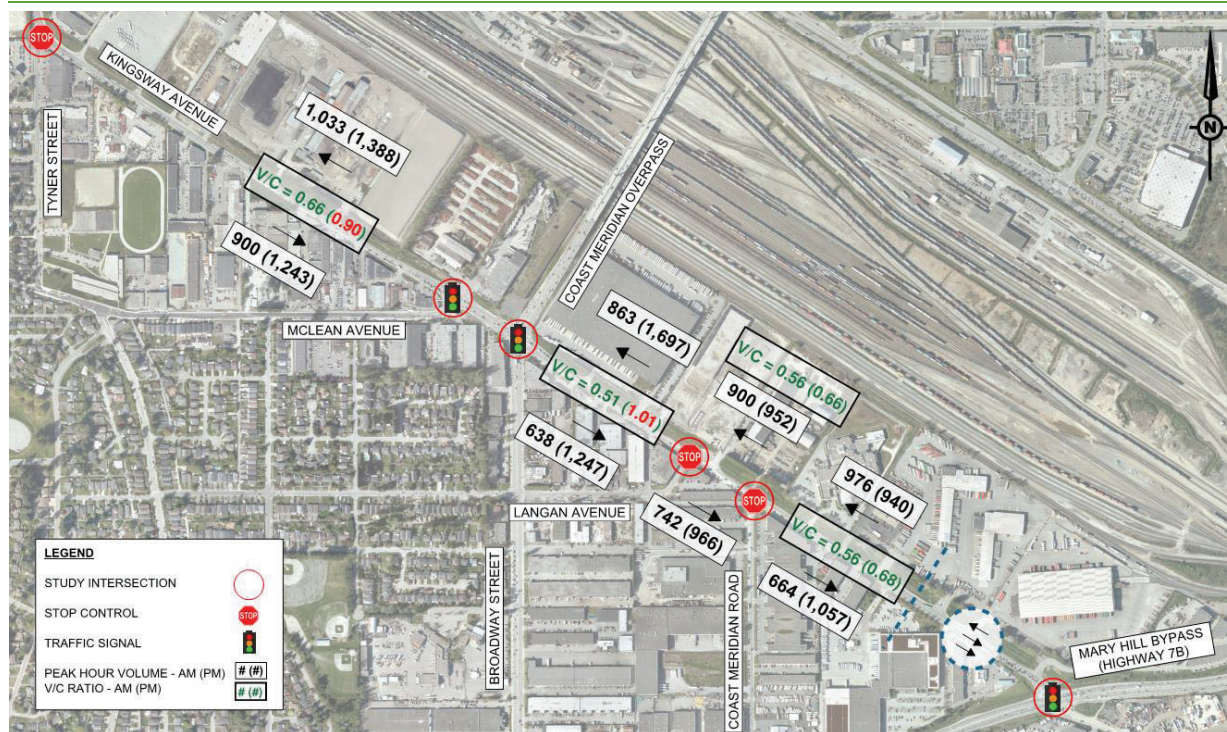


**Figure 5.1** 2019 Peak Hour Link Volume and V/C Ratio



**Figure 5.2** 2029 Peak Hour Link Volume and V/C Ratio





**Figure 5.3** 2044 Peak Hour Link Volume and V/C Ratio

## 5.2 Annual Average Daily Traffic (AADT)

Annual Average Daily Traffic (AADT) volumes for each section of Kingsway Avenue, based on the available daily traffic volumes provided by the City and using 1.5% linear annual traffic growth rate, were determined and shown in **Table 5.2**.

**Table 5.2** AADT Volume for 2019, 2029, and 2044

Road Section (along Kingsway Ave) Between	Annual Average Daily Traffic Volume (VEH/DAY)		
	2019	2029	2044
Tyner St & McLean Ave	15,850	18,120	21,530
CMO / Broadway St & Langan Ave	24,470	31,300	36,800
Langan Ave & Coast Meridian Rd	15,130	20,600	23,980
Coast Meridian Rd & Mary Hill Byp	13,850	15,830	18,810

In accordance with design guidelines (bylaws) for other municipalities in British Columbia and Alberta, when the demand reaches approximately 20,000 to 35,000 vehicles per day, improvements are required to upgrade the roadway cross section from two to four lanes. This is also consistent with Table 5, as no road widening is recommended by 2029, except the section between Coast Meridian Overpass / Broadway Street and Langan Avenue. In 2044, the first three sections (that is, from Tyner Street to Coast Meridian Road) are warranted for road widening.

### 5.3 Intersection Operation Performance (Existing Traffic Control and Lane Configuration)

To further identify the need for road improvement, traffic operation performances at the study intersections were analyzed using *Synchro 9* software, which is based on the standard methods of the *Highway Capacity Manual (HCM)*. In *HCM*, measures of effectiveness were developed, including control delay (second per vehicle). Level of Service (LOS) is defined based on the average control delay (**Table 5.3**).

**Table 5.3** LOS Definition for Signalized and Unsignalized Intersections in HCM

Traffic Control	LOS	A	B	C	D	E	F
Signalized	Delay (SEC/VEH)	0-10	10-20	20-35	35-55	55-80	>80
Unsignalized		0-10	10-15	15-25	25-35	35-50	>50

For capacity analysis in urban areas, LOS D or better is generally considered as acceptable LOS for both signalized and unsignalized intersections. The latest signal timing sheets, as provided by the City as well as BC Ministry of Transportation and Infrastructure, were used for this study; however, signal optimization was applied for all traffic signal analyses in 2029 and 2044.

The overall intersection and individual movement performances for both weekday AM and PM peak hours in existing condition (2019), along 10-year (2029) and 25-year (2044) horizons, under existing traffic control and lane configuration, were determined and consolidated in **Table 5.4**. The average delay, LOS, and critical movements at LOS E or F were determined. For the critical movements, EB, WB, NB, and SB correspond to eastbound, westbound, northbound, and southbound, respectively. L, T, and R imply left-turn, through, and right-turn movements. The discussion of intersection performance for each horizon year is also provided in the following sections.

**Table 5.4** Synchro Result for Existing Condition (2019), 10-year Horizon (2029), and 25-year Horizon (2044)

Study Intersection along Kingsway Ave (Control Type)	Peak Hour	2019			2029			2044		
		Delay (s)	LOS	Critical Movement	Delay (s)	LOS	Critical Movement	Delay (s)	LOS	Critical Movement
Tyner St (stop-controlled)	AM	5	A	NBLR	21	C	NBLR	63	F	NBLR
	PM	12	B	NBLR	71	F	NBLR	686	F	NBLR
McLean Ave (signalized)	AM	12	B	-	17	B	-	24	C	-
	PM	15	B	-	27	C	-	52	D	EBT, EBR, WBL
CMO / Broadway St (signalized)	AM	53	D	EBL, WBT, NBL, SBR	106	F	EBL, EBT, WBT, NBL, SBR	158	F	EBL, EBT, WBT, NBL, SBR
	PM	45	D	EBL, EBT, NBL, NBT, SBT	114	F	EBL, EBT, WBL, WBT, NBL, SBT, SBR	176	F	EBL, EBT, WBL, WBT, NBL, SBT, SBR
Langan Ave (stop-controlled)	AM	2	A	-	2	A	-	3	A	-
	PM	2	A	-	3	A	-	6	A	NBLR
Coast Meridian Rd (stop-controlled)	AM	2	A	-	5	A	NBLR	13	B	NBLR
	PM	5	A	NBLR	26	D	NBLR	80	F	NBLR
Mary Hill Byp (signalized)	AM	42	D	EBL, EBT, WBL, WBT, NBL, SBT	80	E	EBL, EBT, WBL, WBT, NBL, SBL, SBT	154	F	EBL, EBT, WBL, WBT, NBL, SBL, SBT, SBR
	PM	89	F	EBL, EBT, WBL, WBT, WBR, NBT, SBL	159	F	EBL, EBT, WBL, WBT, WBR, NBT, SBL	237	F	EBL, EBT, WBL, WBT, WBR, NBL, NBT, SBL

- Existing Condition (2019) – All study intersections are currently operating at an acceptable LOS (D or better) during both weekday peak hours, except for the Mary Hill Bypass intersection that is operating inefficiently (LOS F) during the PM peak. Northbound movements at the Tyner Street intersection and Coast Meridian Road intersection were found to be critical (LOS E or F) during both peaks, which is due to high Kingsway Avenue east-west traffic volumes. At the intersection of Coast Meridian Overpass / Broadway Street and Kingsway Avenue, some movements were identified to be critical, such as eastbound and northbound left turns during both peaks. East-west approaches at the Mary Hill Bypass intersection are not operating efficiently during any of the peak hours.
- 10-year Horizon (2029) – The Tyner Street intersection will operate poorly (LOS F) during the PM peak hour. The intersection of Coast Meridian Overpass / Broadway Street and Kingsway Avenue will not operate efficiently during both peaks (LOS F), and more critical movements were identified at this intersection. Northbound movement at the Coast Meridian Road intersection will become critical in the AM peaks as well. The Mary Hill Bypass intersection performance will fail during both peaks.
- 25-year Horizon (2044) – Most of the study intersections will have a similar operation performance as in 2029. The Tyner Street and Kingsway Avenue intersection will operate poorly during both peak hours. In addition, the LOS at the Coast Meridian Road intersection will become F during the PM peak by 2044.

## 5.4 Spillback and Weaving Analysis

Due to short spacing between two intersections and relatively high traffic demands in all directions, queue spillback and vehicle weaving could be concerns in the 2029 and 2044 horizon years. Hence, further traffic (spillback and weaving) analyses were considered and focused on two particular areas, intersections less than 100 metres (m) spacing along the study corridor: Tyner Street with Kelly Avenue (future roundabout) and McLean Avenue with Coast Meridian Overpass / Broadway Street.

Referring to **Table 5.4**, the Tyner Street and Kingsway Avenue intersection will operate poorly in the horizon years with the existing traffic control and lane configuration. Two potential configuration options (signalization and roundabout) for the study intersection were assessed, taking into account the future one-lane roundabout at Kelly Avenue. Upon further traffic analysis, it was determined that upstream spillbacks (95<sup>th</sup> percentile) from both intersections (Tyner Street eastbound and Kelly Avenue northbound approaches) could occur, limiting available movements at roundabouts. In 2044, 12 m (approximately two vehicles in length) of queue spillback was identified from the eastbound direction of Tyner Street. However, based on the overall intersection performance, signalization (LOS C or better) operates better than a roundabout (LOS F) during both peak periods and horizon years.

To further understand the road section between McLean Avenue and Coast Meridian Overpass / Broadway Street, weaving analysis was conducted for the study peak periods and horizon years. Both individual weaving movements (eastbound and westbound) through Kingsway Avenue between McLean Avenue and Coast Meridian Overpass were assessed. According to *HCS*, it was found that weaving operation performances were LOS D or better for both directions, with the exception of weekday PM peak hour in 2044 for eastbound movement with LOS E; that is, mainly northbound right turn from McLean Avenue to eastbound left turn to Coast Meridian Overpass. Therefore, potential improvements, such as modifying intersection signals and geometric design, could be considered.

## 5.5 Queue Length Analysis

Queue length analysis was conducted using *SimTraffic* (traffic microsimulation of *Synchro*) for the existing condition (2019) and 10-year horizon (2029) under existing traffic control and lane configuration. Due to poor intersection performance for most of the study intersections along Kingsway Avenue in 2044, the queue length analysis cannot be reflected in *SimTraffic*.

**Table 5.5** and **Table 5.6** show the analysis results, in 2019 and 2029 for average and 95<sup>th</sup> percentile queue length, followed by a discussion for each horizon year. The existing storage lengths are also provided.

**Table 5.5 SimTraffic Result for Existing Condition (2019)**

Study Intersection (along Kingsway Ave)	Peak Hour	Measure of Effectiveness [Queue Length] (m)	Kingsway Avenue				Side Street			
			EB		WB		NB		SB	
			L	R	L	R	L	R	L	R
Tyner St	Storage Length (m)			25						
	AM	Average		0						
		95th %ile		4						
	PM	Average		0						
		95th %ile		0						
McLean Ave	Storage Length (m)		20		25					
	AM	Average	2		28					
		95th %ile	9		55					
	PM	Average	1		26					
		95th %ile	5		50					
CMO / Broadway St	Storage Length (m)		50	25	35	30	70	70	45 <sup>1</sup>	55
	AM	Average	33	16	12	5	27	0	15	1
		95th %ile	55	55	43	36	51	0	44	15
	PM	Average	89	32	68	34	15	14	10	0
		95th %ile	132	74	79	95	40	60	23	0
Langan Ave	Storage Length (m)									
	AM	Average								
		95th %ile								
	PM	Average								
		95th %ile								
Coast Meridian Rd	Storage Length (m)				25					
	AM	Average			7					
		95th %ile			17					
	PM	Average			6					
		95th %ile			16					
Mary Hill Byp	Storage Length (m)			40 <sup>2</sup>	40	25	45	120	45	120
	AM	Average		15	4	0	23	0	49	114
		95th %ile		65	11	0	56	2	92	220
	PM	Average		36	8	8	12	0	16	4
		95th %ile		102	22	41	51	0	49	19

Note:

- 1 – Through movements block the turning bays
- 2 – Left-turn movements block the right-turn bay

Accordingly, none of the stop-controlled intersections has storage capacity deficiencies. Based on 95<sup>th</sup> percentile-queue, westbound left-turn bay at McLean Avenue intersection and east-west turning bays (left and right turns) at the Coast Meridian Overpass / Broadway Street intersection have inadequate storage lengths during both weekday peak hours. Due to the significantly high volume of left-turn vehicles at the Mary Hill Bypass intersection, the eastbound right-turn bay is blocked by through traffic queues, considering the average queue length in both peak hours.



**Table 5.6** SimTraffic Result for 10-year Horizon (2029) – Existing Lane Configuration

Study Intersection (along Kingsway Ave)	Peak Hour	Measure of Effectiveness [Queue Length] (m)	Kingsway Avenue				Side Street			
			EB		WB		NB		SB	
			L	R	L	R	L	R	L	R
Tyner St	Storage Length (m)			25						
	AM	Average		4						
		95th %ile		15						
	PM	Average		8			256			
		95th %ile		33	189		358			
McLean Ave	Storage Length (m)		20		25					
	AM	Average	3		39					
		95th %ile	11		65					
	PM	Average	3		41			275		
		95th %ile	17		67			338		
CMO / Broadway St	Storage Length (m)		50	25	35	30	70	70	45	55
	AM	Average	41	32	25	18	93	1	22	3
		95th %ile	64	73	75	70	120	19	61	30
	PM	Average	72	33	67	31	53	31	13	1
		95th %ile	95	74	80	90	104	91	32	10
Langan Ave	Storage Length (m)				125					
	AM	Average								
		95th %ile			169					
	PM	Average								
		95th %ile								
Coast Meridian Rd	Storage Length (m)				25					
	AM	Average			11					
		95th %ile			36					
	PM	Average			9					
		95th %ile			18					
Mary Hill Byp	Storage Length (m)			40	40	25	45	120	45	120
	AM	Average		60	5	2	35	0	62	130
		95th %ile		117	14	16	70	0	96	215
	PM	Average		35	20	29	15	0	28	14
		95th %ile		100	63	77	58	0	72	43

It is expected that more turning movements would have capacity deficiencies by 2029, including:

- Tyner Street – capacity deficiency for the eastbound right-turn lane during the weekday PM peak hour, and substantial queue lengths in the westbound and northbound directions, which will affect the driveways and nearby intersections (such as Hawthorne Avenue at Tyner Street).
- McLean Avenue – the eastbound left-turn bay could be blocked by through movements, and it is expected that the westbound queue could affect the upstream intersection (Coast Meridian Overpass / Broadway Street) performance, during both peaks. The westbound approach queue could be extended further upstream and affect the traffic operation of the Langan Avenue intersection during the AM peak. Long northbound queue length is expected during the PM peak.
- Langan Avenue – westbound queue could spill over to Coast Meridian Road (upstream) in the AM peak.
- Coast Meridian Road – capacity deficiency of the westbound left-turn bay during the AM peak.

As most of the turning movements would have capacity deficiencies by 2029, it is expected that in 2044, the results would get even worse.

## 6.0 Signal Warrant Analysis

The Transportation Association of Canada (TAC) *Canadian Traffic Signal Warrant* was used to determine whether a traffic signal is warranted for all study stop-controlled intersections during the existing condition and study horizon years (2029 and 2044). The TAC *Warrant* uses cumulative factors methodology that includes a cross-product relationship of the vehicle-vehicle conflict and the vehicle-pedestrian conflict. It also considers various local factors such as pedestrian demographics, pedestrian exposure, as well as roadway and vehicle characteristics.

The warrant analysis requires two hours each for the morning, midday, and afternoon peak periods to calculate an average hourly volume. For conservative measures, it was assumed that peak hour volumes are the same for whole peak periods (two hours), and noon peak volumes were estimated as the average between the weekday AM and PM peak hours. The warrant score of 100 is the threshold for traffic signalization. The summary of the analyses is as follows:

- 2019 – The intersection of Tyner Street at Kingsway Avenue could be warranted for signalization, as its warrant score (122) is over 100. Other stop-controlled intersections were not found to be warranted for a traffic signal. However, as requested by the City, ISL completed additional traffic operation analysis and determined that traffic signal implementation would increase delay on Kingsway Avenue and could lead to vehicle spillover at Kelly Avenue. Therefore, a right in / right out access is proposed.
- 2029 – The intersection of Coast Meridian Road at Kingsway Avenue could be warranted for signalization with warrant score of 118 (over 100), and the traffic analysis also showed long delays for northbound vehicles to find a gap to turn into Kingsway Avenue.
- 2044 – In addition to the intersection at Coast Meridian Road, the intersection of Langan Avenue at Kingsway Avenue could be warranted for signalization considering traffic signal at Coast Meridian Road intersection. However, the warrant score was 110, which is not significantly higher than the threshold.

## 7.0 Traffic Performance Improvement

### 7.1 2029 Proposed Traffic Control and Lane Configuration

As indicated throughout Section 5.0, it is expected that with the existing lane configuration, the road capacity at all four road sections along Kingsway Avenue would be able to meet the traffic demands in 2029; therefore, no road widening is proposed for the overall study corridor. According to the capacity and signal warrant analyses, the following improvements could be considered to improve the traffic operations along the study corridor by 2029 (10-year horizon):

- At Tyner Street:
  - Restrict the westbound and northbound left-turn movements and implement a right in / right out access configuration.
- At McLean Avenue:
  - Add an additional dedicated westbound left-turn lane (dual left-turn lanes). Modify the southbound downstream lane (south leg) from one to two through lanes for about 70m.
  - Add an additional northbound right-turn lane (dual right-turn lanes) and convert from yield-controlled to signal.

- Coordinate with traffic signals at Coast Meridian Overpass / Broadway Street, especially between northbound right-turn and eastbound left-turn movements (to Coast Meridian Overpass).
- At Coast Meridian Overpass / Broadway Street:
  - Add an additional eastbound through lane from east of McLean Avenue for about 100m past Coast Meridian Overpass.
  - Add an additional westbound through lane west of Langan Avenue.
  - Add an additional southbound right-turn lane (dual right-turn lanes) and convert from yield-controlled to signal.
- At Coast Meridian Road:
  - Convert intersection from stop-controlled to full traffic signal.

## 7.2 2044 Proposed Traffic Control and Lane Configuration

In 2044 (25-year horizon), particularly during the weekday PM peak hour (where some performances are at and over the threshold – capacity deficiency), it is recommended that four-lane cross sections (two lanes in each direction) could be considered, given the land availability. According to the capacity analysis results, the following additional improvements could be considered to improve the traffic operations along the study corridor for the ultimate stage:

- At Tyner Street:
  - Remove the stop sign for Tyner Street northbound right-turn movement and make it free flow with a dedicated receiving lane on Kingsway Avenue eastbound.
- At McLean Avenue:
  - Add an additional westbound through lane (west of McLean Avenue) by changing the pavement markings only.
- At Coast Meridian Overpass / Broadway Street:
  - Add an additional westbound left turn lane (dual left turn lanes) and convert from protected-permissive to protected-only phase.
  - Add an additional eastbound through lane (east of Coast meridian Overpass) by changing the pavement markings only.

## 8.0 Geometric Design Criteria

The geometric design criteria for the roadways within the project limits are summarized in Table 8.1. These design criteria were based on the Transportation Association of Canada (TAC) standards and City of Port Coquitlam Bylaws (2241 and 4078).

**Table 8.1** *Geometric Design Criteria*

Item	Existing Condition	PoCo (TAC) Criteria	Achieved Criteria	Reference
Legal Classification	Arterial (MRN)	Arterial	Arterial	-
Posted Speed	50 to 60 km/h	-	50 to 60 km/h	-
Design Speed	-	60 km/h	60 km/h	PoCo <sup>1</sup> : "C" 17
Basic Lanes	2 to 4	-	4 to 5	-
Minimum Radius	-	130 m	Existing	PoCo <sup>1</sup> : "C" 17
Minimum K Factor (Sag)	-	10	TBD	PoCo <sup>1</sup> : "C" 18
Minimum K Factor (Crest)	-	15	TBD	PoCo <sup>1</sup> : "C" 18
Maximum Grade	-	9 %	TBD	PoCo <sup>1</sup> : "C" 17
Minimum Grade	-	0.3 %	TBD	PoCo <sup>1</sup> : "C" 18
Max. Super Elevation	-	6 %	TBD	PoCo <sup>1</sup> : "C" 17
Minimum Stopping Sight Distance	-	85 m	TBD	PoCo <sup>1</sup> : "C" 17
Lane Width	3 to 4.5 m	(3.3 to 3.7 m)	3.3 to 3.7 m	TAC:C4 9
Left-Turn Lane Width	3 to 3.5 m	(3 to 3.5 m)	3.2 to 4.2 m	TAC: C4 13-15
Two-Way Left-Turn Lane Width	3.5 m	3.5 m or same as travel lane	3.3 to 4.4 m	TAC: C8 8.6.2
Sidewalk Width	0 to 3.5 m	0 to 1.5 m	1.5 to 1.8 m	PoCo <sup>1</sup> : "C" 25
Parking Lane Width	~ 3.5 m	2.7 m	2.6 to 2.8 m	PoCo <sup>2</sup> : 7
Multi-use Path Width	-	(3 to 6 m)	3 m	TAC: C5 5.3.1.4
Barrier Curb Width	0.15 m	0.15 m	0.15 m	MMCD: C4
Boulevard Width	-	(2 to 3 m)	-	TAC:C4 39
Utility Strip Width	~ 1 m	0.6 to 1.5 m	0.4 to 4.2 m	PoCo <sup>1</sup> : "D" 81
Curb Return Radii	-	9 m	8 to 9 m	PoCo <sup>1</sup> : "C" 19
Design Vehicle	WB-20	WB-20	WB-20	Past Studies

## 9.0 Concept Design Plan

The Concept Plan for Kingsway Avenue was based on the 2029 and 2044 Traffic Modelling and is shown in the following Figures:

Figures 9.1 through 9.4 shows the conceptual design plan for the interim (2029) design.

Figures 9.5 through 9.8 shows typical cross sections for the interim (2029) and ultimate (2044) design.

Figures 9.9 through 9.12 shows the conceptual design plan for the ultimate (2044) design.

### 9.1 Existing Cross Sections

The existing Kingsway Avenue cross section varies along the corridor and the roadway width varies from 14.0m to 14.6m measured face of curb to face of curb. Referring to Table 9.1, for ease of reference the existing cross sections can be broken down in the following segments.

**Table 9.1 Existing Cross Sections**

Horizon Year	Edge of Pavement	Right of Way	BC Hydro	Port Coquitlam												
			Utility Strip	Sidewalk	North Curb	Parking Lane	Travel Lane	Travel Lane	Way Left-Turn Lane	Travel Lane	Travel Lane	Parking Lane	South Curb	Sidewalk	Utility Strip	
Existing Sections																
Tyner Street to West CMBC Driveway																
2019	14.00	20.00		1.00	3.00	0.15	3.00		4.00		4.00		3.00	0.15		1.70
West CMBC Driveway to Broadway Street																
2019	14.60	20.00		3.40		0.15	3.30		4.00		4.00		3.30	0.15	1.50	0.20
Broadway Street to West Sysco Driveway																
2019	14.00	20.00		1.20	3.00	0.15	3.00		4.00		4.00		3.00	0.15	1.50	
West Sysco Driveway to Mary Hill Bypass																
2019	14.00	20.00		2.40	1.80	0.15	2.90		4.00		3.50	3.60		0.15	1.50	

#### 9.1.1 Tyner Street to West CMBC Driveway

This segment includes a total road width of 14.0m and includes one 7.0m travel lane in each direction with parking permitted on both sides of the roadway. A 3.0m sidewalk exists on the north side only.

#### 9.1.2 West CMBC Driveway to Broadway Street

This segment includes a total road width of 14.6m and one 7.3m travel lane in each direction with parking permitted on both sides of the roadway. A 1.5m sidewalk exists on the south side only.

#### 9.1.3 Broadway Street to West Sysco Driveway

This segment includes a total road width of 14.0m and includes one 7.0m travel lane in each direction with parking permitted on both sides of the roadway. The only segment that does not permit parking is west of Langan Avenue. A 3.0m sidewalk exists on the north side and a 1.5m sidewalk exists on the south side.

### 9.1.4 West Sysco Driveway to Mary Hill Bypass

This segment includes a total road width of 14.0m and includes one 6.9m travel lane on the north side and two travel lanes (3.5m and 3.6m) on the south side. Parking is permitted on the north side only. A 1.8m sidewalk exists on the north side and a 1.5m sidewalk exists on the south side.

## 9.2 Proposed Interim and Ultimate Cross Sections

The intent of this conceptual design is to provide a more consistent cross section that can be applied to Kingsway Avenue which meets the interim and future needs of vehicles, cyclists and pedestrians.

In order to accommodate the future traffic requirements at 2044, it is recommended that Kingsway Avenue be constructed as a minimum four-lane undivided arterial roadway with two (3.3m minimum) travel lanes in each direction. In the interim design, in order to accommodate the 2029 traffic volumes, it is recommended that Kingsway Avenue be constructed with a two way left turn lane in the center of the roadway with one travel lane in each direction. Utilizing the existing 20.0m right of way, it is recommended that a 14.0m -14.4m road width be constructed in order to accommodate parking on both sides of the roadway where possible and a minimum 1.5m sidewalk on the south side of the roadway. A 3.0m multi-use path is proposed on the north side located within BC Hydro's right of way. This is generally the philosophy being considered for Kingsway Avenue, where the ultimate cross section can be accommodated within the proposed 14.0m -14.4m interim cross section road width with only milling and overlay and minor pavement marking changes being required for the future transition.

However, referring to Table 9.2, due to the constraints along the corridor and for ease of reference the proposed interim and ultimate cross sections can be broken down in the following segments.

**Table 9.2 Proposed Interim (2029) and Ultimate (2044) Cross Sections**

Horizon Year	Edge of Pavement	Right of Way	BC Hydro	Port Coquitlam												
			Multi-Use Path	Utility Strip	Sidewalk	North Curb	Parking Lane	Travel Lane	Travel Lane	Way Left-Turn Lane	Travel Lane	Travel Lane	Parking Lane	South Curb	Sidewalk	Utility Strip
Proposed Options																
Tyner Street to Broadway Street																
2029	14.40	20.00	3.00	3.10		0.15		3.70		4.40	3.50		2.80	0.15	1.80	0.40
2044	14.40	20.00	3.00	3.10		0.15		3.70	3.50		3.50	3.70		0.15	1.80	0.40
Broadway Street to Langan Ave																
2029	14.00	20.00	3.00	2.45		0.15		3.70	3.30	3.30	3.70			0.15	1.80	1.45
2044	14.00	20.00	3.00	2.45		0.15		3.70	3.30		3.30	3.70		0.15	1.80	1.45
Langan Ave to West Sysco Driveway																
2029	14.00	20.00	3.00	4.20		0.15		3.70		4.20	3.50		2.60	0.15	1.50	
2044	14.00	20.00	3.00	4.20		0.15		3.70	3.30		3.30	3.70		0.15	1.50	
West Sysco Driveway to Mary Hill Bypass																
2029	14.00	20.00	3.00	4.20		0.15			3.70	3.30	3.30	3.70		0.15	1.50	
2044	14.00	20.00	3.00	4.20		0.15		3.70	3.30		3.30	3.70		0.15	1.50	

### 9.2.1 Tyner Street to Broadway Street

Referring to Figures 9.1 and 9.5, Tyner Street and Kingsway Avenue would be constructed as a right in / right out intersection. This segment includes a total road width of 14.4m and requires the south curb to be moved approximately 0.5m to accommodate the proposed 1.8m sidewalk. One travel lane is proposed in each direction (3.7m and 3.5m) with parking permitted (2.8m) on the south side of the roadway. We have made provision for parking (2.6m pull outs) on the north side where possible, without requiring relocation of the BC Hydro transmission lines, which is cost prohibitive.

A 4.4m two way left turn lane is also provided. A 3.0m multi-use path is proposed on the north side located within BC Hydro's right of way and a 1.8m sidewalk is proposed on the south side to incorporate the existing power poles into the sidewalk construction and still allow a minimum of 1.2 m of unobstructed sidewalk for pedestrians.

Referring to Figure 9.5 and 9.9, the ultimate concept design would require the removal of the 4.4m two way left turn lane and replacement with two (3.5 and 3.7m) travel lanes in each direction. No curb modifications would be required.

### 9.2.2 McLean Avenue Intersection

Referring to Figure 9.2, the intersection of McLean Avenue with Kingsway Avenue will require traffic signal modifications to accommodate roadway widening on the south side of the intersection. Dual westbound left turn lanes are also being provided. An additional eastbound right-turn lane (dual right-turn lanes) are proposed including converting the movement from yield-controlled to signalization to avoid weaving issues. An additional eastbound through lane is also proposed.

Referring to Figure 9.10, the ultimate concept design west of McLean Avenue would require removing the 4.4m two way left turn lane and replacement with two (3.5 and 3.7m) travel lanes in each direction. No other modifications would be required.

### 9.2.3 Coast Meridian Overpass / Broadway Street Intersection

Referring to Figure 9.2, the intersection of Coast Meridian Overpass / Broadway Street with Kingsway Avenue will require traffic signal modifications to accommodate roadway widening on the north and south sides of the intersection. Dual eastbound left turn lanes are being provided including an additional eastbound through lane. Although only a corresponding single westbound left turn lane is technically required at the interim stage, for constructability reasons, we are proposing the future dual left turn lane is provided at the interim stage. An additional southbound right-turn lane (dual right-turn lanes) from the Coast Meridian Overpass are proposed including converting the movement from yield-controlled to signalization to avoid weaving issues.

Referring to Figure 9.10, the ultimate concept design east of Broadway Street would require an additional eastbound through lane which would be achieved by changing the pavement markings only. No other modifications would be required.

### 9.2.4 Broadway Street to Langan Avenue

Referring to Figure 9.3, this segment includes a total road width of 14.0m with two travel lanes (3.7m and 3.3m) on the north side of the roadway only and one travel lane (3.7m) on the south side of the roadway. A 3.3m two way left turn lane is also provided, which is less than desirable but matches the existing condition. A 3.0m multi-use path is proposed on the north side located within BC Hydro's right of way and a 1.8m sidewalk is proposed on the south side. It is anticipated that 5 Hydro Poles will have to be relocated in order to accommodate the roadway widening.



Referring to Figure 9.6 and 9.11, the ultimate concept design east of Broadway Street would require removing the 3.3m two way left turn lane and replacement with two ultimate (3.5 and 3.7m) travel lanes in each direction. No other modifications would be required.

### 9.2.5 Langan Avenue to West Sysco Driveway

Referring to Figure 9.3, this segment includes a total road width of 14.0m with one travel lane in each direction with parking permitted (2.6m) on the south side of the roadway only. A 4.2m two way left turn lane is also provided. A 3.0m multi-use path is proposed on the north side located within BC Hydro's right of way and the existing curb and gutter and 1.5m sidewalk is proposed to remain on the south side. The intersection of Coast Meridian Road and Kingsway Avenue would be constructed as a signalized intersection with a dedicated westbound left turn lane.

Referring to Figure 9.7 and 9.11, the ultimate concept design would require removing the 4.2m two way left turn lane and replacement with two ultimate (3.3 and 3.7m) travel lanes in each direction. No other modifications would be required.

### 9.2.6 West Sysco Driveway to Mary Hill Bypass

Referring to Figure 9.4 and 9.7, this segment includes a total road width of 14.0m with one 3.7m travel lane on the north side and two travel lanes (3.3m and 3.7m) on the south side. A 4.2m two way left turn lane is also provided. A 3.0m multi-use path is proposed on the north side located within BC Hydro's right of way and the existing curb and gutter and 1.5m sidewalk is proposed to remain on the south side. The existing sidewalk on the south side of Kingsway Avenue east of the Mary Hill Town Pantry, Chevron and Tim Horton's entrance would be extended to tie into the Mary Hill Bypass Intersection.

Referring to Figure 9.12, the ultimate concept design would require removing the 4.2m two way left turn lane and replacement with two ultimate (3.3 and 3.7m) travel lanes in each direction. No other modifications would be required.

## 9.3 Storage Bay and Taper Length

Storage bay lengths are measured from the stop bar to the start of the deceleration taper. As per the TAC Geometric Design Guide 2017 Section 9.17.4.3, the minimum storage bay length for a left turn lane is 15 m plus the deceleration taper length. The taper length is measured from the edge of the through lane at the start of the taper to the beginning of a full-width, left-turn lane at the end of the taper. As per TAC Geometric Design Guide 2017 Table 9.17.2, the minimum bay taper length for a left turn lane at a design speed of 60 km/h is at a taper ratio of 10:1 to the lane width. All required storage bay and taper lengths are summarized in table 9.3 below.

**Table 9.3** Summary of Storage Bay and Taper Lengths (Year 2029 Horizon)

Study Intersection (along Kingsway Avenue)	95th Percentile Queue Length (m)	Storage Bay	Taper	Comments
		Length (m)	Length (m)	
McLean Avenue				
EBL	18.5	37	37	Proposed single left turn. Meets design guidelines.
WBL	67.0	134	39	Proposed dual left turn. Meets design guidelines.
NBR	60.0	118	N/A	Proposed dual right turn. Meets design guidelines.
Coast Meridian Overpass / Broadway Street				
EBL	114.0	171	44	Proposed dual left turn. Meets design guidelines.
EBR	70.9	74	36	Proposed single right turn. Meets design guidelines.
WBL	71.1	75	62	Proposed dual left turn. Meets design guidelines.
WBR	78.5	96	60	Proposed single right turn. Meets design guidelines.
NBL	51.9	60	38	Proposed single left turn. Meets design guidelines.
NBR	72.8	72	51	Existing condition to remain.
SBL	29.0	48	46	Existing condition to remain.
SBR	107.8	99	36	Proposed dual right turn. Meets design guidelines.
Langan Avenue				
N/A	N/A	N/A	N/A	N/A
Coast Meridian Road				
WBL	28.5	35	50	Proposed single left turn. Meets design guidelines.



## 10.0 Opinion of Probable Cost

The estimated opinion of probable cost based on the interim conceptual design provided is approximately \$5.96M which includes a 25% contingency. The opinion of probable cost includes power pole relocation and relocation of existing street lights. There are a number of areas along the corridor which are not currently illuminated that the City may want to consider as part of the detailed design. These costs are not currently included.

Also, east of CMO the 3 phase power poles will have to be relocated (north PL). We have assumed they can be located on the south side of the R/W, at the back of sidewalk. We suspect they cannot be relocated to the north, as there is likely a minimum separation requirement from the transmission lines. If they cannot be relocated to the south, an option would be to underground the power. However this would cost an additional \$900k. These costs are not currently included and should be considered during detailed design

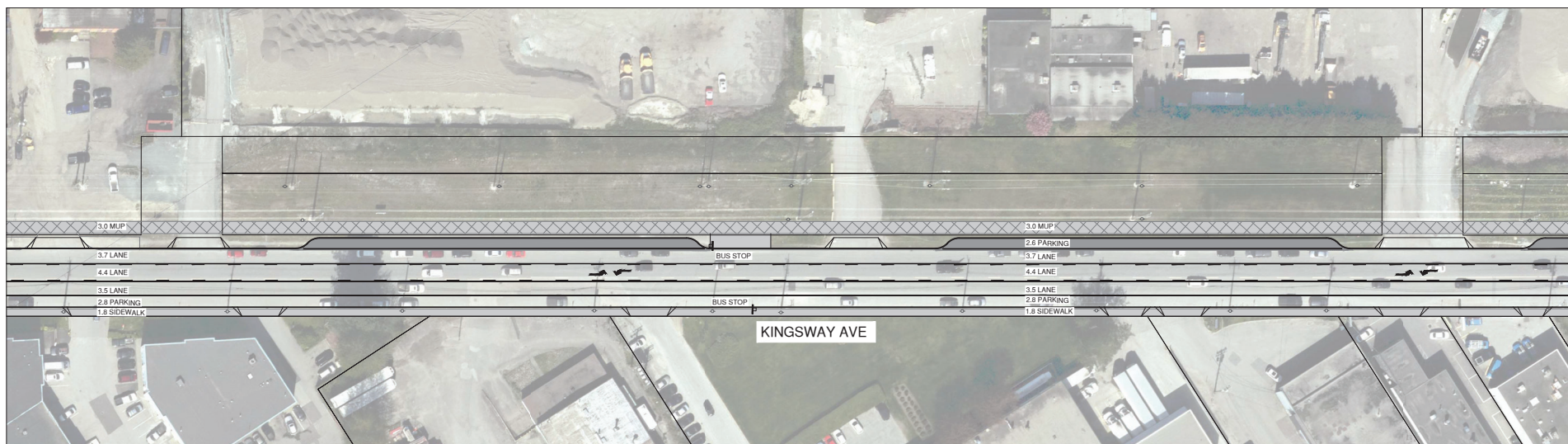
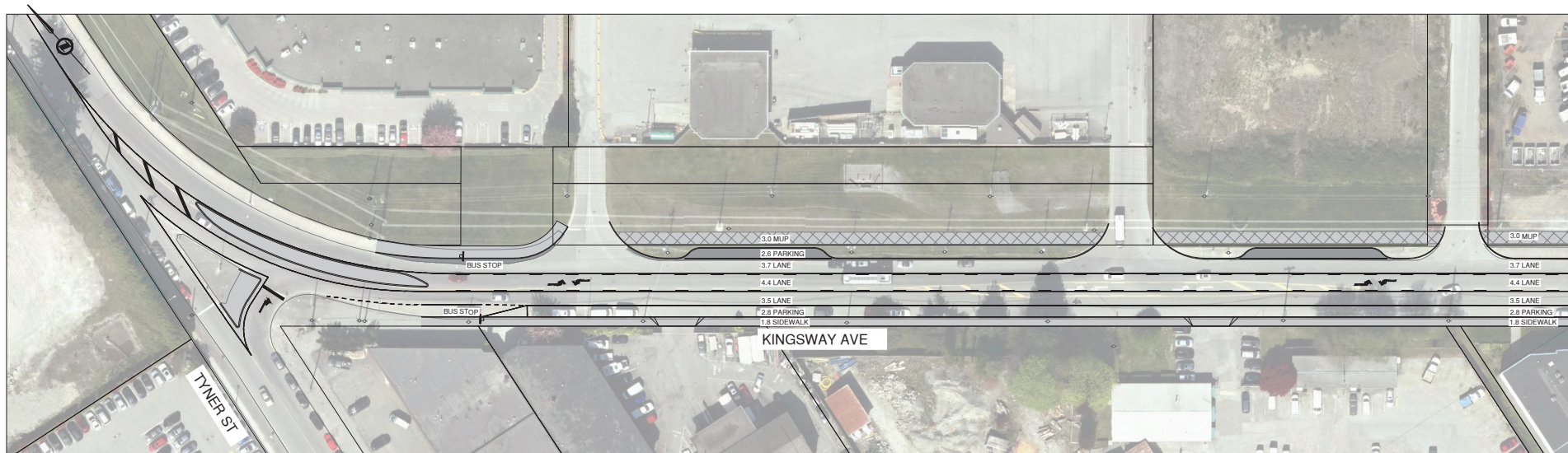
Please refer to Table 10 'Class C Cost Estimate' below for the opinion of probable cost.




### *Table 10 Class C Cost Estimate*



ITEM NO.	SSMP	DESCRIPTION	UNIT OF MEASURE	UNIT PRICE	Tyner to McLean		CMO Intersection		CMO to Maryhill		TOTAL QUANTITY	TOTAL COST
					QTY	COST	QTY	COST	QTY	COST		
1.0	MMCD 03 30 20 - CONCRETE WALKS, CURBS AND GUTTERS											
1.1	1.4.5	Concrete Sidewalk (MMCD C2) (south side)	Square Meter	\$ 125	1325	\$ 165,625	615	\$ 76,875	265	\$ 33,125	2205	\$ 275,625
1.2	1.4.3 1.4.4	Concrete Curb & Gutter (MMCD C5)	Linear Meter	\$ 120	1850	\$ 222,000	1530	\$ 183,600	1217	\$ 146,040	4597	\$ 551,640
1.3	1.4.6	150mm Depth Driveway Crossings (MMCD C7)	Square Meter	\$ 150	200	\$ 30,000		\$ -	107	\$ 16,050	307	\$ 46,050
1.4	1.4.3 1.4.4	Concrete Median Infill (concrete)	Linear Meter	\$ 120	50	\$ 6,000	450	\$ 54,000		\$ -	500	\$ 60,000
2.0	MMCD 31 11 01 - CLEARING AND GRUBBING											
2.1	1.4.1	Hedge Removal (Area in Plan, not elevation)	Square Meter	\$ 10	900	\$ 9,000	300	\$ 3,000	260	\$ 2,600	1460	\$ 14,600
3.0	MMCD 31 11 41 - SHRUB AND TREE PRESERVATION											
3.1	1.3.1S	Hedge and Tree Preservation	Lump Sum	\$ 5,000	1	\$ 5,000	1	\$ 5,000	1	\$ 5,000	3	\$ 15,000
4.0	MMCD 31 24 13 - ROADWAY EXCAVATION, EMBANKMENT AND COMPACTION											
4.1	1.8.2 1.8.5	Common Excavation - Off-Site Disposal	Cubic Meter	\$ 75	1636.5	\$ 122,738	1825	\$ 136,838	1964	\$ 147,285	5425	\$ 406,860
4.2	1.8.2 1.8.5	Common Excavation - Off-Site Disposal MUP	Cubic Meter	\$ 75	886.5	\$ 66,488	389	\$ 29,138	1100	\$ 82,485	2375	\$ 178,110
4.3	1.8.5	Common Excavation - Off-Site Disposal - Concrete (South Curb)	Cubic Meter	\$ 150	200	\$ 30,000	411	\$ 61,718	120	\$ 17,925	731	\$ 109,643
4.4		OPTIONAL - Overexcavation - Off-Site Disposal (Includes MMCD Granular Base Backfill)	Cubic Meter	\$ 150	65	\$ 9,750	91	\$ 13,684	98	\$ 14,729	254	\$ 38,162
5.0	MMCD 32 11 16.1 – GRANULAR SUBBASE											
5.1	1.4.3 1.4.4	300mm Depth MMCD Select Granular Subbase For Full Depth Pavement	Tonne	\$ 50	1169.7	\$ 58,485	1758.9	\$ 87,945	2074	\$ 103,686	5002	\$ 250,116
5.2	1.4.3 1.4.4	100mm Depth MMCD Select Granular Subbase For Driveway Reconstruction	Tonne	\$ 50	90	\$ 4,500		\$ -	24	\$ 1,177	114	\$ 5,677
6.0	MMCD 32 11 23 – GRANULAR BASE											
6.1	1.4.2 1.4.3	150mm Depth MMCD Granular Base For Full Depth Pavement	Tonne	\$ 50	725.85	\$ 36,293	879	\$ 43,973	1037	\$ 51,843	2642	\$ 132,108
6.2	1.4.2 1.4.3	250mm Depth MMCD Granular Base For MUP	Tonne	\$ 50	1625	\$ 81,263	712	\$ 35,613	2016	\$ 100,815	4354	\$ 217,690
6.3	1.4.2 1.4.3	150mm Depth MMCD Granular Base For South Sidewalk	Tonne	\$ 50	450	\$ 22,500	320	\$ 16,022	26	\$ 1,297	796	\$ 39,818
7.0	MMCD 32 12 13.1 – ASPHALT TACK COAT											
7.1	1.5.1	Asphalt Tack Coat	Square Meter	\$ 1	1820	\$ 1,820	2665	\$ 2,665	3142	\$ 3,142	7627	\$ 7,627
8.0	MMCD 32 12 16 – HOT-MIX ASPHALT CONCRETE PAVING											
8.1	1.5.1 1.5.2	50mm Depth Machine Laid MMCD Upper Course #1 (Widening)	Tonne	\$ 120	364	\$ 43,652	326	\$ 39,176	385	\$ 46,187	1075	\$ 129,014
8.2	1.5.1 1.5.2	50mm Depth Machine Laid MMCD Lower Course #1 (Widening)	Tonne	\$ 120	514	\$ 61,652	326	\$ 39,176	385	\$ 46,187	1225	\$ 147,014
8.3	1.5.1 1.5.2	50mm MMCD Upper Course #1 - MUP	Tonne	\$ 125	375	\$ 46,875	159	\$ 19,830	449	\$ 56,136	983	\$ 122,840
9.0	MMCD 32 17 23 – PAINTED PAVEMENT MARKINGS											
9.1	1.5.2	All Permanent painted markings	Lump Sum		1	\$ 20,000	1	\$ 15,000	1	\$ 15,000	3	\$ 50,000
9.2	1.5.2	Eradication of existing painted markings	Lump Sum		1	\$ 15,000	1	\$ 10,000	1	\$ 10,000	3	\$ 35,000
9.3	1.5.4	All Signs	Lump Sum		1	\$ 5,000	1		1	\$ 3,000	3	\$ 8,000
10.0	MMCD 32 91 21 – TOPSOIL AND FINISH GRADING											
10.1	1.4.1	100mm Depth Topsoil	Cubic Meter	\$ 100	150	\$ 15,000	50	\$ 5,000	150	\$ 15,000	350	\$ 35,000
11.0	MMCD 32 92 23 – SODDING											
11.1	1.8.1	Sodding	Square Meter	\$ 12	750	\$ 9,000	200	\$ 2,400	1000	\$ 12,000	1950	\$ 23,400
12.0	MMCD 33 40 01 – STORM SEWERS											
12.1	1.6.5	200mm PVC DR28 CB Lead	Linear Meter	\$ 400	475	\$ 190,000	300	\$ 120,000	680	\$ 272,000	1455	\$ 582,000
13.0	MMCD 33 44 01 - MANHOLES AND CATCH BASINS											
13.1	1.6.5	Catch Basins (MMCD S11)	Each	\$ 3,600	28	\$ 100,800	20	\$ 72,000	40	\$ 144,000	88	\$ 316,800
14.0	MMCD 34 41 13 - TRAFFIC SIGNALS											
#REF!	1.9.1	Traffic Signal modification (McLean Ave)	L.S	\$ 50,000			1	\$ 50,000		\$ -	1	\$ 50,000
#REF!	1.9.1	Traffic Signals (CMO)	L.S	\$ 100,000		\$ -	1	\$ 100,000		\$ -	1	\$ 100,000
#REF!	1.9.1	Traffic Signals (Coast Meridian Rd)	L.S	\$ 200,000		\$ -		\$ -	1	\$ 200,000	1	\$ 200,000
15.0	MMCD 26 56 01 - Roadway Lighting											
15.1	1.8.1	Street Lighting (north and South)	each	\$ 7,500	6	\$ 45,000	10	\$ 75,000	10	\$ 75,000	26	\$ 195,000
15.2		Relocation of Power pole	each	\$ 10,000	5	\$ 50,000	7	\$ 70,000	22	\$ 220,000	34	\$ 340,000
		TOTAL COST (ROUNDED TO NEAREST \$1,000)				\$ 1,474,000	\$ 1,368,000	\$ 1,842,000	\$ 4,683,000			
		25% CONTINGENCY				\$ 368,500	\$ 342,000	\$ 460,500	\$ 1,170,750			
		CLASS C COST ESTIMATE				\$ 1,842,500	\$ 1,710,000	\$ 2,302,500	\$ 5,853,750			





<b>ROAD WIDENING</b> 100mm ASPHALT 150mm ROAD BASE 300mm SUB. BASE		<b>MULP</b> 50mm ASPHALT 100mm ROAD BASE 150mm SUB. BASE		<b>SIDEWALK</b> 100mm CONCRETE 200mm ROAD BASE		<b>NEW SIGNAL</b>
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PLOT DATE: February 13, 2020

REV NO	REVISIONS	DATE	DRAWN	APPROD
0	CONCEPTUAL DESIGN	19/09/09	RC	CNB
1	REVISED CONCEPT	19/11/12	CJB	CNB
2	REVISED CONCEPT	19/12/10	CJB	CNB
3	ALTERNATE CONCEPT - RIGHT-IN RIGHT-OUT	20/02/13	CJB	CNB



KINGSWAY AVENUE  
TYNER ST



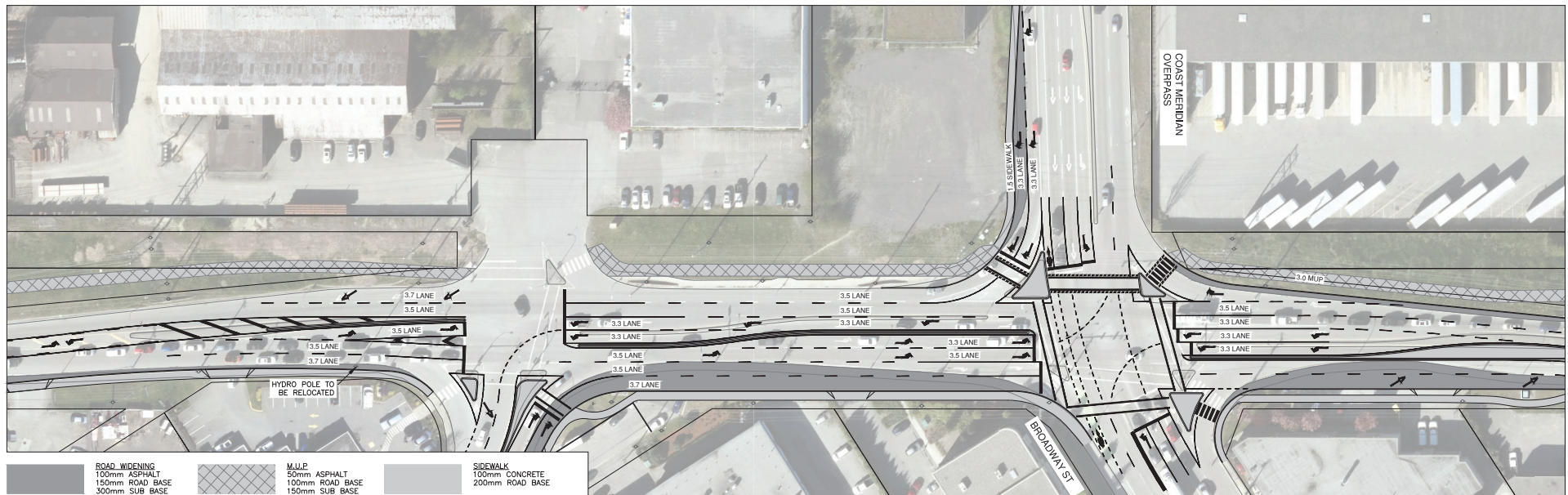
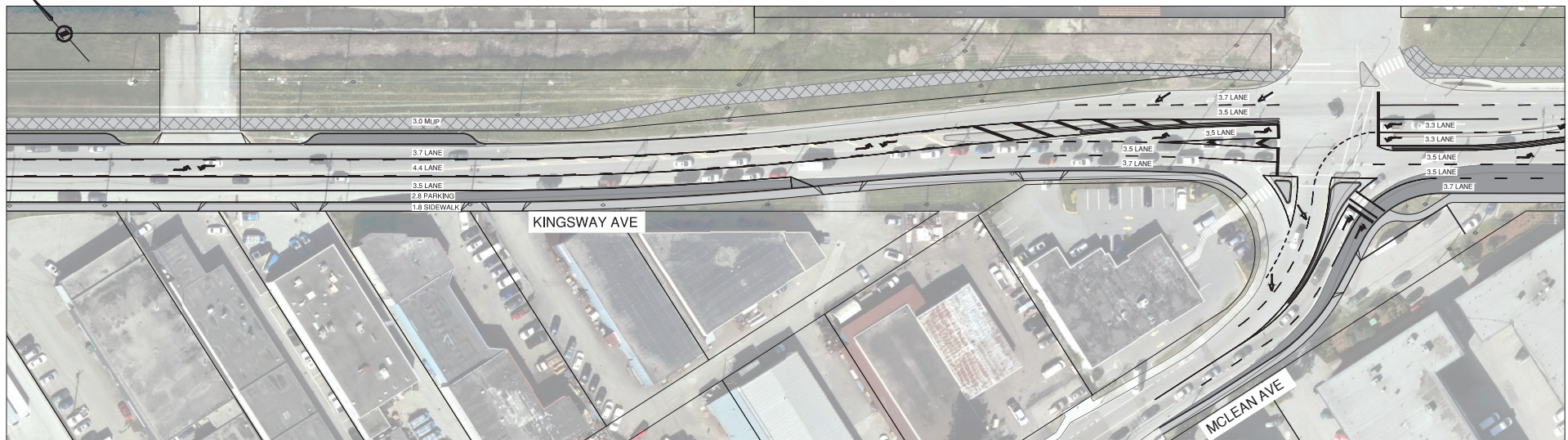
#503 4190 Lougheed Hwy, Burnaby, B.C. V5G 6A

SCALE	1:500	DESIGN NO.	32340	DWG. NO. 9.1
		DATE	2019-09-09	
DRAWN BY	RC	DESIGN BY	CJB	
CHECKED BY	CNR	APPROVED BY	CNR	REV. 3

DESTROY ALL PRINTS BEARING PREVIOUS NO.



File: G:\Projects\2019\20190324\KINGSWAY\_Ave\_Concept\_Design\02\_CAD\0201\_Drawing\02360\_Geometric\_and\_Landing\_Mean\_Roads\_Work1.dwg



	ROAD WIDENING		M.U.P.		SIDEWALK
100mm ASPHALT		50mm ASPHALT		100mm CONCRETE	
150mm ROAD BASE		100mm ROAD BASE		200mm ROAD BASE	
300mm SUB BASE		150mm SUB BASE			

PLOT DATE: November 21, 2019

REV NO	REVISIONS	DATE	DRAWN	APPROD
0	CONCEPTUAL DESIGN	19/09/09	RC	CMB
1	REVISED CONCEPT	19/11/12	CJB	CMB



# KINGSWAY AVENUE MCLEAN AND CMO

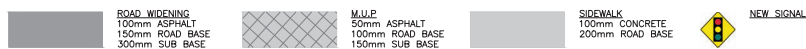
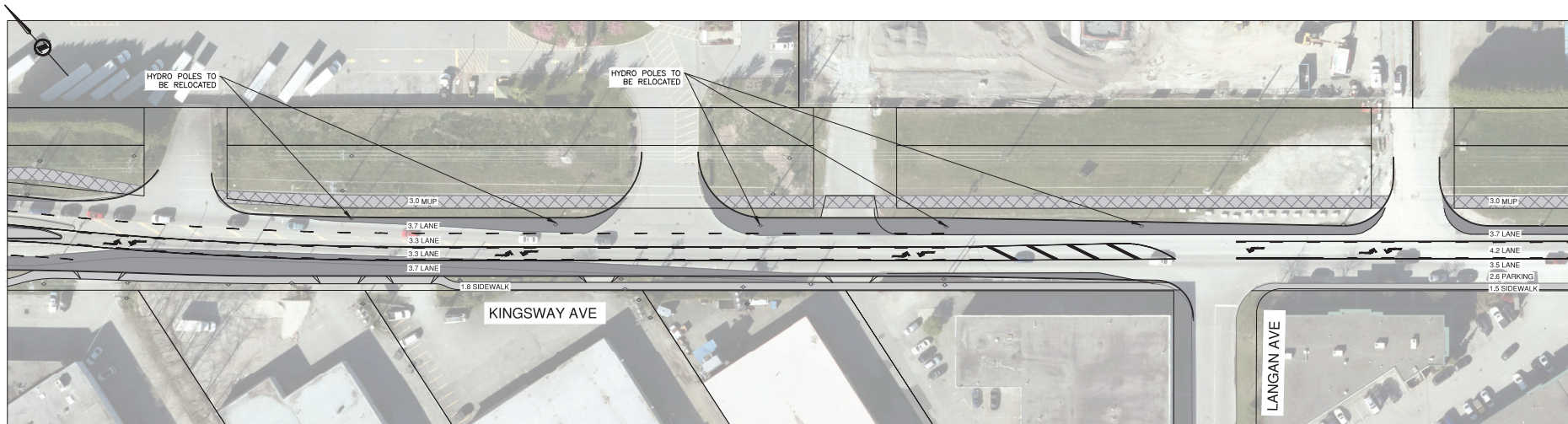


#003 4100 Loughheed Hwy, Burnaby, B.C. V5C 6A8  
Tel: (604) 663-0000 or (604) 663-0001

SCALE	1:500	DESIGN NO.	52440	DWG. NO.	9.2
DRAWN BY	RC	DATE	2019-09-09		
CHECKED BY	CMB	DESIGN BY	CJB		
		APPROVED BY	CMB	REV.	1

DESTROY ALL PRINTS BEARING PREVIOUS NO.





PLOT DATE: November 21, 2019

REV NO	REVISIONS	DATE	DRAWN	APPROD
0	CONCEPTUAL DESIGN	19/09/09	RC	CMB
1	REVISED CONCEPT	19/11/12	CJB	CMB



## KINGSWAY AVENUE LANGAN AND COAST MERIDIAN

CONCEPTUAL — INTERIM DESIGN



#003 4199 Loughheed Hwy, Burnaby, B.C. V5C 6A8  
Tel: (604) 293-0000 or (604) 293-0001

SCALE	1:500	DESIGN NO.	52440	DWG. NO.	9.3
DRAWN BY	RC	DATE	2019-09-09		
CHECKED BY	CMB	DESIGN BY	CJB		
		APPROVED BY	CMB	REV.	1

DESTROY ALL PRINTS BEARING PREVIOUS NO.





	<b>ROAD WIDENING</b> 100mm ASPHALT 150mm ROAD BASE 300mm SUB BASE
	<b>M.U.P.</b> 50mm ASPHALT 100mm ROAD BASE 150mm SUB BASE
	<b>SIDEWALK</b> 100mm CONCRETE 100mm ROAD BASE 200mm SUB BASE

PLOT DATE: **November 21, 2019**

REV NO	REVISIONS	DATE	DRAWN	APPROD
0	CONCEPTUAL DESIGN	18/09/09	RC	CMB
1	REVISED CONCEPT	19/11/12	CJB	CMB



## KINGSWAY AVENUE McLEAN AND CMO

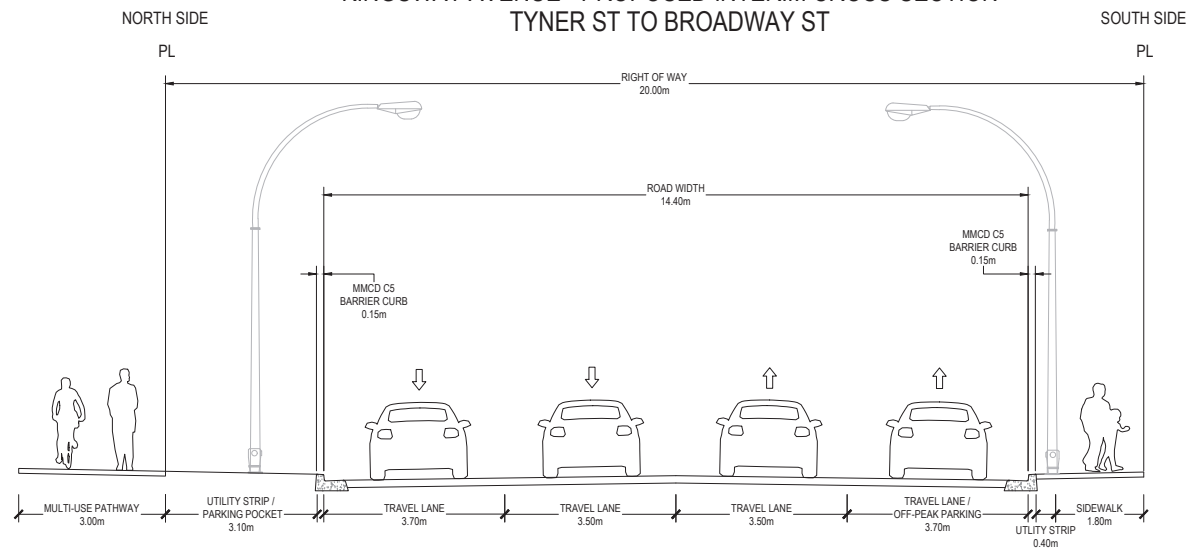
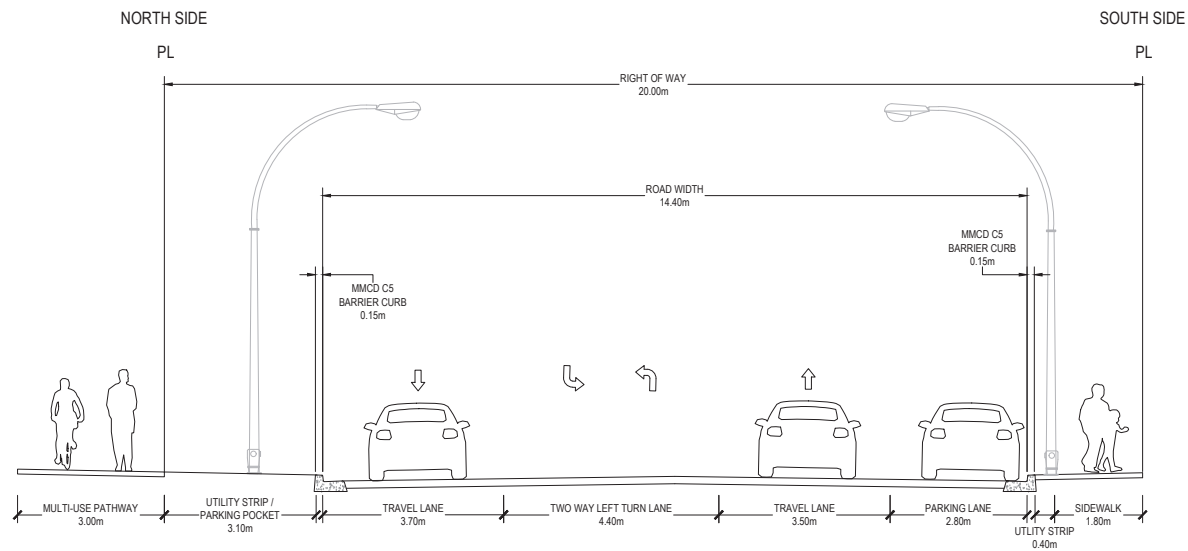
CONCEPTUAL — INTERIM DESIGN



#003 4100 Lougheed Hwy. Burnaby, B.C. V5C 6A8  
Tel: (604) 291-0000 or (604) 291-0001

SCALE	1:500	DESIGN NO.	52440	DWG. NO.	9.4
DRAWN BY	RC	DATE	2019-09-09		
CHECKED BY	CMB	DESIGN BY	CJB		
		APPROVED BY	CMB	REV.	1

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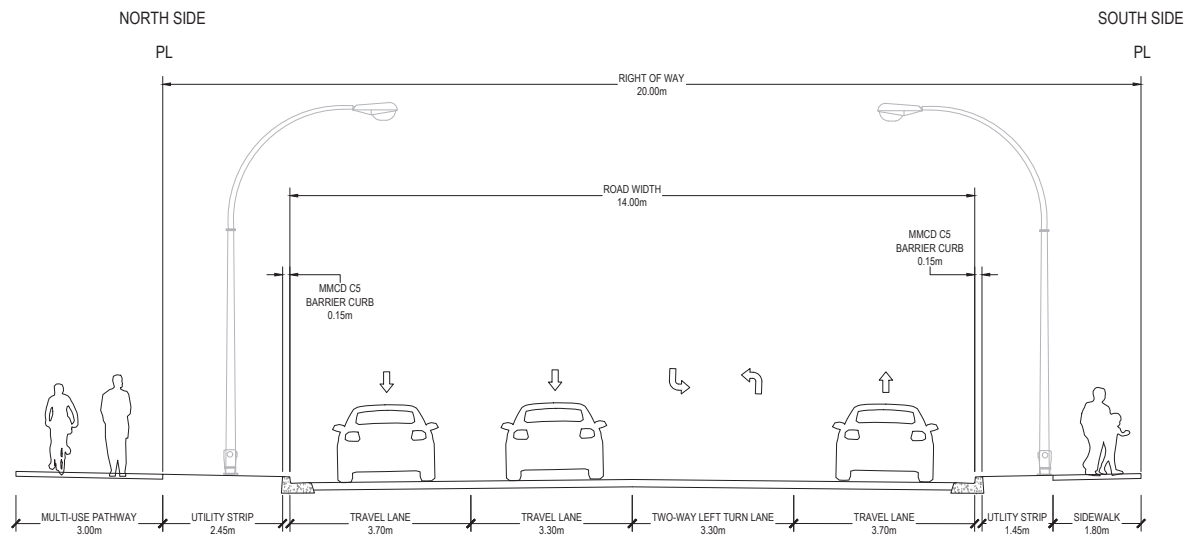


**KINGSWAY AVENUE - PROPOSED ULTIMATE CROSS SECTION**  
TYNER ST TO BROADWAY ST

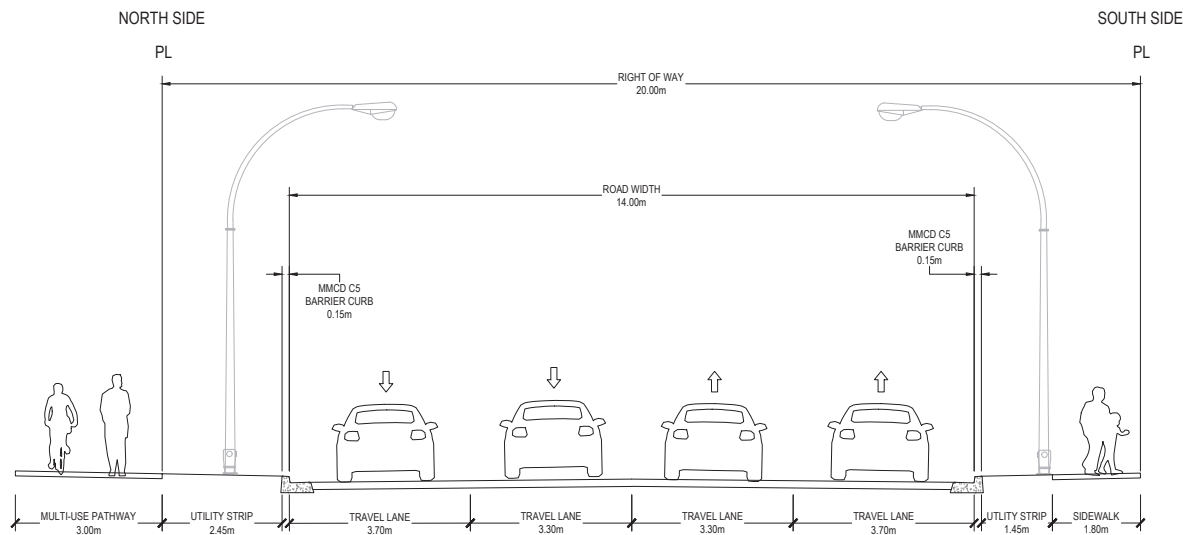
CONCEPTUAL DESIGN

PLOT DATE: November 21, 2019				KINGSWAY AVE PROPOSED INTERIM AND ULTIMATE SECTIONS				CONCEPTUAL DESIGN				DWG. NO.	
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2	REVISED SECTIONS	2019-11-12	CB	CB					CHECKED BY	CB	APPROVED BY	CB	
												REV.	2

DESTROY ALL PRINTS BEARING PREVIOUS NO.



KINGSWAY AVENUE - PROPOSED INTERIM CROSS SECTION  
BROADWAY ST TO LANGAN AVE



KINGSWAY AVENUE - PROPOSED ULTIMATE CROSS SECTION  
BROADWAY ST TO LANGAN AVE

PLOT DATE: November 21, 2019

REV NO	REVISIONS	DATE	DRAWN	APPROD
1	REVISED SECTIONS	2019-10-08	CB	CB
2	REVISED SECTIONS	2019-11-12	CB	CB



KINGSWAY AVE PROPOSED INTERIM AND ULTIMATE SECTIONS  
BROADWAY ST TO LANGAN AVE

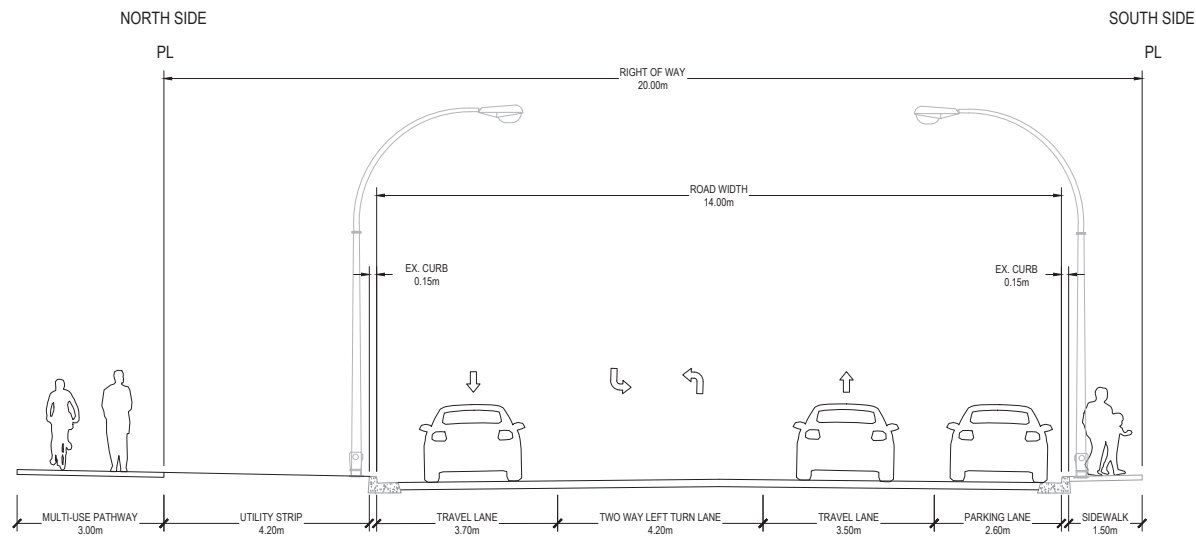


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T: 604-663-0000 F: 604-663-0000

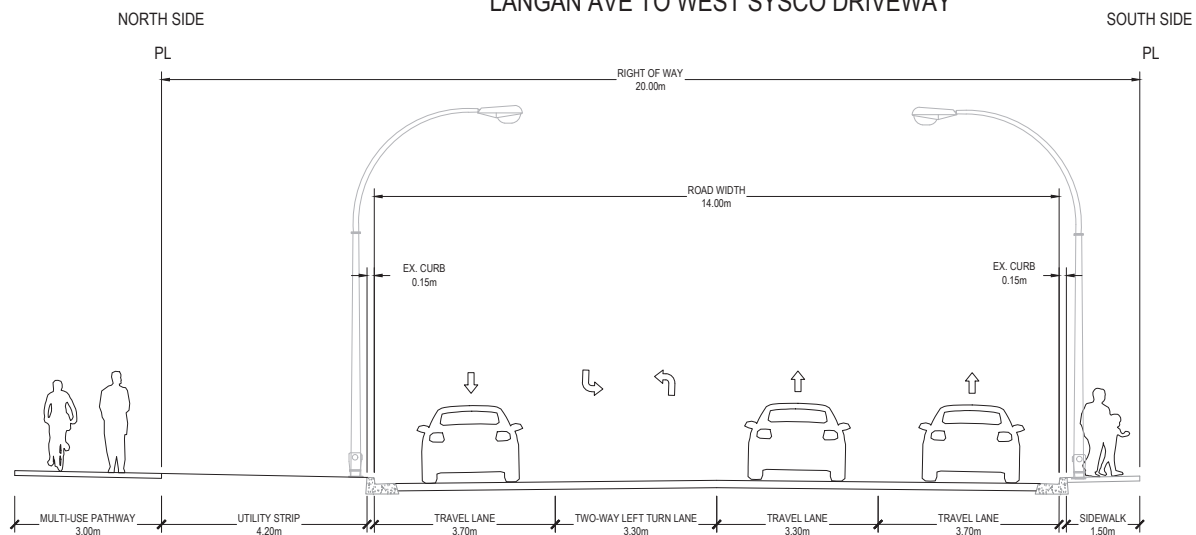
CONCEPTUAL DESIGN

SCALE	1:500	DESIGN NO.	32340	DWG. NO.	9.6
DRAWN BY	RC	DATE	2019-09-19		
CHECKED BY	CB	DESIGNED BY	CB		
		APPROVED BY	CB	REV.	2

DESTROY ALL PRINTS BEARING PREVIOUS NO.



KINGSWAY AVENUE - PROPOSED INTERIM CROSS SECTION  
LANGAN AVE TO WEST SYSCO DRIVEWAY



KINGSWAY AVENUE - PROPOSED INTERIM CROSS SECTION  
WEST SYSCO DRIVEWAY TO MARY HILL BYPASS

PLOT DATE: November 21, 2019

REV. NO.	REVISIONS	DATE	DRAWN	APPROVED
1	REVISED SECTIONS	2019-10-08	CB	CB
2	REVISED SECTIONS	2019-11-12	CB	CB



### KINGSWAY AVE PROPOSED INTERIM SECTIONS LANGAN AVE TO MARY HILL BYPASS

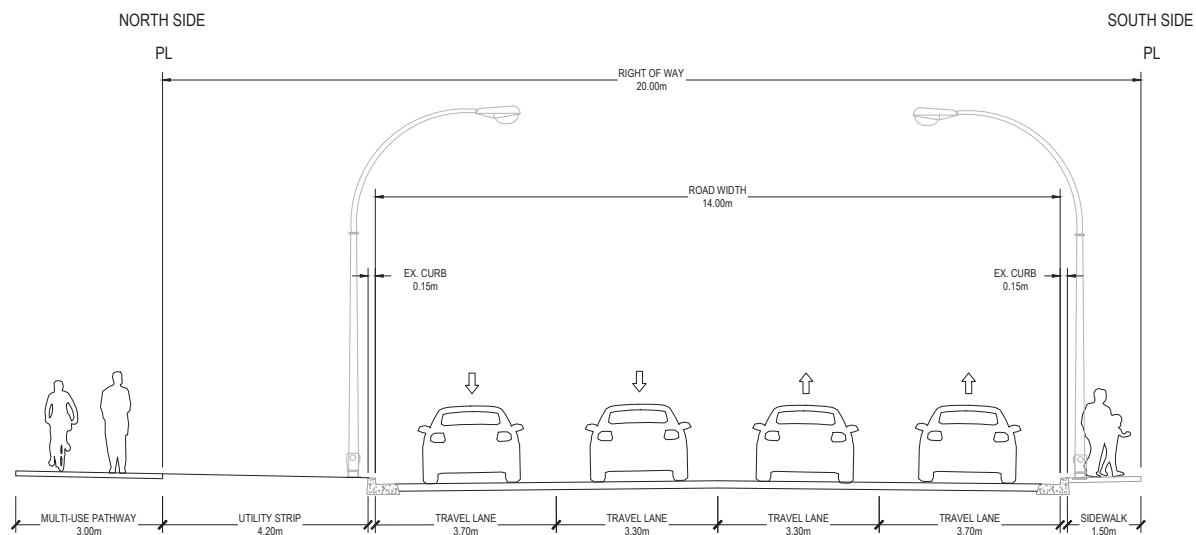


#603 4100 Lougheed Hwy, Burnaby, B.C. V5C 5A8  
T: 604-663-0000 F: 604-663-0000

#### CONCEPTUAL DESIGN

SCALE	1:500	DESIGN NO.	32340	DWG. NO.	9.7
DRAWN BY	CB	DATE	2019-09-19		
CHECKED BY	CB	DESIGN BY	CB		
		APPROVED BY	CB	REV.	2

DESTROY ALL PRINTS BEARING PREVIOUS NO.



KINGSWAY AVENUE - PROPOSED ULTIMATE CROSS SECTION  
LANGAN AVE TO MARY HILL BYPASS

PLOT DATE: November 21, 2019

REV. NO.	REVISIONS	DATE	DRAWN	APPROVED
1	REVISED SECTIONS	2019-10-08	CB	CB
2	REVISED SECTIONS	2019-11-12	CB	CB



KINGSWAY AVE PROPOSED ULTIMATE SECTION  
LANGAN AVE TO MARY HILL BYPASS



#001 4101 Lougheed Hwy, Burnaby, B.C. V5C 6A8  
T: 604-291-0000 F: 604-291-0001

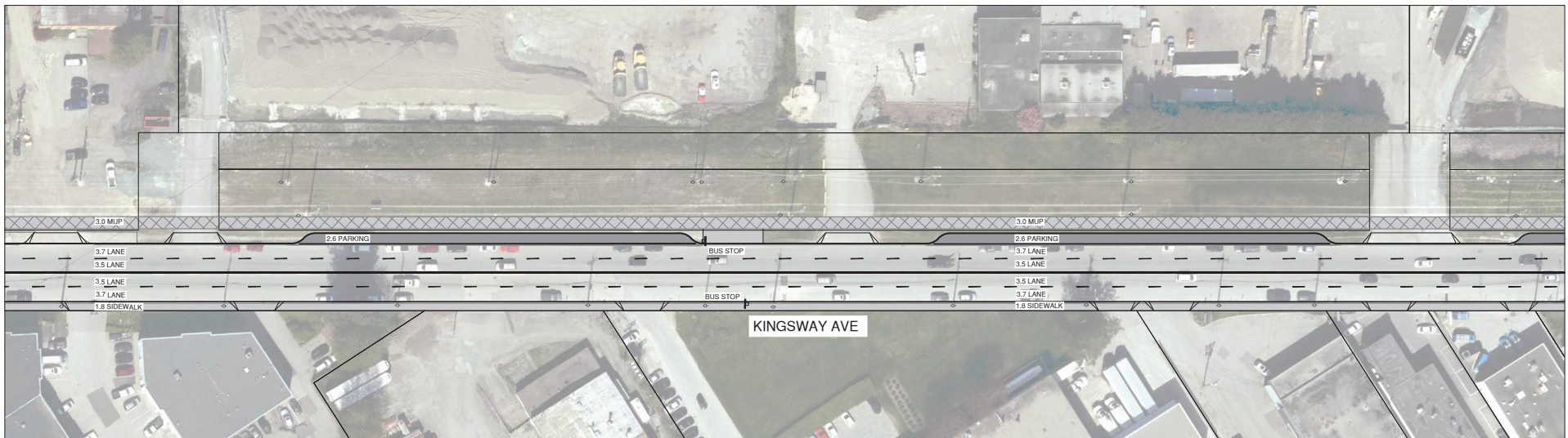
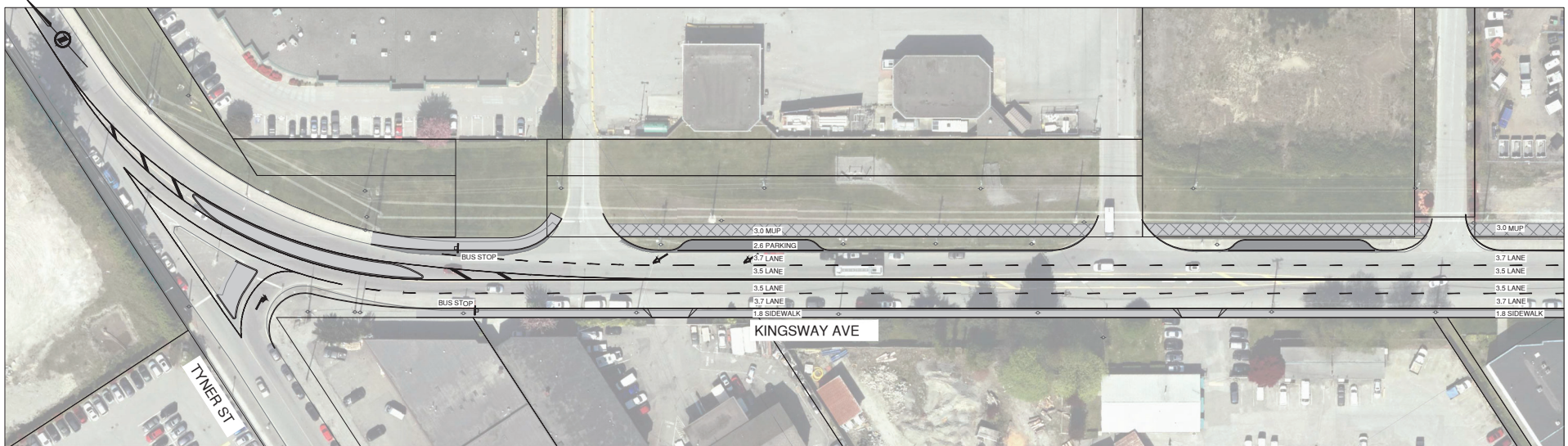
CONCEPTUAL DESIGN

SCALE	1:500	DESIGN NO.	32340	DWG. NO.	9.8
DRAWN BY	CB	DATE	2019-09-19		
CHECKED BY	CB	DESIGN BY	CB		
		APPROVED BY	CB	REV.	2

DESTROY ALL PRINTS BEARING PREVIOUS NO.



File: G:\Projects\2020\20200213\Kingsway Ave Concept Design\02 CAD\0201 Drawing\02360 - Geometry and Layout - Ultimate Roadway\ALT 1E.dwg



ROAD WIDENING  
100mm ASPHALT  
150mm ROAD BASE  
300mm SUB BASE

M.U.P.  
50mm ASPHALT  
100mm ROAD BASE  
150mm SUB BASE

SIDEWALK  
100mm CONCRETE  
200mm ROAD BASE

NEW SIGNAL

REV NO	REVISIONS	DATE	DRAWN	APPROD
0	CONCEPTUAL DESIGN	190909	RC	CMB
1	REVISED CONCEPT	191112	CJB	CMB
2	REVISED CONCEPT	191215	CJB	CMB
3	ALTERNATE CONCEPT - RIGHT IN RIGHT-OUT	200213	CJB	CMB



KINGSWAY AVENUE  
TYNER ST

CONCEPTUAL — ULTIMATE DESIGN — ALTERNATE



SCALE	1:500	DESIGN NO.	52445	DWG. NO.	9.9
DRAWN BY	RC	DATE	2019-09-09		
CHECKED BY	CMB	DESIGN BY	CJB		
		APPROVED BY	CMB	REV.	3

DESTROY ALL PRINTS BEARING PREVIOUS NO.











SYSCO

CONSTRUCT SIDEWALK

MARY H  
BYPASS

SIDEWALK  
100mm CONCRETE  
200mm ROAD BASE

DWG. NO	9.12
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DESTROY ALL PRINTS BEARING PREVIOUS NO.



**RECOMMENDATION:**

None

**PREVIOUS COUNCIL/COMMITTEE ACTION**

None.

**REPORT SUMMARY**

The budget variance report and work plan updates are brought forward to provide Committee with a comprehensive understanding of the status of the annual business plans. The 4<sup>th</sup> quarter budget variance will be presented to Committee with the year-end financial results in May 2020. This report represents the progress on the workplans that was made in the fourth quarter of 2019, including those items which were carried forward from 2018, in advance of the financial update.

**BACKGROUND**

The 2019 budget variance report will be presented in May with the financial statements, following the audit. The Q4 2019 workplan updates are being brought forward in advance of the financial update.

**DISCUSSION**

Overall, the majority of items planned to be completed in 2019 were completed on time. Good progress was made on some of the longer term initiatives, such as the Community Centre, the Downtown Action Plan, and items relating to infrastructure and capital planning. A number of items, particularly some of the policy work in the Development Services department (and work relating to the Livable Community priority) was not completed, and the new Director of Development Services will be preparing appropriate project plans for 2020 to ensure this carry forward work is completed.

Committee may also recall that previously the workplan updates included a “grocery store chat” section, which spoke to items happening in each area that were of public interest. These updates are now being provided via regular Department updates, or the CAO updates as part of our normal committee/Council agenda items.

In 2019, Council adopted the 2020-2022 Action Plan, which will guide the department work plans for the next few years.

### **FINANCIAL IMPLICATIONS**

None

### **ATTACHMENTS**

Attachment #1: Departmental Work Plan Updates

## COUNCIL PRIORITY: COMMUNITY RECREATION COMPLEX PROJECT

Item	Start	Finish	Status
▪ Provide offsite servicing support	2016	2019 Q2	Complete
▪ Prepare for launch of phase 1 operations <ul style="list-style-type: none"> <li>• Set up staffing and programming and operating budgets</li> <li>• Complete decommission activities for current Rec Complex</li> <li>• Award and oversee contract to design lobby elements to complement the Sport Hall of Fame</li> <li>• Complete Terry Fox exhibit plan and contract.</li> <li>• Ensure set up, including all equipment and furniture procurement is complete for phased opening</li> </ul>	2016	2019 Q4	Complete
▪ Prepare landscape design	2016	2019 Q4	Complete Q1 2020
▪ Assist staffing plan (planning and recruitment of new positions)	2018	2021 Q4	Ongoing
▪ Provide specifications and design for information and communications technology equipment	2019 Q1	2019 Q2	Completed
▪ Lead and support the project to ensure the deliverables of staff and the contractors are met and ensure there is regular reporting to Council on the project progress	Ongoing	2021 Q4	Ongoing
▪ Ongoing Project Team work and leadership of the Stakeholder Group	Ongoing	2021 Q4	Ongoing
▪ Conduct building and plumbing permit review and inspection	Ongoing	2021 Q4	Ongoing
▪ Provide ongoing updates on construction activities and impact to services. Lead Grand Opening events	Ongoing	2021 Q4	Ongoing
▪ Manage cash flow and grant reporting submissions	Ongoing	2021 Q4	Ongoing

## COUNCIL PRIORITY: INFRASTRUCTURE

Item	Start	Finish	Status
▪ Update facility lifecycle plan and provide 5 year recommended projections for inclusion in the asset management plan	2019 Q1	2019 Q4	Carried forward to Q4 2020
▪ Review and develop standard operating guidelines for each service level, aligning with best management practices	2019 Q1	2019 Q2	Complete
▪ Finalize asset management strategy and policy	2019 Q1	2019 Q1	Carried forward to Q4 2020
▪ Develop basic asset management plans for all asset categories	2019 Q2	2020 Q4	Ongoing
▪ Update subdivision servicing bylaw	2019 Q1	2020 Q2	Ongoing
▪ Inventory gravel lanes and apply selection criteria to develop capital lane paving program	2019 Q1	2019 Q2	Complete
▪ Develop 2020-2021 capital program	2019 Q2	2019 Q3	Complete
▪ Select pavement rehabilitation and utility projects	2019 Q2	2019 Q3	Complete

▪ Review and finalize the Maple Creek Integrated Water Management Plan and incorporate recommendations into planning policies and capital program	2019 Q3	2020 Q1	Ongoing
▪ Update parks asset inventory and lifecycle information	2018	2019 Q3	Carried forward to Q2 2020

## COUNCIL PRIORITY: LIVABLE COMMUNITY PROJECTS

Item	Start	Finish	Status
▪ Implement downtown action plan <ul style="list-style-type: none"> <li>• Downtown redevelopment</li> <li>• Downtown wayfinding</li> </ul>	2017	TBD	Ongoing
▪ Oversee ongoing implementation of the Cultural Plan <ul style="list-style-type: none"> <li>• Deliver festivals and events e.g., 4th annual PoCo Grand Prix</li> <li>• Animate public spaces e.g., Shaughnessy Pop-up Park</li> <li>• Coordinate Cultural Roundtable meetings</li> </ul>	2019 Q1	2019 Q4	Completed
▪ Update Official Community Plan to highlight “Livable Port Coquitlam” <ul style="list-style-type: none"> <li>• Review townhouse designation</li> <li>• Review child care policy</li> <li>• Update development permit design guidelines</li> <li>• Review rental housing zoning</li> <li>• Consolidate Plan</li> </ul>	2018	2020 Q1	Ongoing
▪ Undertake Northside commercial area study	2019 Q4	2020 Q1	Carried forward to Q4 2020
▪ Develop a comprehensive policy and management plan related to a street tree plan, tree replacement regulations and tree inventories and develop community education	2017	2019 Q4	Carried forward to Q4 2020
▪ Update GHG emission reduction targets and policies	2018	2019 Q4	Carried forward to Q4 2020
▪ Research what problems and opportunities exist in attracting, retaining and expanding business in PoCo and what role the city can play to support the economic development of the community <ul style="list-style-type: none"> <li>• Update business bylaw</li> </ul>	2019 Q1	2020 Q4	Ongoing
▪ Update subdivision servicing bylaw	2019 Q1	2019 Q4	Carried forward to Q4 2020

## DEPARTMENT WORKPLAN ITEMS

In addition to working on Council priorities, departments also undertake work to comply with new legislation, to gain efficiencies, to reduce costs, to provide better service, and to comply with Council direction. The following section outlines the more significant of those items that extend beyond day-to-day activities.

### OFFICE OF THE CAO

Section	Item	Start	Finish	Status
Office of the CAO	▪ Strategic planning and Council priority setting	2019 Q2	2019 Q3	Complete
	▪ Finalize an agreement with the Kwikwetlem First Nation to provide municipal services to the Kwikwetlem Business Park	Ongoing	TBD	Ongoing
	▪ Oversee Kwikwetlem First Nation land claim	Ongoing	TBD	Ongoing
	▪ Oversee CUPE Arbitrations	2019 Q1	2019 Q3	Complete

### RCMP

Section	Item	Start	Finish	Status
RCMP	▪ Implement the cannabis enforcement strategy <ul style="list-style-type: none"> <li>• Define data parameters and enhance reporting</li> <li>• Launch the strategy</li> <li>• Monitor and adapt to changes in legislation and bylaws</li> </ul>	Ongoing		Ongoing
	▪ Continue to implement the crime reduction strategy <ul style="list-style-type: none"> <li>• Continue to focus on prolific and priority offenders</li> <li>• Use data to make informed decisions relating to crime hotspots</li> <li>• Continue to identify and resolve crime and causation factors</li> </ul>	Ongoing		Ongoing

### ENGINEERING & PUBLIC WORKS

Section	Item	Start	Finish	Status
Administration	▪ Develop communication strategies to raise the awareness and profile of the services Engineering and Public Works delivers in the community	2019 Q1	2019 Q3	Complete
	▪ Develop and implement departmental employee engagement strategies	2019 Q1	2019 Q2	Deferred



	<ul style="list-style-type: none"> <li>Participate in ongoing scheduled labour relations, including internal processes and arbitrations</li> </ul>	2019 Q1	2019 Q4	Complete
	<ul style="list-style-type: none"> <li>Create a solution for residents to report deficiencies in the community and streamline the reporting process to provide an exceptional customer experience</li> </ul>	2019 Q1	2019 Q2	Complete
	<ul style="list-style-type: none"> <li>Support Council and CAO direction in responding to the Kwikwetlem First Nation's land claim and servicing agreement request for the Kwikwetlem Business park</li> </ul>	Ongoing	TBD	Ongoing
	<ul style="list-style-type: none"> <li>Review the feasibility of developing an in house civil construction crew</li> </ul>	2019 Q3	2019 Q4	Deferred
Infrastructure Planning	<ul style="list-style-type: none"> <li>Undertake stakeholder engagement on functional design and funding discussions for Coquitlam River bridge and Lougheed Hwy improvements (including B-Line service)</li> </ul>	2019 Q1	2020 Q1	Ongoing
	<ul style="list-style-type: none"> <li>Update existing GIS and interactive mapping tool</li> </ul>	2019 Q1	2020 Q4	Ongoing
	<ul style="list-style-type: none"> <li>Identify locations, deficiencies and costs for additional streetlights and update the City's LED lighting specification</li> </ul>	2019 Q1	2019 Q4	Complete
	<ul style="list-style-type: none"> <li>Update CUPE class specifications</li> </ul>	2019 Q1	2019 Q4	Ongoing
	<ul style="list-style-type: none"> <li>Prepare conceptual and detailed designs for Kingsway Avenue</li> </ul>	2019 Q1	2020 Q4	Ongoing
	<ul style="list-style-type: none"> <li>Develop City web pages to provide information to residents on IP programs (local area services, traffic calming, pavement and utility rehabilitation, lane paving, streetlights, sidewalk and pedestrian safety, bike share, car share)</li> </ul>	2019 Q1	2019 Q4	Complete
	<ul style="list-style-type: none"> <li>Develop options and preferred strategy to address unauthorized Right of Way encroachments</li> </ul>	2019 Q1	2019 Q2	Deferred
	<ul style="list-style-type: none"> <li>Formalize Traffic Impact Assessment guidelines</li> </ul>	2019 Q4	2019 Q4	Carried forward to Q4 2020
	<ul style="list-style-type: none"> <li>Prepare applications for ICBC, TransLink, Provincial and Federal grant programs</li> </ul>	2019 Q4	2019 Q4	Complete
Capital Projects	<ul style="list-style-type: none"> <li>Perform a gap analysis of all existing policies and procedures and identify those requiring revision</li> </ul>	2019 Q3	2020 Q4	Complete
	<ul style="list-style-type: none"> <li>Update CUPE class specifications</li> </ul>	2019 Q1	2019 Q4	Ongoing
Parks	<ul style="list-style-type: none"> <li>Create key performance indicators, benchmarks for each service level</li> </ul>	2018	2019 Q3	Complete
	<ul style="list-style-type: none"> <li>Update City website providing alternative plantings and success stories for European Chafer beetle, Pollinator plantings, Backyard habitat gardens, Tree do's and don'ts</li> </ul>	2019 Q1	Ongoing	Ongoing
	<ul style="list-style-type: none"> <li>Update CUPE class specifications</li> </ul>	2019 Q1	2019 Q4	Ongoing
	<ul style="list-style-type: none"> <li>Update City pesticide bylaw in accordance with Ministry of Environment Pest Management regulation changes</li> </ul>	2019 Q3	2019 Q4	Carried forward to Q2 2020

Streets	▪ Undertake road safety audit to inform the City's priorities for implementing solutions at high volume collision locations	2019 Q1	2019 Q4	Complete
	▪ Develop centralized traffic management system plan to improve traffic management	2019 Q1	2019 Q4	Deferred
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	Ongoing
	▪ Expand Emtrack system to improve safety and movement of emergency services vehicles within the City	2019 Q1	Ongoing	Ongoing
Fleet	▪ Implement fleet CIA <ul style="list-style-type: none"> <li>▪ Implement fleet management information system</li> <li>▪ Issue standardization contract for the procurement of light duty vehicles</li> </ul>	2019 Q1	2019 Q4	Ongoing
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	Ongoing
	▪ Develop benchmarks and key performance indicators	2019 Q2	2019 Q4	Ongoing
Solid Waste	▪ Develop benchmarks	2019 Q1	2019 Q4	Ongoing
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	Ongoing
	▪ Develop operators instructional manual	2019 Q1	2019 Q4	Complete
Water & Sewer Services	▪ Implement internal training for succession planning and support staff to get required certifications	2019 Q1	Ongoing	Ongoing
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	Ongoing
	▪ Complete business case to implement leak detection program	2019 Q1	2019 Q4	Deferred

## FIRE & EMERGENCY SERVICES

Section	Item	Start	Finish	Status
Fire Senior Staff	▪ Continue work on Critical Incident Stress Management and resiliency training as well as attendance management	Ongoing		Ongoing
	▪ Develop content for public education sessions that will include community first aid and senior's specific training	2019 Q1	Ongoing	Ongoing
	▪ Develop a strategy to ensure the orderly and functional replacement of senior staff to minimize disruption to departmental operations	2019 Q2	2019 Q3	Carried to Q4-2020
	▪ Refine the Resource Allocation Plan to overcome changes to fire services response requirements	2019 Q1	2019 Q2	Completed
	▪ Work on a multi-city mutual aid agreements in areas such as high-rise, Hazmat and special operations response	2018	2019 Q2	Completed
	▪ Continue development of systems to implement new SCBA's and E-Comm radios	2019 Q1	2019 Q3	Completed

	▪ Procure Rescue Truck	2019 Q3	2020 Q3	Carried to Q3-2020
Fire Protective Services	▪ Work to address the new 2018 Fire and Building code changes	2019 Q1	2019 Q4	Carried to Q2-2020
	▪ Work with local businesses to develop their awareness of business continuity planning and continue work on building the Critical Infrastructure focused directory of businesses for recovery efforts	2019 Q2	2019 Q4	Carried to Q4-2020
EP Officer	▪ Work with Communications to develop Emergency Preparedness Communications Plan <ul style="list-style-type: none"> <li>Identify key activities throughout the year</li> <li>Work on the development of a dedicated video to address public communication requirements</li> </ul>	2019 Q1	2019 Q4	Standby
	▪ Work with contractors and staff to ready emergency preparedness and training facility and ensure operational capacities	2019 Q1	2019 Q3	Completed

## RECREATION

Section	Item	Start	Finish	Status
Administration	▪ Build staff capacity and operational efficiencies	2019 Q1	2019 Q4	Ongoing
	▪ Continue Active Net optimization initiatives; develop and implement enhanced department key performance indicators to provide accurate and informative measurement and reporting	2019 Q1	2019 Q4	Ongoing
	▪ Review fee structure and recreation membership options prior to the Port Coquitlam Community Centre opening	2019 Q1	2019 Q3	completed
Recreation Services	▪ Continue work on the PoCo Active multi-sectoral physical literacy project including staff training and development to more fully integrate physical literacy into programming	2019 Q1	2019 Q4	Ongoing
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	2020 Q2
	▪ Provide training to enhance staff safety in response to core safety audit recommendations and promote a positive workplace culture to further engage staff and improve customer service	2019 Q1	2019 Q4	Ongoing
Cultural Development & Community Services	▪ Implement new department logo; enhance marketing and promotion of recreation and cultural services and programs to increase awareness and participation	2019 Q1	2019 Q4	complete
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	Q2 2020
	▪ Award and complete pride public art project,	2019 Q1	2019 Q3	Pride art – complete

	support the planning and design for the whimsical garden project			Whimsical Garden Q3 2020
Facility Services	<ul style="list-style-type: none"> <li>Complete facility enhancement projects <ul style="list-style-type: none"> <li>Hyde Creek air quality</li> <li>Re-opening of Centennial Pool</li> <li>Accessibility grant improvements (Gathering Place, Outlet, City Hall and Hyde Creek)</li> </ul> </li> <li>Update CUPE class specifications</li> <li>Create summary to reflect energy savings and cost reductions to support key energy savings initiatives</li> <li>Increase safety and cross-training opportunities to build staff capacity and operational efficiencies</li> </ul>	2019 Q1	2019 Q4	Complete – Hyde Creek & Centennial Accessibility enhancements 2020 Q4
		2019 Q1	2019 Q4	Q2 2020
		2019 Q1	2019 Q4	Q2 2020
		2019 Q1	2019 Q4	Ongoing

## CORPORATE SUPPORT

Section	Item	Start	Finish	Status
Bylaw Enforcement	<ul style="list-style-type: none"> <li>Conduct proactive and reactive enforcement in removal and cleanup of homeless camps</li> <li>Hire new part time Animal Control Officers to educate and enforce and control of dogs</li> <li>Update CUPE class specifications</li> <li>Conduct education and enforcement of new zoning and business license regulations surrounding the legalization of cannabis</li> <li>Continue to patrol high usage parks and gathering areas to educate and enforce smoking bylaw</li> <li>Review and amend property maintenance and noise bylaws</li> </ul>	Ongoing		Ongoing
		2019 Q1	2019 Q3	Completed
		2019 Q1	2019 Q4	2020 Q2
		2019 Q1	2019 Q4	Completed in conjunction with Development Services
		Ongoing		Ongoing
		2019 Q1	2019 Q4	2020 Q3
Communications	<ul style="list-style-type: none"> <li>Develop communications for cannabis policy and regulations</li> <li>Develop a full year communications/outreach campaign to promote Emergency Preparedness programs</li> <li>Update CUPE class specifications</li> <li>Involve and inform community about various department projects</li> <li>Continue with Crisis Communications Plan training and resource development</li> <li>Examine and research One-City App to provide residents with a convenient and additional way to access information</li> </ul>	2019 Q1	2019 Q2	Completed
		2019 Q1	2019 Q4	Ongoing
		2019 Q1	2019 Q4	2021 Q2
		Ongoing		
		2018	2019 Q2	Ongoing
		2019 Q2	2019 Q4	Rolled out See It Report It campaign
Community	<ul style="list-style-type: none"> <li>Maintain best practices with regular education campaigns on current and emerging concerns</li> </ul>	Ongoing		Ongoing

Policing	▪ Increase volunteer recruitment	Ongoing		Ongoing
	▪ Increase proactive graffiti prevention steps and educate businesses including annual audits	Ongoing		Ongoing
	▪ Continue to leverage RCMP teams to address emerging issues hot spots	Ongoing		Ongoing
	▪ Expand volunteer training to increase current, reliable and efficient community support	Ongoing		Ongoing
	▪ Complete office renovation to encourage more foot traffic and interest	2017	2019 Q4	Completed
Information Services	▪ Upgrade servers to Windows 2016	2019 Q1	2020 Q2	75% completed
	▪ Replace disk storage hardware	2019 Q2	2019 Q4	Completed
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	2021 Q2
	▪ Upgrade Microsoft Office version	2019 Q3	2020 Q1	50% complete
	▪ Support updates to GIS and interactive mapping tool	2019 Q1	2020 Q4	Ongoing and on schedule
	▪ Support fleet management information system implementation	2019 Q1	2019 Q3	Ongoing schedule determined by Mechanic Shop
	▪ Perform security system enhancements	Ongoing		Ongoing
Legislative & Administrative Services	▪ Continue to implement corporate-wide records management program	2018	2021 Q4	Ongoing
	▪ Complete accessibility, technology and safety upgrades to Council Chambers	2019 Q1	2019 Q2	Completed
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	2021 Q2
	▪ Update agenda management software	2019 Q2	2019 Q4	50% Complete

## DEVELOPMENT SERVICES

Section	Item	Start	Finish	Status
Administration	▪ Support Council and CAO direction in responding to the Kwikwetlem First Nation's land claim and servicing agreement request for the Kwikwetlem Business park	Ongoing	TBD	Ongoing
	▪ Develop strategies to raise the awareness, profile and functioning of one stop services within the Department	2019 Q1	2019 Q3	Ongoing
Building	▪ Review regulations for development within the floodplain	2019 Q2	2019 Q4	Deferred to 2021
	▪ Convert existing microfilm records to digital format	2018	2021	Ongoing 50% complete
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	Ongoing
	▪ Promote staff safety and positive workplace culture to effectively engage staff and improve customer service	2019 Q1	2019 Q4	Ongoing

Planning	▪ Undertake review of BC step code (with Building)	2018 Q4	2019 Q3	Completed
	▪ Review watercourse health and implement measures to enhance and protect riparian areas	2019 Q1	2020 Q4	Deferred to 2021
	▪ Review single residential house size	2019 Q1	2019 Q4	Ongoing 75% complete
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	Ongoing
	▪ Review recreational vehicle regulations	2019 Q1	2019 Q2	Completed
	▪ Implement cannabis policies and regulations and respond to federal government proposal to include edibles	2019 Q1	2020 Q1	Completed

## FINANCE

Section	Item	Start	Finish	Status
Payroll	▪ Rollout emailed payroll forms as a paper reduction and efficiency initiative Office first to go live in January 2019, with other locations to be determined	2019 Q1	2019 Q4	City Hall staff & on request completed in January 2019.
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	2020 Q2
	▪ Rollout employee self-service timesheet entry to provide greater accuracy, and reduce data entry time by payroll staff which could be used in reporting and analysis	2019 Q2	2020 Q4	Technical limitations delayed the project. Anticipated roll out in 2020 Q4 for internal office staff
Revenue & Taxation	▪ Review and report on the possibilities of expanding the services provided at the front counter of community facilities (dog licences, property taxes, etc.)	2019 Q1	2019 Q4	Pilot project in 2020 Q2
	▪ Update CUPE class specifications	2019 Q1	2019 Q4	2020 Q2
Purchasing	▪ Update CUPE class specifications	2019 Q1	2019 Q4	2020 Q2
	▪ Complete revisions to purchasing policy	2019 Q2	2019 Q4	2020 Q3 –Q4
Accounting Services	▪ Update CUPE class specifications	2019 Q1	2019 Q4	2020 Q2
Financial Planning & Systems	▪ Support upgrades to Tempest software	2019 Q1	2019 Q2	Complete
	▪ Provide financial support in response to the request from Kwikwetlem First Nation to obtain municipal services from the City for the Kwikwetlem Business park	Ongoing	TBD	Ongoing
	▪ Continue to develop & support enhanced financial functions within core business applications	Ongoing		Ongoing
	▪ Support fleet management information system implementation	2019 Q1	2019 Q3	Ongoing
	▪ Complete fraud risk assessment	2018	2019 Q2	2020 Q2
	▪ Implement internal audit program	2019 Q3	Ongoing	2020 Q4

## HUMAN RESOURCES

Section	Item	Start	Finish	Status
Human Resources	<ul style="list-style-type: none"> <li>Improve attendance management program to reduce absenteeism</li> </ul>	2019 Q1	2019 Q3	Complete
	<ul style="list-style-type: none"> <li>Improve disability management process to reduce absenteeism and improve injury and disability outcomes</li> </ul>	2018	2019 Q2	Complete
	<ul style="list-style-type: none"> <li>Finalize all CUPE class specifications</li> </ul>	2017	2020 Q4	In-progress
	<ul style="list-style-type: none"> <li>Review benefits administrator by going to market</li> </ul>	2018	2019 Q2	Complete
	<ul style="list-style-type: none"> <li>Represent employer in CUPE arbitrations</li> </ul>	2019 Q1	2019 Q3	Complete
	<ul style="list-style-type: none"> <li>Build and enhance functionality within Human Resources Information System</li> </ul>	2019 Q1	2020 Q1	Q2 2022
	<ul style="list-style-type: none"> <li>Establish executive committee of leaders who will provide a deliberate and focused approach to encouraging a positive corporate culture that aligns with the City's values and goals</li> </ul>	2019 Q1	Ongoing	Complete
	<ul style="list-style-type: none"> <li>Enhance employee onboarding offerings to create a stronger connection to the City</li> </ul>	2019 Q3	2020 Q1	Q2 2020



## Parks Bylaw Signage - Follow Up

### **RECOMMENDATION:**

That Committee of Council direct staff to proceed with parks bylaw sign installation as per the template included within the March 17, 2020 report.

### **PREVIOUS COUNCIL/COMMITTEE ACTION**

At the November 26, 2019 Committee of Council meeting the following motion was passed:

*That the parks bylaw sign installation be referred back to staff to further develop options.*

### **REPORT SUMMARY**

At the November 26, 2019 Committee of Council meeting, Committee requested staff report back with further developed options for new parks bylaw signage prior to installation. This report presents signage designs which are intended to replace the current bylaw signage at City Parks. The updated signs are intended to communicate bylaws in a positive manner and reduce the number of overall signs in the parks. Staff have attempted to include multiple messages in order to minimize the number of signs required at each location.

### **BACKGROUND**

The intent of this project is to replace the current parks signage with consistent and refreshed messaging. Current parks bylaw signage is outdated and has surpassed its useful life; many bylaw numbers have changed over the years and signage has not always been refreshed in order to convey the correct information.

In some parks there are a significant number of standalone bylaw signs creating visual clutter. The new bylaw signage designs are intended to reduce the number of signs required in each park and provide messaging through easy to understand icons.

This project will incorporate all bylaw changes made since the original signage was installed and will support bylaw compliance and enforcement.

Staff previously provided two template options (Attachment #1) at the November 26, 2019 Committee of Council meeting where it was referred back to staff to consider the following items:

## Parks Bylaw Signage - Follow Up

- Potential to utilize a background graphic on the parks entryway signage which represented the City of Port Coquitlam skyline;
- Implementation of two sign types; one sign type for entryway signage and a second for specific targeted messaging; and
- Options to increase sign visibility under low light conditions.

### DISCUSSION

Current signage is included in Figure 1 below for Council's reference and comparison.

**Figure 1 – Current Parks Bylaw Signage**



## Parks Bylaw Signage - Follow Up

As per Committee's request, two unique sign templates have been created; one template for entryway signage and another for targeted compliance.

Figure 2 below is the updated entryway sign displayed on a graphic template intended to represent the skyline of Port Coquitlam. The intent of this template is to guide users on how to enjoy our public spaces responsibly while reducing the number of signs within our parks by combining icons applicable to each location into a single entryway sign. Icons commonly used on the entryway signage are included as Figure 3. The second template, which is more overt, (Figures 4 to 6) is designed to seek compliance for common offences such as smoking, dog waste and littering which would be used sparingly as deemed necessary.

Staff recommend these templates as they provide a current, visual pleasing message and will enhance the character of our park network.

In addition, staff researched several options to increase sign visibility under low light conditions. These options include high reflectivity material, provision of additional parks lighting and utilization of photoluminescent material. Upon review, photoluminescent material is used predominately indoors for small directional safety signage, and the provision of additional park lighting would be cost prohibitive within the scope of this sign replacement project. Therefore, staff recommend a high reflectivity material for this project. This will be an improvement over current conditions.

Figure 2 – New Entry Way Signage



Figure 3 – New Entry Way Signage Icons



KEEP DOGS LEASHED AND CLEAN UP AFTER THEM



TRASH YOUR LITTER



NO OPEN FIRES



NO DRONE ZONE



NO SMOKING OR VAPING



NO MOTOR VEHICLES



NO ALCOHOL

**Figure 4 – New Dog Waste Signage**  
*Targeted Signage*





**Figure 5 – New Non-Smoking Signage**  
*Targeted Signage*



**Figure 6 – New Litter Signage**  
*Targeted Signage*




## Parks Bylaw Signage - Follow Up

### **FINANCIAL IMPLICATIONS**

The parks bylaw sign installation work will be completed within the \$20,000 approved budget. This funding was intended to provide up to two new signs at each park throughout the City; however, does not include trail signage. Staff will be working on a strategy for overall trail improvements for the 2022 budget consideration.

### **OPTIONS** (✓ = Staff Recommendation)

	#	Description
	1	Direct staff to proceed with parks bylaw sign installation as per the templates included in this report.
	2	Committee of Council provide direction on signage revisions
	3	Direct staff to redesign and bring back to Committee of Council

### **ATTACHMENTS**

Att#1 – Parks Bylaw Signage Template A and B presented at the November 26, 2019 Committee meeting

**Lead author(s):** Mitchell Guest, Doug Rose

**Attachment #1:**

**Previously proposed Entry Way Signage**  
*Template A* *Template B*



**Previously proposed Dog Waste Signage**  
*Template A* *Template B*



## Previously proposed Non-Smoking Signage

Template A



Template B



## Figure 5 – Previously proposed Litter Signage

Template A



Template B

