



Committee of the Whole Report

For the Meeting of August 1, 2019

To: Committee of the Whole **Date:** August 1, 2019
From: Fraser Work, Director of Engineering and Public Works
Subject: Bicycle Master Plan – 2019 Priority Projects – Design Report

RECOMMENDATION

That Council:

1. Approve the recommended design for the Vancouver Street AAA corridor, including adjacent road network improvements as per the details of this report and direct staff to proceed to detailed design and tendering to enable construction start in late 2019;
2. a) Approve the recommended design for the Harbour Road AAA corridor and direct staff to proceed to detailed design and tendering to enable a construction start in late 2019; and
b) Direct staff to prepare a Bike BC funding application for this project and if successful, authorize the Mayor and the City Clerk to execute the associated grant agreement under the funding program, with terms similar to the 2017/2018 Bike BC program.
3. a) Approve the alternate alignment of Graham and Jackson Street as the priority AAA corridor in the Hillside Quadra neighbourhood and proceed with priority engagement with residents of the 3000 and 3100 block of Jackson Street on intersection options at Finlayson Road; and
b) Direct staff to advance to detailed design and tendering for Graham and Jackson to enable a construction start in late 2019; and
c) Direct staff to initiate a partnership offer with School District 61 to collaborate on installation of outdoor covered bicycle parking at Quadra Elementary School.

EXECUTIVE SUMMARY

In February 2019, Council directed staff to complete a 32 kilometre, All Ages and Abilities (AAA) cycling network by 2022 which includes protected bike lanes, traffic calmed streets and off-street pathways. This report provides a summary of the engagement findings and preferred designs for the next three AAA projects:

- Vancouver Street corridor (Bay Street to Dallas Road)
- Harbour Road (Johnson Street Bridge to Galloping Goose Trail)
- Hillside - Quadra corridor (Bay Street to Tolmie Avenue).

When complete, the routes will establish significant links in the existing network, add approximately 5.5 km of AAA routes, and establish connections to the Galloping Goose Trail. A continued increase in cyclist volume / uptake is anticipated, as the City provides residents, neighbouring communities and visitors a safe, efficient, affordable and sustainable alternative to motor vehicle trips around the Capital City.

Each project is designed to address road safety requirements and provide a safer cycling and pedestrian environment, contribute to GHG reduction and resiliency priorities, support community well-being, increase transportation equity and benefit overall affordability.

The Vancouver Street project is recommended to proceed to detailed design, tendering and construction. This project is featured and detailed in Appendix A, and will:

- Introduce one-way protected bike lanes on the street in the downtown core in order to retain mature boulevard trees at the expense of some on-street parking loss.
 - Traffic diversion at the north end (Balmoral Road and Pandora Avenue) and at the south end (Meares Street) of downtown will maintain existing levels of service at intersections for all road users and reduces overall construction costs and time.
- Require strategically-located traffic diversions and speed reductions to achieve desired performance objectives of 500 – 1000 vehicles per day and 30km/hr speed limits in shared AAA portions of the corridor (North Park and Fairfield).
 - Adjacent road network investments on Quadra and Cook Streets will help to improve road safety and circulation ease for motorists traveling to or from Vancouver Street and respond directly to public feedback gathered through the engagement process
- Connect AAA facilities on Dallas Road, Humboldt Street, Fort Street, Pandora Avenue and Graham Street.
- Contribute to a net gain in on-street parking stalls along the corridor, add new street trees and plaza spaces, and support accessibility retrofit priorities.

The Harbour Road project is recommended to proceed to detailed design, tendering and construction. The project is featured and detailed in Appendix B, and will:

- Introduce two-way protected bike lanes on the east side of the street to maintain industrial driveway access and turning movements and retain all on-street parking
- Accommodate additional growth in pedestrian activity associated with new development in the area and improve accessibility through retrofits to the built environment
- Provide the required AAA connection between the Johnson Street Bridge and the Galloping Goose Trail

The Hillside-Quadra connector along the Graham / Jackson alignment is recommended to proceed to priority engagement, followed by detailed design, tendering and construction. The project is featured and detailed in Appendix C, and will:

- Address concerns of recent population growth and greenspace loss at Quadra Elementary by prioritizing investments in the Graham / Jackson route to reduce overall project timelines and costs
- Contribute to existing neighbourhood traffic calming goals and maintain 500 – 1000 vehicles per day and 30km/hr speed limits and provide an opportunity to retrofit the built environment to improve accessibility
- Achieve AAA route connections at Tolmie Avenue and Bay Street while maintaining the existing public pathway in the City's land at Fifth Street

The designs presented in this report are informed by Council's previous direction on AAA performance goals, technical analysis as well as community consultation findings. Design collaboration and concept refinement with project stakeholders, emergency service providers, the Active Transportation Advisory Committee and agency partners such as Victoria Police, ICBC and BC Transit (and others), who have all influenced the proposed designs. Designs will mature through the detailed engineering phase, including refinement and specification of improvements to curb, gutter and pavement, introduction of tactile domes, accessible pedestrian signals, pedestrian rest areas, landscaping design, and other surface treatments that provide a welcoming and accessible environment.

Staff are proposing design approaches which will achieve AAA standards in both protected bike lanes and in shared facilities. On Vancouver Street, new traffic diversions and speed reductions are configured to achieve the intended 500 – 1000 vehicles per day, at 30 km/hr speeds. Road closures and other interventions will require frequent monitoring and data collection to assess performance and function, which can be integrated into the City's annual traffic monitoring program.

The recommendations in this report are intended to address the main challenges of improving road safety and asset condition while minimizing construction costs, adding to the on-street parking inventory, retaining all street trees, and contributing to public realm enhancements.

PURPOSE

The purpose of this report is to present the Vancouver Street, Harbour Road and the Hillside-Quadra BMP project designs and seek approvals to proceed to detailed design, tendering and construction.

BACKGROUND

Council approved the recommended AAA bicycle network in May 2016. The first AAA project, Pandora Avenue opened in May 2017, followed by the AAA connection on the Johnson Street Bridge in March 2018, Fort Street in May 2018, and the Beacon Hill AAA Connector in November 2018. The Wharf and Humboldt AAA projects are currently under construction with funding contributions from the Bike BC program, the Federation of Canadian Municipalities and the Trans Canada Trail Foundation.

AAA infrastructure generally consists of:

- **Protected bike lanes** introduce physical barriers between cyclists and vehicle traffic. These facilities are generally suitable in urban environments with higher traffic volumes and speeds. Protected bike lanes often include intersection treatments to provide separate, or dedicated, signal phases to allow pedestrians and cyclists to move through the intersection without conflict of motor vehicles. They also support public realm improvements by increasing the separation between pedestrians and cars.
- **Shared facilities** are used on local roads and operate within lower speeds and volumes to reduce both the risk and severity of collisions involving vulnerable road users. In December 2018 Council directed shared road AAA facilities to be based on target volumes of 500 – 1000 vehicles per day and speeds of 30km or less. Shared use AAA routes also create a more pleasant street for pedestrians and offer opportunities for new public spaces, maintain or add to the on-street parking supply and reduce noise levels.
- **Off street pathways** provide a comfortable cycling experience, removed from conflicts with

automobiles. Off street pathways can be multi-use where cyclists, pedestrians and other forms of non-motorized users share the same space or dedicated only for those riding bicycles.

In December 2018, Council directed staff to report back “following the completion of the Vancouver Street design engagement process, with a preferred design recommendation giving consideration of design treatments to limit motor-vehicle traffic volumes of 500-1000 per day on shared use sections of the corridor”.

In February 2019, Council directed staff to “Streamline project processes and activities via a condensed engagement process, bundled procurement, and reduced design timelines” to complete the 32km network by 2022.

AAA Network Update

The Wharf and Humboldt Street protected bike lanes are in the final stages of construction and will be open in August 2019. Final paint markings, speed bumps and the new pedestrian crossing at St. Anne’s Academy will be added to Humboldt Street Shared AAA route (Douglas to Vancouver) once the sewer force main upgrade project is complete in fall 2019.

The City is in the process of hiring term positions to support Bicycle Master Plan delivery, as approved during the 2019 budget process. Three of the five positions are expected to be filled by the fall of 2019, with the remaining two later in the year.

Staff are also in the early planning stages for 2020 BMP projects and will start design consultation with residents, stakeholders and businesses for AAA projects on Haultain, Richardson, Government Street North and the E&N / Kimta extension in the fourth quarter of 2019.

While progress is being made on the 32km network, staff must continue to manage time, quality, and cost risks to achieve the goal of completing all projects by the end of 2022. Staff coordinate BMP planning with other capital investments, such as underground asset renewal, road paving, sidewalk restoration, accessibility upgrades and other surface improvements adds to project complexity which impacts schedule, scope and budget for each individual project.

Project Planning and Design Process

Staff have been undertaking numerous engagement activities to gain insights from the public and key stakeholders to help inform the project design. Figure 1, below, provides an overview of the multi-step design process and where the projects referenced in this staff report are at.

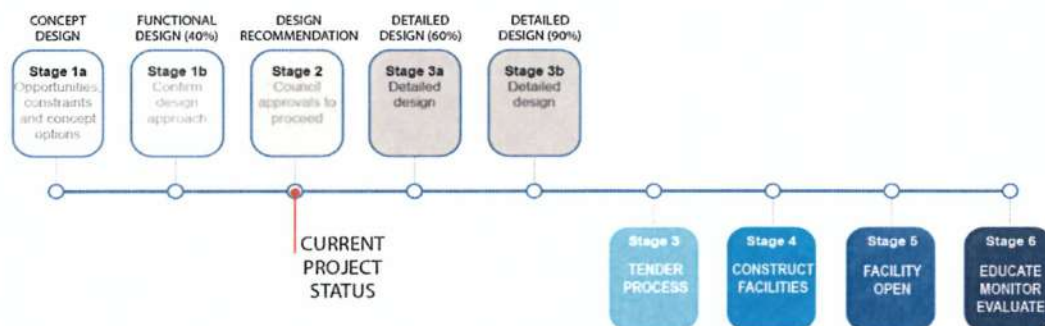


Figure 1: Multi-stage design process for AAA projects

Opportunities for stakeholders and members of the public to participate in the design process were promoted through:

- The City's website and social media channels
- Direct email invitations
- The Connect newsletter, delivered to all homes in Victoria
- Digital information sign at Royal Athletic Park
- Printed post-cards that were delivered door to door on each corridor
- Through invites by community associations, non-profit organizations and business networks

The public consultation process included:

- Community meetings and presentations (11 sessions ~ 170 people)
- Public Open house events (6 events ~ 700 people)
- On-line surveys (2 surveys ~ 1600 participants)
- Walking tours (3 tours ~ 45 participants)
- Pop-up information stations (8 stations ~ 650 participants)
- Agency partner design review and discussion meetings (6 meetings – ICBC, Victoria Fire, Victoria Police, BC Emergency Health Services, BC Transit)

The engagement process for these three corridors revealed a set of common and important public considerations that have been incorporated into the design recommendations.

What we heard	How the design responds
The need to improve safety for people riding bicycles	Each project includes design features that will encourage more riders of all ages and abilities to use these corridors
The value of enhancing the pedestrian realm/experience	Each project includes design features that address pedestrian safety, comfort, and the overall pedestrian experience. Each project has the potential to retrofit the built environment for universal design features to better support persons with disabilities.
The importance of retaining natural vegetation and trees along boulevards and streets	Each project seeks to protect and enhance the urban forest and natural areas in the public realm
The value of on-street parking and loading to support residents, visitors and businesses	Each project features design treatments that minimize on-street parking impacts. At a corridor level, each project maintains or adds on-street parking supply and loading zones
The desire for traffic calming and traffic diversion to create safer shared streets	Two of the three projects employ traffic calming (paint markings, speed bumps, narrowing of travel lanes, reduced speed limits) and traffic diversion (interventions to reduce the convenience of the route for through vehicle traffic)
The importance of making any changes to Vancouver Street easy to navigate.	Each project maintains all driveway accesses to private properties and considers future land use and network implications of traffic diversion interventions

The importance of AAA connections	Each project provides direct connectivity to other established or planned AAA routes
The desire to reduce construction length and impacts	Each project can be sequenced to provide required underground and surface improvements and offers opportunities to open facilities once a segment is complete

The design treatments proposed in these three projects include the use of one-way and two-way protected bike lanes, shared AAA facilities, and off-road AAA facilities. The designs do not respond to some public suggestions, which include the use of unprotected bike lanes, locating AAA lanes along boulevards, allowing for unrestricted vehicle movements, maintaining speed limits, or converting streets into one-way roads.

While all inputs were considered, several suggestions cannot be incorporated as they do not contribute to a balanced design that supports all road users, the retention of trees, cost control or other factors such as schedule. A detailed account of all engagement activities, participation rates, survey results and emails are included in Appendix D.

ISSUES AND ANALYSIS

AAA cycling projects in the downtown are necessary to protect cyclists from the highest risks of vehicle collision. Implementation of AAA facilities in the downtown must occur in and around compact urban assets and infrastructure, in a manner that balances the many competing road user needs and priorities, within limited rights of way. Outside of the downtown zone, AAA routes require considerations such as network vehicle circulation, connectivity, and planned schedules for city asset operations and maintenance.

Each project, regardless of location, provides an opportunity to improve the pedestrian and public realms, improve asset condition and integrate accessibility upgrades to the built environment.

A) Vancouver Street

Vancouver Street provides a direct, north south route along the edge of the downtown, connecting Cook Street and North Park villages. The existing conditions support a welcoming environment for people walking and cycling. Mature street trees line the boulevards of much of the corridor. Destinations such as Royal Athletic Park and Central Park provide community gathering locations and there are a mix of businesses and services in the downtown segment of the route. The Vancouver Street corridor represents the City's highest priority north-south route and provides an important link to existing AAA projects.

Key Design Considerations:

An overview of the key drivers and functional considerations are listed below with more details in subsequent sections.

- **Traffic Volumes and Circulation:** Maintaining private, commercial and emergency vehicle access to all residential, business properties and community destinations. Council has also provided direction to achieve a target of 1,000 vehicles per day or less in shared AAA facilities.

- **Vehicle Speeds:** Maintaining 50km/hr speeds in the downtown segment and introducing 30km/h in shared AAA facilities.
- **Network Effects:** Understanding and managing potential impacts to the broader road network to support motor vehicle circulation and road safety.
- **Vehicle parking and loading:** Assessing design options to minimize on-street parking loss and maintain designated loading and drop-off areas.
- **Public Realm:** Providing opportunities to enhance the public space through creation of plazas, seating, public art and new street trees.
- **Capital Project Coordination:** Identifying synergies with underground and surface infrastructure renewal projects to reduce the overall length of construction impacts.
- **AAA connectivity:** Providing safe connections to other existing or planned AAA routes.

Route Selection:

Council approved the prioritization of the Vancouver corridor in May 2018 to avoid significant trade-offs to the pedestrian realm, tree impacts and increased project costs on Cook Street, which would have been required to maintain vehicle level of service and cycling safety, at multiple intersection locations.

The project extends from Bay Street to Park Boulevard. The route continues through Beacon Hill Park on the existing AAA facility on Camas Circle and will connect with the future AAA route on Dallas Road.

Existing Conditions

The corridor is 3.3km long and already used by approximately 750 cyclists a day, due to favourable north-south connections, and lower nominal traffic speeds and volumes when compared to adjacent corridors.

Design Overview (proposed)

The proposed Vancouver Street project design has the following key features:

- 2 km of shared AAA facilities
- 1.3 km of protected bike lanes
- 16 intersection modifications
- 11 pedestrian crossing improvements
- 6 new traffic diversions
- 2 new pedestrian plazas
- Up to 13 new street trees
- Up to 33 additional parking stalls



Figure 2. Vancouver Street Segments

The corridor is described in four different segments. Appendix A provides an overview of the existing and proposed road layout and descriptions of pedestrian amenities, public realm / landscaping considerations, vehicle speeds volumes and circulation considerations, on-street parking and loading zone information, and road classifications.

The corridor AAA design includes a combination of shared and protected facilities, depending on vehicle design speeds and volumes. Shared road segments are located between North Park and Fairfield, while protected bike lanes (on either side of the street) are planned in the downtown, between Balmoral Road and Meares Street.

There is also a portion of existing off-road, separated AAA facilities through Beacon Hill Park to connect to Dallas Road and a two-way protected bike lane proposed on Bay Street to facilitate the intersection transition.

Corridor Design– Key Attributes

Segment	Current Condition	AAA Design	Pedestrian and Public Realm Features	Traffic Calming	Parking Change
A	No cycling facilities	Shared AAA route	<ul style="list-style-type: none"> - New pedestrian crossings - Accessibility upgrades such as accessible pedestrian signals, new wheelchair let downs and tactile domes - New street trees - Road paving - New plaza space 	Interventions proposed at Bay Street, Caledonia Avenue, and Balmoral Road	Net gain of 18 stalls
B	No cycling facilities	Protected bike lanes on each side of the street	<ul style="list-style-type: none"> - New pedestrian crossings - Greater separation from vehicle traffic - Accessibility upgrades such as accessible pedestrian signals, accessible parking stalls, new wheelchair let downs and tactile domes - New street trees 	Interventions proposed at Pandora Avenue and Meares Street	Net loss of 36 parking stalls (~50% of current parking capacity)
C	No cycling facilities	Shared AAA route	<ul style="list-style-type: none"> - New pedestrian crossings - Accessibility upgrades such as accessible pedestrian signals, new wheelchair let downs and tactile domes - Road paving - New plaza space 	Interventions proposed at McClure Street, Fairfield Road, and Southgate Street	Net gain of 51 parking stalls
D	No cycling facilities	Shared AAA route	<ul style="list-style-type: none"> - New pedestrian crossing - Accessibility upgrades such as new wheelchair let downs and tactile domes 	none	none

Public Input

The City provided a number of opportunities for residents, businesses, commuters and road users to participate in the design process between October 2018 and May 2019. The key themes identified through community engagement efforts were:

- Improved road safety for cyclists and safe connections to east / west AAA routes
- Protection of mature boulevard trees

- Retention of on-street parking and loading
- Motor vehicle access to destinations, businesses, and residences
- Accessibility, safety and comfort for pedestrians
- Commercial vehicle access and transit service continuity

The design has been informed by the comments, insights and ideas received during community and stakeholder consultation. Certain stakeholders indicated that they were not favourable of any AAA facility on Vancouver, or that they had a preference for investments on other corridors. The majority of public feedback was focused on specific design options and treatments including locations of traffic diversion interventions and solutions for traffic calming. A detailed overview of engagement activities, insights, survey results and email feedback are provided in Appendix D.

Traffic Volumes, Circulation and Calming

Current vehicle volumes vary along the corridor, with highest traffic volumes in the downtown section (~8,700 vehicles/day), and intermediate volumes in the area between Fort and Southgate Streets (~5500 vehicles/day), and lower volumes (<1500 vehicles/day) in sections north of downtown and south of Southgate Street, in lower density residential zones. As per Council's direction in December 2018, staff were tasked to develop a design that achieves a target of 500 – 1000 vehicles per day in shared AAA portions.

The City collects vehicle volume data in the downtown each year at various locations throughout the community. The total traffic volumes north / south streets between Store Street and Cook Street clearly show a downward trend between 1990 and 2018 (18% reduction). Since the early 2000's, traffic on north/south arterials have dropped from approximately 85,000 vehicles per day total, to 70,000 vehicles per day. These arterial corridors adjacent to Vancouver Street are able to accommodate additional traffic volumes, due to changes in the vehicle volumes. The recent increase in residential density in the downtown core, combined with improvements in transit service and active transportation infrastructure means less vehicle transportation demand in the City. These effects mean that neighbouring corridors have the capacity to take any vehicle volumes that would result from traffic calming on Vancouver Street. The 2016 federal census and 2017 CRD origin and destination study also demonstrate the increased use of transit, cycling and walking for journey to work trips and all trips made to, from and within the municipality over a 24 hour period which will further increase the capacity of the City's road network.

The City has been successfully implementing local traffic calming and diversion projects for a number of decades, in locations such as Washington Avenue, chicanes on Leighton Road, directional closures on Reno at Belton, right-in/right-out restrictions at Haultain at Richmond, and full closures at Kings at Shelbourne as well as directional closures on Vancouver Street itself.

Traffic diversion and calming measures are considered appropriate interventions along this corridor to shift traffic to adjacent arterial roads while maintaining access for vehicles to travel 'to' Vancouver Street, but not 'through' Vancouver Street.

Traffic Diversion and Calming Design Considerations

This design proposes several interventions, required to reduce vehicle volumes and speeds along the corridor. The type and nature of the designs were determined based on safety, pedestrian needs, current and desired traffic patterns, costs and overall network efficiency.

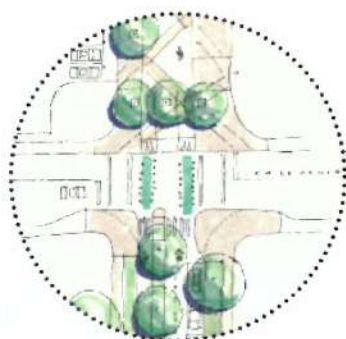
The suite of traffic calming initiatives proposed for this corridor are intended to achieve approximately 1000 vehicles per day (or 1 vehicle every 35 seconds during peak hours) on shared

AAA segments. The City will be monitoring and evaluating traffic diversion and speed reduction initiatives through implementation and collecting data as a part of ongoing evaluation and performance measurement. Achieving further vehicle traffic reductions (approximately 500 vehicles per day, or 1 vehicle every 75 seconds during peak hours) would require additional, targeted interventions that would require further analysis, consultation, and detailed traffic modelling.

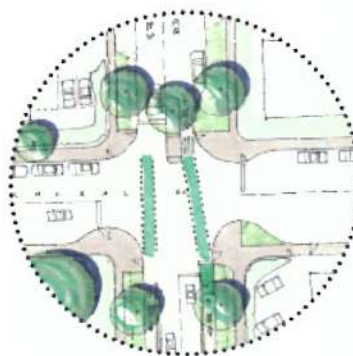
Traffic diversions are located at collector or arterial roads, with the exceptions of Meares Street and McClure Street. Meares Street was selected as a suitable location for traffic diversion (rather than Fort Street) as it provides the additional benefit of retaining on-street commercial loading and parking for businesses / services / residents in the area. McClure Street was selected as the preferred location for traffic diversion as it provides an opportunity for a new pedestrian crossing.

The proposed intervention locations are listed below, with illustrations in Figure 3 below. A map of all proposed vehicle movements on the corridor is found in Appendix E.

VANCOUVER STREET LOCATION	CURRENT CONDITION	PROPOSED TRAFFIC DIVERSION
Bay Street	- Unrestricted vehicle access	- Closed to southbound traffic
Caledonia Avenue / Green Street	- Closed to northbound traffic	- Closed to northbound and southbound traffic
Balmoral Road	- Unrestricted vehicle access	- Closed to northbound traffic
Meares Street	- Turning restrictions at existing one-way street	- Closed to southbound and northbound traffic
McClure Street	- Unrestricted vehicle access	- Closed to southbound and northbound traffic
Fairfield Road	- Unrestricted vehicle access	- Closed to southbound traffic
Southgate Street	- Unrestricted vehicle access	- Closed to northbound traffic



Rendering of proposed changes at Vancouver and Caledonia



Rendering of proposed changes at Vancouver and Balmoral



Figure 3. Four of the six proposed traffic calming treatments at various intersections (outlined in table above). The full corridor design can be found in Appendix A and Vehicle Circulation Map can be found in Appendix E.

Pandora Street Intersection

Vancouver Street AAA cycling facility crossing at Pandora Avenue is a particularly complex intersection, as it is a secondary arterial street, designated truck route and frequent transit route, with adjacent green space and service roads. The constrained public right of way, current development projects, and planned density for the area, combined with the need to link two AAA facilities requires careful design consideration.

Introduction of AAA infrastructure at this location required in-depth analysis of all traffic movements in this zone to allow for safe passage away from turning vehicles on or off Pandora. Staff and Victoria Police both share a desire to avoid turning movement restrictions wherever possible (such as no right on red) as part of AAA cycle track design.

Vancouver Street vehicle traffic currently travels north/south and turns Westbound onto Pandora (one way), as well as use the eastbound adjacent service road, which provides opportunities for vehicle circulation in this zone, along the south side of the Pandora Green, as seen in the satellite photo below.



Figure 4 satellite photo of existing conditions

“Vehicle level of service” is the technical term for rating vehicle capacity and efficiency on a roadway. The current vehicle level of service on Vancouver at Pandora is stable traffic flow with minor delays during peak travel periods. This level of service is often the target for major streets in an urban city environment and a performance that the City would like to maintain along this corridor.

In order to upgrade the intersection to meet AAA standards, a new cyclist signal phase is required to provide dedicated, safe crossing times. The implications of this additional signal phase would result in longer than desirable stop time for motorists, pedestrians and cyclists, compared to other downtown intersections (80 - 110 seconds is typical), unless additional measures/engineering adjustments are made. The introduction of a new signal phase without corresponding improvements could impact traffic congestion, especially during peak times, by adding up to 20 more seconds per phase at peak times. Additional interventions are required in order to balance road safety, costs and traffic performance to adequate standards.

Staff explored several intersection design options at Pandora Avenue and their impact to safety, congestion, costs, trees, and parking. Options included modifying vehicle turning movements, reducing cycling safety treatments, and widening the road. Staff reviewed strategies to restrict certain vehicle movements (northbound, southbound and westbound combinations), remove on street parking and convert the existing service lane into a two-way street, and opportunities to provide alternative circulation options using the existing service lane (Appendix F).

The two options that achieve the required effect are a full closure to northbound and southbound vehicles and a partial closure to divert northbound traffic via the existing service road. These two options achieve all safety and level of service performance targets, while safeguarding costs, trees, public realm and parking. These options are described below:

- The full closure option would remove north/southbound traffic through Pandora Avenue. This option was presented to the public in spring 2019 and achieves safe movements for all users with no impacts to overall vehicle level of service (ie. peak wait times/congestion). This option would require all vehicle traffic to circulate around Pandora Green using other routes. This configuration, however, represents a significant change and inconvenience to motorists travelling north/south along Vancouver. During the engagement process, a number of stakeholders, including adjacent property owners, residents, and service providers, identified concerns with moving forward with a full closure option and cited their support to maintaining some level of north / south vehicle movements.
- The second option is a partial closure of the intersection to northbound traffic only, which safeguards southbound movements. In this option, all northbound vehicles would use an alternate route to the east, to circulate via the existing Pandora Green service lane. While not a direct route, motorists can divert back onto Pandora, and then onwards, north along Vancouver or continue west to the Johnson Street Bridge. Using the service lane adds an additional 360 meters of travel distance for motor vehicles and under a minute of additional travel time. This modified approach would likely be considered more palatable by the general public, especially those that are unaware of the issues and compromises when introducing these types of new traffic systems in existing rights of way. A diagram of the traffic circulation is provided in Figure 5 and design detail is provided in Figure 6.



Figure 5: Proposed intersection circulation at Pandora Avenue and Vancouver Street.

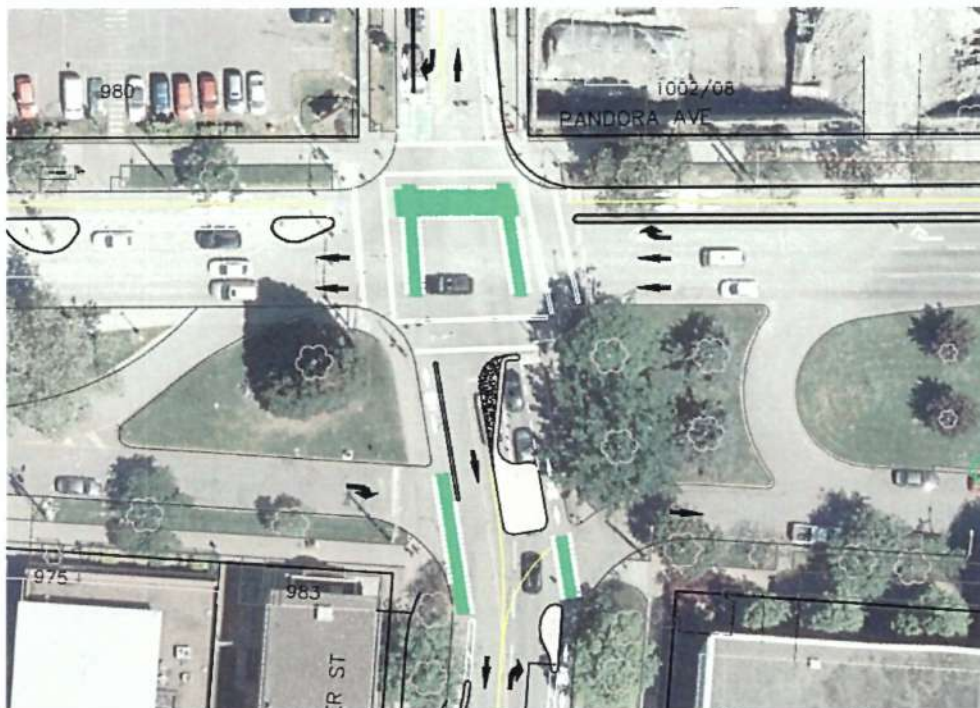


Figure 6: Proposed traffic diversion at Pandora Avenue and Vancouver Street.

Staff are proposing the partial closure option to achieve the required safety performance via fully protected signal phases, while maintaining current level of service for all road users. This means that traffic congestion and delays are not anticipated to be different from the current condition.

This option does not require major additional costs or impacts to green space, trees or parking. It also does not preclude the ability to introduce additional modifications in the future, if required to achieve other mobility / urban design objectives / community building objectives.

During the consultation and engagement process, community stakeholders identified their support for developing a streetscape feature or a public art installation at this location which supports the broader vision of creating a safe healthy welcoming community, inclusive of all.

Traffic Speed

The proposed design includes interventions to reduce vehicle speeds to 30km/hr in shared AAA facilities along the north and southerly sections of Vancouver Street. Additional treatments such as narrowing the travel way by introducing parking on both sides of the street, adding curb bulb-outs, and introducing paint markings will support reduced vehicle speeds. The downtown posted speed limit will remain at 50km/hr.

Network Effects

Staff have reviewed the proposed changes as a part of the broader road network in the downtown core. While there is available capacity on adjacent north / south routes to support changes on Vancouver Street, staff are proposing additional interventions in the scope of the project to support motor vehicle movements on to or off Cook and Quadra streets.

These interventions will be explored through the detailed design process and are proposed within the existing project budget. Making these investments now, rather than through future road programs, will help to address access concerns identified by the community and contribute to improved road safety in locations where motorists are making left turns on to Cook or off of Quadra. The following road safety improvements have been identified by staff to include in the Vancouver Street project:

- Introducing a left-hand turn signal at Pandora and Cook
- Introducing a traffic circle and improved pedestrian crossing at Southgate and Cook
- Introducing an ability to make southbound left hand turn off Quadra at Burdett (currently restricted)
- Introducing an advance left turn signal at the intersection of Fairfield and Cook

Vehicle parking and loading

The retention of on-street parking and loading areas is the most challenging along Vancouver's downtown segment, given the limited space to accommodate all road user needs. Design options were initially explored for cycling facilities within the boulevard space, to retain more on-street parking, but this option was ultimately rejected due to the impacts to mature tree root systems and costly engineering solutions to mitigate impacts. During consultation, there was clear support from the community to retain boulevard space and trees recognizing the trade-off would be localized parking loss.

The City recognizes the value of on-street parking, particularly in the downtown core. Loss of on-street parking is mitigated by future off-site parking achieved through re-development of private land in the area and addition of parking stalls achieved by:

- Consolidating right turn / through lanes to provide more space for on-street parking (conditional on anticipated vehicle volumes from traffic diversions)
- Establishing new parking stalls by reducing the length of right-hand turn lanes
- Designing parking bays and boulevard cycle tracks in select areas where development frontage improvements necessitate the re-construction of the street
- Adding new on-street parking in traffic-calmed areas

The design as proposed removes approximately 36 on-street parking stalls in the downtown core, but adds approximately 69 on-street parking stalls in other locations along the corridor, resulting in a net gain of approximately 33 parking stalls between Bay Street and Park Boulevard. Final numbers

will be refined through the detailed design stage. All on-street commercial and passenger loading zones are maintained in the proposed design, and a new pickup / drop-off zone will be introduced adjacent to Christ Church Cathedral School to meet current and projected demand.

Public Realm

Opportunities to enhance the public realm have been explored, as the AAA network is an important strategy for delivering broader benefits beyond cycling and road safety. Integration of the place-making activities and public realm features such as seating, bike racks, paint markings and wayfinding were consistent priorities identified throughout the consultation phase. Preliminary design concepts have been developed based on the available budget, functionality of space and operational requirements. Appendix G provides further information on plaza design.

Royal Athletic Park Plaza: The proposed closure at Caledonia Avenue presents an opportunity for a new open space, for community use and programming, without limiting vehicle access into the stadium facility. Proposed upgrades beyond the traffic diversion include surface paint treatments and new trees.

McClure Street Plaza: To accompany the closure at McClure and Vancouver Street a small plaza is proposed. The plaza will include raised planters, seating, trees and additional landscaping. A unique surface treatment to further differentiate the space from the asphalt road way could be explored further through detailed design and in context of overall project budget and long-term maintenance requirements.

Capital Project Coordination

In addition to the transportation improvements, staff are orchestrating associated underground and surface infrastructure improvements to provide maximum benefit and have overall less disruption to residents and businesses along the corridor.

1. Underground infrastructure upgrades including a new sewer force main being installed this summer / fall from Southgate Street to Humboldt Street.
2. Road Paving including Bay Street (Quadra Street to Cook Street), Vancouver Street (Caledonia Avenue to Pandora Avenue and Fairfield Road to Southgate Street). Paving on Harling Lane will also be included in the scope, should funds allow.
3. Development activities, associated frontage improvements and property access has been coordinated to support the proposed designs and project objectives in select areas. Interim treatments will be used prior to ultimate design implementation.
 - a. 1002 Pandora Avenue (frontage to include northbound protected bike lane)
 - b. 983 / 975 Pandora Avenue (frontage to include southbound protected bike lane)
 - c. 952 Johnsons Street / 1400 Vancouver Street (frontage to include southbound protected bike lane)
 - d. 1200 Vancouver Street (frontage to remove driveway access conflicts)
4. Paint markings and Crosswalk Upgrades on adjacent streets. The project will include paint markings on Princess Street leading to George Jay Elementary installed in tandem with the planned upgraded crosswalk at Cook and Princess.

AAA Connectivity

The Vancouver Street project requires safe and effective connections to both existing and planned priority AAA routes. The design provides for connections to:

- Graham Street (part of this report)
- Humboldt Street (opening in 2019)
- Fort Street (completed 2018)
- Pandora Avenue (completed 2017)

The proposed Vancouver Street project also includes paint markings on Oliphant Avenue and a new marked pedestrian crosswalk to connect to the AAA multi-use path in Beacon Hill Park, which was completed in 2018.

A new pedestrian and cycling crossing at Camas Circle and Dallas Road will also be introduced to facilitate connections to the new off-road AAA bicycle facility being construction with the CRD Force Main project, planned for opening in 2020 and is highlighted in Appendix A.

B) HARBOUR ROAD

Harbour Road provides a north south connection from the Johnson Street Bridge to the Galloping Goose Trail, connecting downtown Victoria with inter-municipal links that extend to North Saanich via the Lochside Trail and Langford via the Galloping Goose or E&N Trails.

Key Design Considerations

The primary goal of this project is to improve road safety for pedestrian and cyclists through crossing improvements and physical separation from motor vehicles in this industrial/commercial/residential zone. An overview of the key drivers and functional considerations are listed below with more details in subsequent sections.

- *Land Use context:* Consideration of future land use and zoning and synergies with new residential and mixed-use development and opportunities to improve accessibility of the existing built environment
- *Vehicle Circulation:* Maintaining private, commercial and emergency vehicle access to residents, businesses and community destinations on Harbour Road
- *AAA connectivity:* Providing effective and safe connections to other existing AAA routes, particularly with the current and anticipated volumes of cyclists.

Route Selection

The Harbour Road corridor is 490m in length and was identified as a part of the 2015/2016 Biketoria network planning process.

Existing Conditions

This corridor is a gap in between the Galloping Goose Regional Trail and the Johnson Street Bridge Multi-Use Deck. The current conditions include two travel lanes, painted bike lanes, and parking bays on the west side of the street. There are significant volumes of cyclists on Harbour Road. There was an average of 2100 trips per day recorded at the automated counter at the Galloping Goose trail head, adjacent to Harbour Road, between January and June 2019.

Design Overview

The proposed project consists of a two-way protected bike lane on the east, or waterfront side of Harbour Road. The project features:

- 470 meters of two-way protected bike lanes
- 1 new mid-block crosswalk
- No impacts to on-street parking, street trees, or vehicle circulation

The corridor is planned as one segment. Additional details of the existing and proposed road layout and descriptions of pedestrian amenities, public realm / landscaping considerations, vehicle speeds, vehicle volumes and circulation considerations, on-street parking and loading zones is provided in Appendix B.

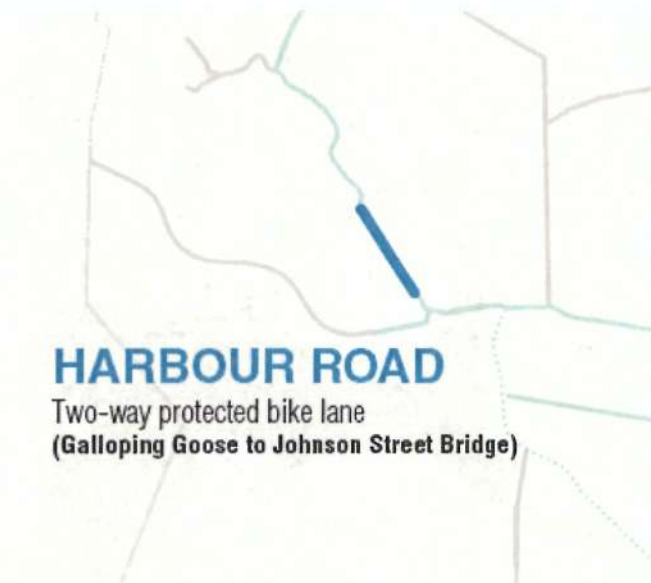


Figure 7 Harbour Road Alignment

The City did not pursue alternative corridor options for this route as Harbour Road provides a direct link to the existing regional trail system and AAA facilities on other parallel routes, such as Tyee Road, would require loss of on-street parking.

Corridor Design Summary

Segment	Current Condition	AAA Design Approach	Pedestrian and Public Realm Amenities	Traffic Calming Intervention	Parking Change
A	Painted bike lanes	Two-way protected bike lanes	New pedestrian crossings, new paint markings to delineate multi-use trail on Galloping Goose and Johnson Street Bridge Multi-use Deck, and accessibility upgrades such as curb cuts, tactile domes, pedestrian rest areas.	none	none

Public Input

The City provided a number of opportunities for residents, businesses, commuters and road users to participate in the design process between March 2019 and May 2019. The key themes identified through community engagement efforts were:

- Improved road safety for cyclists and safe connections to AAA routes
- Retention of on-street parking and loading
- Safe, protected bike lane designs to accommodate current and future volumes and speeds of cyclists
- Vehicle access to residential and industrial properties
- Accessibility, safety and comfort for pedestrians

The design has been informed by the comments, insights and ideas received during community and stakeholder consultation. A summary of engagement activities, insights, survey results and email feedback are provided in Appendix D.

Land Use Context

The proposed design is located on the opposite side of the street of planned mixed-use development associated with Dockside Green. Future development activity is intended to increase use of the protected bike lanes. A new pedestrian crossing is being proposed at 356 Harbour Road in front of Merridale Cidery in Dockside Green to facilitate anticipated increases in pedestrian volumes in coordination with future site development.

Vehicle Circulation

There are no changes to vehicle circulation with this project, however careful design geometries are required to ensure adequate space for large truck movements turning into and out of industrial and residential properties on the corridor.

AAA connectivity

The project includes improvements to the entry to the Johnson Street Bridge Multi-Use Deck and on the Galloping Goose, extending to the Selkirk Trestle. This route has strong alignment with the evaluation criteria for the Provincial Bike BC funding program due to its inter-municipal connections and tourism value. A motion is provided in this report to authorize staff to apply for the next round of Bike BC funding with sample agreement terms provided in Appendix I.

C) HILLSIDE QUADRA CONNECTOR

The Hillside Quadra connector is planned to extend north from Bay Street, where the Vancouver corridor doglegs on its path up to Tolmie Avenue. This connection is a key municipal link between Saanich and Victoria AAA routes.

Three main alignments have been assessed and engaged with the public, in effort to identify the preferred design approach. The Graham / 5th alignment was identified originally as the preferred route via the Biketoria Network Study (2016) and is shown in solid grey in the Figure 8 below.

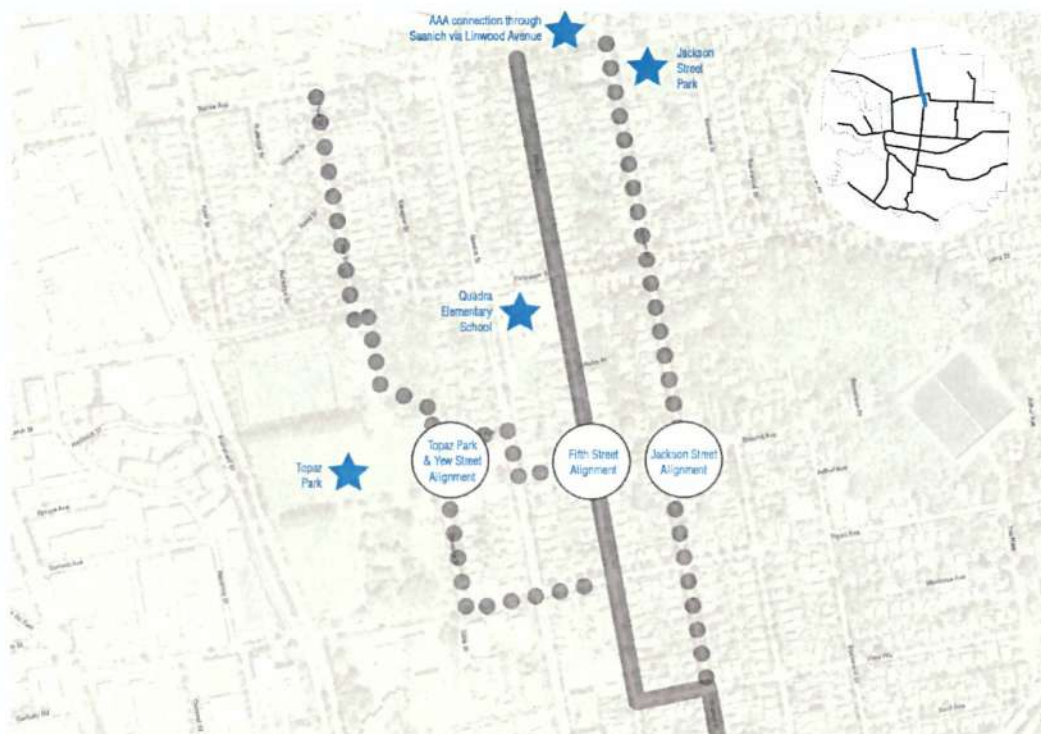


Figure 8: Hillside / Quadra Connector routing options.

All three corridor options in this location have similar safety benefits and offer viable solutions to meet AAA design requirements, without undesirable impacts to traffic performance, parking or boulevards.

Key Design Considerations

The primary goal of this project is to improve road safety for pedestrian and cyclists through intersection and crossing upgrades. An overview of the key drivers and functional considerations are listed below with more details in subsequent sections.

- **Public Realm & Context Sensitive Design:** Addressing practical design requirements and considerations, along with opportunities to improve accessibility of the existing built environment
- **AAA connectivity:** Establishing effective and safe connections to other existing or planned AAA routes.
- **Capital Project Coordination:** Identifying synergies with underground and surface infrastructure renewal projects to reduce the overall length of construction impacts

Long Term AAA Network Planning: Providing options for future AAA routes in the neighbourhood.

Design Intention

The Hillside – Quadra route is intended to be a shared AAA facility, through traffic calming, intersection upgrades, speed reductions and paint markings. A detailed illustration of the existing and proposed road layout and descriptions of pedestrian amenities, public realm / landscaping

considerations, vehicle speeds, vehicle volumes and circulation considerations, on-street parking and loading zones is provided in Appendix C.

Route Selection and Public Input

The Graham / Fifth alignment (proceeding from Bay Street along Graham, via Vista Heights to Fifth Street, heading northbound) had previously been identified as the most suitable corridor for priority investment in the 2015/2016 Biketoria network development process. This was due to the directness of the route, destinations serviced, connectivity to the Saanich cycling network (Linwood Avenue) and relatively moderate topography, when compared to other options.

There is a cul-de-sac at Fifth Street where a City road right-of-way and public sidewalk run adjacent to Quadra Elementary School. The right of way is currently closed to vehicle traffic and has been configured as an extension of the school playground since 1982, through a licence agreement with School District 61. The space is used by school children during the school day and the existing public sidewalk supports moderate commuter thoroughfare on bike and foot at other times of day. Pedestrians and cyclists heading northbound across Finlayson Street at Fifth Street do not benefit from any designated crossing treatment, which is required in the future at the designated AAA corridor.

Staff commenced early engagement in the fall 2018, with a presentation to the Hillside Quadra Neighbourhood Action Committee and meetings with School District 61 and School Administration. Initial engagement indicated that the concept of a shared AAA facility in the neighbourhood was supportable but there were concerns about finding suitable design treatments adjacent to Quadra Elementary School on the Graham / Fifth alignment.

School stakeholders raised concerns about the reduced availability of outdoor play space, resulting from recent growth in the student population and new portable buildings that were constructed in 2017. The school stakeholders (parents and administration) consider the current pathway / playground configuration as a key school amenity, and are concerned that any AAA facility would result in a degradation or loss of play space, or introduce safety risks from fast moving cyclists could potentially introduce further safety risks in the play zone. A number of design options were assessed based on cost, vehicle and transit level of service impacts, tree / sensitive ecosystem impacts, parking loss, play space loss, and safety considerations. The routing concepts that were investigated but not pursued are also shown in Appendix H.

Staff assess that a multi-use pathway remains a viable option at the Graham / Fifth location and a design could be realized that offers practical solutions to ensure playground functionality / attraction, alongside the required safety features to minimize stakeholder risks and concerns, shown in Appendix H. There are many examples of school properties with functional and attractive public multi-use pathways. The requirement to invest in safety treatments and playground amenities at the Graham / Fifth location would impose additional costs and time on the project.

The network development study and community engagement process also highlighted availability of parallel options that could deliver a safe and effective AAA route extending from Bay Street to Tolmie Avenue such as:

- Graham Street and Jackson Street to Tolmie Avenue
- Graham Street and Topaz Street, across Quadra, through Topaz Park, and up Yew Street to Tolmie Avenue
- Graham Street and Summit Avenue, up Quadra Street and across at Spruce Street, through Topaz Park, and up to Yew Street to Tolmie Ave

Graham / Jackson Street Alignment Considerations

The Graham / Jackson Street alignment provides direct connectivity to planned AAA routes in Saanich, and can be achieved with high safety standards, reduced costs, and reduced impacts to green space, parking and other road-user requirements.

Public consultation demonstrate strong support for this alignment, where a majority of stakeholders indicated this as the preferred route (57% of survey respondents, detailed in Appendix D). The Graham / Jackson route has greater changes in topography, however is ideally placed for a new crossing on Finlayson Road.

While there was support for AAA priority investments through Topaz Park, these infrastructure enhancements could be achieved through the implementation of the Topaz Park Improvement Plan in the coming years.

The design for a Graham / Jackson alignment is found in Appendix C. The project features:

- 1.3km of shared AAA facilities
- 2 pedestrian crossing improvements
- 3 cycling crossing improvements
- No impacts to on-street parking or boulevard trees
- Neighbourhood traffic calming

To accommodate the shared AAA design approach, the route would be posted at 30 kilometres per hour and minor intersection upgrades such as stop sign alignments would be explored. Vehicle volumes are already within the targeted 1,000 vehicles per day range and speed reduction features such as speed humps have been in place for a number of years.

The road crossing at Hillside Avenue would be upgraded with paint treatments. An additional intersection crossing upgrade at Finlayson would need to be pursued as a part of the design. Options could include a pedestrian controlled traffic signal or a right-in, right-out traffic diverter. Features are shown in Figure 6 below. Traffic calming has already been cited as a priority from residents on the 3000 block of Jackson Street. City staff can complete a targeted engagement process with residents on these two blocks to gather feedback on preferred treatment prior to detailed design and construction.

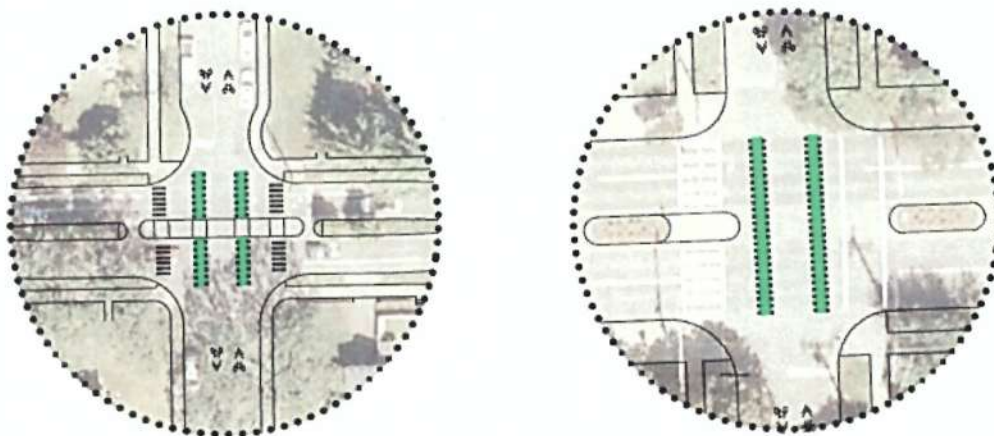


Figure 9: Potential traffic diverter at Jackson @ Finlayson (left) and proposed paint treatments at Hillside @ Graham (right)

Capital Project Coordination:

Road paving on Graham Street is planned for 2019 between Hillside and Topaz. Surface treatments will be added once the works have been completed.

Long Term AAA network:

The Graham / Fifth corridor would remain on the City's long-term AAA network to allow for a future multi-use path. The City will maintain its dedicated road right-of-way, allowing public access by foot and bicycle through a continued licence agreement with the School District. A partnership with the District to invest in covered bicycle parking at Quadra Elementary will support students, parents and staff who are already riding and encourage more active trips to school under existing infrastructure conditions.

OPTIONS AND IMPACTS

Vancouver Street

The City has completed an iterative design process with multiple phases of consultation with key stakeholders, the public, and agency partners. The recommended design addresses safety challenges on the corridor and provides a cost effective balanced mobility approach that improves pedestrian and cycling amenities, retains an adequate vehicle level of services and provides public realm and landscaping improvements. The design will help to achieve AAA goals while supporting tourism, commercial needs and vehicle circulation.

Vancouver Street Options:

That Council:

1. Approve the recommended design for the Vancouver Street AAA corridor, including adjacent road network improvements as per the details of this report and direct staff to proceed to detailed design and tendering to enable construction start in late 2019;
(Recommended)
2. Direct staff to complete further public engagement on potential design modifications or revised scope of project. (Not Recommended).

This option is not recommended as it will delay project implementation and may compromise current grant funding contributions from the Federation of Canadian Municipalities.

3. Direct staff to defer the Vancouver Street project at this time. (Not Recommended)

This option is not recommended as it does not achieve the Strategic Priority of completing the 32km AAA network by 2022.

Harbour Road

The City has completed public consultation with key stakeholders, the public, and agency partners to identify constraints and opportunities that will be addressed through detailed design. The recommended design addresses the existing safety challenges and provides a cost-effective balanced design to achieve an important regional AAA connection.

Harbour Road Options:

1. a) Approve the recommended design for the Harbour Road AAA corridor and direct staff to proceed to detailed design and tendering to enable a construction start in late 2019; and
b) Direct staff to prepare a Bike BC funding application for this project and if successful, authorize the Mayor and the City Clerk to execute the associated grant agreement under the funding program, with terms similar to the 2017/2018 Bike BC program.
(Recommended)
2. Direct staff to defer the Harbour Road project at this time. (Not Recommended)

This option is not recommended as it does not achieve the Strategic Priority of completing the 32km AAA network by 2022.

Hillside Quadra Corridor

The City has completed a comprehensive consultation process with key stakeholders, the public, and agency partners to receive insights on design treatments for the Graham Fifth corridor and alternate alignment options for priority investment. The Graham Jackson route presents an opportunity to achieve priority AAA network objectives and connectivity with minor investments and additional public consultation.

Hillside Quadra Options:

1. a) Approve the alternate alignment of Graham and Jackson Street as the priority AAA corridor in the Hillside Quadra neighbourhood and proceed with priority engagement with residents of the 3000 and 3100 block of Jackson Street on intersection options at Finlayson Road.
b) Direct staff to advance to detailed design and tendering for Graham and Jackson to enable a construction start in late 2019; and
c) Direct staff to initiate a partnership offer with School District 61 to collaborate on installation of outdoor covered bicycle parking at Quadra Elementary School.
(Recommended)
2. Direct staff to defer the Hillside Quadra project at this time and re-visit project in 2022. (Not Recommended)

This option is not recommended as it does not achieve the Strategic Priority of completing the 32km AAA network by 2022.

Accessibility Impact Statement:

All three AAA projects will include core accessibility features, improvements and guidance from the AWG, during the detailed design phase. Projects will be implemented using universal design approach and/or retrofitting the built environment to support enhanced accessibility for persons with disabilities as a part of the complete street design lens.

Examples of additional features to improve accessibility include improved wheelchair let downs, accessible pedestrian signals, sidewalk restoration, curb cuts, and tactile domes. Landscaping

vegetation and tree selection can also consider low-allergenic species that can avoid adverse impacts on individuals with asthma and plant related allergies.

A detailed design session and site tours will be held with the Accessibility Working Group for feedback and user insights at specific locations on each corridor. Should additional funding be required for scope beyond the available project budget, staff will present a future report prior to tender to access the Accessibility Reserve for proposed investments.

Impacts to Financial Plan

Financial resources for these projects are provided through the Federal Gas Tax transfer program, agency grants (Vancouver Street), Road Paving budgets (Vancouver Street and Graham Street) and the use of Development Cost Charges. A funding application is planned for Harbour Road through the 2019/2020 Bike BC Grant program.

The functional design stage includes an estimated project budget with contingency amounts reflective of the complexity of the project and percentages identified in the City's Capital Cost Estimates Policy. Every project is in line with the budgets included in the approved 2019 financial plan. A value engineering lens will continue to be applied through the detailed engineering stage in order to identify further strategies without comprising safety or negatively impacting overall project quality.

Vancouver Street Project	
Construction Cost Estimate	\$3,110,000
Construction Contingency (30%)	\$930,000
Engineering & Professional Fees, Market adjustment factor, Project / Site Condition Contingencies	\$960,000
Total estimate	\$5,080,000

Harbour Road Project	
Construction Cost Estimate	\$420,000
Construction Contingency (30%)	\$120,000
Engineering & Professional Fees, Market Adjustment factor, and Project site / Condition contingencies	\$160,000
Total estimate	\$700,000

Hillside / Quadra Project	
Construction Cost Estimate	\$520,000
Construction Contingency (30%)	\$150,000
Engineering & Professional Fees, Market Adjustment factor, and Project Site / Condition contingencies	\$229,700
Total estimate	\$900,000

Contributions from other applicable capital budgets may be used to support complete street implementation and avoid having to come back at a later date, with additional administrative costs. The costs required to operate and maintain new AAA cycling amenities are included in year-on-year financial plans for the requisite department (i.e. landscaping, electrical, pavement, paint, snow removal, lighting, etc). Any changes in parking revenues will be adjusted in the 2020 budget.

A coordinated procurement strategy will be used to obtain best value pricing for professional engineering and construction services. Staff will work with contractors on a coordinated construction schedule that maximizes sequencing benefits and minimizes localized construction impacts.

2019 – 2022 Strategic Plan

The AAA Bicycle Network implementation program is an approved Strategic Priority of Council. Road. Council has also identified a strategic priority to remove barriers to make Victoria more accessible.

Official Community Plan Consistency Statement

The AAA Bicycle Network program supports actions in the Official Community Plan under the following thematic goals:

- Goal 6: Land Management and Development (goals 6A, 6B, and 6C)
- Goal 7: Transportation and Mobility (7A, 7B and 7C)
- Goal 8: Placemaking – Urban Design and Heritage (8A)
- Goal 9: Parks and Recreation (9A)
- Goal 10: Environment (10A)
- Goal 11: Infrastructure (11A)
- Goal 12: Climate and Energy (12A, 12C, and 12E)
- Goal 15: Community Well-being (15F and 15G)

CONCLUSIONS

Council has directed the completion of the AAA network by the end of 2022. Investments to date have resulted in increased bicycle traffic and more diversity of people riding bicycles in the downtown core.

Vancouver Street is a strategic route in the AAA network and will link existing east / west facilities in the downtown core. The proposed design will achieve targeted safety objectives, including the goal of 500 – 1000 vehicles per day and 30km/hr speeds in shared AAA segments. Existing parallel streets have available capacity to accommodate additional vehicle volumes and staff are proposing improvements on adjacent corridors to support overall road safety and motor vehicle movements. The traffic diversion approaches proposed on Vancouver Street build on successful and proven interventions that are in place in a number of other locations in the City. The specific treatment at Pandora Avenue enables a fully protected intersection for pedestrians and cyclists without negatively impacting service levels and wait times for all road users. On a corridor scale, the design achieves a net gain of up to 33 on-street parking stalls, provides numerous opportunities for retrofitting the built environment with accessibility features, as well as adds up to 13 new street trees and 2 new plazas.

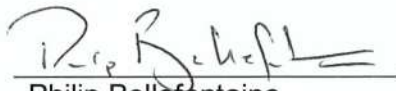
Harbour Road offers a natural extension of existing AAA routes and is designed to accommodate the existing industrial land uses as well as new residential developments. The design proposes a safer cycling solution with no impacts to parking and loading, a new pedestrian crossing and paint markings on both the Galloping Goose Trail and Johnson Street Bridge.

The Hillside / Quadra connection has multiple viable route options. In the short term, the City can make priority investments in Graham and Jackson to achieve inter-municipal AAA connectivity and desired cycling safety goals. The City will work with the District to improve end of trip amenities at the school with covered bicycle parking and will renew the licence agreement which maintains public access on the existing pathway at Fifth Street.

Respectfully submitted,



Sarah Webb, Manager
Sustainable Transportation
Planning & Development



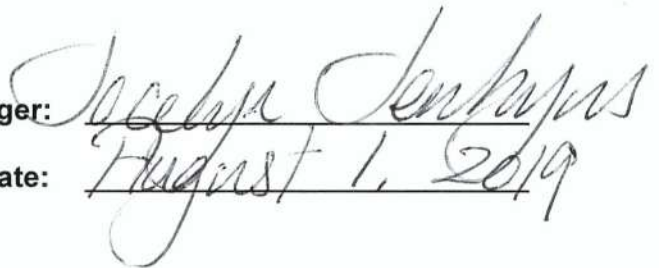
Philip Bellefontaine
Assistant Director
Transportation



Fraser Work, Director
Engineering & Public Works

Report accepted and recommended by the City Manager:

Date:


August 1, 2019

Appendix A: Design for Vancouver Street
Appendix B: Design for Harbour Road
Appendix C: Design for Hillside Quadra route
Appendix D: Engagement Summary and public feedback
Appendix E: Vancouver Street Traffic Circulation Map
Appendix F: Vancouver @ Pandora Intersection Options Evaluation
Appendix G: Vancouver Street Plaza overviews
Appendix H: Quadra Elementary School Design Options and Concept
Appendix I: 2017/2018 Bike BC Agreement Form