

## RECOMMENDATION:

*That Committee of Council*

- *Endorse the preliminary design concepts for Kingsway Avenue as outlined in the staff report titled Kingsway Avenue Design dated February 18, 2020;*
- *Direct staff to proceed with detailed design; and*
- *Consider a new north/south connection from Kingsway Avenue to McLean Avenue as part of future OCP revisions.*

## **PREVIOUS COUNCIL/COMMITTEE ACTION**

At the September 17, 2018 Finance & Budget Committee meeting, the following motions were passed:

*That \$50,000 be approved in 2019 for the Kingsway Avenue Conceptual Design; and  
That \$100,000 be approved in 2020 for Kingsway Avenue – Detailed Design.*

## **REPORT SUMMARY**

The objective of the Kingsway Avenue Conceptual Design assignment was to assess existing, and future traffic performance and determine preferred design criteria for the interim and future horizons. This report summarizes the traffic study which was carried out along Kingsway Avenue between Tyner Street and the Mary Hill Bypass (MHB), and the corresponding transportation planning which informed the proposed concept design. These extents were selected recognizing the extensive truck traffic and redevelopment of industrial sites which will result in increased turning movements and interruption to traffic flow along the corridor. The report further discusses the proposed multiuse path (MUP) which is recommended to extend to Kebet Way in order to complete the connection to the Traboulay PoCo trail along the dyke.

## **BACKGROUND**

Kingsway Avenue is classified as a major road network (MRN) which supports efficient movement of large volumes of people and goods and connecting provincial highways to municipal road networks. Currently, Kingsway has one travel lane in each direction for the majority of the corridor with parking permitted on both sides of the road. It is surrounded primarily by industrial and commercial developments and is a designated truck route. There are six key intersections located along the corridor, namely:

## Kingsway Avenue Design

Street Name	Current Traffic Control Type
Tyner Street	Stop controlled
McLean Avenue	Signalized
Broadway Street / Coast Meridian Overpass (CMO)	Signalized
Langan Avenue	Stop controlled
Coast Meridian Road	Stop controlled
MHB	Signalized (operated by Ministry of Transportation and Infrastructure (MoTI))

Several key challenges exist and are anticipated to exacerbate with development and growth along Kingsway Avenue. The solutions proposed attempt to address these challenges in addition to planning for growth and development alone:

- Increasing truck traffic and left hand turning movements (access to sites) which causes queuing behind the turning vehicles waiting for gaps in oncoming traffic;
- Egress from lots waiting for gaps in both directions of traffic;
- Parking availability for businesses' staff;
- Lack of active transportation facilities (sidewalk or path);
- Challenges related to weaving and queuing of vehicles making right hand turns off of McLean Avenue or the Coast Meridian Overpass; and
- Development opportunities (finalizing this design will allow the City to give developers clear direction of their required offsite requirements so that they can construct portions of the work, or contribute the appropriate amount of cash-in-lieu).

Recent traffic counts conducted by the City at each of these intersections were used to inform the traffic study to determine how each of the intersections is currently performing in their existing conditions. Using modelling software which is based on current analysis standards, measures of effectiveness were determined at each of the intersections, which results in a level of service (LOS) ranging from A to F, with A being the best case scenario and F being the worst case. For capacity analysis in a typical urban area, an LOS of D or better is generally considered as acceptable. LOS is defined by how many seconds a vehicle is delayed as follows:

Traffic Control Type	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	35-80	>80

In addition to intersection performance, overall traffic demands are compared to corridor capacity and a volume over capacity (v/c) ratio determined. A low ratio indicates a road which is operating under capacity but as v/c approaches or exceeds a value of 1.0, the road is considered to be at or over capacity (a value of 1.0 means volume equals capacity). Typically, road improvements should be considered as a v/c ratio approaches 0.9.

In its existing condition, all of the intersections are operating with acceptable LOS with the exception of the MHB (operated by MoTI) which is the main constraining factor at the east end of the corridor. Only the intersection at Broadway Street / CMO operates at a LOS of D whilst the remaining intersections are operating at an A or B. Furthermore, there are no current concerns with volume as compared to capacity throughout the corridor; the existing two travel lanes are adequate to convey existing traffic volumes.

It is also important to note that the scope of this Kingsway Avenue conceptual design ties in directly to the Port Coquitlam Community Center (PCCC) offsite design. The PCCC offsite requirements include full width asphalt rehabilitation for all adjacent roads, construction of sidewalks on all frontages, and the continuation of the Kelly Ave Greenway extending through the Kelly Ave Plaza. The PCCC scope also includes the conversion of Kingsway/Kelly and Kingsway/Tyner intersections from stop controlled to roundabouts; the latter is reviewed further within the discussion of this report.

### **DISCUSSION**

The objective of the Kingsway Avenue Conceptual Design assignment was to assess existing, and future traffic performances and determine preferred design criteria for the interim and future horizons. Recommended design criteria have been justified for a 10 year horizon (2029) and a 25 year future (2044) condition and is based on results from modelling these scenarios and comparing volume to capacity. In order to determine future traffic volumes, the numerous major developments throughout the corridor were analyzed as they will contribute significantly to future traffic generation. Furthermore, a linear growth factor was applied to the 2019 traffic volumes to estimate the future horizon years.

#### **Interim Condition**

##### Lanes

By the year 2029, traffic volumes are not anticipated to increase by an amount which warrants additional travel lanes. The v/c ratios throughout the corridor remain under 0.9 and capacity increase is therefore not justified. However, with only two lanes of traffic and considering the significant percentage of trucks throughout the corridor, a conflict which currently exists and which will worsen with increased volume is through traffic queuing behind heavy trucks and other vehicles turning left into businesses. Therefore a shared left hand turn lane, similar to on

Broadway Street, throughout the majority of the corridor is proposed to accommodate these turning movements and eliminate the conflict with through traffic. This will furthermore improve left turn egress from the businesses as vehicles can turn and stage within the shared lane and not have to wait for a full gap in traffic coming from both directions.

### Parking

West of Broadway Street / CMO, it is evident that the various businesses' staff are utilizing Kingsway Avenue for parking as the existing sites are unable to accommodate the amount of onsite parking required. Businesses are required to provide parking onsite for staff as development occurs, however, some of the older developments along Kingsway are not providing or are using parking space for storage and street parking on both sides of the street is heavily utilized west of Broadway / CMO. It is proposed to retain the existing parking lane on the south side of Kingsway and to install parking pockets on the north side rather than a full parking lane which would otherwise require significant relocations of existing overhead utilities. It is estimated that 15 stalls would be removed as a result, however, given that a number of lots on the north side are currently being redeveloped and will accommodate onsite parking this impact will be largely mitigated. East of Broadway / CMO, parking demand is not nearly as significant as new developments provide sufficient parking onsite for their staff and it is proposed to retain just one lane of parking on the south side of Kingsway, which limits the amount of road widening and overhead utility relocations. At the front end of detailed design, staff will consult with business owners to better understand their current and future parking requirements and determine an appropriate strategy which accommodates the owners and minimizes project costs.

### Intersections

The existing stop controlled intersection at Tyner Street currently functions with a high LOS, however by 2029, it is anticipated that the intersection in its current configuration would function at a failed LOS. Three potential configuration options (signalization, roundabout and right in right out (RIRO)) were assessed, taking into account the future one lane roundabout planned for Kelly Avenue.

The analysis determined that spillbacks from both intersections (Tyner and Kelly) would occur during peak periods of both horizon years, limiting available movements at roundabouts, whereby a signal will improve the overall intersection performance significantly in comparison (LOS of C or better as compared to F with a roundabout). Restricting left turns with the RIRO configuration resulted in the best overall LOS, performing at an A in both horizon years. Furthermore, restricting permissive left turns eliminates the conflict zone with oncoming traffic, improving the overall safety of the intersection. Westbound traffic would be redistributed at McLean and northbound traffic at Mary Hill Road; the performance of the McLean Avenue intersection is not impacted by the additional traffic being rerouted. Because the RIRO configuration will result in the highest performing LOS and with added safety benefits, a RIRO configuration is proposed at this time,

however, can be monitored and assessed in the future. As this is a departure from the previous plans, if the concept design is endorsed, staff will consult with impacted business owners along Tyner regarding the proposed change.

Due to the short spacing between McLean Avenue and Broadway Street / CMO and high traffic demands in all directions, these intersections were analyzed as one entity to minimize vehicle spillback and weaving. These intersections will operate with LOS of F by the 2029 horizon year and improvements to increase capacity are proposed as follows:

- At McLean Avenue
  - Add an additional dedicated westbound left turn lane; and
  - Add an additional northbound right turn lane and convert from yield controlled to signalized.
- At Broadway Street / CMO
  - Add an additional eastbound through lane from McLean to approximately 100m past Broadway / CMO;
  - Add an additional westbound through lane west of Langan; and
  - Add an additional southbound right turn lane and convert from yield controlled to signalized.

The additional through lanes resolve capacity issues at these intersections which have been identified in the horizon year, and the signalized dual right turns minimize issues with heavy traffic merging and weaving, one of the major challenges identified along the corridor. The signalized dual rights are dedicated movements and allow traffic to flow through without conflicting with other movements such as through traffic heading east at McLean or west at Broadway and would require no right turn on red light restrictions. The preceding improvements result in these intersections operating at acceptable LOS for both horizon years.

The intersection at Langan Avenue currently operates with a LOS of A and will continue to do so for both horizon years without any improvements. The intersection at Coast Meridian Road will function at an acceptable level in the 2029 horizon year, however, at a failed level by 2044. No improvements are proposed at this time but this intersection should be monitored and a signal considered in the future, closer to the 25 year horizon.

Signal timing for the intersection at MHB is governed by the dominant traffic flows travelling east / west along MHB which is needed to convey significant volumes of traffic. The traffic entering and departing Port Coquitlam is comparatively much less which results in shorter green light phases for Kingsway Avenue. MoTI has previously made operational improvements and optimized signal timing to reduce delays and queuing while still meeting traffic demands along the MHB. Given the signal timing limitations, the City is currently working on a design for improvements at Shaughnessy Street and Broadway Street to facilitate Port Coquitlam traffic movement. Both

projects are considering acceleration lanes for vehicles turning right onto the MHB as well as adding more left turn queuing capacity for vehicles turning off of the MHB onto Shaughnessy and Broadway. The intent is to use the design to seek funding from MoTI and ICBC to support construction of the project. At Kingsway, there is a lower demand for right turn movements and adequate gaps for them to be made during the signal cycle; therefore, an acceleration lane was not considered at this location at this time.

### Multiuse Path

In addition to the proposed road improvements, a separated MUP is proposed on the north side of Kingsway within the BC Hydro owned land, providing a safe facility for active transportation along this busy corridor and providing connection from downtown to the Traboulay PoCo Trail along the dyke east of MHB. Although there is no formal agreement between the City and BC Hydro at this time to locate the MUP within their property, BC Hydro has previously acknowledged and generally supported the project in the past, indicating that once the MUP design was finalized and any necessary pole or guy wire relocations identified that they would prepare designs to do so. Staff will be engaging BC Hydro early in the detailed design process to determine the requirements and work toward a formal agreement.

A MUP linking downtown Port Coquitlam and the PoCo Traboulay Trail was originally initiated as a capital project in 2012 which in addition to the path, included landscaping and planting beds and seating nodes. Council did not support the project at that time due to the significant cost associated with the pathway and other proposed improvements. Subsequently, a revised more basic design was brought forward in 2017. The cost estimate for the revised design was significantly less than the original, however, with the various redevelopment projects occurring along the corridor, Council directed staff to prepare a strategy for the path that would maximize the development contributions as part of a more comprehensive plan for the Kingsway corridor.

The MUP is now being proposed to be constructed in conjunction with the road works, at an incremental cost to the larger road works project, taking advantage of economies of scale. The simplified design has also been retained to minimize costs. In addition, and as summarized under Financial Implications, the City is anticipating significant contributions from TransLink and fronting developers.

### **Future Condition**

With the exception of installing a signal at the Coast Meridian Road intersection, all of the intersection improvements necessary for the future condition are being proposed in the interim solution. By 2044 and particularly during the PM peak hour, v/c ratios reach their threshold at locations throughout the corridor. In order to increase capacity along the corridor to keep up with the increased volumes, the main difference between the 2029 and 2044 (future) horizon is the conversion from a three lane cross section with parking to a four lane cross section with some

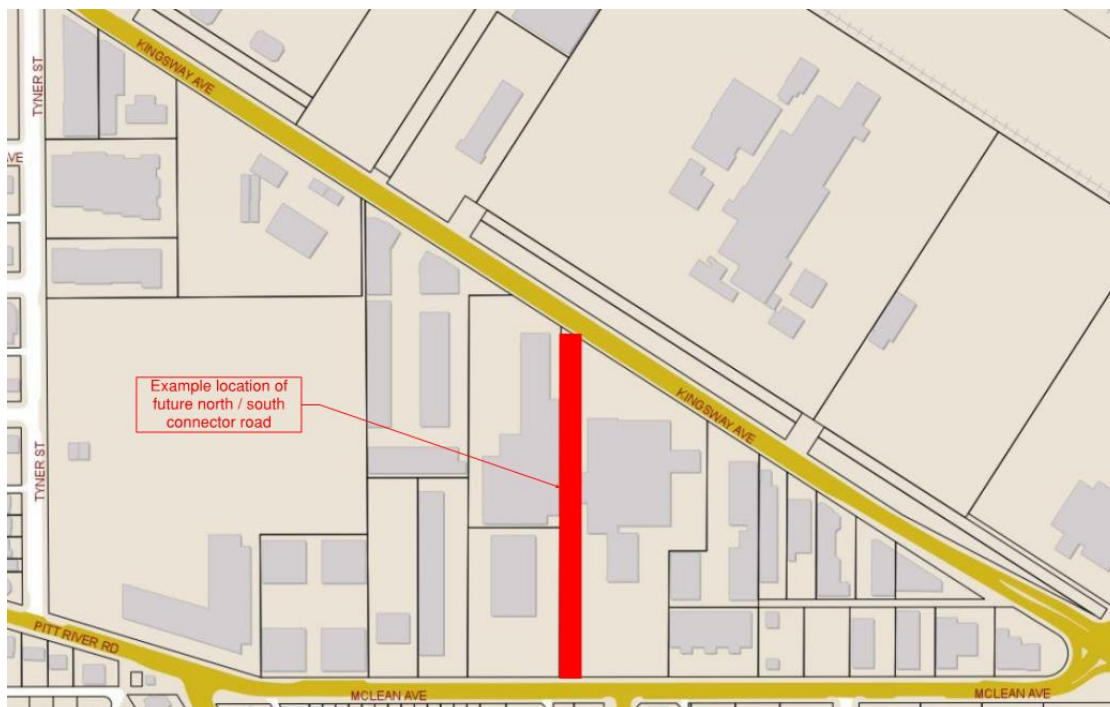


## Kingsway Avenue Design

parking retained on the north side of Kingsway, west of Broadway / CMO. Road widening required for the 2029 horizon year will provide adequate width to implement the future four lane road with minimal additional construction (predominantly eradicating and repainting the road markings). A four lane cross section would preclude on street parking east of Broadway / CMO and reduce from two parking lanes to one west of Broadway / CMO, however, it is anticipated that with development west of Broadway / CMO over the next 25 years that developers would be required to provide onsite parking for their staff and that removal of street parking would not be a major impact.

### Future North / South Connector

The distance between Tyner Avenue and McLean Avenue is approximately 980m, the equivalent of about five City blocks. Between these two intersections, there are no north / south routes linking Kingsway to McLean. Motorists trying to access businesses along Kingsway Avenue from the south, west of Broadway / CMO are forced to use Tyner or McLean and then back track to their destination point. Consideration should be given to a future new road between Kingsway and McLean, effectively creating a new north / south connector, improving access for businesses along Kingsway. This could be a potential requirement as part of land development in the future to dedicate land for road allowance. Providing this alternative north / south route would allow for the implementation of turning restrictions at Tyner and McLean intersections, both of which present challenges given their proximity to adjacent intersections. This alignment should be considered in future OCP revisions and is illustrated in the figure below.



## **FINANCIAL IMPLICATIONS**

The cost of the interim project is estimated at \$5.5 Million which includes a 25% contingency and is currently scheduled for the 2022 (west of Broadway / CMO) and 2023 (east of Broadway / CMO) construction years. It should be noted that these are class C estimates which are prepared with limited site information and are based on some assumed site conditions (typically +/- 25 - 40% of actual project costs). Class C estimates are used for project planning and following approval to proceed with detailed design further investigations and more accurate estimates are prepared.

The City is applying to Translink for funding contributions toward this project and anticipates 50% grant funding. TransLink allocates limited funding to municipalities for improvements made to the road, and cycling and pedestrian facilities along MRN roads, provided the projects meet the criteria for funding. The Kingsway concept meets the current criteria for funding and it is anticipated that the City will be successful in securing this funding for construction of the works.

The City also expects significant developer contributions from the redevelopment along the corridor, at an estimated value of \$1.2M. The most cost effective way to deliver this project is by constructing each phase of the project all at once, rather than smaller piecemeal sections by both the City and developers. Staff will work with developers to maximize the amount of cash in lieu for the work, recognizing these cost savings for the developer and the City, however, the decision to self-perform the work or provide cash in lieu for future works is ultimately the developer's decision.

The following table outlines the approximate funding sources for each phase of the project:

Year	Total Cost	Developer Contribution	Remaining	City Funding Required	TransLink Funding
2022	\$2,750,000	\$695,000	\$2,055,000	\$1,027,500	\$1,027,500
2023	\$2,750,000	\$550,000	\$2,200,000	\$990,000*	\$1,100,000*

\*Reduced by \$110,000 due to the cash in lieu previously secured

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

	#	Description
✓	1	Support the staff recommendation identified in the report
	2	Direct staff to consider alternate design considerations prior to proceeding to detailed design



## **ATTACHMENTS**

Att#1: Kingsway Interim Design Concept

Att#2: Kingsway Ultimate Design Concept

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