LOCAL STREET BIKEWAYS

What are Local Street Bikeways?

Local Street Bikeways (LSBs) are streets with low motorized traffic volumes and speeds, modified to optimize bicycle travel. LSBs are intended to:

→ create **convenient routes for bicycling**, and

→ create a street where bicyclists of all abilities can **comfortably share the street with motor vehicles** without the addition of separated bicycle lanes.



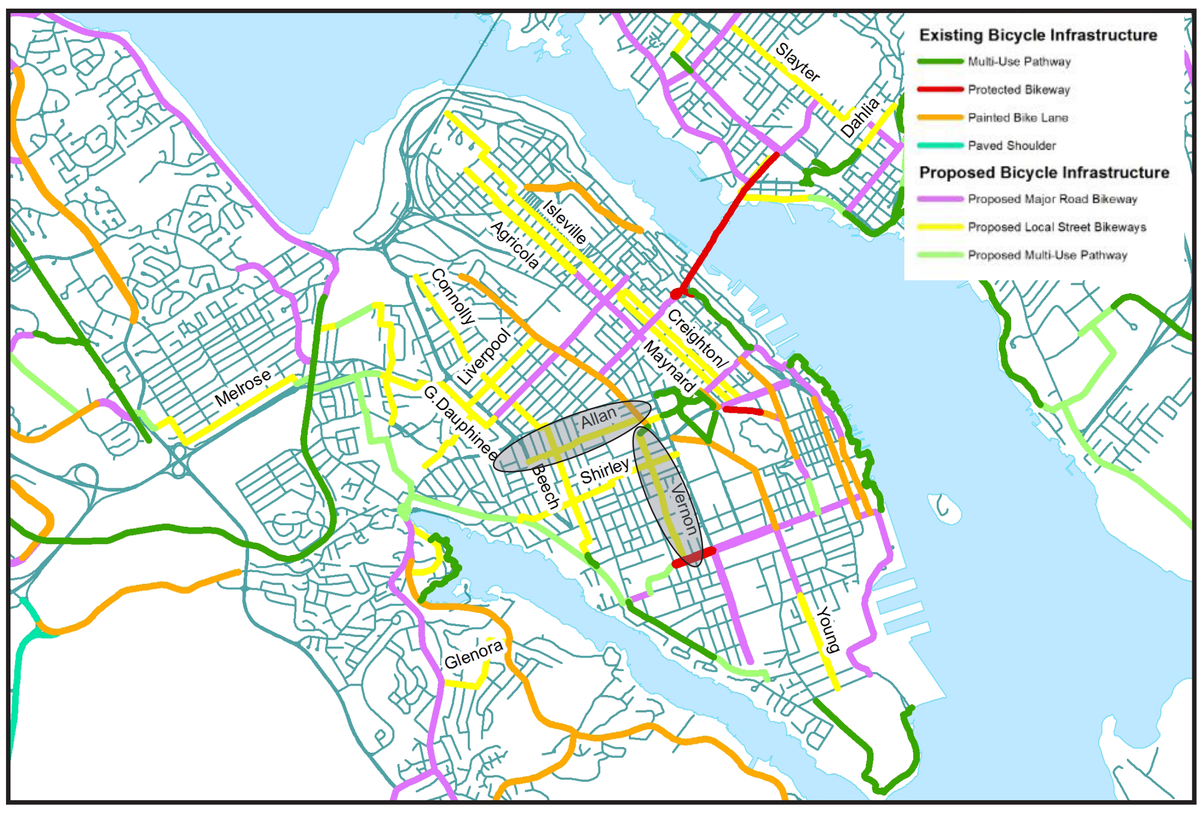


Why these streets, and why now?

Vernon - Seymour Streets and Allan - Oak Streets are corridors that provide key connections within the overall bicycle network. Each of these corridors help to establish continuity to existing on- and off-road bicycle infrastructure and, when considered together, begin to fill in the active transportation (AT) network gaps in north-south and east-west directions. These two corridors are included as "Candidate Local Street Bikeway Routes" in the AT Priorities Plan. Both corridors are also scheduled for resurfacing in 2018 and HRM Staff see this as a prime opportunity to integrate LSB features with each street's resurfacing project.

The Bigger Picture

The 2014-2019 Active Transportation Priorities Plan recommends that **15km of Local Street Bikeways** be constructed in the Regional Centre by 2019. This is further supported by the Integrated Mobility Plan (draft 2017) which calls for the implementation of an All Ages and Abilities cycling network. LSBs complete the cycling network by connecting local residential streets to other on-road facilities. Implementation of Local Street Bikeways help to make it safer and easier for residents to choose bicycling as a regular mode of transportation.



What is being considered for Vernon/Seymour & Allan/Oak?

These two roadways (Vernon-Seymour & Allan-Oak) are being investigated for their potential to incorporate LSBs. A **design memo** is being completed that will identify a variety of options to help staff better understand the opportunities and constraints of the project before it is presented to Council.

The **design memo** will include conceptual options for each roadway as well as a summary of what we heard from public engagement events. Feedback will be used to inform a preferred design option that will be advanced to the detailed design phase as part of the final report.

How can you participate?

Your input is an important part of the design process. We invite you to review the options being considered and provide your feedback. Tell us about your experiences in the area, and how the design concepts might impact you. Let us know if you have any ideas or concerns. Your feedback will be very important during the next stages of the project.

www.shapeyourcityhalifax.ca

Next Steps

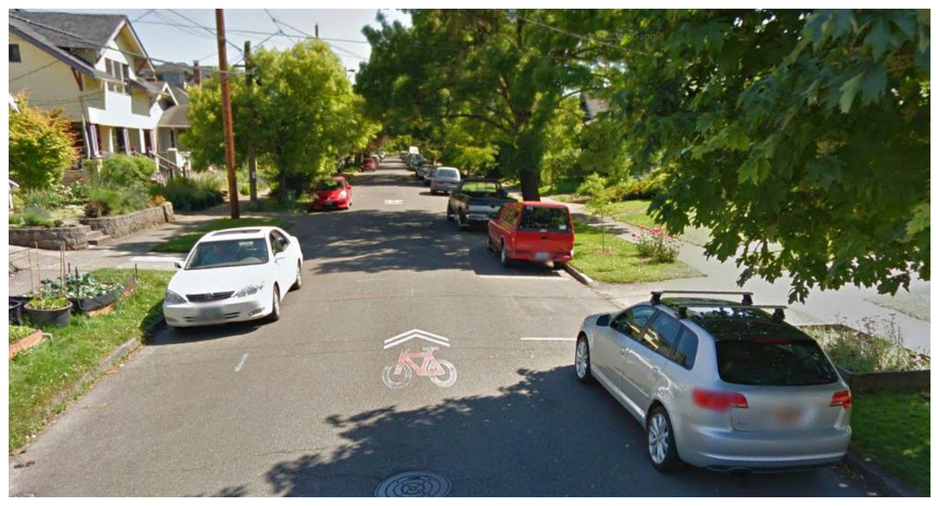
1. Finalize design memo and advance preferred to detailed design (Nov. 2017)
2. Bring forward to Council for approval (Early 2018)
3. Implement Local Street Bikeways (Summer 2018)* (*pending Council approval)

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LOCAL STREET BIKEWAYS

HRM's Administrative Order for Local Street Bikeways



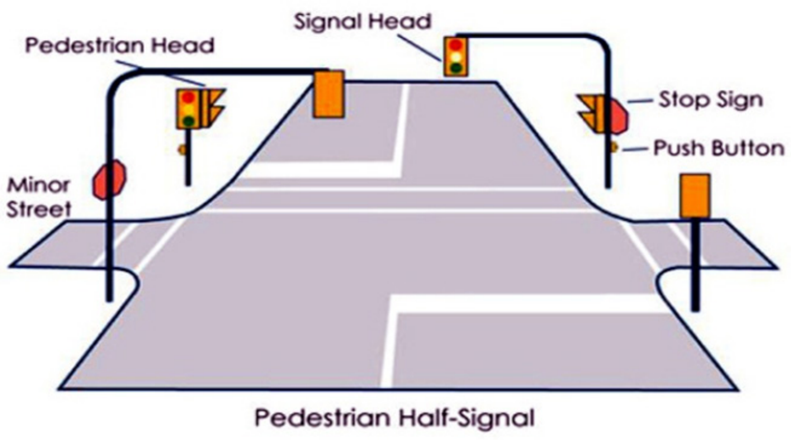
A key objective of a LSB is to prioritize bicycle traffic and to create a route that is continuous and comfortable for cyclists, of all ages or abilities. Intersections can be challenging and uncomfortable for cyclists as they are often forced to be integrated with moving traffic. To provide the level of comfort that is needed for a LSB, traffic calming and diversion measures are put in place as well as special intersection treatments to facilitate safe crossings by cyclists.

HRM Council has adopted an **Administrative Order (2016-002OP)** which provides guidance on when and where traffic calming and/or diverting measures are needed:

Vehicle Volume Thresholds:
- *< 1,000 vpd – **shall not** require consideration of diversion of traffic*
- *1,000 to 3,000 vpd – **may** require consideration of diversion of traffic*
- *> 3,000 vpd – **shall** require consideration of diversion of traffic*

Vehicle Speed Thresholds:
- *< 30 km/hr – **shall not** require consideration of traffic calming*
- *30 to 45 km/hr – **may** require consideration of traffic calming*
- *> 45 km/hr – **shall** require consideration of traffic calming*

To successfully calm and/or divert traffic on a LSB and make it safer to cross busier streets, alterations to high-volume intersections are often implemented. Common examples of traffic calming and traffic diversion include:



Pedestrian Half-Signal

Pedestrian and Cyclist Half Signal Crossing

Half signal crossings control the flow of traffic with the use of a pedestrian push-button or cyclist sensor activation. Pedestrian movement is signaled with a "Walk" and "Don't Walk" display.

How do they work?
To accommodate pedestrian flow on a minor street, pedestrians must push a button and wait for traffic to stop (via red light signal) prior to crossing. Cyclists waiting to cross a high-volume street will trigger a sensor (located on the minor street) which will activate a signal change for traffic to stop and enable the cyclists to go through the intersection.

Why are they useful?
Pedestrian and cyclist half signals provide stop-control for traffic flow and provides safer crossings for pedestrians and cyclists.





Raised Intersection Median

Raised intersection medians are protected spaces placed in the center of an intersection to provide safer bicycle and pedestrian crossings. Crossings on two-way streets are facilitated by allowing bicyclists and pedestrians to navigate crossings one direction of traffic at a time.

How does it work?
Pedestrians cross the intersection as they normally would on a marked crosswalk, but are provided with a mid-intersection refuge should they choose to use it. Cylcists would proceed through the intersection by navigating through the raised medians put in place. Raised medians would be positioned in the intersection to provide refuge islands, which would allow the cyclist to only need to cross one direction of traffic at a time. Cyclists also have the option to dismount and cross as a pedestrian halfway through the crossing.

Why are they useful?
The raised intersection medians simplify crossings by reducing the length and time exposed to vehicle traffic by providing cyclists and pedestrians with a protected space in the middle of the intersection. The raised medians have the ability to calm the LSB by restricting through-movement of traffic and requiring cars to divert the travel on other roadways.



Diagonal Traffic Diverter

Diagonal diverters are frequently used in the intersections of two local streets. Since local streets are not designed to accommodate through traffic, a diverter can be used prevent non-local traffic from "short cutting" through side streets. Typically, a diagonal diverter will have a wide-paved center which blocks through-traffic with a flexible or removable bollard or curbing.

How do they work?
Diagonal diverters placed at a four-way intersection requires all motor vehicle traffic to turn, while allowing cyclist and pedestrians through movements.

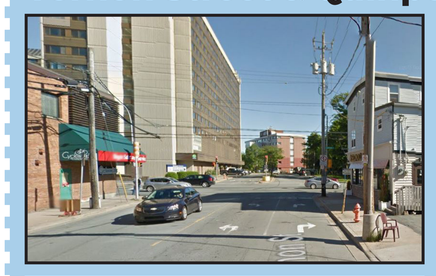
Why are they useful?
Diagonal diverters are useful in reducing traffic volumes by restricting through movements at local street intersections. In addition to calming local street traffic, these diagonal diverters can also contribute to the neighbourhood through beautifying opportunities for improved street and landscaping.

HALIFAX

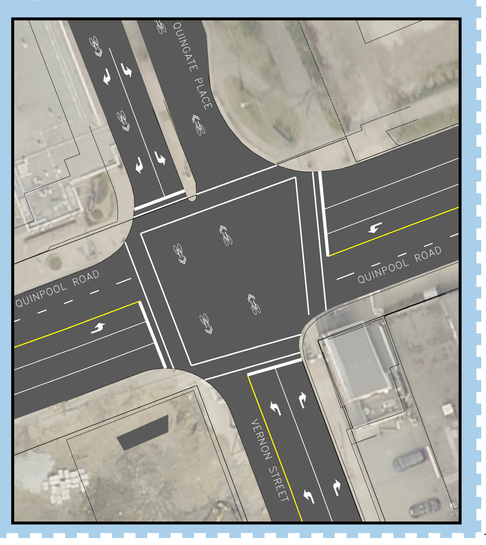
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EXISTING: VERNON STREET & SEYMOUR STREET

Vernon Street & Quinpool Road

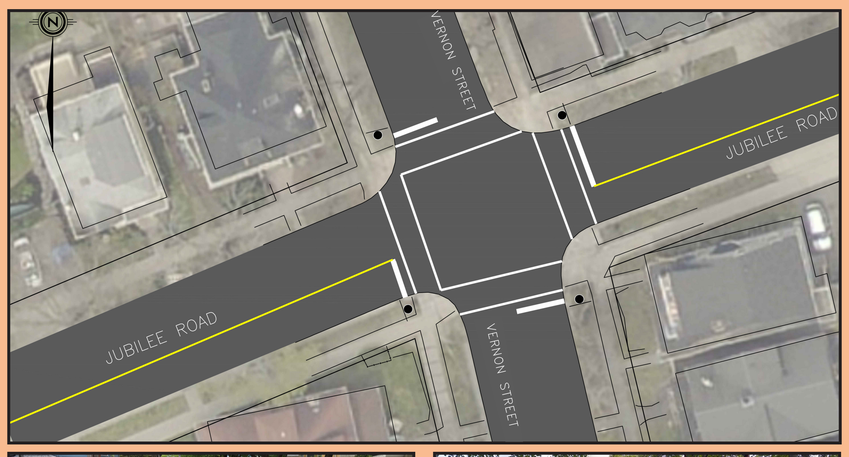








Vernon Street & Jubilee Road

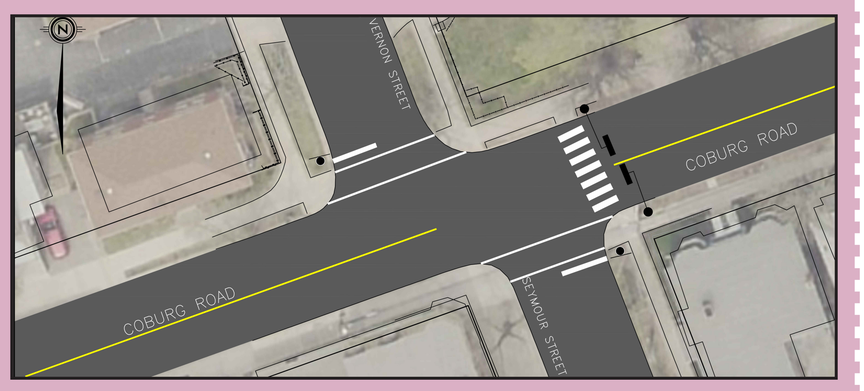








Vernon Street/ Seymour Street & Coburg Road







vpd = vehicles per day

Average number of cyclists crossing Quinpool Road at Vernon Street:

Fall 2010 to 2016	Spring 2011 to 2016
85 cyclists (7-9AM)	64 cyclists (7-9AM)
142 cyclists (4-6PM)	93 cyclists (4-6PM)

Motor Vehicle Speeds (85th percentile) from Quinpool Road to Vernon Street: 41 km/hr

Quinpool Road
Vernon Street
Pepperell Street
Shirley Street
Robie Street
Cedar Street
Jubilee Road
Chestnut Street
Walnut Street
Henry Street
Edward Street
Watt Street
Coburg Road
Seymour Street
Lemarchant Street
University Avenue

1,895 vpd
1,985 vpd
1,345 vpd
2,165 vpd
1,370 vpd
1,220 vpd
705 vpd
675 vpd

HALIFAX

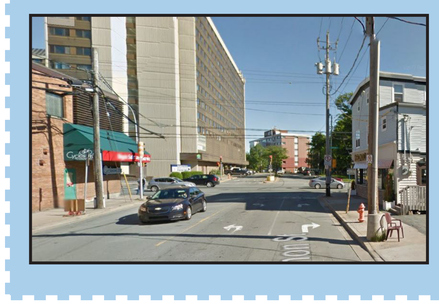
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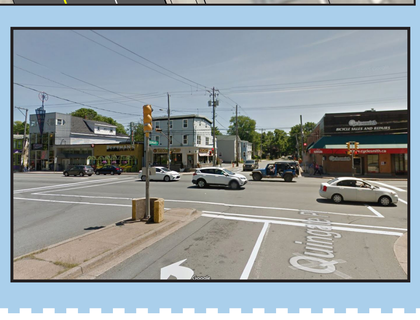
DESIGN OPTIONS: VERNON STREET & SEYMOUR STREET

To Windsor Street Bike Lane

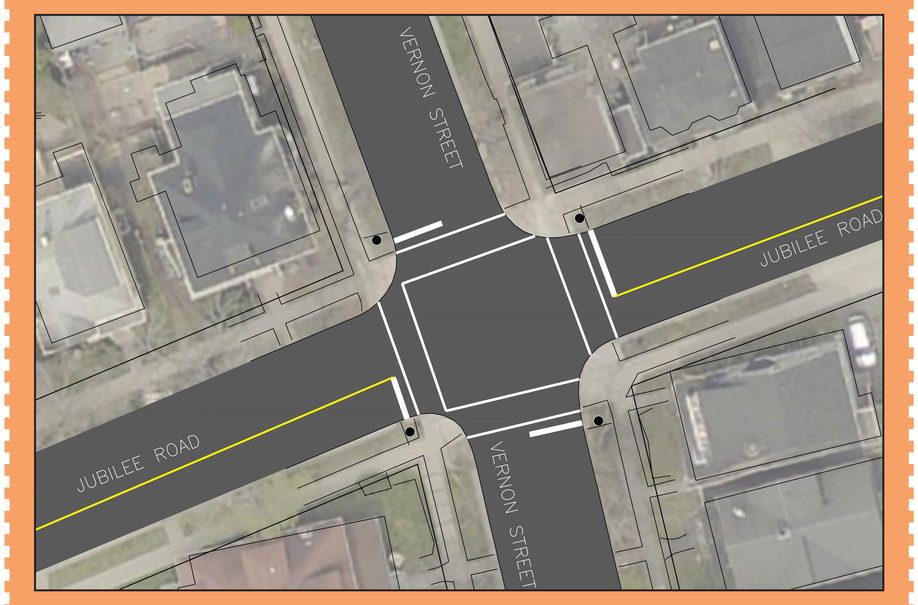
EXISTING: QUINPOOL ROAD & VERNON STREET



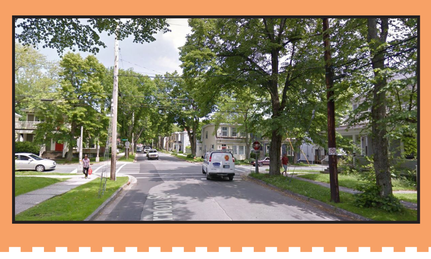




EXISTING: VERNON STREET & JUBILEE ROAD

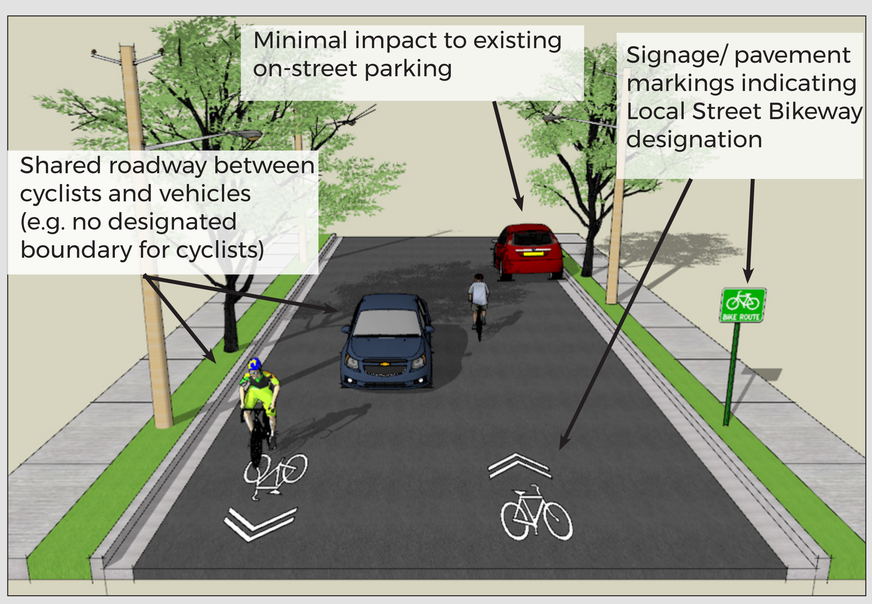


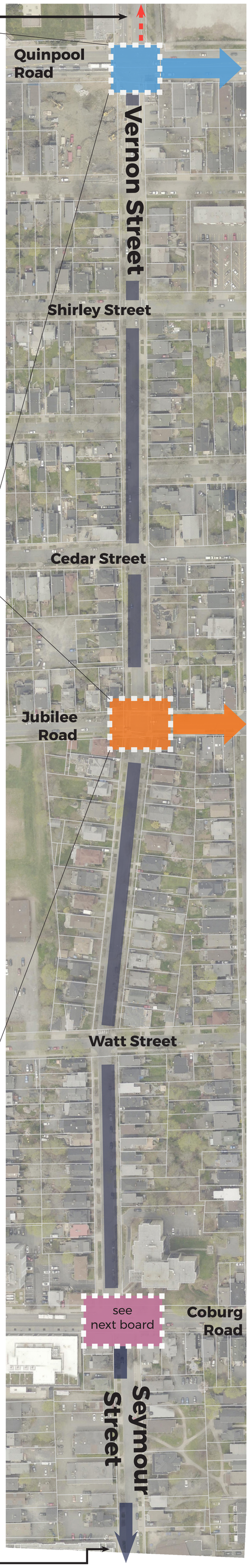




LOCAL STREET BIKEWAY PROPOSED CROSS SECTION

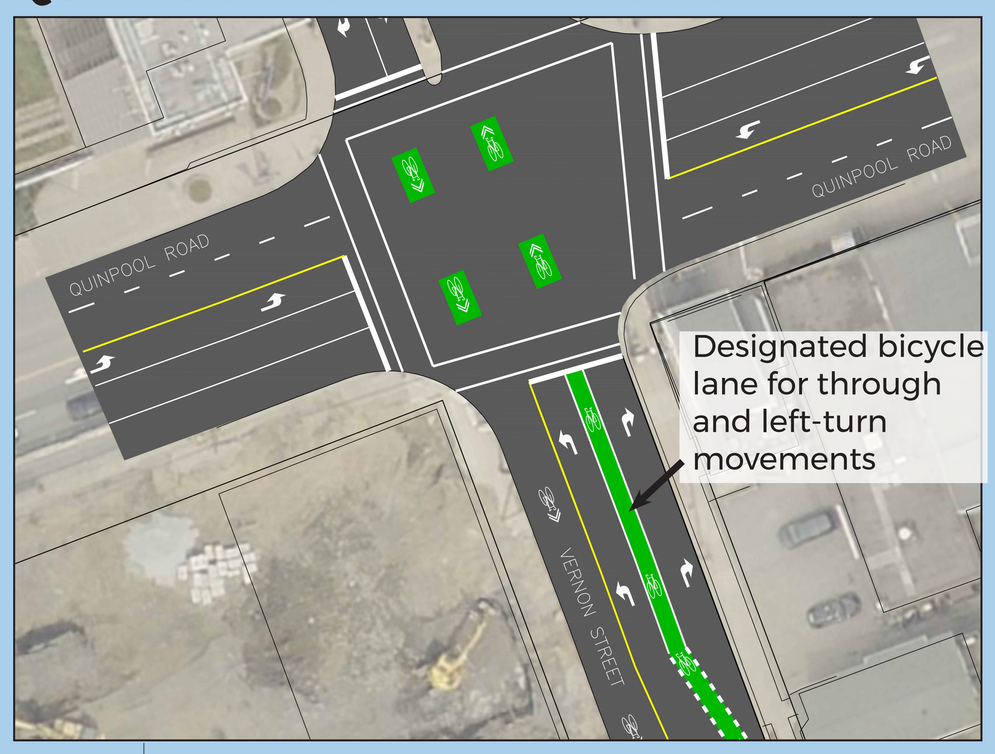
(applys for enitre length of Vernon Street - Seymour Street roadway)





To University Avenue protected Bike Lane

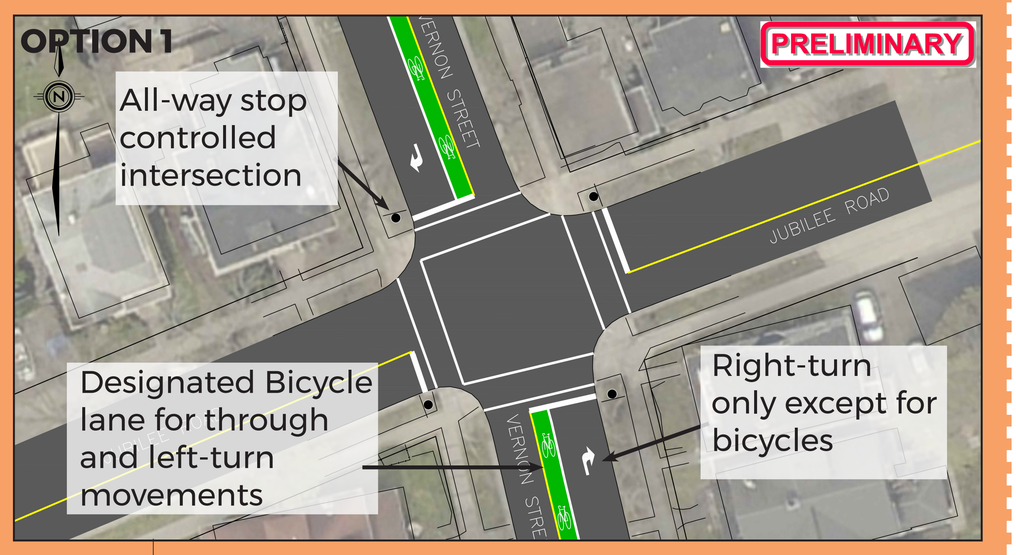
QUINPOOL ROAD & VERNON STREET



	Improves visibilty of cyclists and provides a designated lane when proceeding through intersection.
	No impacts to the flow of pedestrians.
	No impacts to the flow of vehicles.

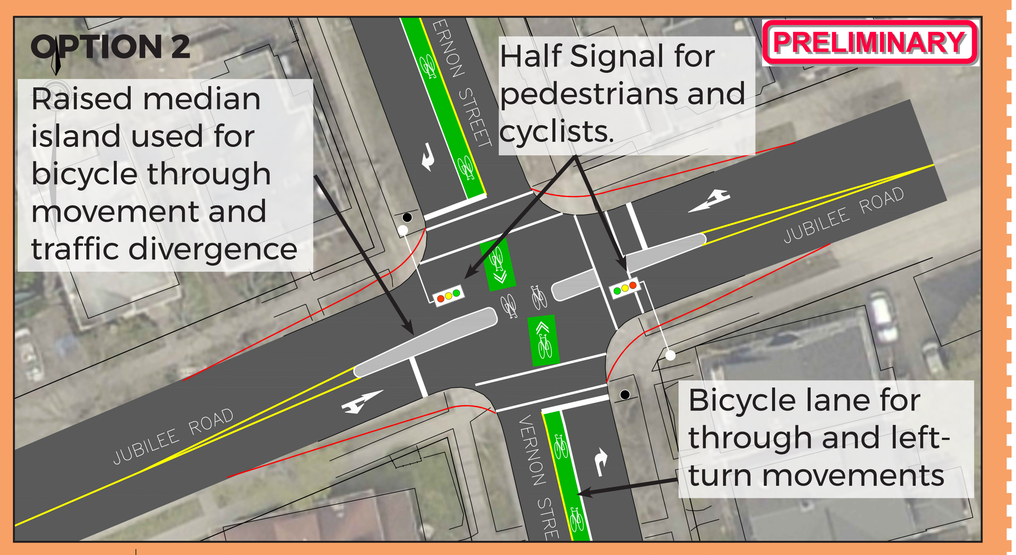
VERNON STREET & JUBILEE ROAD

OPTION 1



	Improves the visibilty of cyclists and provides a designated lane for proceeding through the intersection. Fewer turning conflicts with vehicles.
	No impacts to the flow of pedestrians.
	Turning restrictions from Vernon Street to Jubilee Road. Right-turns only, no through movements.

OPTION 2



	Designated lane with signal activation to cross Jubilee Road. Cyclists can cross when there is an adequate gap.
	Pedestrians have a signalized crossing activated by push-button. Pedestrian crossing to the west was removed.
	Improved flow on Jubilee with the removal of the stop sign. No left turns from Jubilee Road to Vernon Street. Only right-turns from Vernon Street to Jubilee Road.

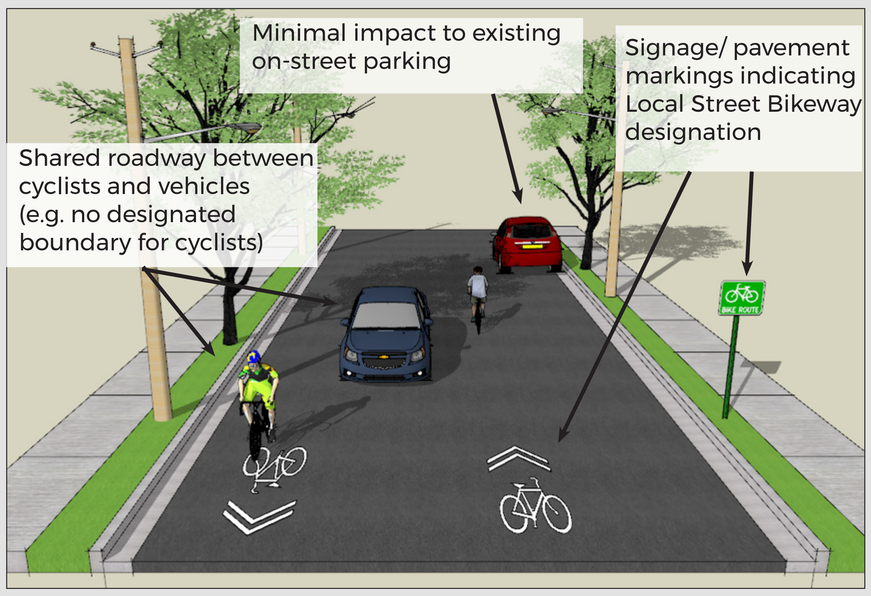
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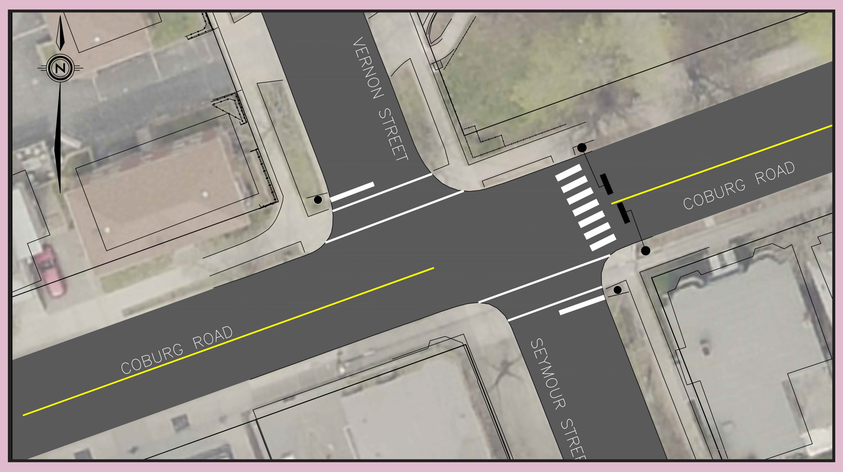
DESIGN OPTIONS: VERNON STREET & SEYMOUR STREET

LOCAL STREET BIKEWAY PROPOSED CROSS SECTION

(applys for enitre length of Vernon Street - Seymour Street roadway)



EXISTING: VERNON STREET/ SEYMOUR STREET & COBURG ROAD

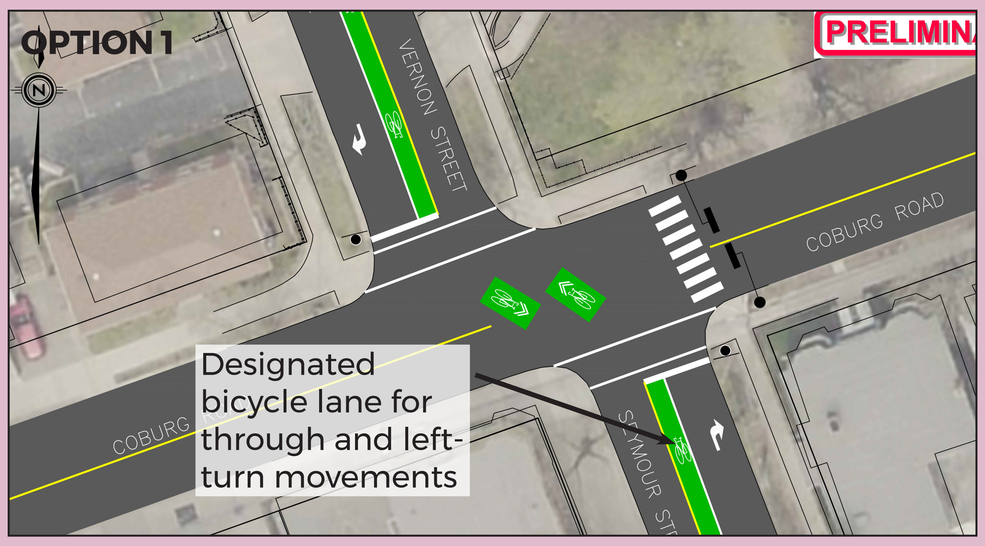








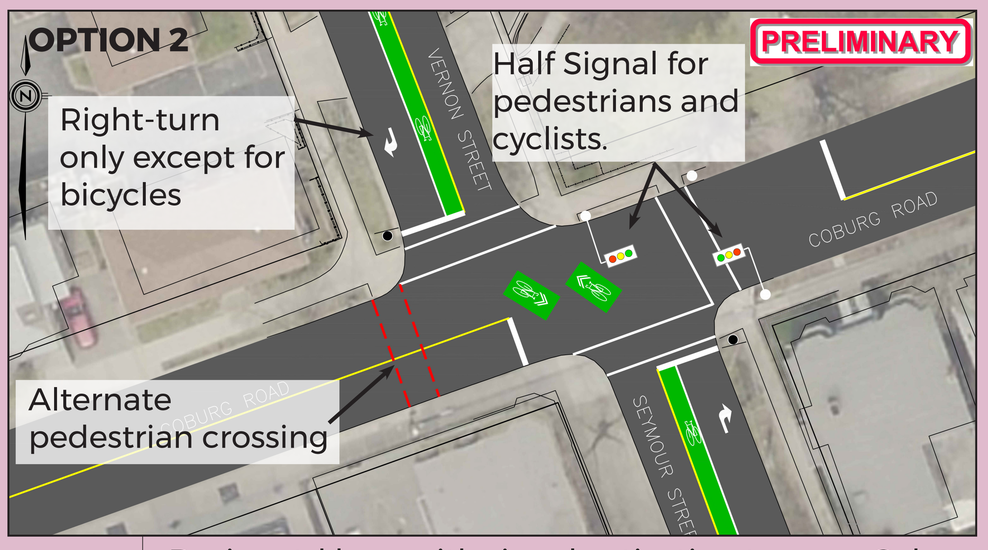
VERNON STREET/SEYMOUR STREET & COBURG ROAD



Improves the visibilty of cyclists and provides a designated lane for proceeding through the intersection. Fewer turning conflicts with vehicles.

No impact to pedestrian flow.

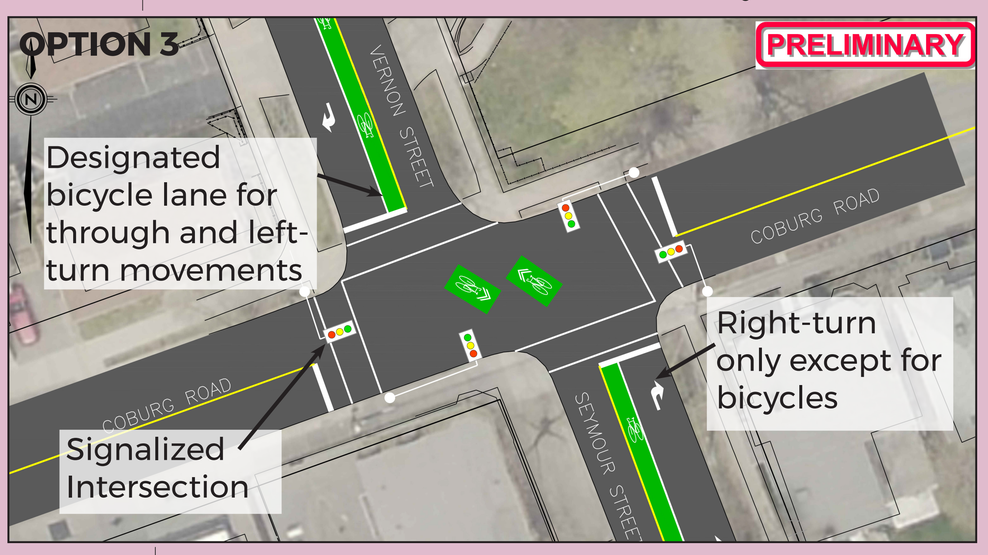
Turning restrictions from Vernon Street/Seymour Street to Coburg Road. No left turns or through movements allowed from Vernon Street or Seymour Street.



Designatd lane with signal activation to cross Coburg Road. Cyclists can cross when there is an adequate gap. Fewer turning conflicts.

Pedestrians have a signalized crossing activated by push-button. Potential location for a pedestrian crossing to the west.

Turning restrictions from Vernon Street/Seymour Street to Coburg Road. No left turns or through movements from Vernon Street or Seymour Street.



Designated lane with signal activation. Cyclists wait for green light before proceeding across Coburg Road. Reduced turning conflicts.

Pedestrians have a signalized crossing activated by push-button. Crossings on both the west and east sides of the intersection.

New traffic signals may increase delay at the intersection. No left turns or through movements from Vernon Street or Seymour Street.

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EXISTING: OAK STREET & ALLAN STREET

MOTOR VEHICLE SPEEDS (85TH PERCENTILE)

from Windsor Street to Monastery Lane:	**45 km/hr**
from Monastery Lane to Harvard Street:	**39 km/hr**
from Harvard Street to Oxford Street:	**31 km/hr**
from Oxford Street to Beech Street:	**37 km/hr**

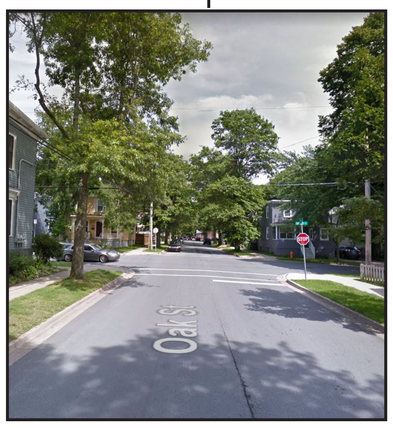
vpd = vehicles per day

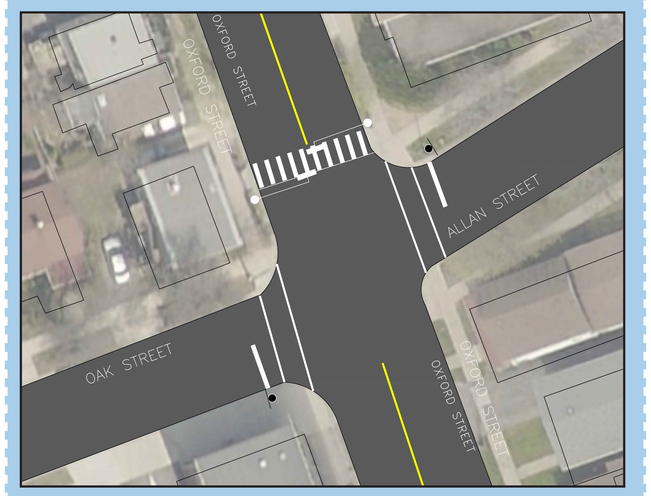


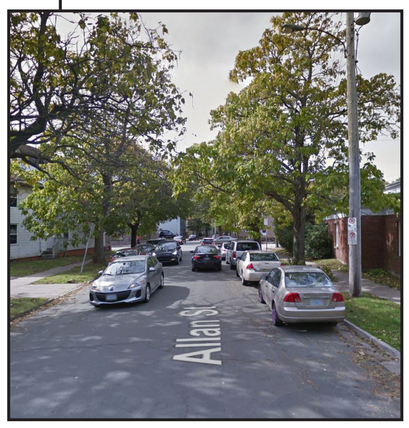


Chebucto Road
Duncan Street
Windsor Street
Lawrence Street
Connaught Avenue
Poplar Street
Elm Street
Beech Street
1,340 vpd
1,025 vpd
1,450 vpd
1,750 vpd
790 vpd
Allan Street
1,540 vpd
Oak Street
715 vpd
945 vpd
1,200 vpd
1,450 vpd
Monastery Lane
Kline Street
Oxford Street
Harvard Street
Yukon Street
Yale Street
Quinpool Road

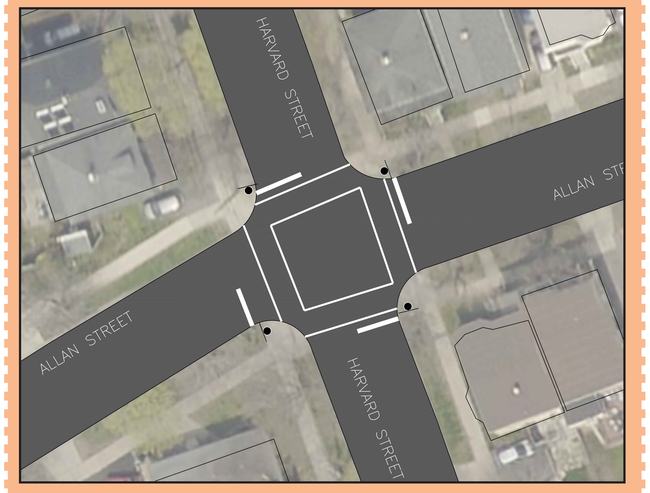
Allan Street/Oak Street & Oxford Street







Allan Street & Harvard Street





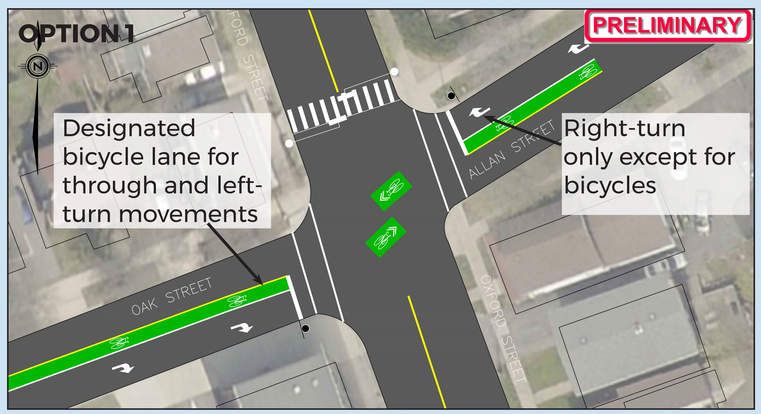
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DESIGN OPTIONS: OAK STREET / ALLAN STREET & OXFORD STREET

OAK STREET/ALLAN STREET & OXFORD STREET

OPTION 1

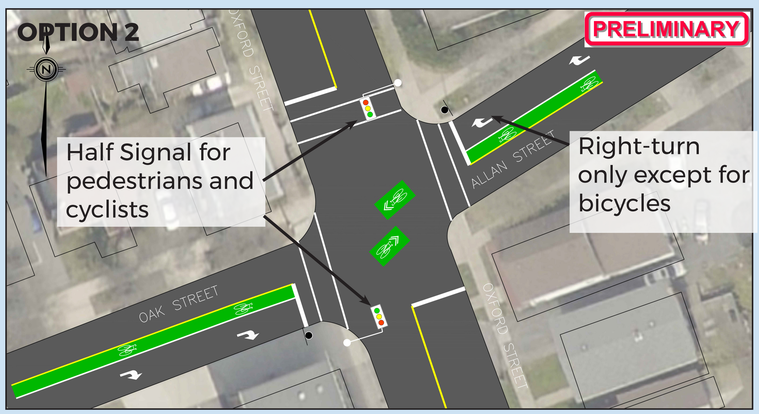


Improves the visibilty of cyclists and provides a designated lane for proceeding through the intersection. Less turning conflicts with vehicles.

No impacts to the flow of pedestrians.

Turning restrictions from Oak Street/Allan Street to Oxford Street. Only right turns from Allan Street and Oak Street.

OPTION 2

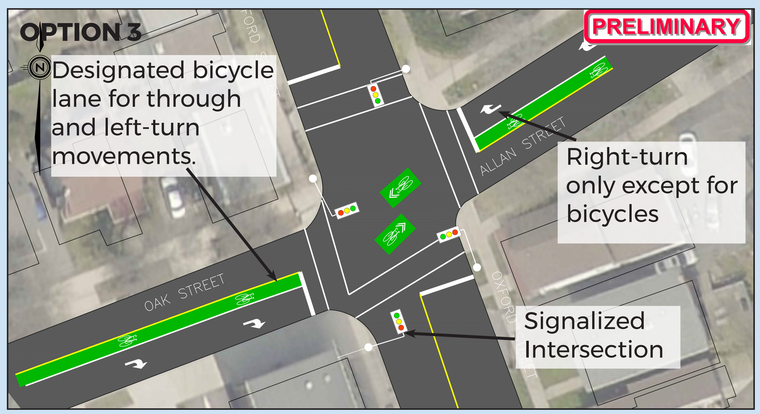


Designated lane with signal activation to cross Oxford Street. Cyclists can also cross when there is a gap. Fewer turning conflicts.

Pedestrians have a signalized crossing activated by push-button.

Turning restrictions from Oak Street/Allan Street to Oxford Street. No left turns or through movements from Oak Street or Allan Street.

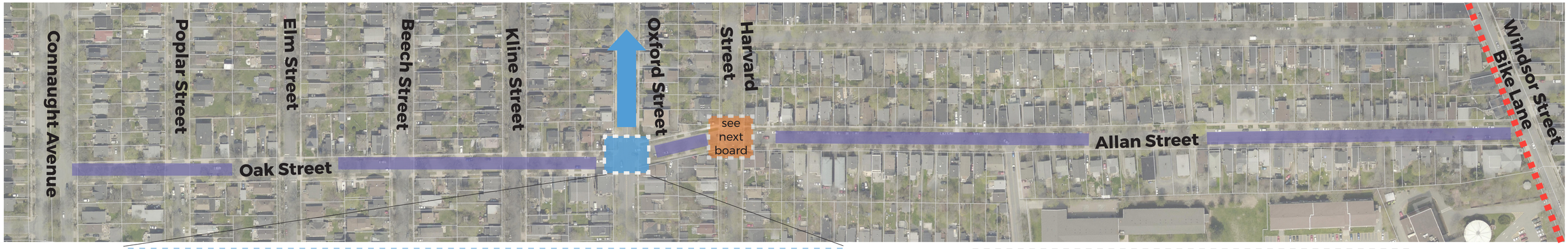
OPTION 3



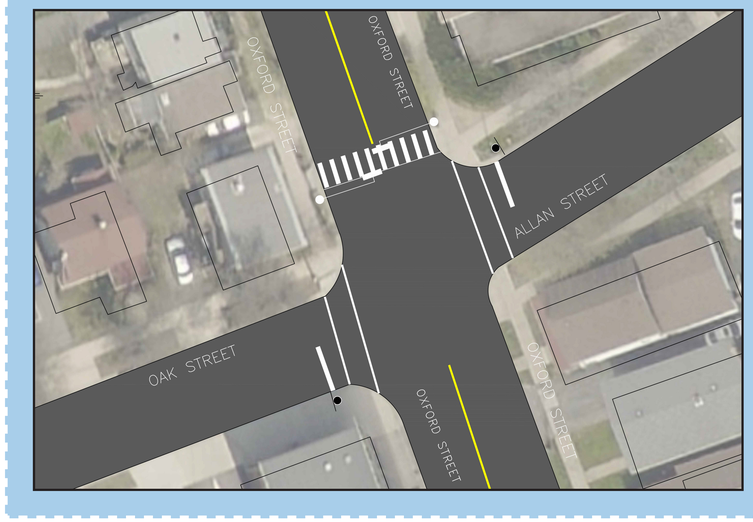
Protected lane with signal. Cyclists wait for green light before proceeding across Oxford Street. Fewer turning conflicts.

Pedestrians have two signalized crossings activated by push-buttons.

Signalized intersection increases delay for Oxford Street. No left turns or through movements from Allan Street and Oak Street.



EXISTING: ALLAN STREET/OAK STREET & OXFORD STREET

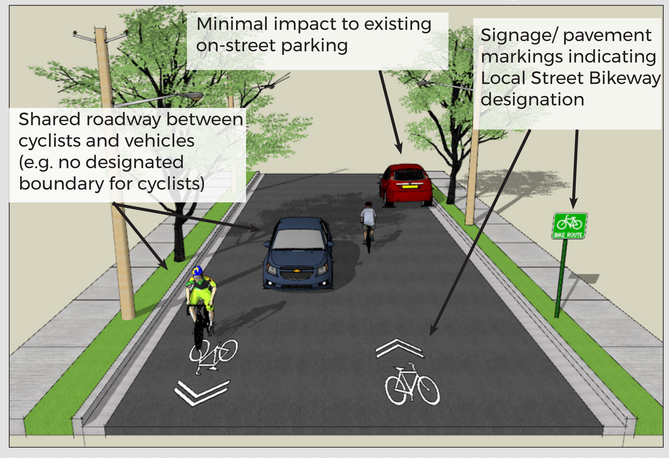






LOCAL STREET BIKEWAY PROPOSED CROSS SECTION

(applys for enitre length of Allan Street - Oak Street roadway)

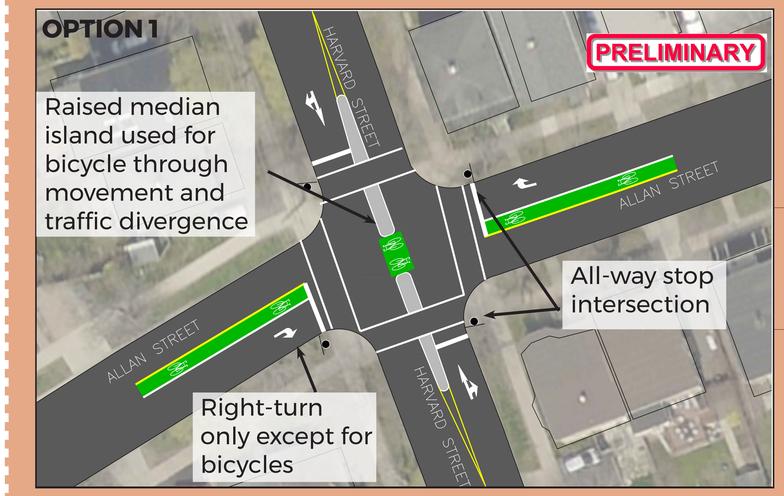


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DESIGN OPTIONS: ALLAN STREET & HARVARD STREET

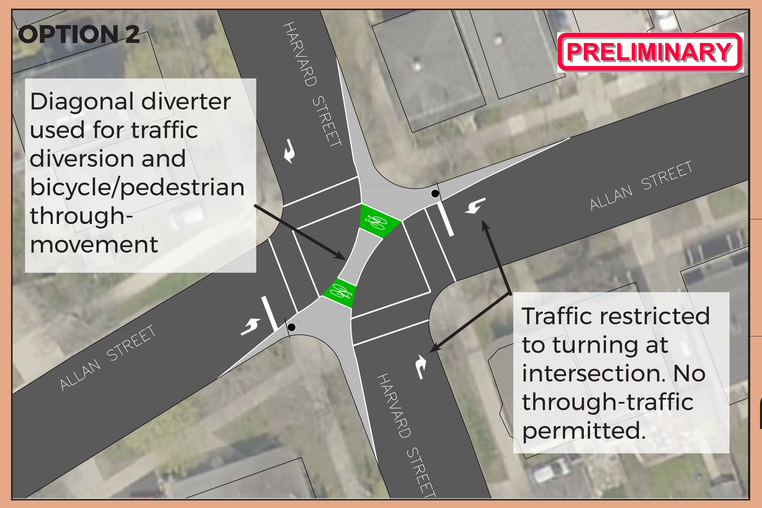
ALLAN STREET & HARVARD STREET



Improves the visibility of cyclists and provides a designated lane for proceeding through the intersection. Fewer turning conflicts.

No impact to pedestrian flow.

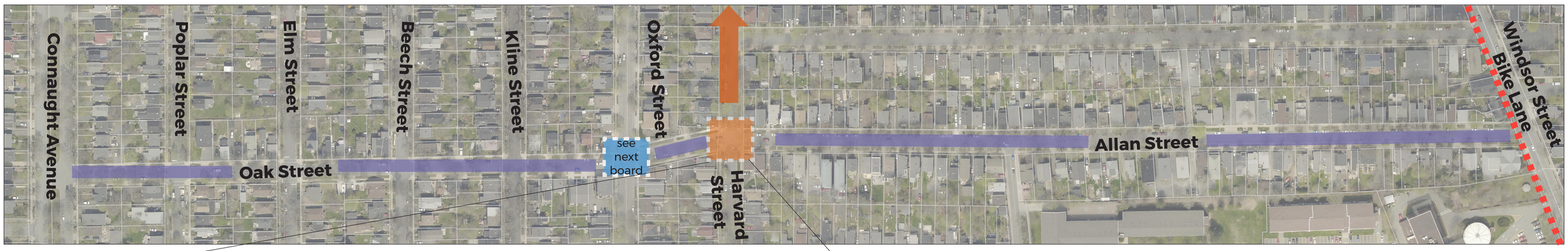
Turning restrictions to/from Allan Street to Harvard Street. No left turns or through movements from Allan Street.



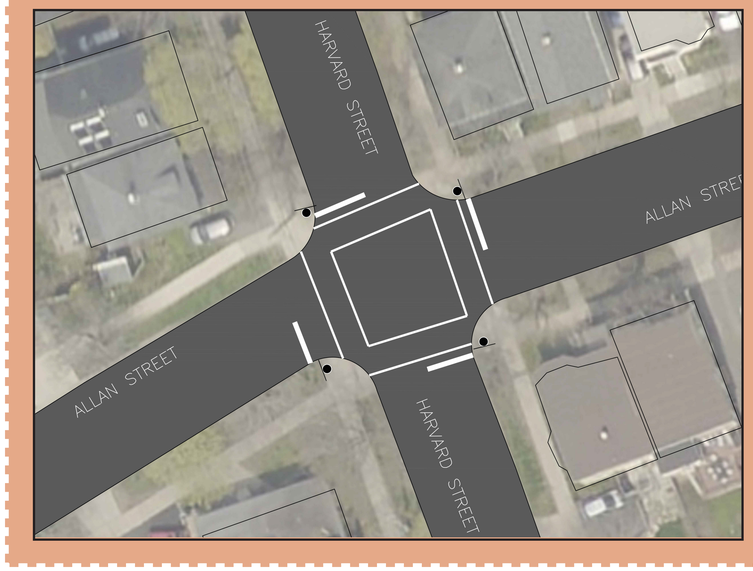
Reduces the volume of vehicles using the roadway. Fewer turning conflicts with vehicles. Cyclists may proceed through the diverter and proceed straight or turn right.

No impacts to the flow of pedestrians.

Turning restrictions to/ from Allan Street/Harvard Street. Only left turns onto Harvard Street and only right turns onto Allan Street. No through-traffic permitted.



EXISTING: ALLAN STREET & HARVARD STREET

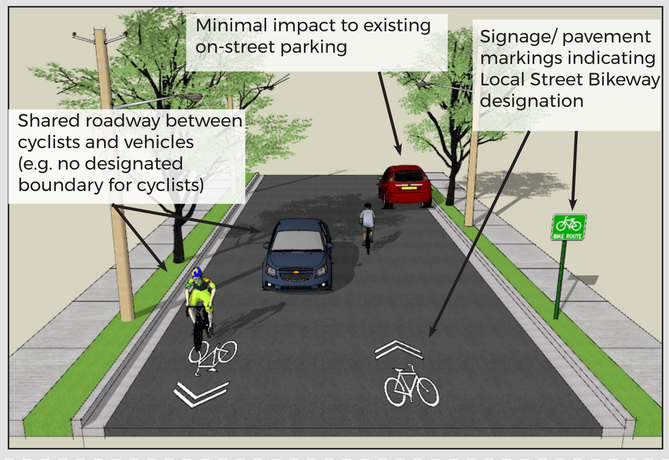






LOCAL STREET BIKEWAY PROPOSED CROSS SECTION

(applys for enitre length of Allan Street - Oak Street roadway)



HALIFAX

wsp

TELL US WHAT YOU THINK!

	LIKES	CONCERNS
VERNON STREET & QUINPOOL ROAD		
VERNON STREET & JUBILEE ROAD **OPTION 1**		
VERNON STREET & JUBILEE ROAD **OPTION 2**		

GENERAL FEEDBACK

HALIFAX

wsp

TELL US WHAT YOU THINK!

	LIKES	CONCERNS
ALLAN STREET & HARVARD STREET **OPTION 1**		
ALLAN STREET & HARVARD STREET **OPTION 2**		

GENERAL FEEDBACK

HALIFAX

wsp

TELL US WHAT YOU THINK!

	LIKES	CONCERNS
VERNON STREET/ SEYMOUR STREET & COBURG ROAD **OPTION 1**		
VERNON STREET/ SEYMOUR STREET & COBURG ROAD **OPTION 2**		
VERNON STREET/ SEYMOUR STREET & COBURG ROAD **OPTION 3**		

GENERAL FEEDBACK

HALIFAX

wsp

TELL US WHAT YOU THINK!

	LIKES	CONCERNS
OAK STREET/ ALLAN STREET & OXFORD STREET **OPTION 1**		
OAK STREET/ ALLAN STREET & OXFORD STREET **OPTION 2**		
OAK STREET/ ALLAN STREET & OXFORD STREET **OPTION 3**		

GENERAL FEEDBACK

HALIFAX

wsp