2019 AAA Network Projects
Vancouver Street, Harbour Road, Hillside-Quadra Connector

August 8, 2019 Committee of the Whole

BACKGROUND

The All Ages and Abilities (AAA) cycling network is a purpose-built, safer cycling network, attractive and comfortable for the whole community.

The network delivers:

- Improved road safety for vulnerable road users and support Vision Zero
- Reduced motor vehicle traffic congestion
- Reduced transportation greenhouse gas emissions
- Increased household affordability and access
- Improved community health and well-being through streetscape improvements
Purpose of Report

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

AAA Infrastructure Re-Cap

Now common in many cities, AAA infrastructure generally consists of:

- **Protected bike lanes** - physical barriers between cyclists and vehicle traffic.
  - These facilities are generally suitable in urban environments with higher traffic volumes and speeds.

- **Shared facilities** - used on local roads and operate within lower speeds and volumes
  - reduce both the risk and severity of collisions involving vulnerable road users.

- **Off street pathways** provide a comfortable cycling experience, removed from conflicts with automobiles.
  - Off street pathways can be multi-use or dedicated only for those riding bicycles.
Design Process

Each project is designed to address:
- road safety requirements
- 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

Design Engagement Approach

Opportunities were promoted through:
- Website and social media channels
- Email invitations
- The Connect newsletter
- 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
- Earned media coverage – radio, print and on-line

The 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)
Design Responses – 3 Projects

What we heard:

- Support to improve road safety for people riding bicycles and people walking
- The value of enhancing the pedestrian realm
- The importance of retaining natural vegetation and trees along boulevards and streets
- The value of on-street parking and loading to support residents, visitors and businesses
- The desire for traffic calming and traffic diversion to create safer shared streets
- The importance of making any road network changes easy to navigate
- The need for AAA connections
- The desire to reduce construction length and mitigate impacts
- The need to include core accessibility features to retrofit existing environment

Design Summary – Vancouver Street

Shared Use Concept

Protected Concept

[Map and diagrams of shared use and protected concepts along Vancouver Street]

[Victoria City logo]
Project Overview – Vancouver

Design approach and features:

• Protected bike lanes on either side of the street in the downtown core

• Traffic calming shared AAA design at north end (Balmoral Road to Bay Street) and south end (Meares Street to Park Boulevard)

• Strategically-located traffic diversions and speed reductions to achieve desired performance objectives of 500 – 1000 vehicles per day and 30km/hr speed limits

• Adjacent road network investments on Quadra and Cook Streets to improve road safety and circulation ease for motorists

• Connections to AAA facilities on Dallas Road, Humboldt Street, Fort Street, Pandora Avenue and Graham Street.

• A net gain in on-street parking stalls along the corridor, add new street trees and plaza spaces, and support accessibility retrofit priorities.

Vancouver – Bay to Queens

![Diagram of Vancouver Bay to Queens area with detailed designs and annotations.]

Design Details:

A. Diverter Southbound. Diverter southbound traffic at Bay and Vancouver and restrict northbound left turn from Vancouver onto Bay Street to reduce traffic volumes south of Bay Street and accommodate a safe passing for pedestrians and cyclists.

B. Streetcar lane markings in selected locations to remind drivers to share the road with cyclists.
Vancouver – Queens to Pembroke

Vancouver – Pembroke to Caledonia
Vancouver – Caledonia to Balmoral

Vancouver – Balmoral to Mason
Vancouver – Mason to Pandora

- Complex intersection as a secondary arterial street, designated truck and frequent transit route
- Constrained public right of way, current development, and planned density for the area
- Introduction of AAA infrastructure at this location
  - Introduced dedicated signal for safe cycling through intersection, and would impose delays unless changes made
  - Staff explored several intersection design options (impact to safety, congestion, costs, trees, and parking).
  - Options included modifying vehicle turning movements, reducing cycling safety treatments, and widening the road.
  - Two options provide required safety and level of service performance targets, while safeguarding costs, trees, public realm and parking

- 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.
  - No major additional costs or impacts to green space, trees or parking.
- Community stakeholders have 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
Vancouver – Pandora to Johnson

Vancouver – Johnson to Yates
Vancouver – Meares to Burdett

- **DESIGN DETAIL A**: Add northward and southward directional bollards to reduce traffic volumes north of Meares Street and reduce on-street parking. Schedules will be required to turn at Master Street.
- **DESIGN DETAIL B**: Add 3.5 m to the posted speed limit on signs where required.
- **DESIGN DETAIL C**: Add in-slab point markings in select locations to remind drivers to share the roads with cyclists.
- **DESIGN DETAIL D**: Provide a more compact and safer parking opportunity by introducing time-limited parking on selected streets and nodes through short-term parking areas.

Vancouver – Burdett to McClure

- **DESIGN DETAIL E**: Add a pedestrian crossing at Burdett Avenue.
- **DESIGN DETAIL F**: Improve vehicle access onto Burdett by permitting southbound left turns from Duarte onto Burdett.
- **DESIGN DETAIL G**: Down through traffic at McClure Street - emergency vehicles, cyclists, and pedestrians permitted access.

[Diagram showing urban planning changes along Vancouver streets]
Vancouver – McClure to Collinson

Vancouver – Fairfield to Humboldt
Vancouver – Pendergast to Oliphant

- Add chosen paint markings in select locations to remind drivers to slow the vehicle with caution.
- Add 30 km/h zone speed limit signs where required.
- Provide addition on street parking where feasible along Oliphant Avenue.

Vancouver – Oliphant to Park

- Add marked crosswalk and chosen paint markings on Oliphant Avenue to connect to the BUS/MTB Ramps and Bike Path.
- Add chosen paint markings, 30 km/h zone speed limit signs, and removing centre line on Park Boulevard.
Beacon Hill Park – Park to Camas

Beacon Hill Park – Camas to Dallas

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Vancouver – Circulation Changes

Traffic Calming Objectives:
- Interventions to achieve 500 – 1000 vehicles per day
- Vehicle speeds of 30 kilometres / hour or less
- Requires monitoring and evaluation as a part of ongoing evaluation and performance measurement

Accommodating Network Circulation & Road Safety
Traffic diverted from Vancouver Street absorbed by north-south routes including Cook, Quadra, Blanshard, Douglas, and Government Streets.

Additional design treatments are proposed to improve flow and level of service include the following:
- New left turn signal at Pandora and Cook (improves level of service)
- Traffic circle at Southgate and Cook (improves left hand turns and pedestrian crossing)
- New accommodations for left turn at Burdett and Quadra (improves circulation and compliance)
- New left turn signal at Fairfield and Cook (improves level of service)

Traffic Calming Changes - Summary
Project Overview – Harbour

Design approach and features:

- Two-way protected bike lanes on the east side of the street
- Maintains driveway access and large vehicle turning movements
- Retains all on-street parking
- Accommodates planned density and residential growth on west side and industrial activities on easy side
- Provides AAA connections between the Johnson Street Bridge and the Galloping Goose Trail
Harbour Road – Design Review

1. Repaint centreline on Galgapaq
   Group trial between Harbour Road and bike lane

2. Retain existing bike lanes on Harbour Road north of Galgapaq
   Group convention

3. Remove medians and redesign
   centreline of road to accommodate
   commercial vehicles

4. Remove painted bike lanes

5. Add two-way protected bike lane
   on east side of Harbour Road

6. Accommodate
   commercial vehicle turning
   requirements at driveways

7. Retain all existing on-street parking
   on west side of Harbour Road

8. Provide new mid-block crossing
   at 296 Harbour Road

9. Retain all existing on-street
   parking on west side of Harbour Road

10. Confirm driveway details with
    property owners

11. Add paint marking to
    transition from painted bike
    lanes to two-way protected
    bike lanes

12. Point centroid and centroids
    on Johnson Street Bridge
    multi-use path between Harbour
    Road and bridge deck
Design Summary – Hillside / Quadra

Project Overview – Hillside / Quadra

Design approach and features:

- A shared AAA route with volumes of 500 – 1000 vehicles per day and speeds of 30km/hr or less
- Retains all on-street parking and vegetation / boulevard trees
- Provides AAA connections to Tolmie Avenue and Bay Street
- Maintains the existing public pathway on City-owned Right of Way at Fifth Street and establishes partnership with School District for short term bicycle parking improvements
Hillside/Quadra Alignment Exploration

Routing Considerations

- Graham / Fifth alignment was previously identified through network development process – designated greenway in 2003
- Overall support for shared AAA approach and traffic calming in neighbourhood
- Desire for improved crossings for pedestrians and cyclists at busy roads
- Connections to other AAA routes in Saanich recognized as beneficial
- Recognition of routing constraints and challenges in Biketoria Network Study and availability of alternate north / south alignments

Quadra School Design Exploration

During consultation 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.

A number of potential routes around / adjacent to the school were considered. Design trade-offs and approaches were evaluated with multiple lenses:

- Safety
- Directness
- Right of way constraints
- Capital costs and maintenance
- Level of service impacts
- Impacts to vegetation and tree cover
- Required site improvements
- Pick and drop off functionality
- Compliance and enforcement
Quadra School Design Exploration

- A multi-use pathway remains a viable option at the Graham / Fifth location
- 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.
- The requirement to invest in safety treatments and playground amenities at the Graham / Fifth location would impose additional costs and time on the project

Graham / Jackson Routing

- 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 even with greater changes in topography
- Route is ideally placed for a new crossing on Finlayson Road and is already supported with neighbourhood traffic calming
- AAA investments through Topaz Park can be achieved through the implementation of the Topaz Park Improvement Plan
Hillside/Quadra – Tolmie to Topaz

- Connect to Limeri Avenue (dotted = new)
- Add 30 km/h posted speed limit signs in select locations along the corridor
- Improve the crosswalk at Cordova and Punjabi
- Add or move speed bumps in select locations along the corridor (10 km/h)
- Add or move painted markings in select locations along the corridor (10 km/h)

Hillside/Quadra – Vista to Bay

- Add paint markings for pedestrians at mid-block and corners
- Provide a signalled pedestrian crossing at Bay and Limeri and at the west leg of the crosswalk to the west of the intersection on the north side of Bay Drive (from intersection to sidewalk’s edge)
- Provide areas for trees and bus shelters
Financial Plan & Project Budgets

- Financial resources through the Federal Gas Tax, 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.
- Each project aligns with capital budgets identified in the approved 2019 financial plan.
- A value engineering lens continues through detailed design

### Proposed Project Budgets

<table>
<thead>
<tr>
<th>Project</th>
<th>Construction Cost Estimate</th>
<th>Construction Contingency (30%)</th>
<th>Engineering &amp; Professional Fees, Market adjustment factor, Project / Site Condition Contingencies</th>
<th>Total estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Street Project</td>
<td>$3,110,000</td>
<td>$930,000</td>
<td>$960,000</td>
<td>$5,080,000</td>
</tr>
<tr>
<td>Harbour Road Project</td>
<td>$420,000</td>
<td>$120,000</td>
<td>$160,000</td>
<td>$700,000</td>
</tr>
<tr>
<td>Hillside / Quadra Project</td>
<td>$520,000</td>
<td>$150,000</td>
<td>$239,700</td>
<td>$900,000</td>
</tr>
</tbody>
</table>
Summary

- Council has directed the completion of the AAA network by the end of 2022 as a strategic priority.
- Investments to date have resulted in increased bicycle traffic and more diversity of people riding bicycles in the downtown core.
- The next phase of network expansion to connect to regional trails, other municipal AAA routes, and neighbourhoods will support more people riding more often.
- A comprehensive and inclusive engagement process helped the City to develop designs that maximize benefits and provide best overall balance for all road users.
- Trade-offs for each project design have been carefully assessed with a goal to improve road safety while maintaining a scope of work that aligns with approved budgets.

Recommendations

Vancouver Corridor
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)

Harbour Road
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)

Hillside-Quadra
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)
## Design Overview – Vancouver

<table>
<thead>
<tr>
<th>Segment</th>
<th>Current Condition</th>
<th>AAA Design</th>
<th>Pedestrian and Public Realm Features</th>
<th>Traffic Calming</th>
<th>Parking Change</th>
</tr>
</thead>
</table>
| A       | No cycling facilities | Shared AAA route | - 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 | - 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 | - 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 | - New pedestrian crossing  
- Accessibility upgrades such as new wheelchair let downs and tactile domes | none | none |

### Harbour Road – Design Review

<table>
<thead>
<tr>
<th>Segment</th>
<th>Current Condition</th>
<th>AAA Design Approach</th>
<th>Pedestrian and Public Realm Amenities</th>
<th>Traffic Calming Intervention</th>
<th>Parking Change</th>
</tr>
</thead>
</table>
| 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  
Accessibility upgrades such as curb cuts, tactile domes, pedestrian rest areas. | none | none |
## Hillside/Quadra – Design Review

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<th>Segment</th>
<th>Current Condition</th>
<th>AAA Design Approach</th>
<th>Pedestrian and Public Realm Amenities</th>
<th>Traffic Calming Intervention</th>
<th>Parking Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Signed bike route</td>
<td>Shared AAA cycling facility</td>
<td>Road crossing improvements at Finlayson and Hillside Pedestrian crossing improvements at Summit Avenue</td>
<td>Dependent on further consultation outcomes</td>
<td>none</td>
</tr>
</tbody>
</table>

- The Graham / Fifth corridor will 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.