

TO: CHAIR AND MEMBERS
PLANNING AND DEVELOPMENT COMMITTEE

DATE: 2019 February 20

FROM: DIRECTOR PLANNING AND BUILDING

FILE: 68000 20
Reference: Urban Trail - Gilmore

SUBJECT: CYCLING OPTIONS FOR THE GILMORE OVERPASS

PURPOSE: To advise the Committee on the various design options available for addressing the cycling infrastructure gap on Gilmore Diversion.

RECOMMENDATION:

1. **THAT** the Committee recommend to Council a preferred option for addressing the cycling network gap on Gilmore Diversion.

REPORT

1.0 INTRODUCTION

At its meeting of 2018 December 11, the Planning and Development Committee requested a staff report on the advisability and feasibility of installing a bicycle route on the Gilmore overpass of Highway 1. Council also received a delegation at its 2019 February 11 meeting from HUB Cycling, advocating several design options for this corridor. This report presents various options for Council's consideration.

2.0 POLICY SECTION

This report is aligned with the City's Corporate Strategic Plan by supporting the following goals and sub-goals of the Plan:

- A 'Safe Community',
 - 'Make City streets, pathways, trails and sidewalks safer'.
- A 'Connected Community',
 - 'Ensure that people can move easily through all areas of Burnaby, using any form of transportation'.
- A 'Healthy Community',
 - 'Encourage opportunities for healthy living and well-being'.

- A ‘Dynamic Community’,
 - ‘Build and maintain infrastructure that meets the needs of our growing community’.

3.0 BACKGROUND

The desire to provide safe north-south cycling connections in Burnaby is a long standing priority for the City. Through various public processes including the Bikeways Consultation process (2001), MAPS project in Cascade Heights (2013), and Phase 1 of the update of the *Burnaby Transportation Plan* (2017-2018), the Gilmore overpass has been identified as a significant gap in Burnaby’s cycling network.

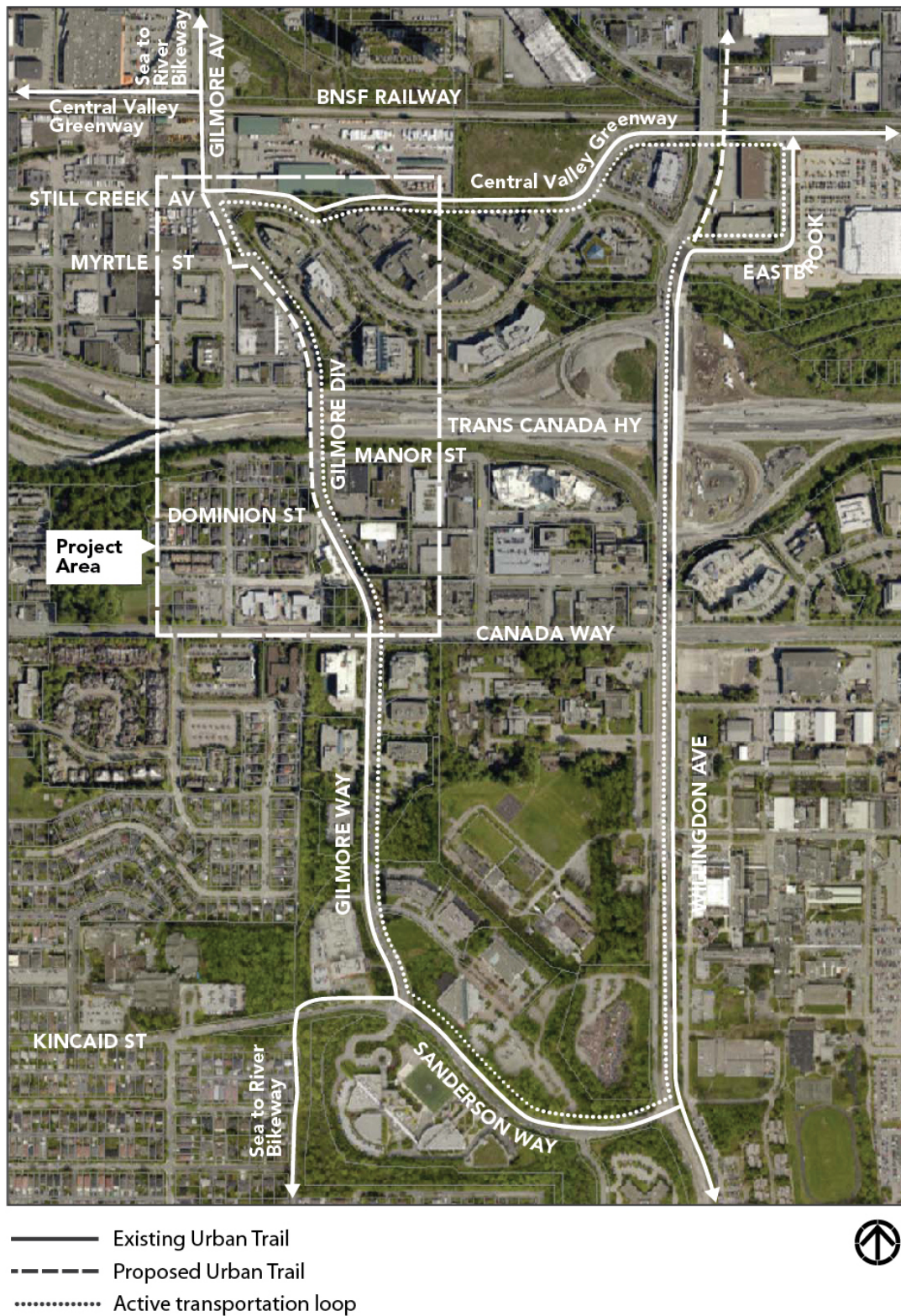
On busier corridors, the City often constructs multi-use paths (MUPs, also referred to in Burnaby as Urban Trails). These are typically three to four metres wide, shared by pedestrians and cyclists, and separated from traffic by a boulevard. Cycling in the Gilmore Avenue/Diversion corridor is accommodated on MUPs for much of the distance between Lougheed Highway and Sanderson Way (see *Figure 1*). However, there are no bike facilities and incomplete pedestrian facilities in the middle portion between Still Creek Avenue and Dominion Street, a distance of 550 metres. The completion of a safe and comfortable linkage would encourage active transportation in this area. It would also complete a 4.5-kilometre active transportation circuit in the surrounding area, creating more opportunities for recreational uses and access to BCIT and numerous businesses.

The primary challenge to achieving this is the Province’s overpass that carries Gilmore Diversion over Highway 1. Constructed in 1964, the Gilmore overpass is a four-lane structure with abutting sidewalks on both sides but no cycling facilities. In the late 2000’s, as the Province undertook the widening of Highway 1, the City asked that MUPs be included on all new highway overpasses in Burnaby. At the time, the Gilmore overpass was identified for replacement, which could have included a MUP. However, in 2012, when the Provincial project was completed, MUPs were included on all new overpasses (Willingdon, Sprott, Kensington, and Cariboo) but the Gilmore overpass was not replaced.

The Gilmore overpass also has low vertical clearance over Highway 1; the lowest clearance over the highway between Vancouver and Hope. This has resulted in the structure being repeatedly struck by over-height trucks on Highway 1.

Recognizing the need for facilitating active transportation within the corridor, Council in 2014 authorized the design of an off-street cycling connection between Still Creek Avenue and Canada Way, using the Gilmore overpass. In 2015, the design process identified a solution that would eliminate one of the northbound lanes, with the space reallocated to construct a MUP on the west side of Gilmore. Analysis indicated that traffic operations with only one northbound lane would be reasonable until the overpass was ultimately replaced, but there would be some traffic delays. Discussions with the cycling community and the Fire Department (due to the nearby presence of Fire Station #7 on Gilmore Diversion at Dominion Street) indicated the support of both of these groups for the project.

Figure 1: Study Corridor



The completed design was advanced for consideration, however, concerns were expressed about investing significant dollars on a concept that would have a limited lifespan and need to be rebuilt when the overpass was replaced. As such, the project was not advanced to construction.

Since 2015, the City has pursued continued engagement with the Province, seeking replacement of the 50-year-old overpass (including the addition of a MUP), as soon as possible.

Community interest in a cycling solution for the Gilmore overpass remains strong, as was indicated by the HUB Cycling delegation to Council on 2018 February 11.

4.0 APPROACHES

There are three general approaches the City could take to provide cycling infrastructure on Gilmore Diversion:

1. ***Seek early replacement of the Highway 1 overpass:*** Building on the previous efforts of Mayor and Council, this approach would continue to encourage the Province to accelerate the replacement of the Gilmore structure. The latest (2018 October) written response from the Province stated that the overpass would not be replaced until it reaches the end of its service life, estimated to be in the 20- to 25-year horizon. While there is always the possibility that the Province will change its position, this has not happened in the last few years of discussions.
2. ***Implement long-term solution now:*** Consider various concepts for a permanent design to address the gap in our cycling network.
3. ***Temporary trial:*** Implement a low-cost, temporary version of a long-term solution to observe the benefits and impacts. The trial would be followed by a decision on which long-term solution to pursue.

The first approach seeks a political solution; the latter two are design focused, and the subject of this report.

Gilmore Diversion is included in TransLink's Major Road Network, and the City is therefore required to obtain TransLink approval for any option that reduces the person-carrying capacity of the roadway. Some of the options described below would do that, and pursuit of those options would therefore be subject to discussions with TransLink. Similarly, as the overpass is a provincially-owned structure spanning a provincial highway, approval of the Ministry of Transportation and Infrastructure would be required for most options.

5.0 DESIGN OPTIONS

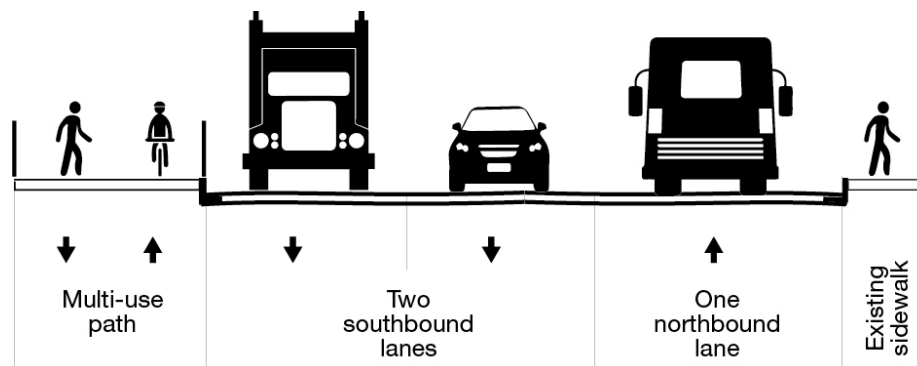
Various design options were considered to address the cycling infrastructure gap on Gilmore Diversion. The following six design options are presented for consideration. Each provides separation of cyclists from traffic, usually buffered by a boulevard or barrier.

5.1 Option A: 2015 City Design

As noted earlier, the City advanced a process in 2014-2015 to develop a safe, high-quality, and cost-effective cycling facility on Gilmore Diversion. That process identified a solution that would eliminate one of the northbound lanes and reallocate that space to construct a MUP on the west side of the overpass. The design would provide a 3.5m (typical) MUP from Still Creek Avenue to Dominion Street, connecting to existing MUPs at either end. On the overpass, the MUP would be separated from moving traffic by a concrete barrier (**Figure 2**). Elsewhere, a front boulevard would be provided. The lane closure would extend from Myrtle Street in the north to Dominion Street in the south, providing space for the MUP not just on the overpass but on the approaches as well. The design requires minor property acquisition and/or working easements for construction.

Should Council advance this option, the design already exists. It would be reviewed for any changes needed since 2015, and TransLink approval for the MRN changes would be sought. The Ministry has already accepted this design. Construction would likely be completed in 2020. The cost of this option is estimated at \$3 million. TransLink had previously approved \$790,000 in funding for construction of this design. That funding expires at the end of 2019. If Council chooses Option A, staff would advance the project as quickly as possible to take advantage of that funding, and also seek an extension that would allow the funding to carry over into 2020.

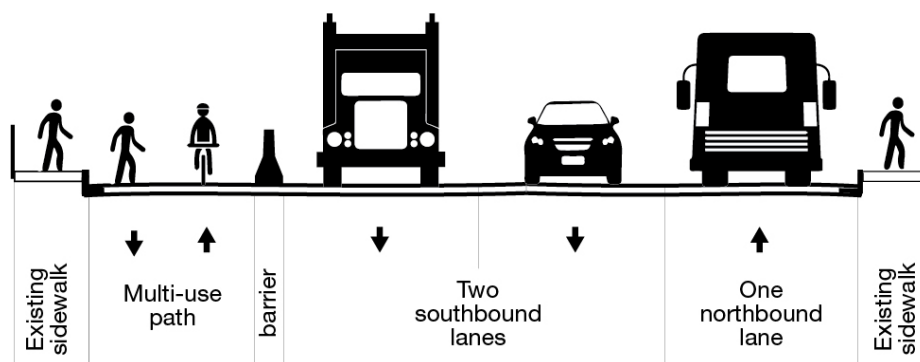
Figure 2: Gilmore Overpass Cross-Section: Option A



5.2 Option B: Six-Month Trial of 2015 Design

A second option under consideration is the potential of constructing a temporary version of the 2015 design, for a six-month trial. This would again involve elimination of one northbound lane and construction of a west-side MUP. For much of the length, cyclists would be on the roadway but separated from traffic by temporary concrete barriers (**Figure 3**). However, as a temporary facility, it would not be cost-effective to achieve the 3.5-metre MUP width of Option A. The width would typically be 3.0 metres, but dropping as low as 2.2 metres in some places. Most of the length would have the concrete barriers, but the narrowest sections would have only a curb separating vehicles from MUP users (like an abutting sidewalk). The project would include before-and-after monitoring to evaluate the efficacy of the trial.

Figure 3: Gilmore Overpass Cross-Section: Option B



Staff have prepared a conceptual sketch for Option B. The objective is to replicate Option A as closely as possible, for all modes, so as to provide a realistic trial of how Option A would operate. Much of this can be done quickly with temporary barriers and lane markings. However, there is also the need for some curb works and a small retaining wall. Construction would therefore be preceded by an engineering design contract and consultation with the Ministry and TransLink. In light of this, construction would likely be towards the end of 2019.

A six-month trial is proposed. Depending on the completion date, this would be extended if necessary to encompass the summer cycling months in 2020.

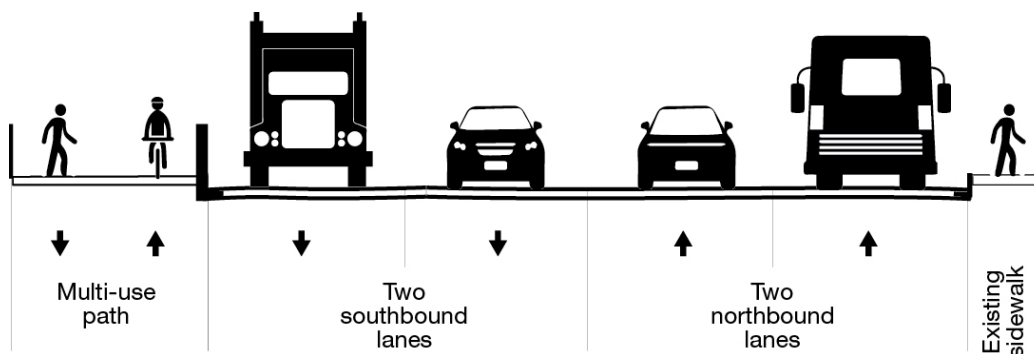
The cost of this option is estimated at \$0.6 million. Being both temporary and of lower quality than Option A, this would not be eligible for cost-sharing from senior governments. Some working easements would be required, but likely no property acquisition.

Results of the trial would be reported to Council, allowing for a decision on which option to pursue subsequently. Any permanent solution would require the removal or reconstruction of the work done in Option B, and would thus not reduce the cost of the permanent solution.

5.3 Option C: MUP on a Widened Gilmore Overpass

During the Port Mann / Highway 1 project, staff sought input from the Province's designers on the potential of retrofitting the existing structure to accommodate a MUP whilst maintaining four traffic lanes. At that time, the designers assessed the feasibility of the option, but did not undertake detailed design or costing. The underside of the existing structure consists of box girders running north-south across the highway. The Province indicated that it would be possible to add one or more additional box girders, thus widening the bridge and providing space for a MUP (**Figure 4**). Retaining four traffic lanes, there would be less land available for the MUP on the approaches. In particular, the north approach would require more extensive retaining walls and, likely, more land acquisition than Option A.

Figure 4: Gilmore Overpass Cross-Section: Option C



While a formal cost estimate has not been prepared, staff estimate the cost of this option to be on the rough order of \$5 million plus, including the approaches. Modifications to the structure would have to be done to Ministry design standards and subject to their approval. The project would be eligible for cost-sharing from senior governments. TransLink approval would not be needed, as the capacity of the MRN would not be reduced.

As with the existing structure, a widened structure would run the risk of being struck by trucks passing beneath. As a Ministry structure, repairs would be their responsibility but use of the MUP could be disrupted. The investment in the current structure would be lost when the structure was ultimately replaced.

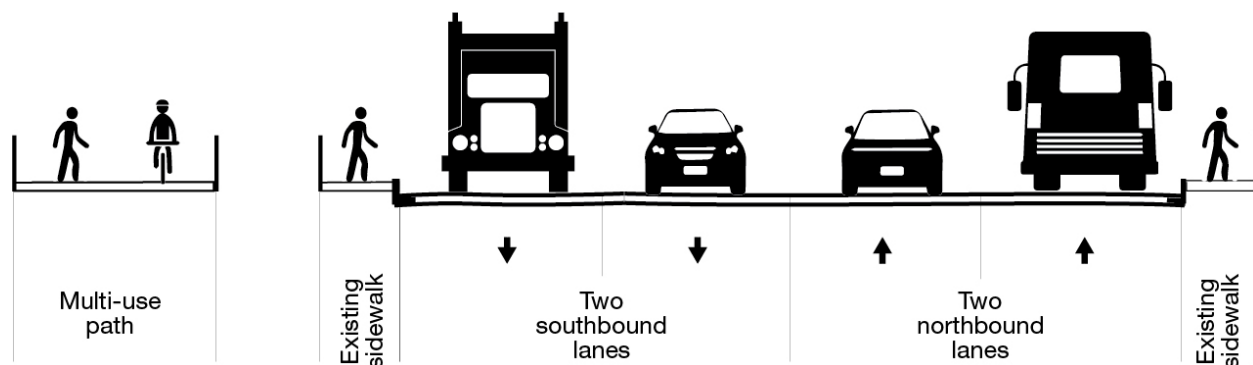
If Council chooses this option, staff would initiate a design process followed by funding applications. Construction would likely be in 2020 and/or 2021.

5.4 Option D: New Parallel Active Transportation Structure

A fourth option for consideration is the construction of a separate, parallel structure for the MUP. This would be located several metres west of the existing structure. It would need to be about one metre higher than the existing overpass to meet clearance requirements over Highway 1 (**Figure 5**). The new stand-alone structure would need to be built in a manner so as to not preclude or significantly impact the future replacement of the Gilmore overpass. Construction of the approaches would be similar to Option C, adjusted for the horizontal and vertical placement of the new bridge.

It is unclear whether the parallel structure would be owned by the City or Province. Challenges with this option include the potential for greater property acquisition on the approaches and the need to protect for future replacement of the existing overpass. The width and cost of that replacement would be reduced by eliminating the need for it to include a MUP.

Figure 5: Gilmore Overpass Cross-Section: Option D



A formal cost estimate has not been prepared. Staff consider the cost of this option to be on the rough order of \$5 million plus, inclusive of the approaches, for a “plain and functional” structure. A more visually-interesting “signature” structure, such as the one that carries the Central Valley Greenway over Winston Street, would raise the total project cost into the \$8 million plus range. Modifications to the structure would have to be done to Ministry design standards and subject to their approval. The project would be eligible for cost-sharing from senior governments. TransLink approval would not be needed, as the capacity of the MRN would not be reduced.

If Council chooses this option, construction would likely be completed in 2021.

5.5 Option E: City Replacement of Gilmore Overpass

As was noted earlier in the report, the Gilmore overpass is the lowest structure across Highway 1 between Vancouver and Hope, and does not meet the Ministry’s current vertical clearance standards. While the preceding options addressed the need for a safe cycling facility, only a full replacement of the structure can address the vertical clearance issue.

The full replacement of the Gilmore structure would be a significant undertaking. The project would be challenging, lengthy, and costly given the following factors:

- *Demolition:* The costs associated with removal of a structure over an active highway are very high.
- *Proximity of existing buildings:* There are existing commercial buildings and homes on either side of Gilmore Diversion, constraining the possible alignments for a new structure. Property acquisition may be necessary.
- *Construction staging:* As has been done when replacing other highway overpasses, the best solution likely entails removing half the existing structure, building half the new structure in much the same place, and then repeating the process for the other half. This minimizes land acquisition and allows for some continued mobility during construction, but at a higher construction cost.

- *Other factors:* The cost will also be impacted by upgrading to current seismic standards, ground conditions that are known to be poor in the area, the need for the new structure to be higher than the existing one, and the corresponding need to rebuild the approaches.

The cross-section would be similar in principle to that already shown for Option C (widening of the existing structure), with the added benefit of an improved east sidewalk with better separation from traffic.

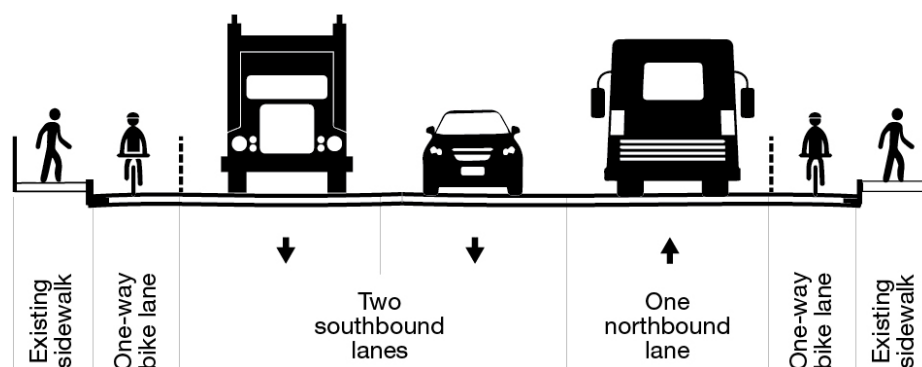
Once again, a formal cost estimate has not been prepared. Staff consider the cost of this option to be on the rough order of \$50 million plus, inclusive of the approaches, but this estimate is even more speculative than those given for Options C and D. The project would need to be led by the Ministry and completed to their standards. The project would be eligible for cost-sharing from senior governments. TransLink approval would not be needed, as the capacity of the MRN would not be reduced. Assuming willingness by the Ministry, construction would likely be completed in about 2022. However, this would likely require that the City cover a significant portion of the project costs.

5.6 Option F: One-way Cycle Tracks (HUB's proposal)

At the Council meeting of 2019 February 11, a delegation from HUB Cycling presented a series of concepts for Gilmore Diversion, some of which are reflected earlier in this report. HUB indicated that their preferred solution is a pair of one-way bike lanes on either side of the roadway, separated from traffic by delineator posts. As with Options A and B, this would be achieved by eliminating one travel lane (**Figure 6**). While there are safety benefits to having all cyclists travel in the same direction as vehicles, staff do not recommend this concept for Gilmore Diversion. The reasons are:

- The delineator posts would provide a strong visual delineation between cars and bikes, but not the physical protection offered by a concrete barrier.
- To the north and south of here, the MUP is entirely on the west side of Gilmore. To use the bike lane on the east side, a northbound cyclist would need to cross Gilmore twice, first at Manor Street and then back again at Still Creek Avenue.
- To facilitate that cross-over, the bikes lanes and corresponding reduction in travel lanes would need to extend to from Still Creek Avenue in the north to Canada Way in the south. This would reduce the intersection capacity at these intersections, which is unaffected in all other options.
- The bike lanes would be on the order of 1.5 to 1.7 metres wide, bounded by a curb on one side and posts on the other. In such a constrained space, it would be difficult or impossible for one cyclist to safely pass another within the 750-metre length of the bike lanes.

Figure 6: Gilmore Overpass Cross-Section: Option F



This option would be the least expensive, perhaps on the order of \$100,000. This option does not include construction of 170 metres of sidewalk on the west side of Gilmore Diversion between Myrtle Street and Highway 1, thus leaving a gap in the pedestrian network. All other options include the provision of this pedestrian connection.

Support from TransLink for reduction of the MRN may be less likely, due to the lower quality of bike facility that would be provided. Implementation of the bike lanes could be done this year. However, as noted previously, this option is not recommended by staff.

6.0 CONCLUSION

This report seeks Committee direction on its preferred option for Council approval for addressing the cycling network gap on Gilmore Diversion. The five options that staff consider supportable are:

- A: lane reduction to build a MUP on the existing structure;
- B: six-month trial of the above option with temporary materials;
- C: widening of the existing structure for a MUP;
- D: construction of a parallel structure for the MUP; and
- E: cost-sharing with other governments on replacement of the overpass.

Staff are of the view that Option A provides a quality product at a reasonable price. However, there are also merits associated with the other options.

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From: Director Planning and Building
Re: Cycling Options for the Gilmore Overpass
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Upon receiving a Committee recommendation and subsequent Council approval, staff would bring forward a funding report to begin implementing the chosen option. In the event of Option E being chosen, staff and/or the Mayor would first engage with the Province to ascertain their willingness to develop this concept with City funding support.



Lou Pelletier, Director
PLANNING AND BUILDING

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cc: City Manager
Director Parks, Recreation and Cultural Services
Director Engineering
City Clerk

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