

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



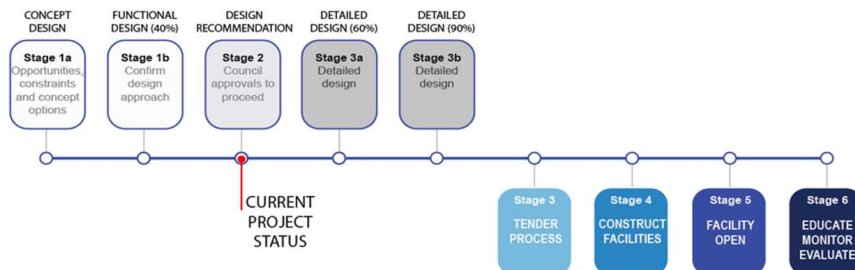
The purpose of this report is to present the **Vancouver Street, Harbour Road** and the **Hillside-Quadra** project designs and seek approvals to proceed to detailed design, tendering and construction.

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

Existing Conditions



Proposed Conditions Desired conditions - 500-1000 vehicle / day | - 30 km/hr



Protected Concept

Existing Conditions



Proposed Conditions



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.

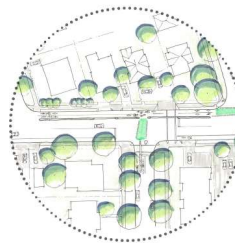


Vancouver – Bay to Queens



DESIGN DETAIL A

Divert southbound traffic at Bay and Vancouver and restrict northbound left turns from Vancouver onto Bay Street to reduce traffic volumes south of Bay Street and accommodate a safe crossing for pedestrians and cyclists.



Rendering of proposed changes at Bay and Vancouver

DESIGN DETAIL B

Add sharrow paint markings in select locations to remind drivers to share the route with cyclists



Vancouver – Queens to Pembroke



DESIGN DETAIL C

Add 30 km/hr posted speed limit sign in select locations

DESIGN DETAIL D

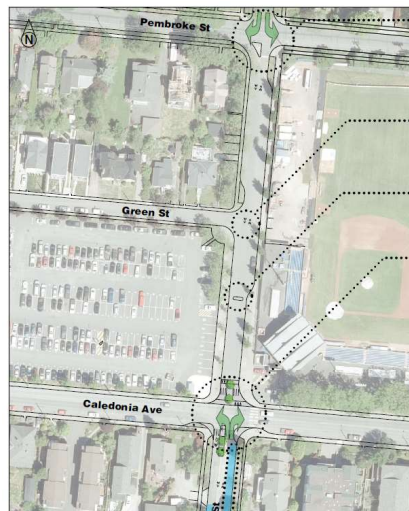
Add sharrow paint markings on Princess Avenue between Vancouver Street and Cook Street to support connection to George Jay Elementary School. Upgrade pedestrian crossing at Princess Avenue and Cook Street as part of 2020 crosswalk program.

DESIGN DETAIL E

Relocate stop signs to stop east - west movements



Vancouver – Pembroke to Caledonia



DESIGN DETAIL A

Relocate stop signs to stop east - west movements and retain existing southbound traffic diversion

DESIGN DETAIL B

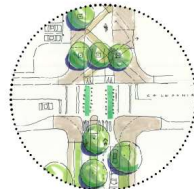
Add sharrow paint markings in select locations to remind drivers to share the route with cyclists

DESIGN DETAIL C

Add movable barrier to restrict southbound vehicle movements and retain event loading zone parking

DESIGN DETAIL D

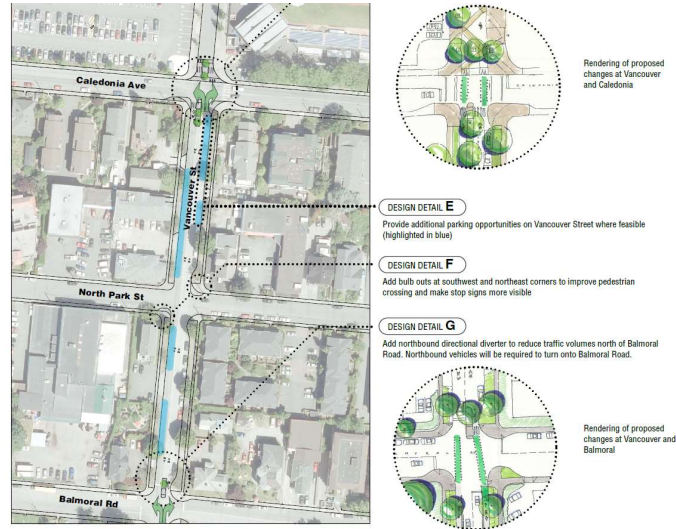
Divert northbound traffic at Caledonia Avenue with a full closure. Add a southbound directional diverter to reduce traffic volumes south of Caledonia Avenue. Northbound vehicles will be required to turn onto Caledonia Avenue.



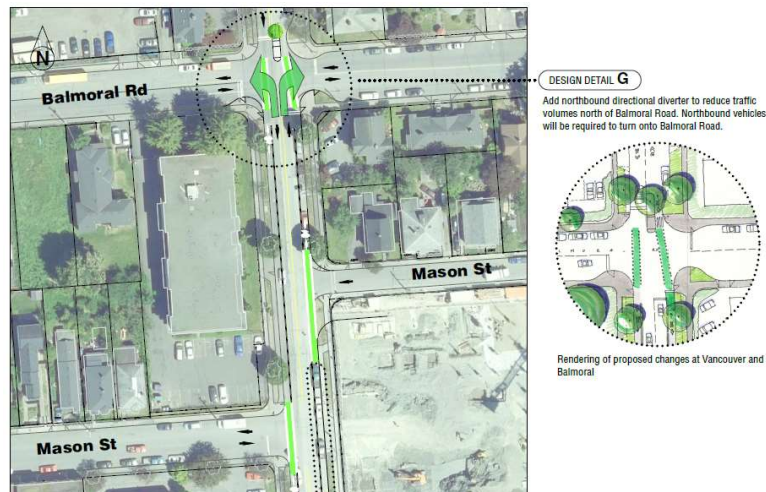
Rendering of proposed changes at Vancouver and Caledonia



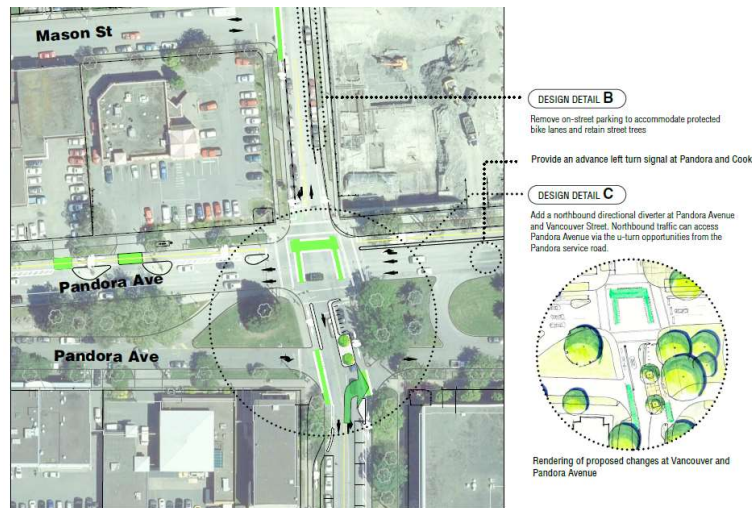
Vancouver – Caledonia to Balmoral



Vancouver – Balmoral to Mason



Vancouver – Mason to Pandora



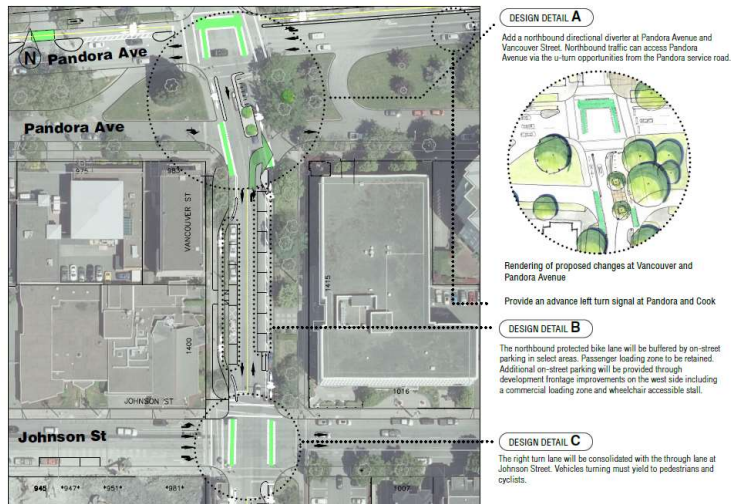
Vancouver – Pandora Intersection



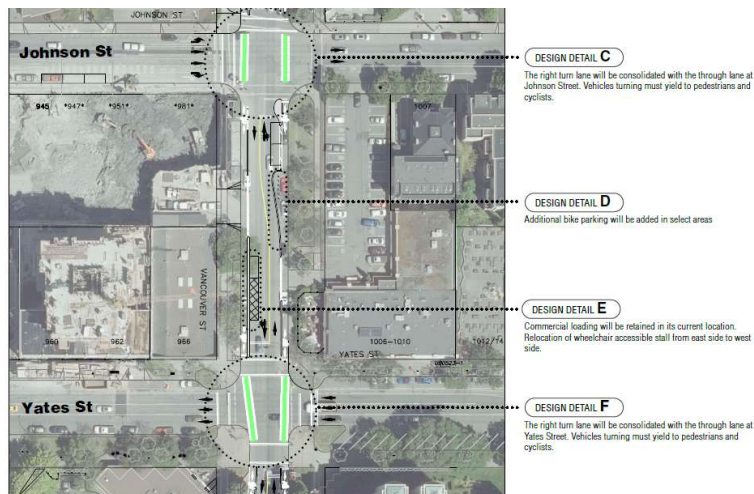
- Complex intersection as a secondary arterial street, designated truck and frequent transit route
 - constrained public right of way, current development, and planned density for the area
- Introduction of AAA infrastructure at this location
 - Introduced dedicated signal for safe cycling through intersection, 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 achieves 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



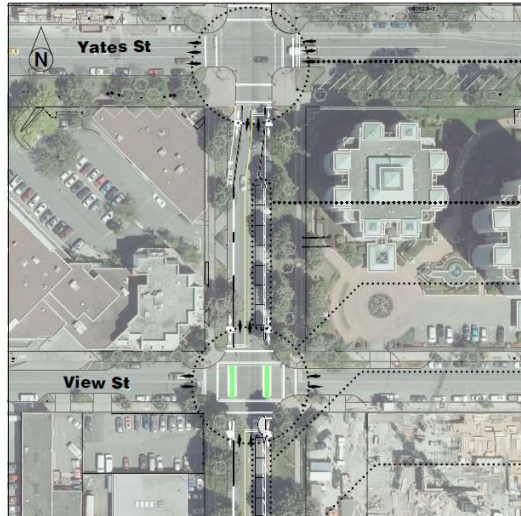
Vancouver – Pandora to Johnson



Vancouver – Johnson to Yates



Vancouver – Yates to View



DESIGN DETAIL A

The right turn lane will be consolidated with the through lane at Yates Street. Vehicles turning must yield to pedestrians and cyclists.

DESIGN DETAIL B

The northbound protected bike lane will be buffered by on-street parking in select areas.

DESIGN DETAIL C

Vehicles turning must yield to cyclists and pedestrians.

DESIGN DETAIL D

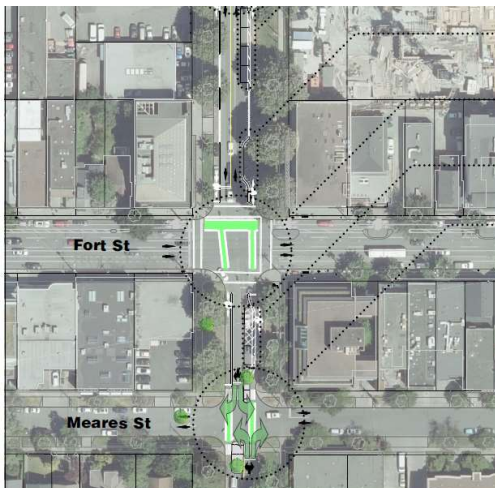
The northbound protected bike lane will be buffered by on-street parking in select areas.

DESIGN DETAIL E

Additional bike parking will be added in select areas.



Vancouver – View to Meares



DESIGN DETAIL E

Additional bike parking will be added in select areas.

DESIGN DETAIL F

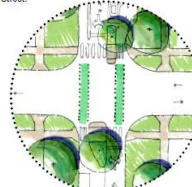
Vehicles turning left from Vancouver Street must yield to cyclists and pedestrians.

DESIGN DETAIL G

Commercial loading to be retained in existing location.

DESIGN DETAIL H

Add northbound and southbound directional diverters to reduce traffic volumes south of Meares Street and retain on-street parking. Vehicles will be required to turn at Meares Street.



Rendering of proposed changes at Vancouver and Meares

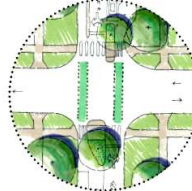


Vancouver – Meares to Burdett



DESIGN DETAIL A

Add northbound and southbound directional diverters to reduce traffic volumes south of Meares Street and retain on-street parking. Vehicles will be required to turn at Meares Street.



Rendering of proposed changes at Vancouver and Meares

DESIGN DETAIL B

Add 30 km/hr posted speed limit signs where required

DESIGN DETAIL C

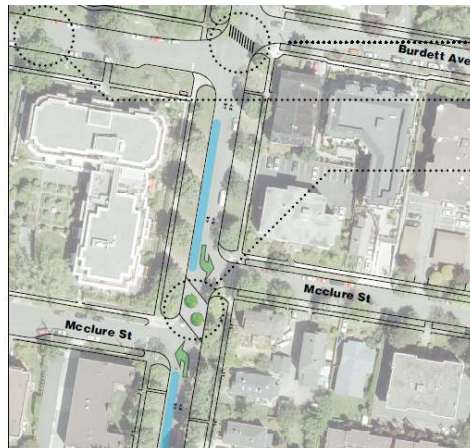
Add sharrow paint markings in select locations to remind drivers to share the route with cyclists

DESIGN DETAIL D

Provide additional day time parking opportunities by introducing time limited parking on west side of Vancouver Street (highlighted in blue) and retain existing school loading zone.



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 Quadra onto Burdett

DESIGN DETAIL G

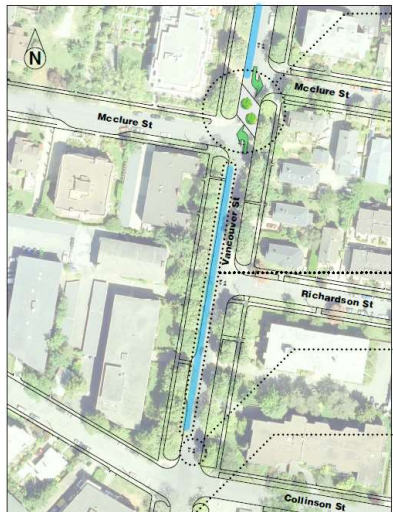
Divert through traffic at McClure Street - emergency vehicles, cyclists and pedestrians permitted access.



Rendering of proposed changes at Vancouver and McClure



Vancouver – McClure to Collinson



DESIGN DETAIL A

Divert through traffic at McClure Street - emergency vehicles, cyclists and pedestrians permitted access.



Rendering of proposed changes at Vancouver and McClure

DESIGN DETAIL B

Provide additional day time parking opportunities by introducing time limited parking on west side of Vancouver Street (highlighted in blue)

DESIGN DETAIL C

Add narrow paint markings in select locations to remind drivers to share the route with cyclists

DESIGN DETAIL D

Provide additional day time parking opportunities by introducing time limited parking on west side of Vancouver Street (highlighted in blue)

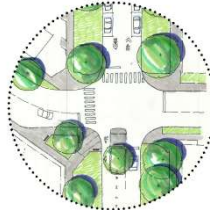


Vancouver – Fairfield to Humboldt



DESIGN DETAIL A

Southbound vehicle access will be restricted with a directional closure and closure of the southbound right turn slip lane to reduce traffic volumes and vehicle speeds south of Fairfield Road.



Rendering of proposed changes at Vancouver and Fairfield.

Future development frontage improvements to contribute to ultimate design including additional sidewalk, curb, gutter, and landscape / public realm amenities. Interim design treatments to include functional directional closures and select landscaping.

DESIGN DETAIL B

Improve functionality of the left turn at Fairfield Road and Cook Street through traffic signal modifications

DESIGN DETAIL C

Provide additional on-street parking where feasible on the east side of Vancouver Street (opportunities highlighted in blue)



Vancouver – Pendergast to Oliphant



DESIGN DETAIL A

Add sharrow paint markings in select locations to remind drivers to share the route with cyclists

DESIGN DETAIL B

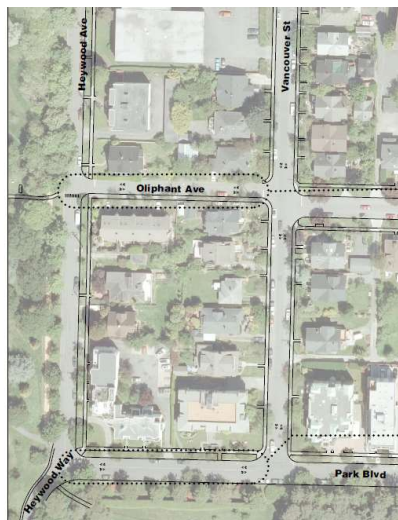
Add 30 km/hr posted speed limit signs where required

DESIGN DETAIL C

Provide additional on-street parking where feasible Vancouver Street (opportunities highlighted in blue)



Vancouver – Oliphant to Park



DESIGN DETAIL D

Add marked crosswalk and sharrow paint markings on Oliphant Avenue to connect to the Beacon Hill AAA multi-use path

DESIGN DETAIL E

Add sharrow paint markings, 30 km/hr speed limit signage and remove centre line on Park Boulevard



Beacon Hill Park – Park to Camas



DESIGN DETAIL A

Add 30 km/hr posted speed limit signs where required

DESIGN DETAIL B

Add sharrow paint markings in select locations between Vancouver Street and Bridge Way to remind drivers to share the route with cyclists.
Remove centre line on Park Boulevard.

DESIGN DETAIL C

Connect to existing multi-use path along Heywood Way and Camas Circle.
Assess signage and paint marking for improvements where required.

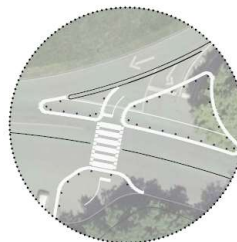


Beacon Hill Park – Camas to Dallas



DESIGN DETAIL D

Provide a safe crossing for pedestrians and cyclists at Dallas Road and Camas Circle and connect to AAA cycling facility adjacent to Dallas Road



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.

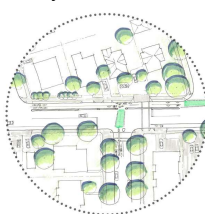
Additional design treatments are proposed to improve flow and level of service include the following:

- 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)

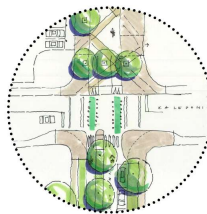


Traffic Calming Changes - Summary

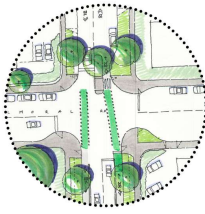
Bay & Vancouver



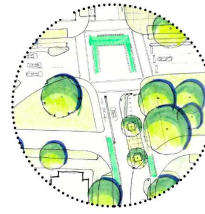
Caledonia & Vancouver



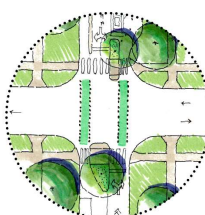
Balmoral & Vancouver



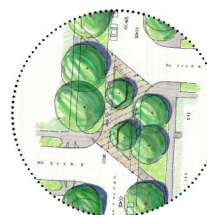
Pandora & Vancouver



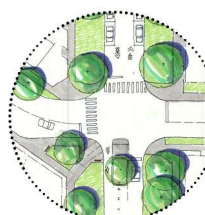
Meares & Vancouver



McClure & Vancouver



Fairfield & Vancouver



Southgate & Vancouver



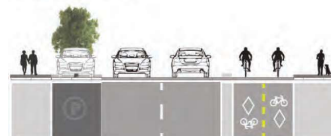
Design Summary – Harbour Road



Existing Conditions



Design Concept

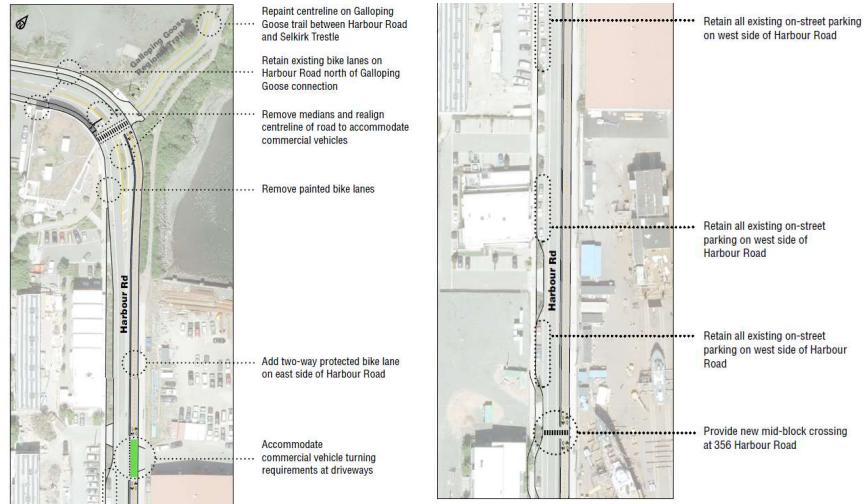


Project Overview – Harbour

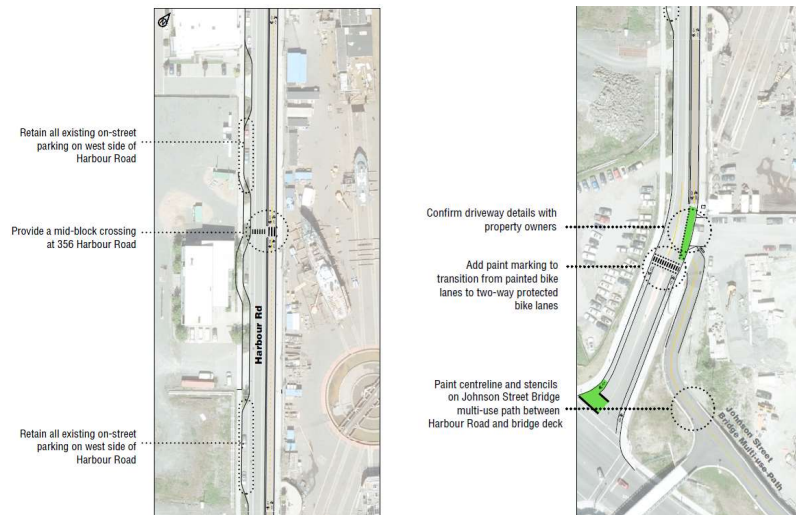
Design approach and features:

- 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 east side
- Provides AAA connections between the Johnson Street Bridge and the Galloping Goose Trail

Harbour Road – Design Review



Harbour Road – Design Review



Design Summary – Hillside / Quadra



Existing Conditions



Design Concept



Project Overview – Hillside / Quadra

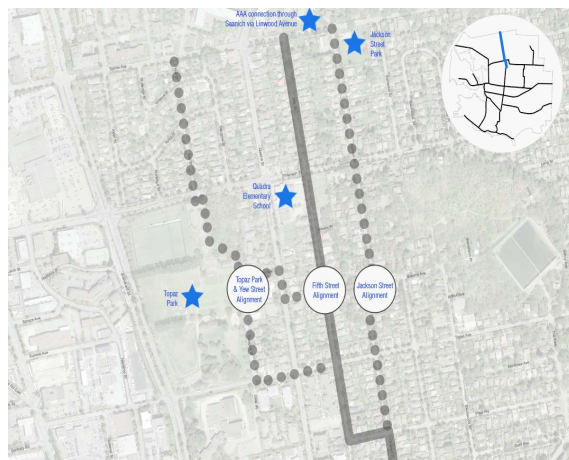
Design approach and features:

- 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



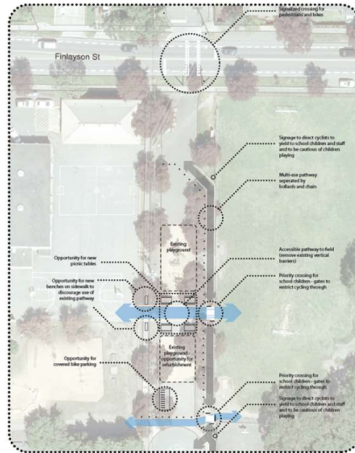
During consultation school stakeholders raised concerns about the reduced availability of outdoor play space, resulting from recent growth in the student population and new portable buildings that were constructed in 2017.

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

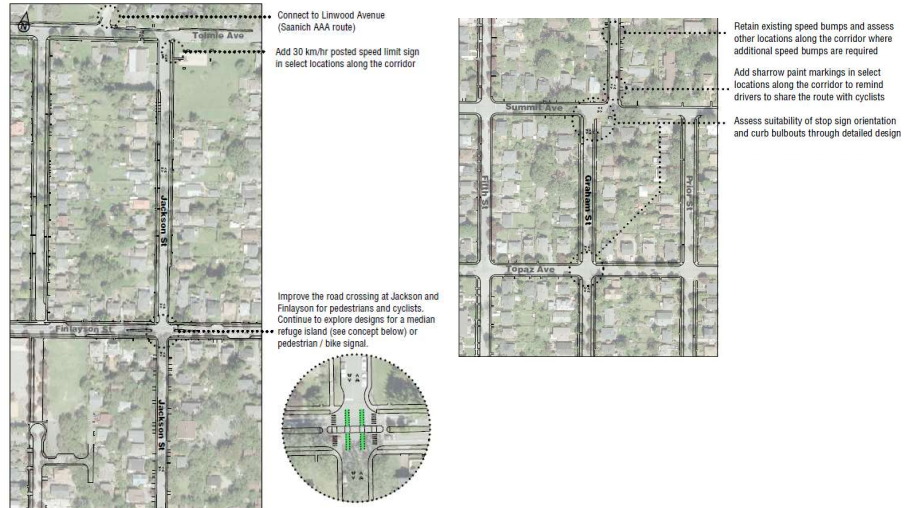


Graham / Jackson Routing

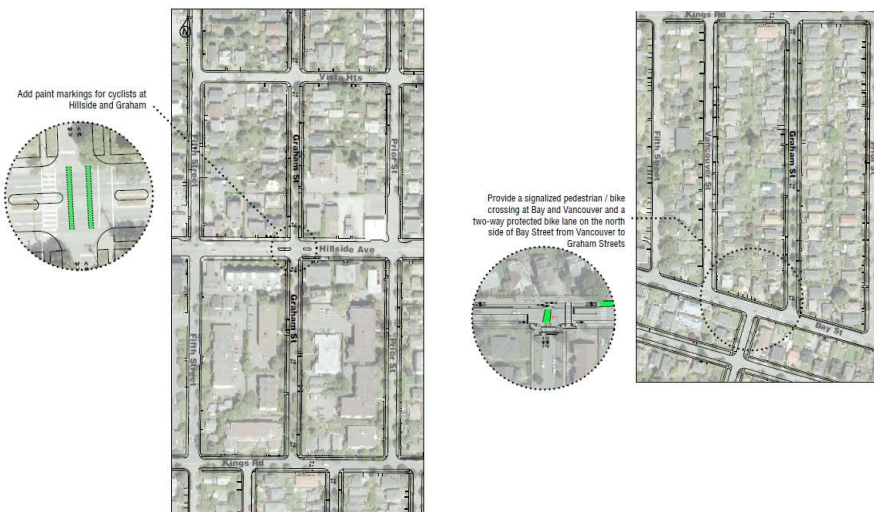
- Alignment provides direct connectivity to planned AAA routes in Saanich, and can be achieved with high safety standards, reduced costs, and reduced impacts to green space, parking and other road-user requirements.
- Public consultation demonstrate strong support for this alignment even with greater 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



Hillside/Quadra – Vista to Bay



KV1

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



KV1

Proposed Project Budgets

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



Slide 43

KV1 Keith Valley, 2019-08-07

Slide 44

KV1 Keith Valley, 2019-08-07

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

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



Harbour Road – Design Review

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	<ul style="list-style-type: none"> 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

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

- 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.