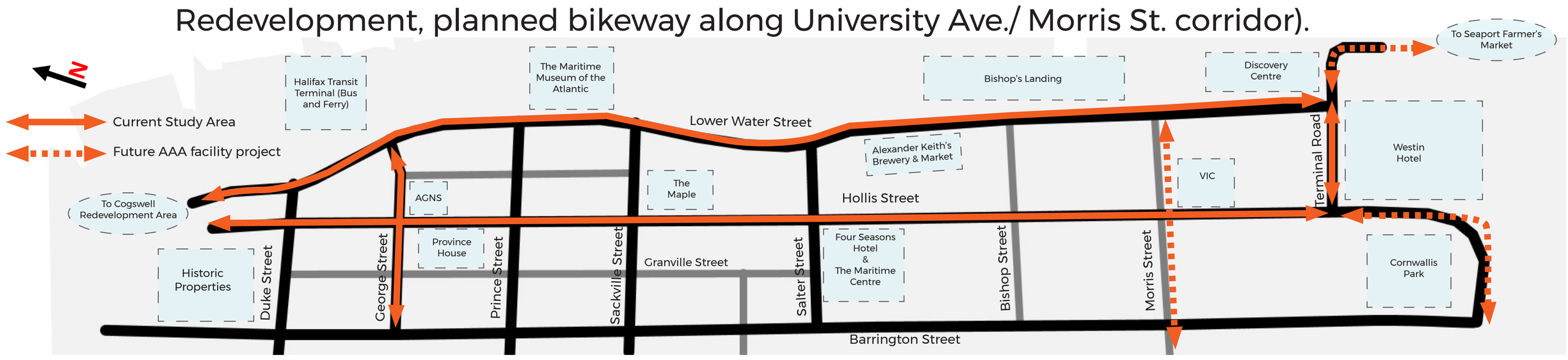
DOWNTOWN BIKEWAYS

What is the Downtown Bikeways Project?

HRM is investigating available options for implementing protected bicycle facilities that will connect cyclists to and through the downtown core. This study is specifically considering facility options on **Hollis Street, Upper/ Lower Water Street, Terminal Road, and George Street.** These facilities are meant to:

- **improve existing** cycling facilities to be **safe and comfortable for users of all ages and abilities (AAA)**, and
- **connect the downtown core** into future cycling infrastructure projects (e.g. Cogswell Redevelopment, planned bikeway along University Ave./ Morris St. corridor).



The Bigger Picture

HRM has monitored the existing cycling facilities on Hollis Street and Lower Water Street and understands improvements that need to be made to improve the safety, comfort, and convenience of users cycling through downtown.

The Integrated Mobility Plan (IMP) sets a goal to deliver an all ages and abilities (AAA) bicycling network in the Regional Centre by 2022. The IMP identifies the need for protected bikeways on a number of streets in the downtown including **Hollis Street and George Street** (as seen in the map to the right).

Further, in preparation for the anticipated **Cogswell Redevelopment Project**, this project will help to inform how downtown bikeways will **effectively integrate** with the active transportation facilities proposed for the Cogswell lands.

Proposed AAA Bicycle Network (2022) from the IMP

What's next for the Downtown Bikeways Project?

These streets (Hollis Street, Upper/Lower Water Street, George Street, and Terminal Road) are being investigated for their potential to accomodate protected bicycle facilities. A **functional design report** is being prepared that will identify the opportunities and constraints for several design options.

The **functional design report** will include conceptual options for each corridor 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 functional 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 functional design report (Spring, 2018)
2. Bring preferred option to Council for design approval (Fall, 2018)
3. Complete detailed design of selected option (end of 2018)*
4. Position selected option for construction in 2019 or 2020 (to be coordinated with Cogswell Redevelopment)*

(*pending Council approval)

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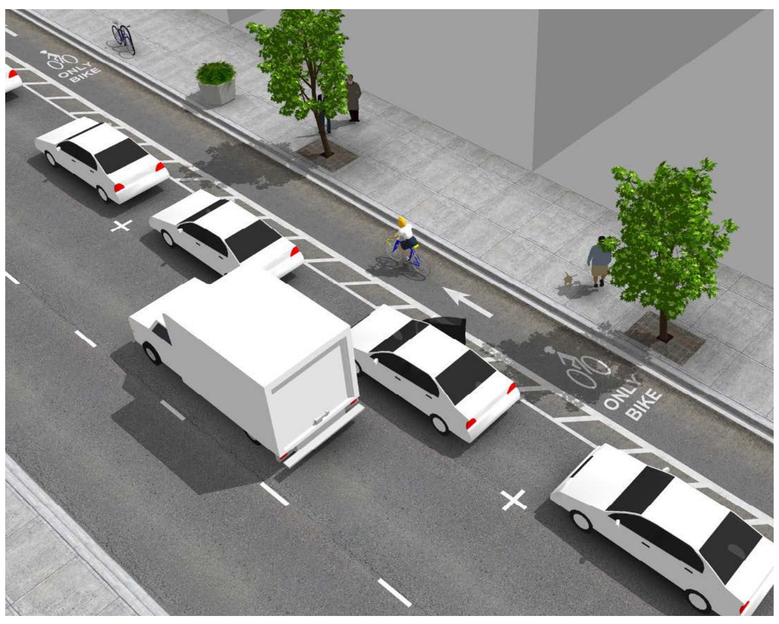
ALL AGES AND ABILITIES (AAA) NETWORK

AAA FACILITIES IN HRM

Bicycling should be comfortable and enjoyable for people of all ages and abilities - from children to seniors to new bicyclists. AAA facilities are considered critical to increasing the number of people who choose to ride a bicycle because most people feel uncomfortable riding in mixed traffic and may only choose to ride if there is a network of low stress facilities available. HRM's Integrated Mobility Plan (IMP) seeks to encourage and enable year-round bicycling by implementing a connected AAA network.

AAA networks include a variety of protected facilities on busy streets that physically separate the cyclist from adjacent moving traffic.

TYPES OF FACILITIES



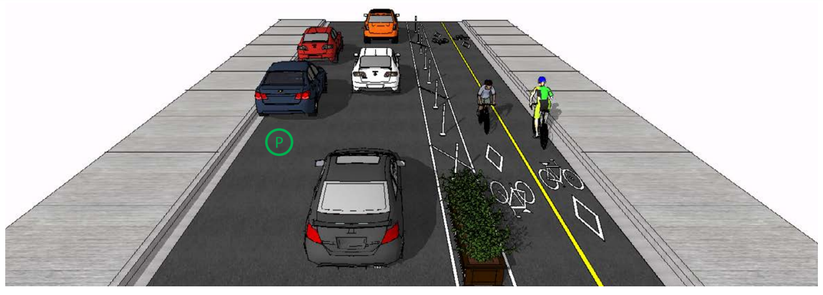
Uni-Directional Protected Bike Lane

Uni-Directional protected bike lanes are bike facilities that accommodate the movement of cyclists in one direction. Design features include protective measures such as raised curbs, parked cars, bollards or even planter boxes.

Bi-Directional Protected Bike Lane

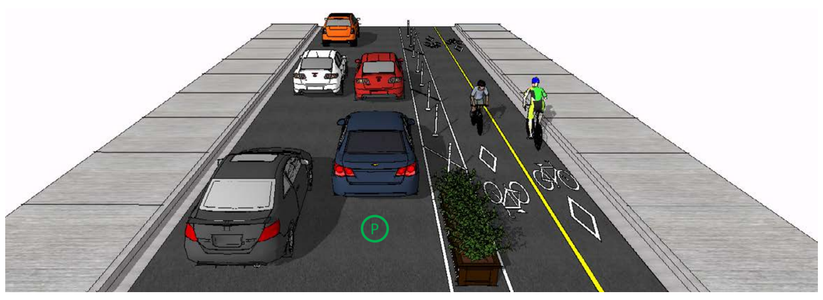
Bi-Directional protected bike lanes are bike facilities that accommodate the movement of cyclists in two directions, including one-way streets.

PROTECTED BICYCLE FACILITY DESIGN OPTIONS



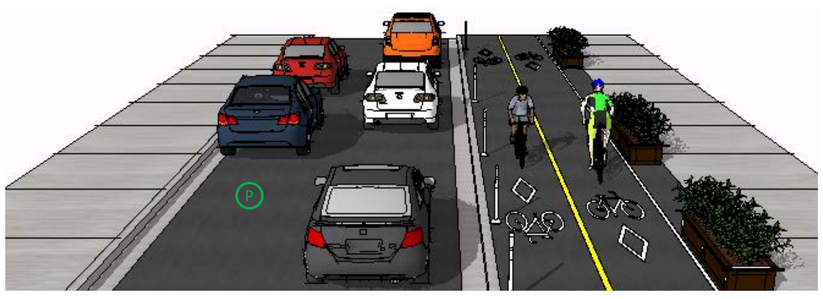
PROTECTED BICYCLE LANE

Bicycle lanes that are protected require a buffer space and physical barrier between the bikeway and moving motor vehicles. Protection can come in a variety of shapes and sizes and a spectrum of costs. Low cost options include vertical bollards and planter boxes.



PARKING PROTECTED BICYCLE LANE

Where roadway alignment allows, on-street parking can provide protection for cyclists from moving motor vehicles. With this option, space must be provided between cyclists and parked cars to reduce the risk of dooring.



RAISED BICYCLE LANE

Raising bicycle lanes to curb level (and aligned with the sidewalk) is a design feature that can provide physical separation for cyclists from moving motor vehicles. This option often provides a high sense of safety and comfort, however it is expensive to implement. Raised bicycle lanes also often require the separation of cyclists and pedestrians which can be done through vertical barriers or a change in pavement markings/materials.

PROTECTED BICYCLE FACILITY EXAMPLES

Protected Bi-Directional Bikeway
Washington D.C.

Raised Uni-Directional Bikeway
Kelowna, B.C.

Parking-Protected Bikeway
Chicago, USA

Protected Bi-Directional Bikeway
Toronto, O.N.

Protected Uni-Directional Bikeway
Boulder, USA

Raised and Separated Bi-Directional Bikeway
Chicago, USA

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DOWNTOWN BIKEWAYS

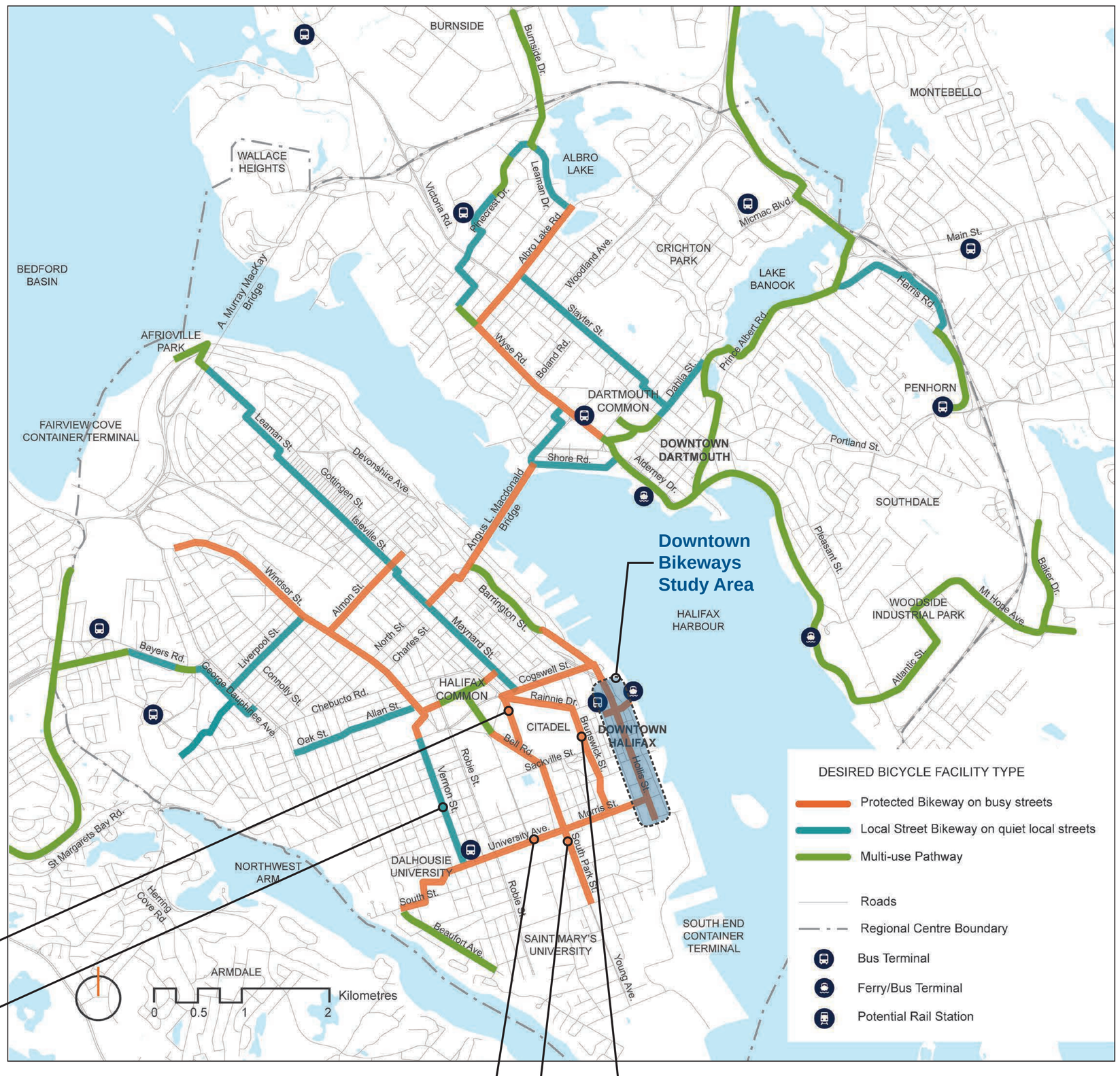
IMPLEMENTING THE AAA BICYCLE NETWORK

Integrated Mobility Plan (IMP): All Ages & Abilities Bicycle Network

Action #72 of Halifax's recently adopted Integrated Mobility Plan (IMP) provides direction to "deliver the Regional Centre all ages and abilities bicycle network by 2022." By providing low-stress bicycle infrastructure appropriate for all ages and abilities, this project aims to connect residents and visitors to the dense and diverse mix of destinations in the downtown.

Project Objectives

- Develop a bicycling route through downtown Halifax designed for all ages and abilities (AAA)
- Connect future bikeways planned for the Cogswell interchange lands with the ferry terminal, Grand Parade and destinations to the south, including the Seaport Market, train station and Barrington Street Superstore
- Plan for connections to existing and future bikeways in the downtown (i.e., IMP's AAA Bicycle Network & candidate bicycling routes in HRM's Active Transportation Priorities Plan)
- Understand and accommodate other street uses (e.g., loading, accessible parking, transit stops)
- Evaluate the design options as per Appendix E of the AT Priorities Plan: "Evaluation Criteria for New Bicycle Facilities"



Ahern Ave off-street bikeway: position for construction in 2018

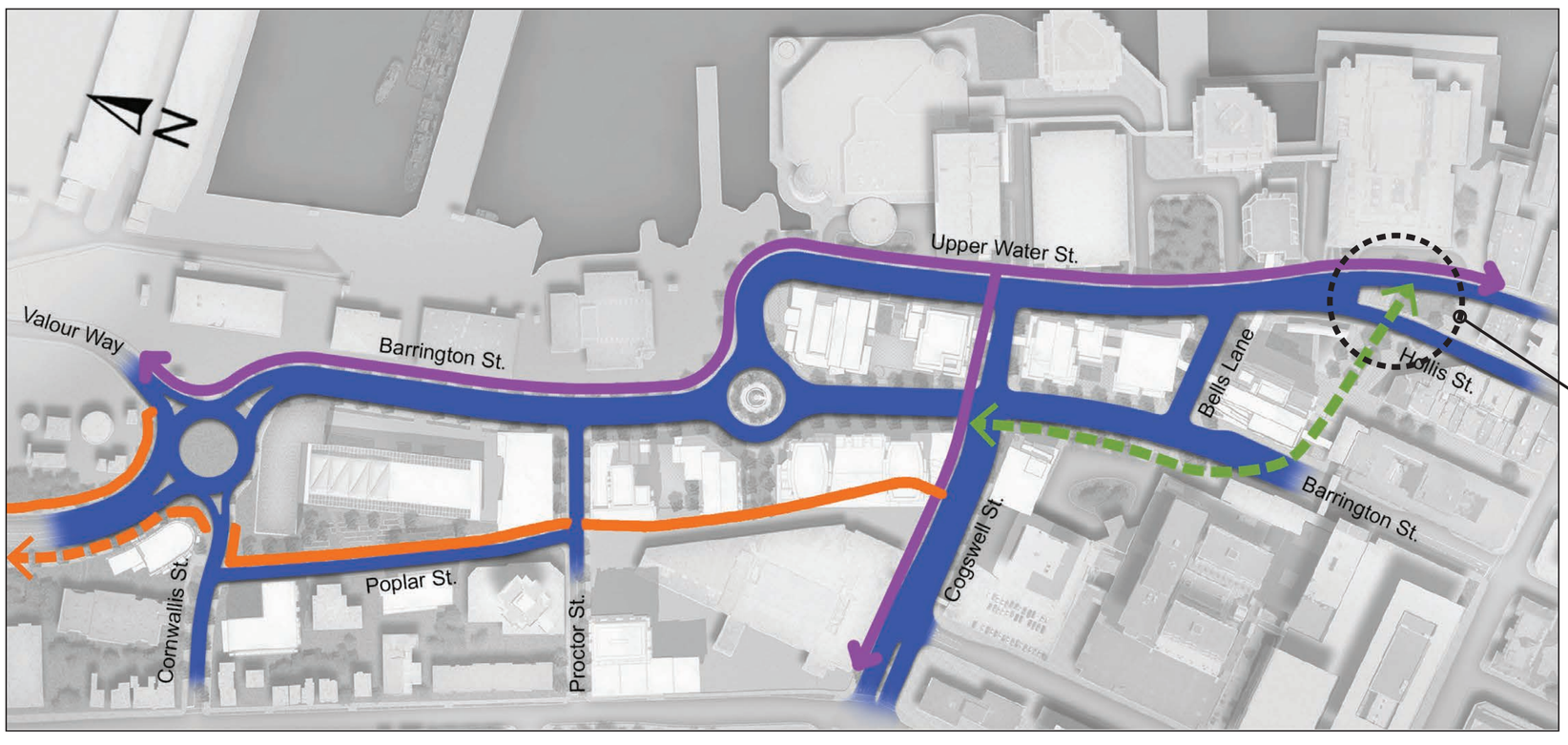
Vernon/Seymour and Allan/Oak local street bikeways: position for construction in 2018 (pending Council approval)

University Ave/Morris St corridor: complete bikeway planning & functional design in 2018

Rainnie Dr/Brunswick Street bikeway: complete functional design in 2018

South Park St protected bike lanes: approved for construction in 2018

Cogswell Interchange Redevelopment Concept: Active Transportation Connections to Downtown



LEGEND

- Off-street bi-directional protected bikeway
- Multi-use pathway
- Desired bicycling connection (facility type TBD)
- Future multi-use pathway

Opportunity to integrate bicycle crossings with new pedestrian crossings at Hollis St and Upper Water St.

*Concept map is subject to change as the project progresses

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MANAGING CURBSIDE ACTIVITY

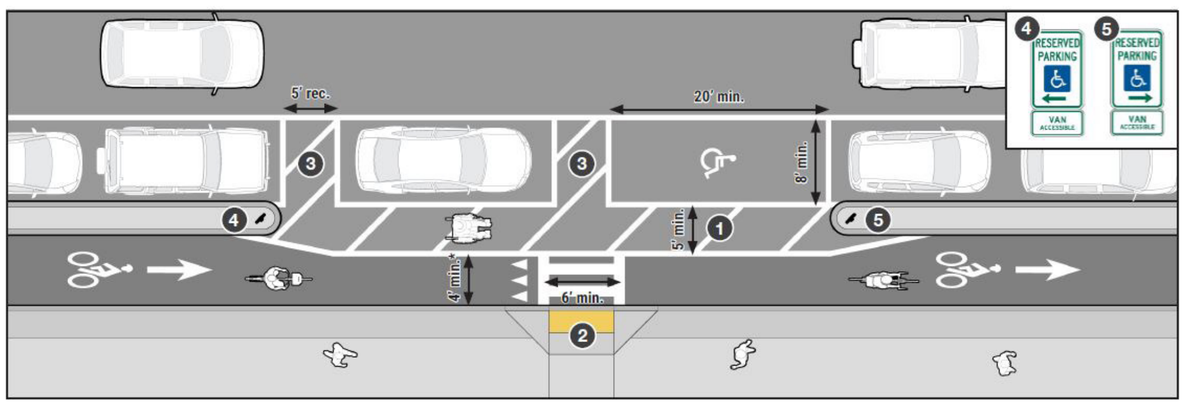
Protected bike lanes are often located adjacent to curbside activities such as loading zones, transit stops, accessible parking and metered parking.

The project team is looking to current bikeway design guidance and examples from other cities for direction on how to safely accomodate curbside activities while still maintaining an appropriate level of comfort and safety for people on bicycles.

These treatments will be considered for the preferred design option during the next phase of the project.

Accessible Parking & Loading

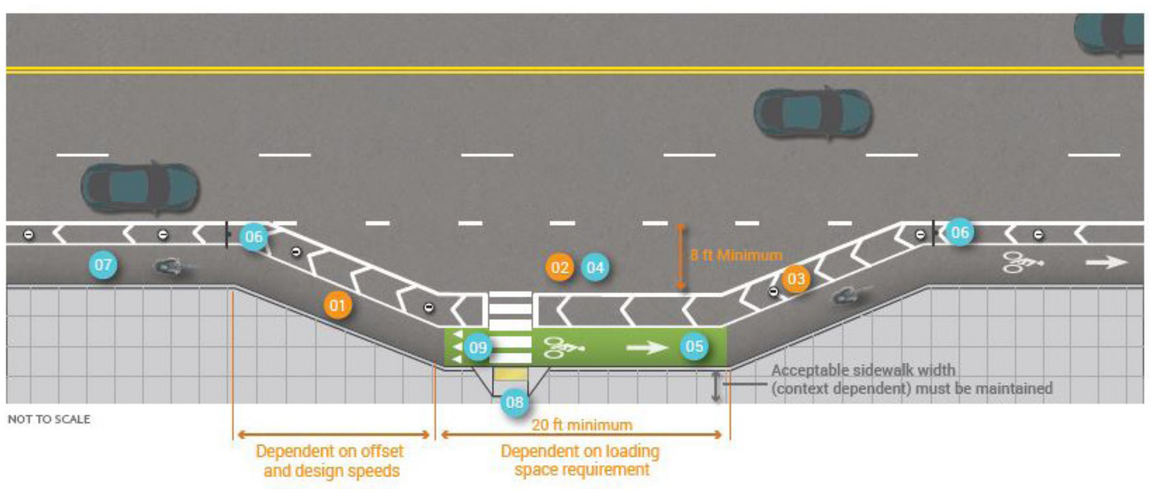
EXHIBIT 5B: ACCESSIBLE ON-STREET MOTOR VEHICLE PARKING (MID-BLOCK)



Source: Separated Bike Lane Planning and Design Guide, Massachusetts DOT (2015)

Cornwall Avenue, Vancouver, BC

Hornby Street Bi-directional bikeway @ the Vancouver Art Gallery, Vancouver, BC



Source: Separated Bikeway Planning & Design Guide, Federal Highway Administration (2015)

Shared Cycle Track-Bus Stop

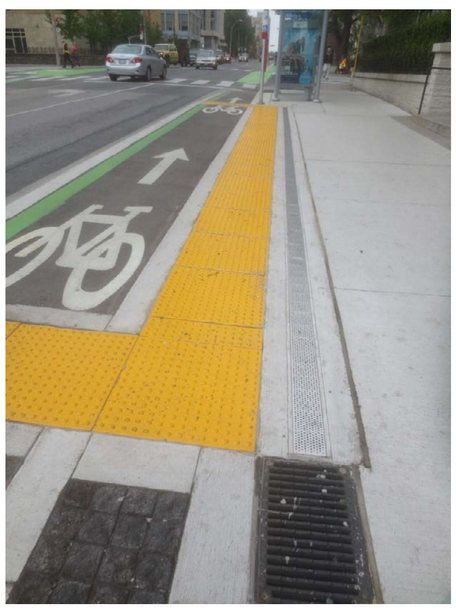
This treatment consists of a shared space for bicyclists and transit passengers at a bus stop, with the bike lane ramping up to sidewalk level on the approach to the bus stop, and back down to street level after the bus stop. Transit passengers wait on the sidewalk outside of the bike lane, but must enter the raised cycle track for boarding and alighting. Bicyclists can ride through the boarding area when no buses are present, but must yield to boarding and alighting passengers when a bus is at the stop.

This treatment was recently approved by Council for implementation with the South Park Street protected bike lanes.

Shared cycle track-bus stop on Sherbourne Street, Toronto, ON

Cyclists yield to pedestrians sign

Source: Bikeway Traffic Control Guidelines for Canada, Transportation Association of Canada



Shared cycle track-bus stop on Sherbourne Street, Toronto

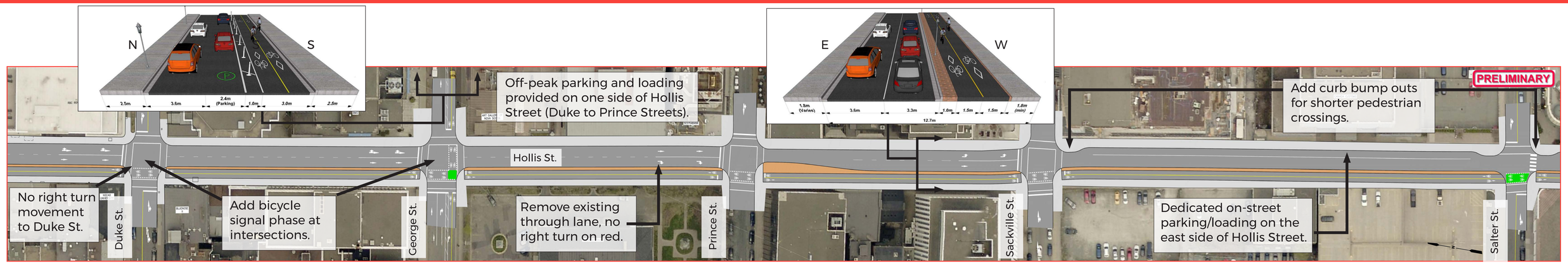
Source: www.westsideaction.com

Shared cycle track-bus stop on Roncesvalles Avenue, Toronto

Source: MTO Book 18

DOWNTOWN BIKEWAYS: HOLLIS STREET - DUKE STREET TO SALTER STREET

OPTION A: RAISED BI-DIRECTIONAL BIKE LANES (WEST SIDE)



IMPACTS

- Reduced sidewalk width in some locations (minimum 1.8m provided). Curb bump outs provided at intersections
- Provides a raised bi-directional cycle track on the west side of the street.
- Right turns onto Duke Street not permitted. Loss of through lane at Prince Street will increase delays within acceptable limits.
- Transit passengers must cross the bikeway to board at stops. Potenital delays may impact flow of transit.
- Parking and loading will be provided on one side of the street where space is available. Loss of parking on north side of George Street.
  Off-peak accessible parking will be provided on Hollis Street, north of Sackville Street..

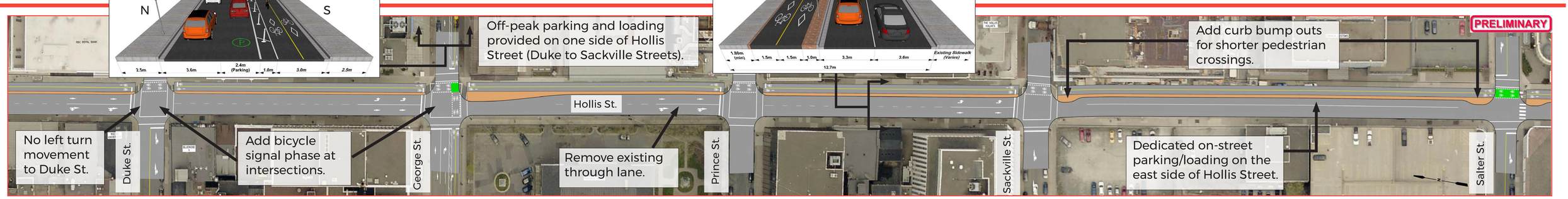
PROS

- Protects cyclists from vehicles in both directions through vertical buffers.
- Utilities and on-street parking will provide additional protection for cyclists and pedestrians on the west side of the street.
- Shorter pedestrian crossing distances with curb bump outs.

CONS

- Reduction in sidewalk width at some locations (minimum 1.8m provided).
- Increase wait time at signalized intersections due to bicycle signal phase requirement.
- Restricted loading areas and times on the east side of Hollis Street.
- May cause traffic delays at Hollis Street and Prince Street intersection by loss of through lane.

OPTION B: RAISED BI-DIRECTIONAL BIKE LANES (EAST SIDE)



IMPACTS

- Reduced sidewalk width in some locations (minimum 1.8m provided). Curb bump outs provided at intersections
- Provides a raised bi-directional cycle track on the east side of the street.
- Left turns onto Duke Street not permitted. Loss of a through lane at George Street will increase delays within acceptable limits.
- Potential delays of vehicles may impact flow of transit.
- Parking and loading will be provided on one side of the street where space is available. Loss of parking on north side of George Street.
  Off-peak accessible parking will be provided on Hollis Street, north of Sackville Street.

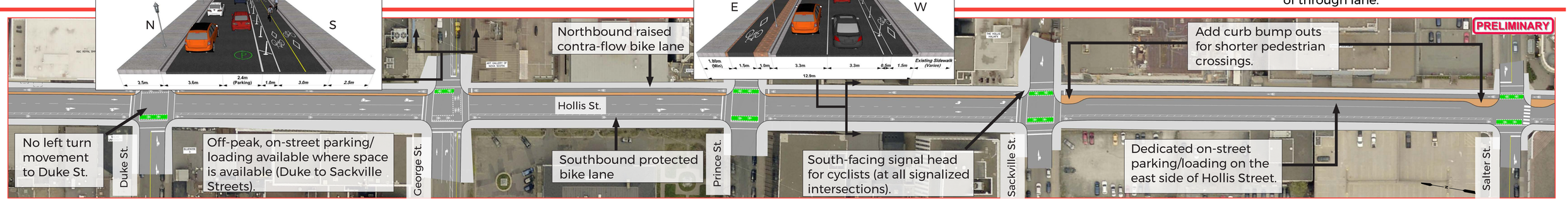
PROS

- Protects cyclists from vehicles in both directions through vertical buffers.
- Utilities and on-street parking will provide additional protection for cyclists and pedestrians on the east side of the street.
- Shorter pedestrian crossing distances with curb bump outs.

CONS

- Reduction in sidewalk width at some locations (minimum 1.8m provided).
- Increase wait time at signalized intersections due to bicycle signal phase requirement.
- Restricted loading areas and times on the west side of Hollis Street.
- May cause traffic delays on Hollis Street at George and Prince Street intersections by loss of through lane.

OPTION C: SOUTHBOUND BIKE LANE (WEST SIDE) WITH RAISED NORTHBOUND BIKE LANE (EAST SIDE)



IMPACTS

- Reduced sidewalk width in some locations (minimum 1.8m provided). Curb bump outs provided at intersections
- Provides a raised contra-flow bike lane on the east side and an on-street protected bike lane on the west side.
- Left turns onto Duke Street not permitted.
- Transit passengers must cross the southbound bike lane to board at stops.
- Parking and loading will be provided on one side of the street where space is available. Loss of parking on north side of George Street.
  Off-peak accessible parking will be provided on Hollis Street, north of Sackville Street..

PROS

- Protects cyclists from vehicles in both directions through vertical buffers.
- Provides access for cyclists to properties on both side of the street.
- Higher visability between contra-flow cyclists and turning traffic at intersections.
- Shorter pedestrian crossing distances with curb bump outs.

CONS

- Reduction in sidewalk width in some locations (minimum 1.8m provided).
- Durability of buffer facility on the west side of the street is lower than the east side.

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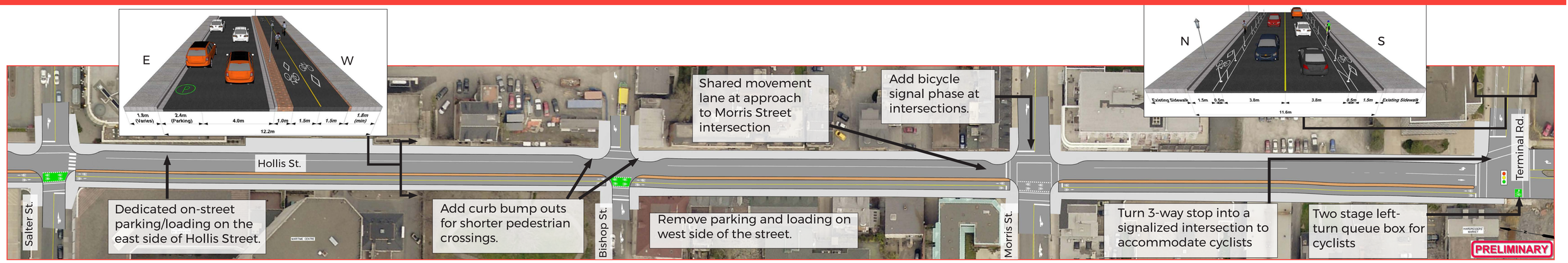
DOWNTOWN BIKEWAYS: HOLLIS STREET - SALTER STREET TO TERMINAL ROAD

OPTION A: RAISED BI-DIRECTIONAL BIKE LANES (WEST SIDE)



IMPACTS

- Reduced sidewalk width in some locations (minimum 1.8m provided). Reduced crossing distance at several locations.
- Reduction to one lane at Morris Street is expected to impact traffic flow and the anticipated delay is within acceptable limit.
- Dedicated on-street parking/loading on the east side of Hollis Street. Loss of parking on Terminal Road. On-street accessible parking will be provided on Hollis Street.
- Provides a raised bi-directional cycle track on the west side of the street.
- Transit passengers must cross the bikeway to board at stops.

PROS

- Protects cyclists from vehicles in both directions with vertical buffers.
- Utilities and on-street parking will provide additional protection for cyclists and pedestrians on the west side of the street.
- Shorter pedestrian crossing distances facilitated by curb bump outs.

CONS

- Reduction in sidewalk width at some locations (minimum 1.8m provided).
- Increase wait time at signalized intersection due to bicycle signal phase requirement.

OPTION B: RAISED BI-DIRECTIONAL BIKE LANES (EAST SIDE)

IMPACTS

- Reduced sidewalk width in some locations (minimum 1.8m provided). Reduced crossing distance at several locations.
- No major impact to traffic flow.
- Dedicated on-street parking/loading on the east side of Hollis Street. Loss of parking on Terminal Road. On-street accessible parking will be provided on Hollis Street.
- Provides a raised bi-directional cycle track on the east side of the street.
- No impact.

PROS

- Protects cyclists from vehicles in both directions with vertical buffers.
- Utilities and on-street parking will provide additional protection for cyclists and pedestrians on the east side of the street.
- Shorter pedestrian crossing distances facilitated by curb bump outs.

CONS

- Reduction in sidewalk width at some locations (minimum 1.8m provided).
- Increase wait time at signalized intersection due to bicycle signal phase requirement.

OPTION C: SOUTHBOUND BIKE LANE (WEST SIDE) WITH RAISED NORTHBOUND BIKE LANE (EAST SIDE)

IMPACTS

- Reduced sidewalk width in some locations (minimum 1.8m provided). Reduced crossing distance at several locations.
- No major impact to traffic flow.
- Dedicated on-street parking/loading on the east side of Hollis Street.Loss of parking on Terminal Road. On-street accessible parking will be provided on Hollis Street.
- Provides a raised contra-flow bike lane on the east side of Hollis Street with an on-street bike lane on the west side.
- Transit passengers must cross the southbound bike lane to board at stops.

PROS

- Protects cyclists from vehicles in both directions with vertical buffers.
- Provides access for cyclists to properties on both side of the street.
- Higher visability between contra-flow cyclists and turning traffic at intersections.
- Shorter pedestrian crossing distances facilitated by curb bump outs.

CONS

- Reduction in sidewalk width in some locations (minimum 1.8m provided).
- Durability of buffer facility on the west side of the street is lower than the east side.

HALIFAX

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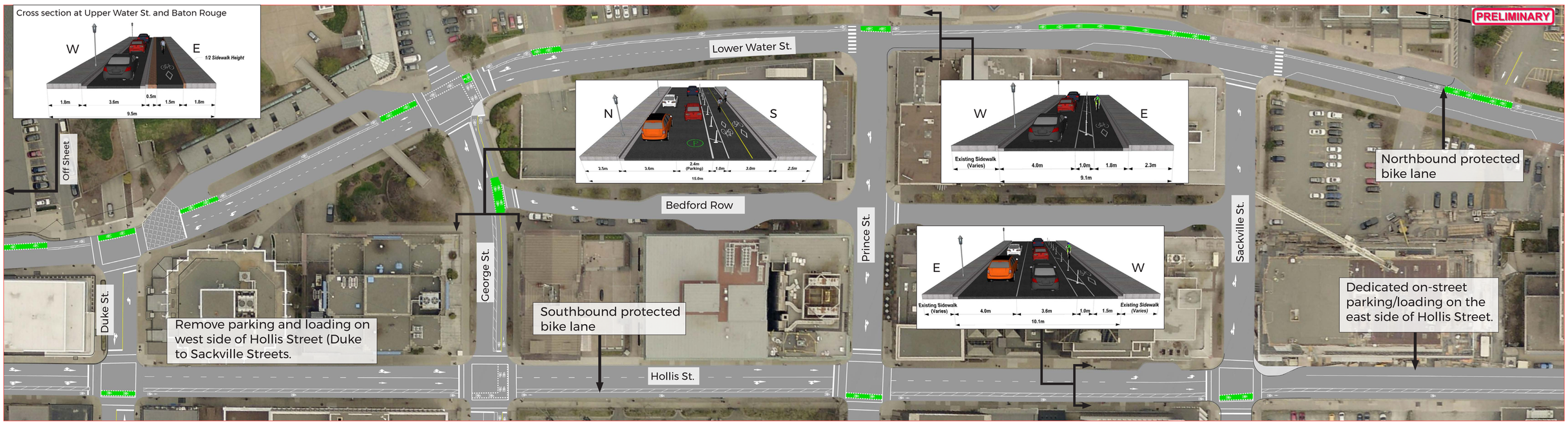
DOWNTOWN BIKEWAYS: HOLLIS STREET AND LOWER WATER STREET

OPTION D: UNIDIRECTIONAL BIKE LANES (HOLLIS AND LOWER WATER STREETS)



IMPACTS

- Reduced crossing distance at several locations.
- Provides a protected uni-directional on-street bike lane on Lower Water and Hollis Streets.
- No major impact to traffic flow on Hollis Street, Loss of a through lane on Lower Water Street north of Sackville Street.
- Transit passengers on Hollis and Lower Water Streets must cross the bike lanes to board at stops.
- Minimal impact to parking on Lower Water Street.
  Loss of daytime loading on east side of Hollis.
  Loss of parking on George Street and Terminal Road.
  Off-peak accessible parking will be provided on Hollis Street, north of Sackville Street.

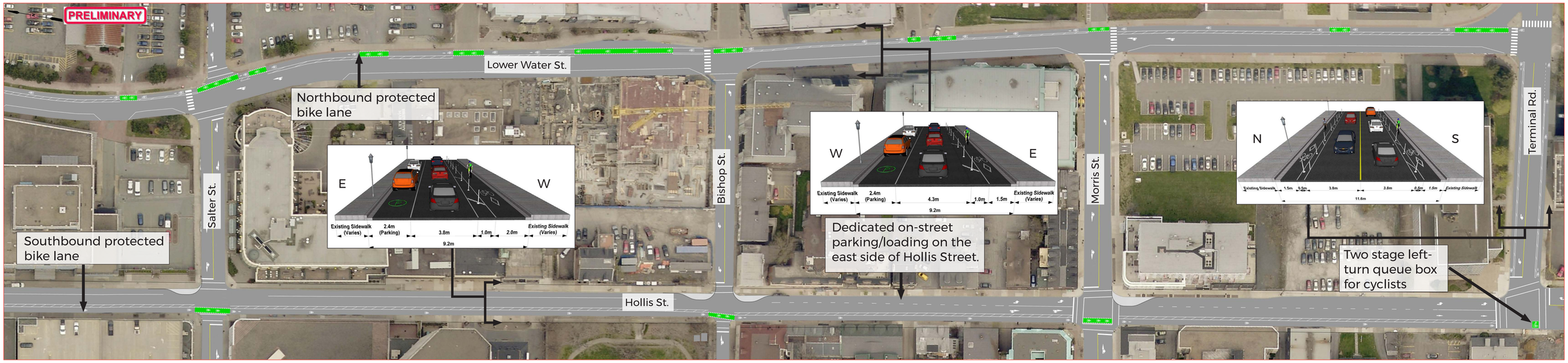
PROS

- Provides a protected bike lane on Hollis Street and Lower Water Street.
- Separate bicycle signal phases are not required at signalized intersections - won't cause additional wait time.
- Shorter pedestrian crossing distances facilitated by curb bump outs.

CONS

- Less clear for cyclists on how to enter and exit the downtown. Clear wayfinding signage will be required.

OPTION D: UNIDIRECTIONAL BIKE LANES (HOLLIS AND LOWER WATER STREETS)



IMPACTS

- Reduced crossing distance at several locations.
- Provides a protected uni-directional on-street bike lane on Lower Water and Hollis Streets.
- No major impact to traffic flow.
- Transit passengers on Hollis and Lower Water Street must cross the bike lanes to board at stops.
- Minimal impact to parking on Lower Water Street.
  Dedicated on-street parking/loading on the east side of Hollis Street.
  Loss of parking on George Street and Terminal Road.
  On-street accessible parking will be provided on Hollis Street.

PROS

- Provides a protected bike lane on Hollis Street and Lower Water Street.
- Separate bicycle signal phases are not required at signalized intersections - won't cause additional wait time.
- Shorter pedestrian crossing distances facilitated by curb bump outs.

CONS

- Less clear for cyclists on how to enter and exit the downtown. Clear wayfinding signage will be required.

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