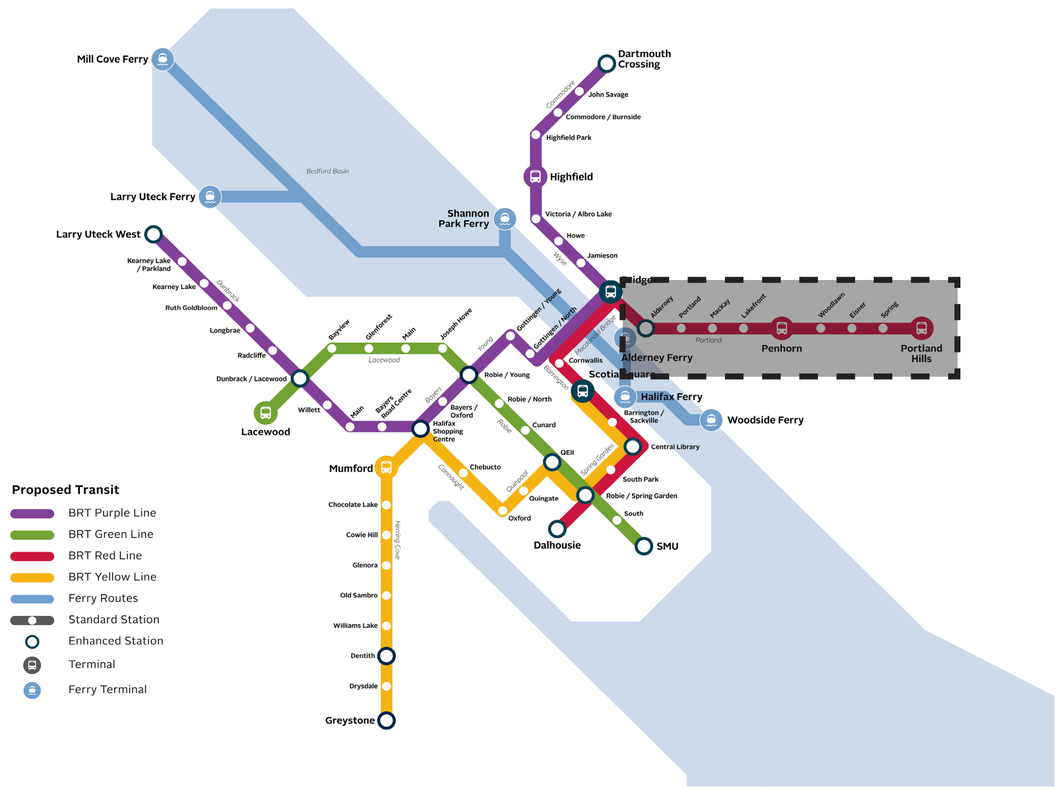
PORTLAND STREET - COLE HARBOUR ROAD FUNCTIONAL PLAN

What is the Project?

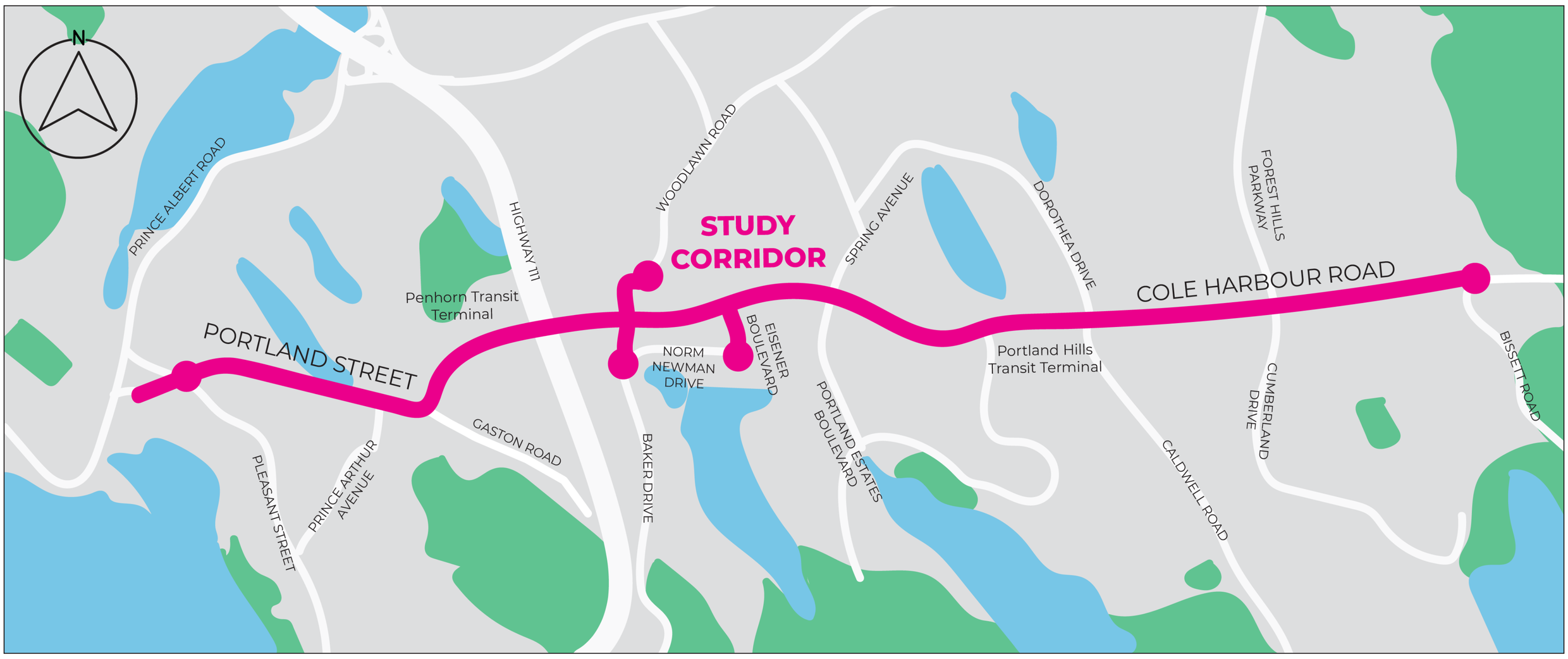
Halifax Regional Municipality is investigating conceptual design scenarios for providing several multi-modal upgrades to the core transit and active transportation network in Dartmouth. Portland Street to Cole Harbour Road will be a key corridor for living, working, shopping, and moving people which will see significant growth and potential densification into the future. This project is meant to:

- Determine how best to implement **transit priority** and Bus-Rapid Transit service;
- Enhance the **pedestrian** realm and incorporate connected **cycling** infrastructure;
- Improve people-moving efficiency and address 2041 **mobility demand**;
- Apply a **Complete Streets** lens to promote a mixed commercial and residential 'main street';
- Apply **best practices** for **road safety** and address areas of previous collisions.



Halifax Rapid Transit Strategy (2020)

Portland Street - Cole Harbour Road Functional Plan Corridor



Project History:

This project began in November of 2020 and round one of Public Engagement was held in April of 2021. Over 730 people participated in a virtual open house and online survey. The project was re-initiated in November 2023 with a redefined project scope.

What's next for the project?

HRM is working with consultants at WSP to develop functional designs that meet project objectives for different segments along corridor. A **functional design report** will be prepared which will identify the opportunities and constraints for the Preferred Design Options.

The **functional design report** will include conceptual options for the corridor as well as a summary of what we heard from public engagement events. Feedback will be used to inform preferred design options 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 each of the areas, and how the design concepts might impact you. Let us know if you have any ideas or concerns. Public feedback will be considered to refine the concept design options during the next stage of the project.

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www.shapeyourcityhalifax.ca/portland-cole-harbour

WSP

PORTLAND STREET - COLE HARBOUR ROAD FUNCTIONAL PLAN

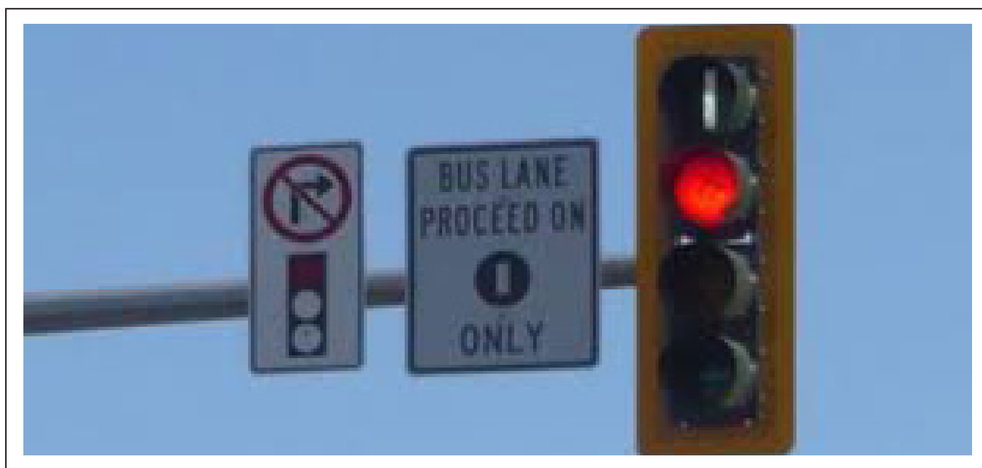
To successfully implement a Bus Rapid Transit network and provide upgraded active transportation facilities, the following types of features will be considered:



Transit Priority Lane

Transit priority measures are treatments introduced on a roadway that give an advantage to buses. Curbside lanes are dedicated to use by buses only. Intersections have signs that indicate that the lane is for right turning vehicles only and buses are permitted to proceed through the intersection from the right turn lane.

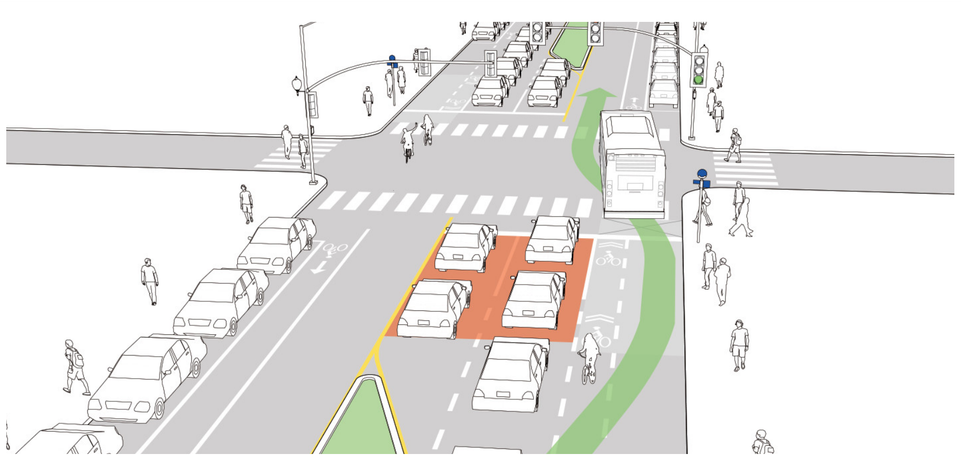
Why are they useful?
Transit priority lanes prioritize the movement of Halifax Transit buses over other vehicles, reducing travel time and increasing reliability. They give buses unimpeded travel and allow them to bypass congestion and traffic queues.



Transit Priority Signal

A transit priority signal phase – indicated by a white vertical bar above the signal head – is displayed during a red phase, allowing buses to proceed during this phase while other vehicles must wait for the green phase.

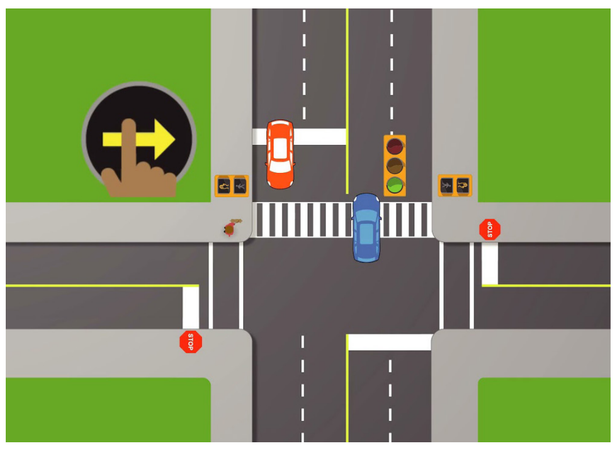
Why are they useful?
Transit priority signals prioritize the movement of Halifax Transit buses over other vehicles, reducing travel time and increasing reliability. They allow buses additional moving time before other vehicles can proceed.



Queue Jump Lanes

Queue jump lanes combine short dedicated transit facilities with either a leading bus interval or active signal priority to allow buses to easily enter traffic flow in a priority position.

Why are they useful?
Queue jump treatments can reduce delay considerably, resulting in run-time savings and increased reliability. Buses can use queue jump lanes to bypass congestion and traffic queues.

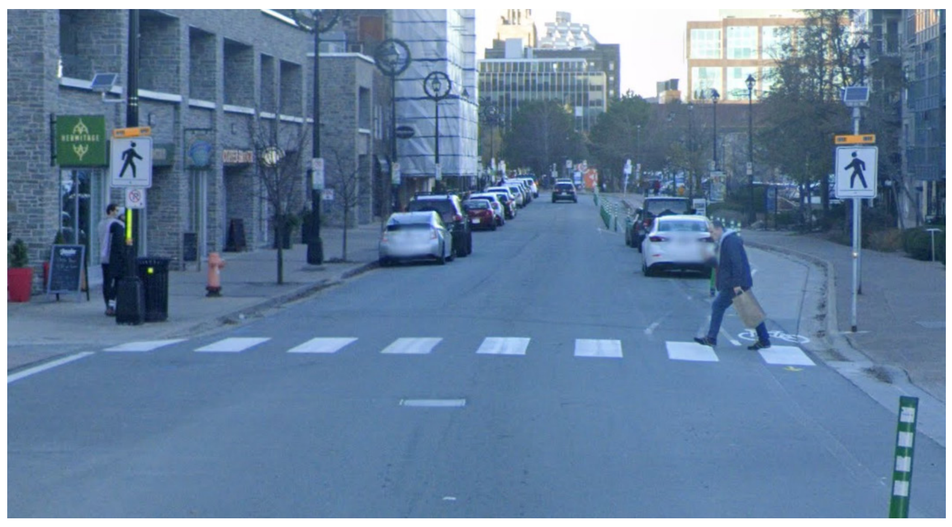




Pedestrian Activated Half-Signal

Pedestrian activated half-signals control the flow of traffic with the use of a pedestrian push-button or cyclist sensor that activate the red light for drivers and trigger a gap in traffic.

Why are they useful?
The purpose is to improve the safety and help people walking, rolling, and cycling create reliable gaps to cross with minimal delay.



Rectangular Rapid-Flashing Beacons

Rectangular Rapid Flashing Beacon (RRFB) pedestrian crossings control the flow of traffic with the use of a pedestrian push-button that activates flashing lights on the side of the road.

Why are they useful?
By placing the beacons on the side of the road they are closer to driver eye height and have been found to improve driver yielding.



Protected Cycle Lanes

One-Way Protected Cycle Lanes allow for people to cycle in one direction only. They are typically installed curbside on both sides of the street. Two-Way Protected Cycle Lanes feature two directions of bicycle travel on the same side of the street.

Why are they useful?
A physical barrier protects people cycling and minimizes interactions with vehicles except at intersections and driveways. It is more safe and comfortable for riders of all ages and abilities.

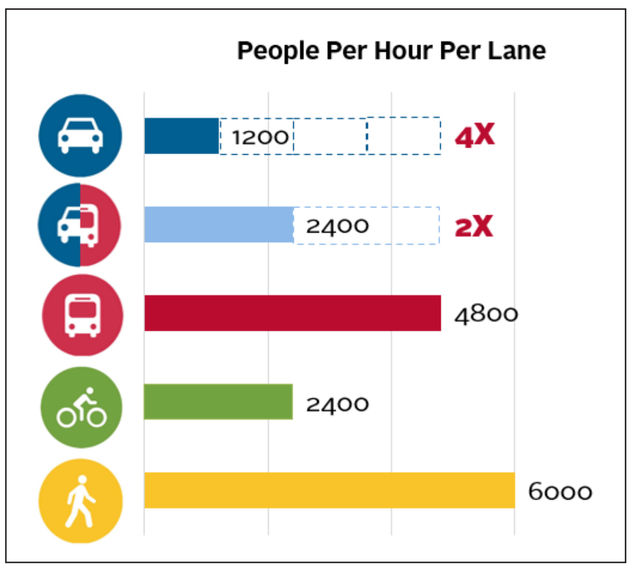
PEOPLE MOVING CAPACITY (PMC)

What is People Moving Capacity?

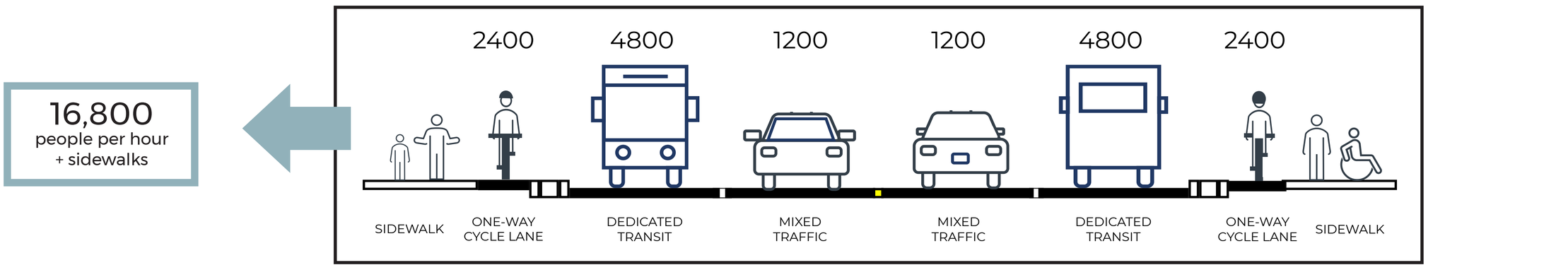
People Moving Capacity (PMC) is the number of people per hour that can be moved through a section of corridor. It is useful for considering when re-envisioning major streets and the allocation of lanes to various travel modes.

People Moving Capacity numbers were determined through researching best practices from other cities and organizations and combining it with observational data from Halifax Regional Municipality.

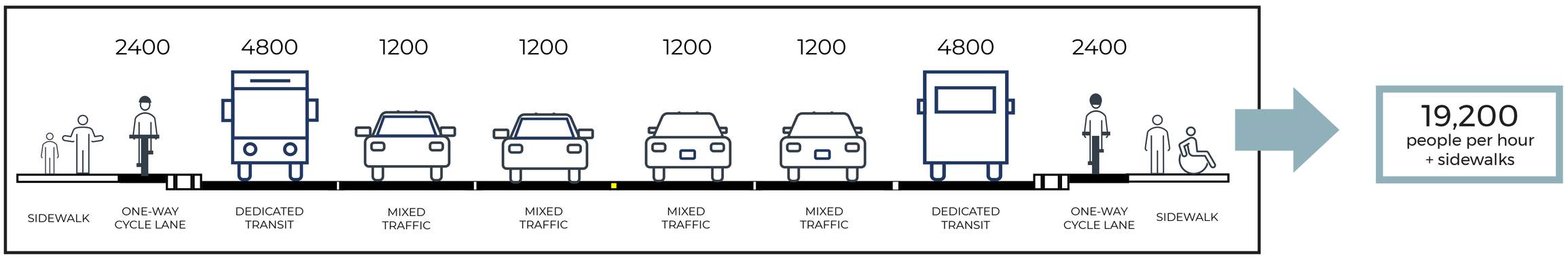
- A dedicated transit lane can move 4X as many people per hour as a vehicle lane.
- A mixed traffic with transit lane can move 2X as many people per hour as a vehicle lane.



Sample People Moving Capacity: Reallocated Scenario



Sample People Moving Capacity: Expanded Scenario



ROUNDABOUTS VS SIGNALS

Footprint:

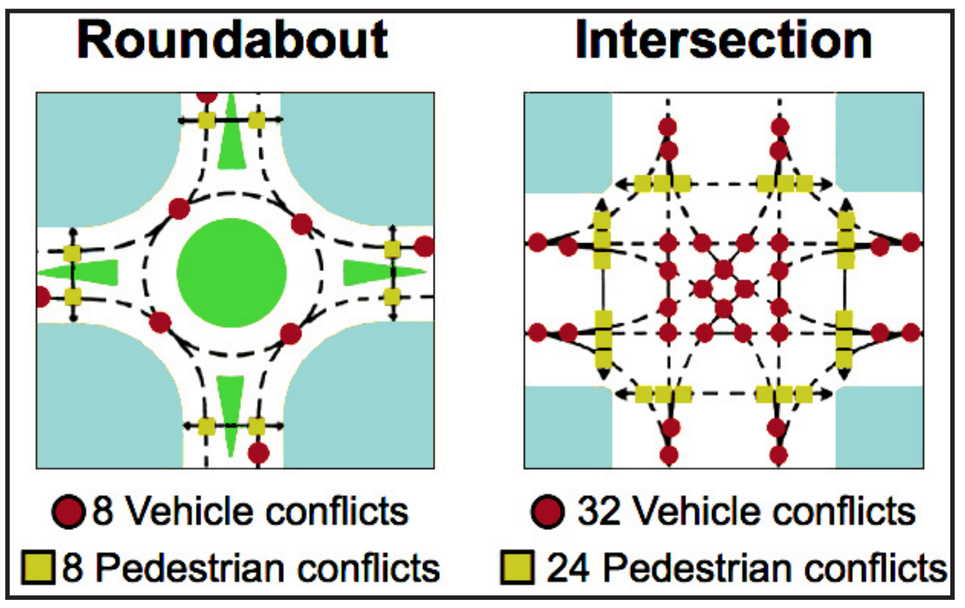
Roundabouts often demand more space to construct, which can be difficult in areas with limited land availability.



The total path length is longer at a roundabout than at signals for people walking and cycling, since the footprint is larger.

Safety:

The tight circle of a roundabout forces people driving to slow down, and the most severe types of intersection crashes — right-angle, left-turn and head-on collisions — are unlikely.



Pedestrian and Cyclist Challenges:

Although roundabouts tend to be safer for people walking, they can pose accessibility challenges to those with mobility or visual impairments. Adequate signage, ramps, and other infrastructure must be included in the design to accommodate people of all ages and abilities.

There are also legislation challenges with right-of-way for bikes. Until this is adjusted, people cycling may dismount when moving through a roundabout.

Traffic Flow:

Roundabouts tend to be more efficient than traffic lights when it comes to the flow of traffic. Vehicles can exit the roundabout without the need for traffic lights and flow continuously no matter which direction they intend to exit. Traffic lights require drivers to sit through periods of waiting as the light phases from red to green, whereas roundabouts usually maintain a moving traffic flow. Roundabouts promote corridor wide speed management by introducing curvature and yielding.

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PORTLAND STREET - COLE HARBOUR ROAD FUNCTIONAL PLAN

HRM POLICY BACKGROUND

The Portland Street - Cole Harbour Road Functional Planning project is driven and directed by the following HRM policies:

Integrated Mobility Plan

» **Managing congestion** through providing connected, healthy, affordable, and sustainable transportation options.

CONNECTED
Connects people, places, goods, and services

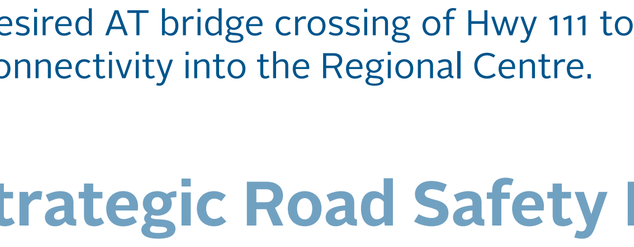
HEALTHY
Safe, comfortable, and convenient for all ages and abilities

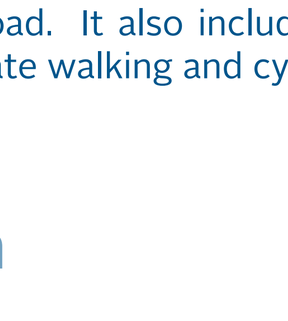
AFFORDABLE
Investment is strategic and travel is affordable

SUSTAINABLE
Environmentally, socially, and economically responsible

» Working to meet **mode share targets** of increased walking, cycling, and transit towards reduced reliance on single occupancy vehicles.

» Using a **Complete Streets lens** in street revitalization to benefit all users based on the hierarchy pyramid.







Proposed Rapid Transit Network

Active Transportation Priorities Plan

» Building a **connected network** of safe and comfortable sidewalks, bike lanes, and multi-use pathways to promote active modes of transportation (AT). This includes **wide sidewalks** in high density areas and consideration of **protected bike lanes** where possible.

» Suburban AT networks should connect into these enhanced networks in the Regional Centre, while also focusing on connectivity to **local destinations** such as schools, recreation centres, retail areas, and transit.

» Includes proposed bicycle facilities (type TBD) on Cole Harbour Road from the Portland Hills Terminal to Bissett Road. It also includes a desired AT bridge crossing of Hwy 111 to facilitate walking and cycling connectivity into the Regional Centre.

Strategic Road Safety Plan

» Installing intersection design features to address areas with past collision history.

» Separating users where possible on dedicated infrastructure.

» Promoting slow vehicle speeds along the corridor.

Rapid Transit Strategy

» Implementing a **fast, frequent, and reliable transit network** using a combination of fast ferries and four bus rapid transit (BRT) routes. Target all day BRT service with minimum 10 minute frequency.

» Proposed **BRT 'Red Line'** will operate on Portland Street between Alderney Drive and Portland Hills Terminal. Travel time to Downtown Halifax (Scotia Square) is targeted at 30 minutes or less.

» Installing **dedicated transit lanes** where possible as well as **signal priority features** at intersections to allow buses to avoid traffic congestion at busy periods.

HalifACT 2050: Climate Action Plan

» **Decarbonizing transportation** by building more infrastructure for walking, cycling, and transit.

» Helping to meet sustainable mode share targets included in the Integrated Mobility Plan.



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PORTLAND STREET - COLE HARBOUR ROAD FUNCTIONAL PLAN

LAND USE CONTEXT

Existing

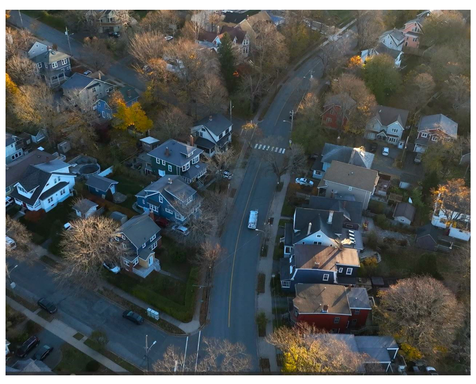
Alderney / Prince Albert to Gaston

» Low density residential uses fronting on the sidewalk

» Commercial usess present between Alderney and Pleasant, as well as Rodney and Prince Arthur

» Future proposed Five Corners Heritage Coservation District in the area between Pleasant and Maynard streets

» Mature street trees in grass boulevard



Portland at Old Ferry Rd



Portland at Hwy 111 Overpass

Gaston to Bissett

» Low density commercial and wide parking lots

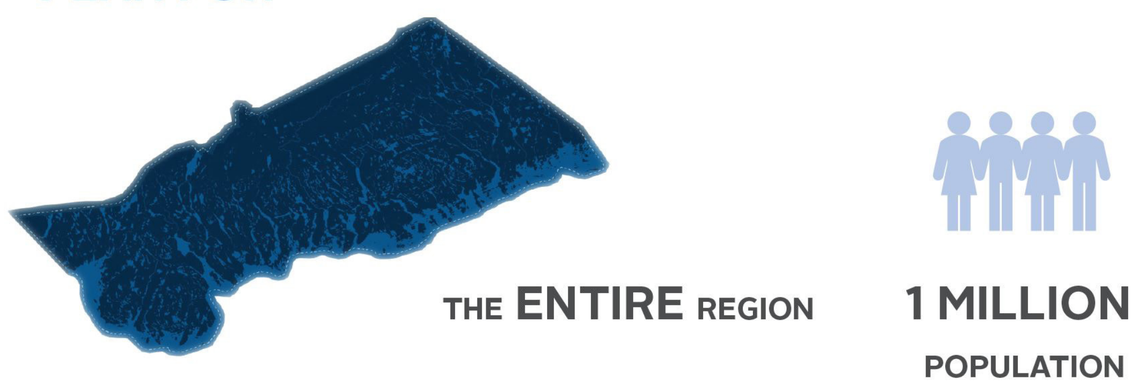
» Pockets of mid-rise residental with most homes located in low-density neighbourhoods off the primary corridor

» Small or no grass boulevards, few young trees (small, thin trunk)

» Greater intensity of uses around major intersections e.g. Woodlawn/Baker, Eisener, Portland Hills, Caldwell, Forest Hills

Future

Based on the high population growth the municipality has experienced in recent years, which is anticipated to continue, the Municipality is on track to double its population in the next 25-30 years. Infrastructure decisions are being made with this additional demand in mind, towards supporting a region of around 1 million people.



For the Portland Street - Cole Harbour Road area, this could mean an additional 10,000 people living in adjacent neighbourhoods inside the Circumferential Highway, and an additional 50,000 people living in adjacent neighbourhoods outside the Circumferential Highway. This could result in at least 50% more people travelling along the corridor.

Future land use could look like:

» Increased density along the study corridor with mixed use commercial and residential buildings directly fronting sidewalk. Greatest height and density centred around rapid transit stations and terminals.

» More businesses and employers drawing people here to work, shop, and play

» Building complete communities that are walkable and compact, which allow access to essential services without use of a car

» Higher quality pedestrian streetscapes and multi-modal transport options (like transit and cycling lanes) that move people safely and efficiently

SUBURBAN PLAN

The municipality is currently developing a new Suburban Plan that will guide development in the area outside of the Regional Centre, where municipal services exist. This project is just getting started and will include significant engagement with residents and community groups.

The Suburban Plan will review and create new land use policies that better reflect the needs of suburban communities. Some elements include:

Rapid Transit *Focusing growth in areas serviced by high frequency transit and supporting transit oriented communities*

Missing Middle *Introducing more townhouses and small multi-unit dwellings to support walkable complete communities*

Gentle Density *Allowing additional units that have little impact on a neighbourhood's character and provide more housing options for residents*

Next Steps

Completing public engagement and background studies to confirm the vision, objectives, and potential areas for growth for the Suburban Plan.



Transit-Oriented Communities (Source: WWF Sustainability Lab, 2016)

Transit-Oriented Communities

The goal is to develop communities where the land use is informed by and supportive of transportation networks, in particular, where there is high frequency transit. The greatest density of homes, shops, and services should be located within walking distance of these transit stops and terminals. In the Rapid Transit Strategy this is defined by an 800m radius or a 5 minute walk/roll.

There should be a mix of housing and services to strive towards 'complete communities' where people have most things they need within a short trip that can be completed by walking/rolling, cycling, or transit.

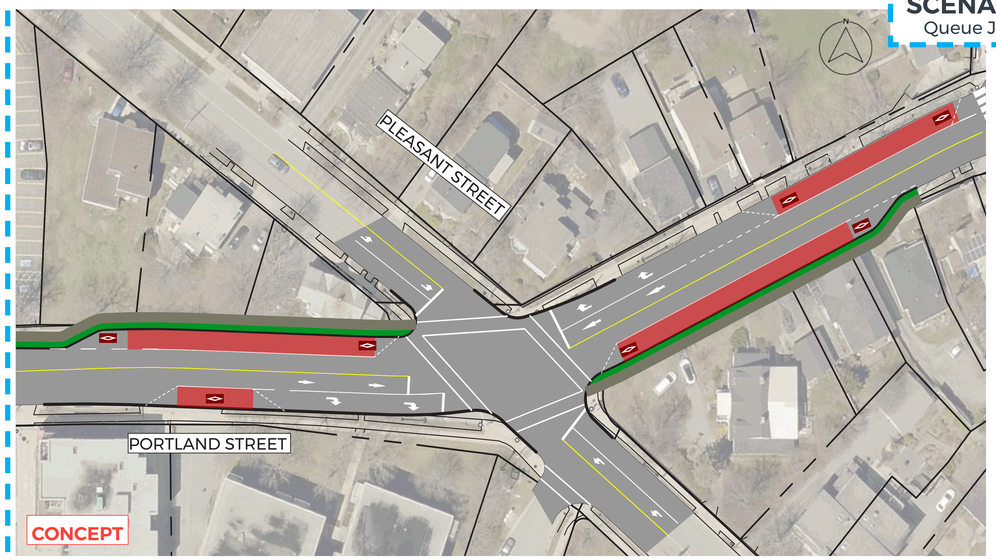
These principles will be used when planning for the future of this area.

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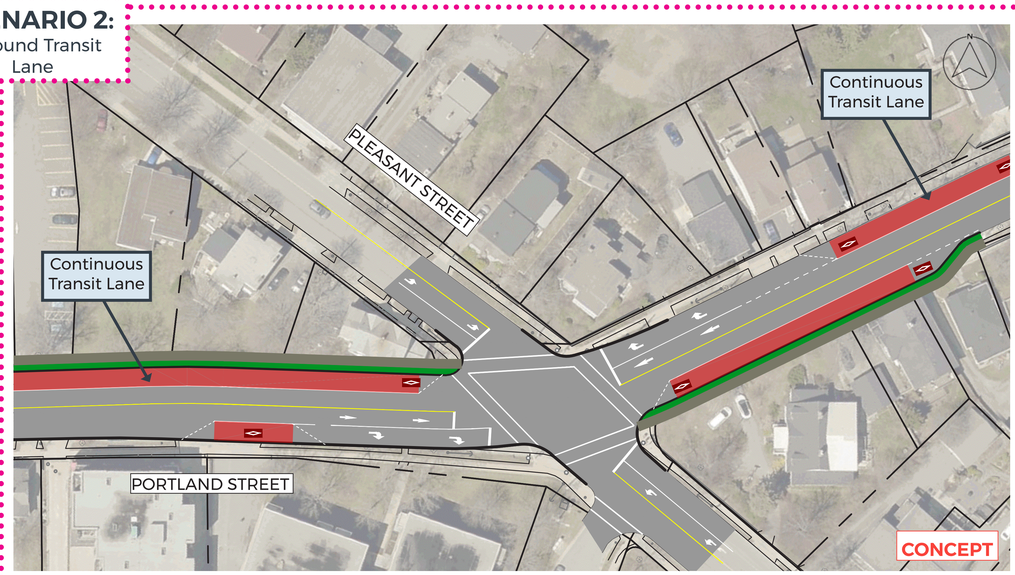
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PORTLAND STREET: ALDERNEY DRIVE TO GASTON ROAD

SCENARIO 1: Queue Jumps



SCENARIO 2: Inbound Transit Lane

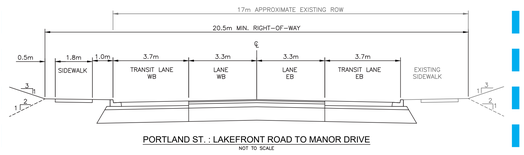




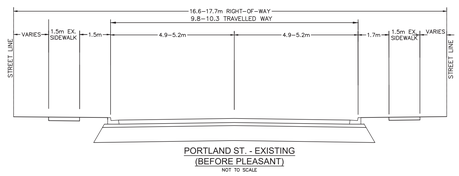
LEGEND

- Sidewalk
- Grass Boulevard
- Dedicated Transit Lane
- Cycle Lane
- Multi-Use Pathway

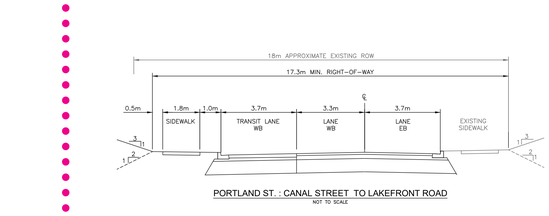
Queue Jumps: At Intersection

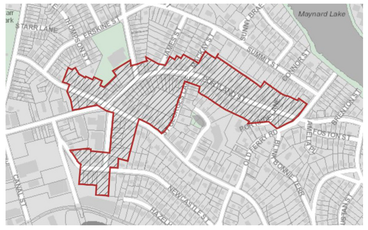


Queue Jumps: Midblock

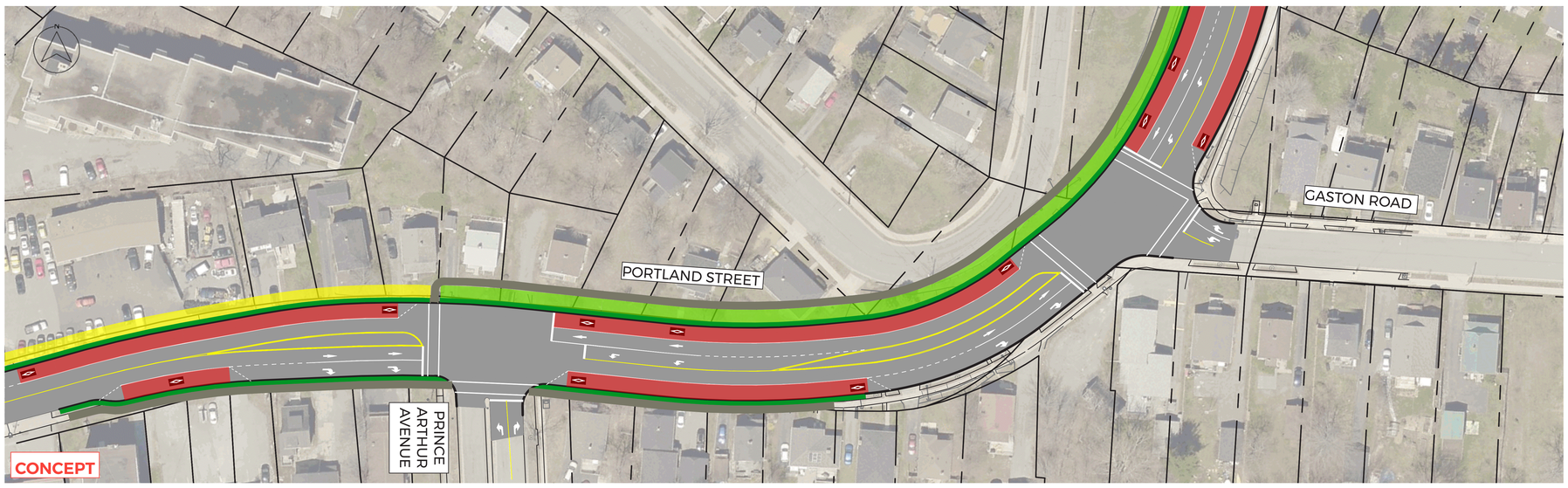


	SCENARIO 1: Queue Jumps at Intersections	SCENARIO 2: Inbound Transit Lane
	» 4 lane crossing distances. » Existing sidewalk untouched, some widening at intersections.	» 4 lane crossing distances. » Potential widening of north side sidewalk and boulevard.
	BETTER	BETTER
	» Alternative routes proposed with connection at Manor Drive (see Cycling Connections board for details).	» Alternative routes proposed with connection at Manor Drive (see Cycling Connections board for details).
	GOOD	GOOD
	» Some improved transit time + reliability, reduced delay at intersections. » Queue jumps in both directions.	» More improved transit time + emphasize reliability for inbound buses. » Continuous dedicated inbound transit lane. » Queue jumps in the outbound direction.
	GOOD	BETTER
	» Less congestion and queueing than the existing corridor. » No change to vehicle capacity.	» Less congestion and queueing than the existing corridor. » No change to vehicle capacity.
	GOOD	GOOD
	» Some property impacts mostly at intersections. Narrow strip of property acquisition may be required. » Existing tree boulevards remain, with some impact at intersections. Opportunity to replant in new location. » Smaller potential changes to street character within proposed Heritage Conservation District. » Moderate impact to utilities.	» Significant number of properties impacted, likely north side. Narrow strip of property acquisition may be required. » Tree boulevards are impacted, likely north side. Opportunity to widen and replant in new location. South side untouched. » Potential changes to street character within proposed Heritage Conservation District. » Significant impact to utilities.
	GOOD	OKAY
$-$$$	$	$$





Proposed Future Five Corners Heritage Conservation District



SCENARIO Inbound Transit Lane

Changes:

» Dedicated transit lane in both directions.

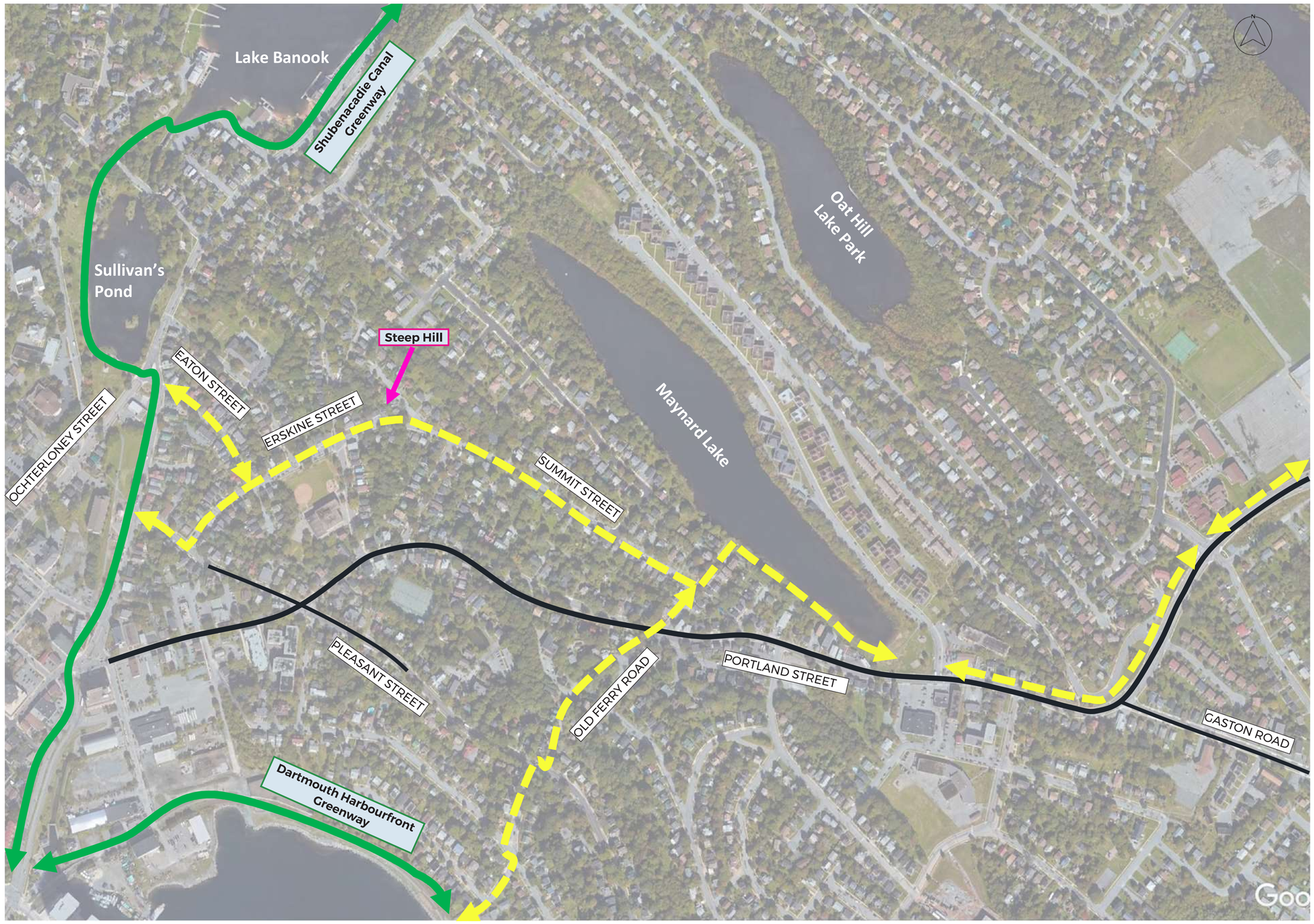
Impacts:

» **Less congestion and queueing than the existing corridor.**
» **No change to vehicle capacity.**
» **Property and mature tree impacts.**
» Improved emergency access.
» Promotes corridor-wide speed management.
» Significant impact to utilities.

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CYCLING CONNECTIONS - ALDERNEY DRIVE TO GASTON ROAD



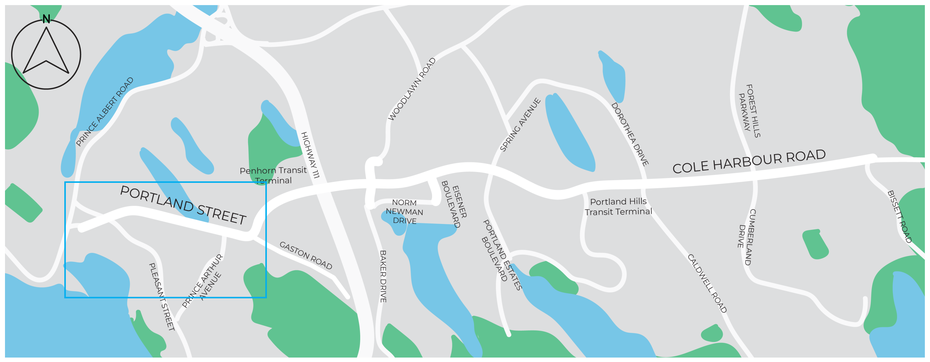
Due to constraints in grade and width along some sections of Portland Street, it is proposed that the cycling facilities along this section of the corridor be moved off of Portland Street to provide connection to the rest of the network.

It is very challenging to fit both transit priority features and protected bike lanes along this section. Either buses would run in mixed traffic, or an even greater amount of trees, utilities, and properties would be implicated.

The decision was made to prioritize bus travel on the Council designated transit priority corridor and find nearby alternative routing for bicycling.

The selected cycling route is relatively parallel to Portland Street without significant diversion. It would be upgraded to an all ages and abilities (AAA) facility and linked to the network in 1-2 places. The cycling facility will likely be a local street bikeway style but is subject to additional analysis.

There are some challenges associated with grade in the outbound direction. One block of Erskine Street does not meet grade requirements for an all ages and abilities (AAA) cycling facility. Able riders could dismount if necessary and those on e-bikes will climb more easily.



LEGEND

- Steep Grade Sections
- Existing/Future Cycling Network
- Overall Option

The alternative routing options are intended to provide connectivity to:

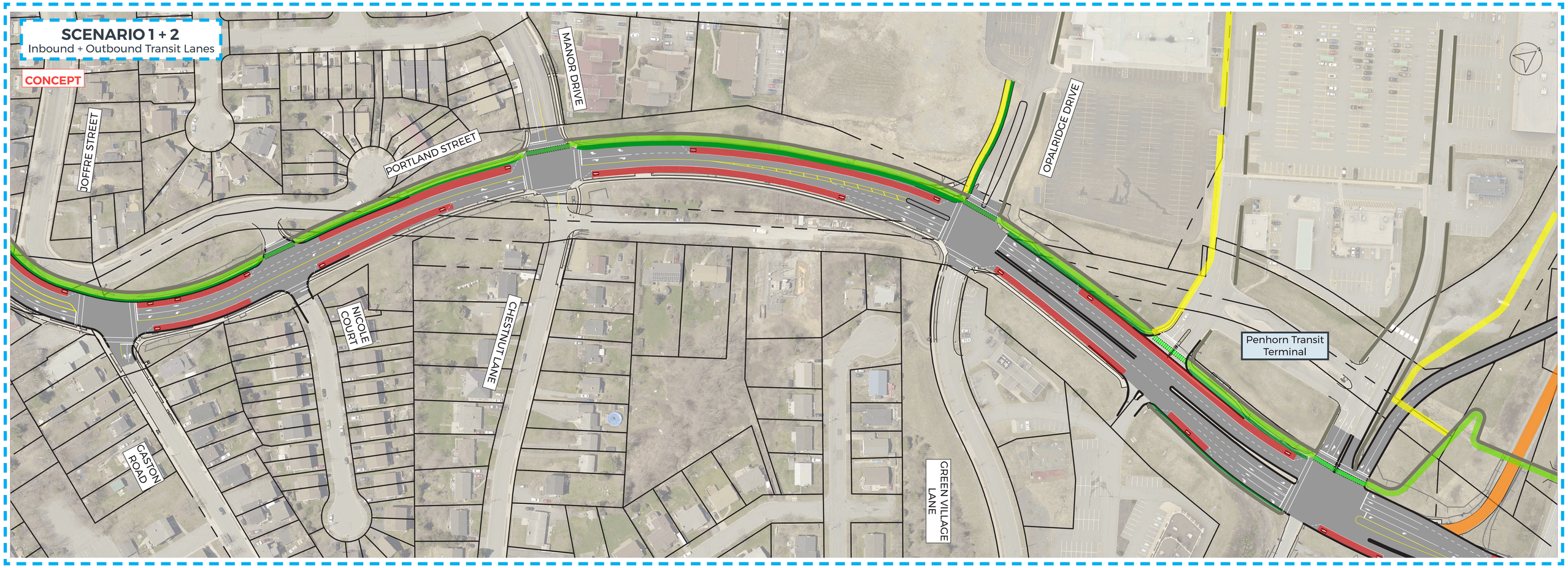
- Shubenacadie Canal Greenway via Pleasant St or Eaton Streets
- Dartmouth Harbourfront Greenway via Old Ferry Road or Prince Arthur Ave

(Exact routing is subject to change with confirmation in future design phases)

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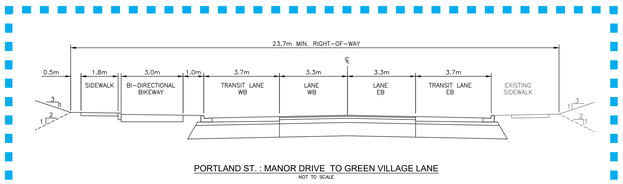
PORTLAND STREET: GASTON ROAD TO PENHORN



LEGEND

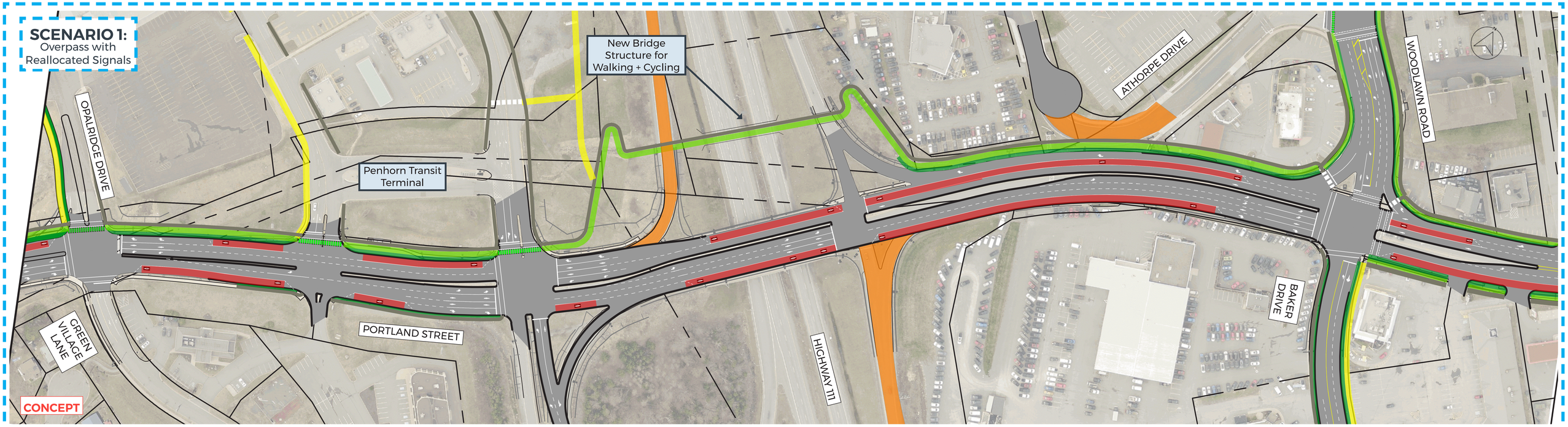
- Sidewalk
- Grass Boulevard
- Dedicated Transit Lane
- Cycle Lane
- Multi-Use Pathway





					$ $-$$$
SCENARIO 1 + 2 Inbound + Outbound Transit Lanes	» Sidewalks with roadway buffer. » Active transportation crossings at intersections. » Separation from people cycling. » 4-5 lane crossing distances.	» Protected two-way bikeway with roadway buffer on the north side. » Separation from people walking/rolling. » Connectivity to Penhorn multi-use pathway system.	» Dedicated transit lane in both directions. » Right turn except buses at intersections. » Improved transit time + reliability.	» No impact to vehicle capacity. » Less congestion and queueing than the existing corridor.	» Some property acquisition at intersections. » Moderate impact to utilities and juvenile trees on the north side.	$
	BETTER	BETTER	BEST	BETTER	GOOD	

PORTLAND STREET: PENHORN TO BAKER DRIVE

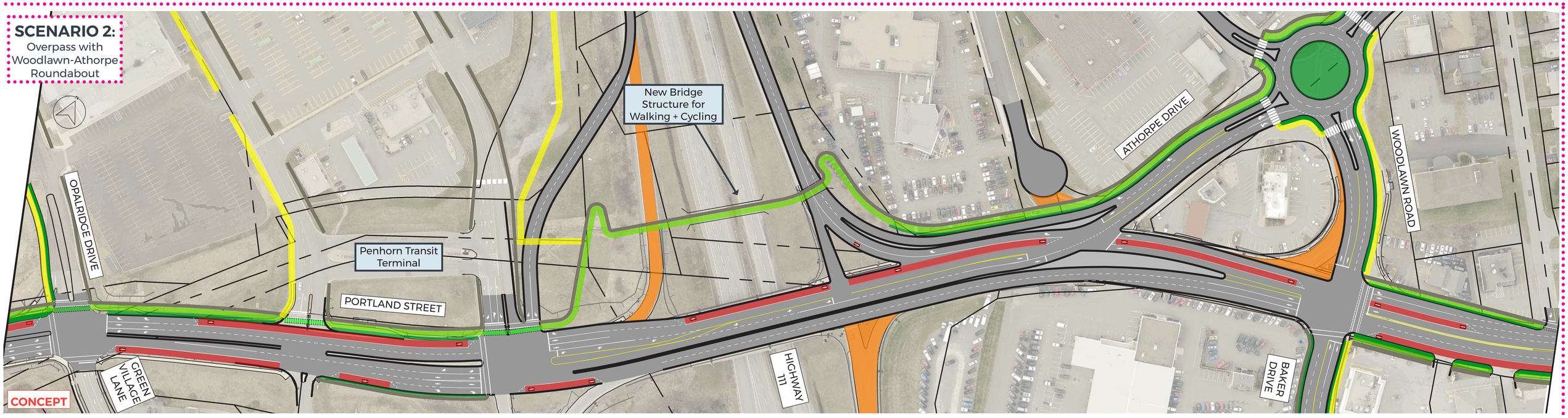




LEGEND

- Sidewalk
- Grass Boulevard
- Dedicated Transit Lane
- Cycle Lane
- Multi-Use Pathway
- Closures/Realignments

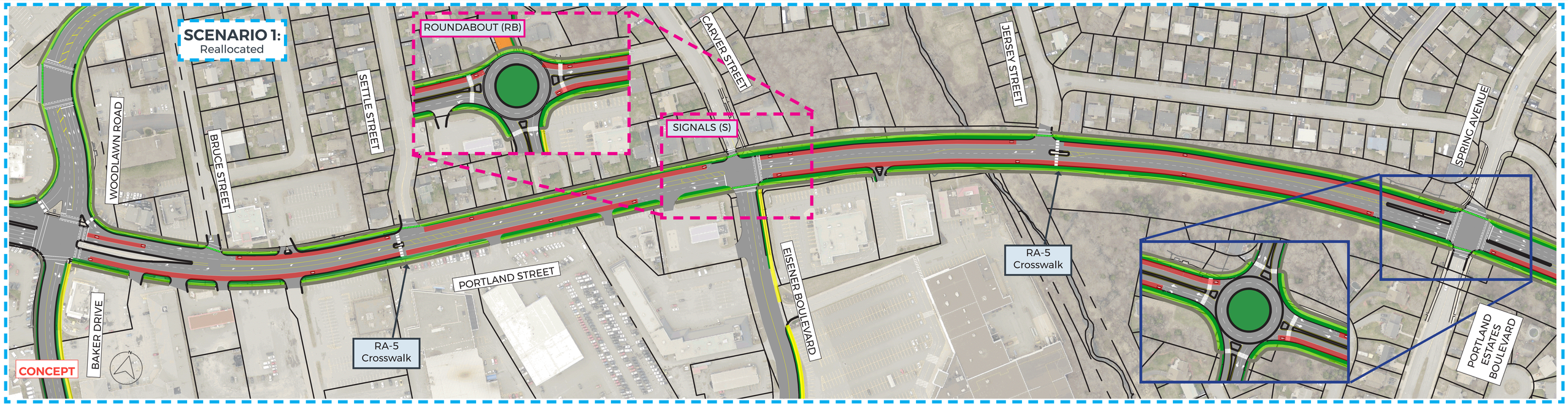
					$ $-$$$
SCENARIO 1: Overpass with Reallocated Signals	» **Wide sidewalks with roadway buffer.** » Shorter crossing distance (4-5 lanes). » Bridge across Highway 111. » Entirely separate from bicycles. BETTER	» **Wide two-way bikeway with roadway buffer.** » **Bridge across Highway 111.** » **Most direct.** » **Least amount of mixing with pedestrians.** BETTER	» Dedicated transit lane in both directions. » Right turn except buses at intersections. » **Improved transit time + reliability** » Longer delay at Woodlawn / Baker signal. BETTER	» **Longer signal length + delay at Woodlawn / Baker.** » **Reduction in vehicle capacity to one lane across overpass.** » **Realigned access ramp improves viewing angles.** OKAY	» Less property acquisition than Scenario 2. » Less impact to utilities than Scenario 2. » Minimal tree impact, opportunity to plant trees in boulevard. BETTER	$$
SCENARIO 2: Overpass with Woodlawn-Athorpe Roundabout	» **Wide sidewalks with roadway buffer.** » Longer crossing distance (4-7 lanes). » Bridge across Highway 111. » Short section of multi-use pathway. » Longer travel distance and roundabout crossings. » No left-turn conflicts at Woodlawn / Baker. GOOD	» **Wide two-way bikeway with roadway buffer.** » **Bridge across Highway 111.** » **Short section of shared multi-use pathway.** » **Less direct and has roundabout crossings.** GOOD	» Dedicated inbound transit lane. » Gap in outbound transit lane at overpass. » Right turn except buses at intersections. » **Improved transit time + reliability** » Shorter delay at Woodlawn / Baker signal. GOOD	» **Shorter signal length + less delay at Woodlawn / Baker.** » **Increase to vehicle capacity.** » **Realigned access ramp improves viewing angles.** » **Significant routing changes required.** GOOD	» More property acquisition than Scenario 1 for roundabout and Athorpe ramp. » More impact to utilities than Scenario 1. » Minimal tree impact, opportunity to plant trees in boulevard. » Roundabouts could promote slower vehicle speeds. OKAY	$$$



HALIFAX

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PORTLAND STREET: BAKER DRIVE TO PORTLAND ESTATES BOULEVARD

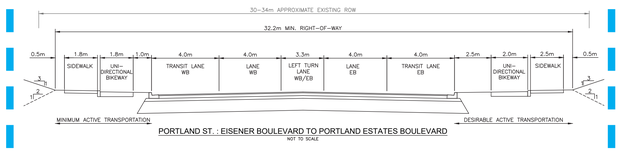


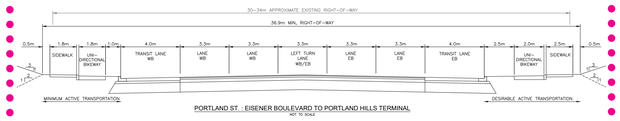


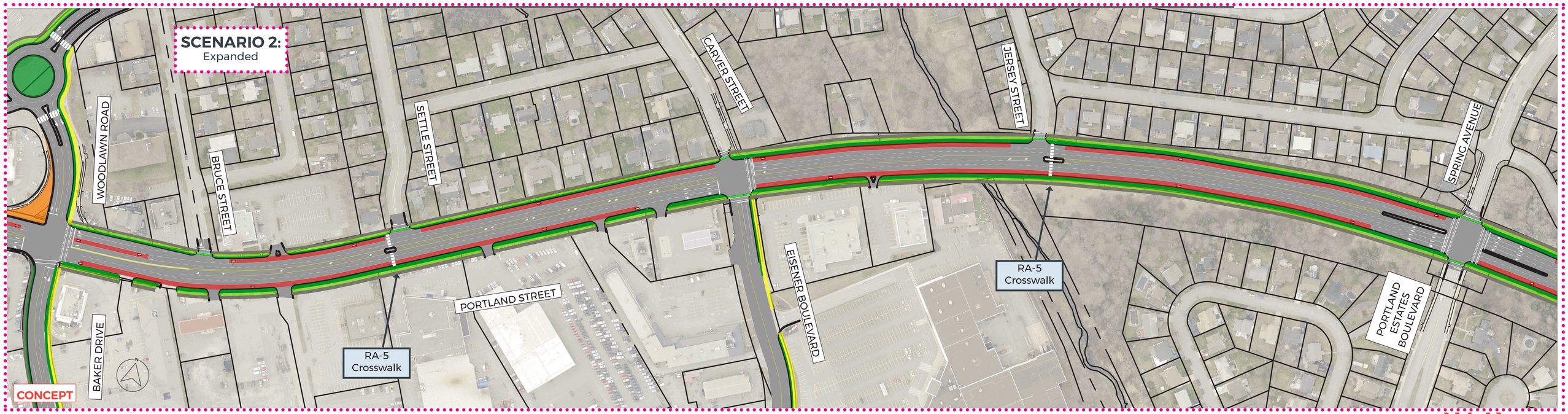
LEGEND

- Sidewalk
- Grass Boulevard
- Dedicated Transit Lane
- Cycle Lane
- Multi-Use Pathway
- Closures/Realignments

						$-$$$
SCENARIO 1: Reallocated	» Wide sidewalks with roadway buffer. (S/RB) » Shorter crossing distances (4-5 lane). (S/RB) » Two stage crossing of 1-2 lanes at a time across roundabouts. (RB) » Longer path and roundabout crossings. (RB) » Separate from bicycles. (S/RB) S: BETTER RB: GOOD	» Wide one-way bikeways with roadway buffer. (S/RB) » Potential roundabout crossings. (RB) S: BEST RB: GOOD	» Improved transit time + reliability. (S/RB) » Dedicated transit lane in both directions. (S/RB) » Right turn except buses at signals or roundabouts. (S/RB) S: BETTER RB: GOOD	» One through lane for cars with strategic turn lanes. (S/RB) » Less congestion and queueing than the existing corridor. (S/RB) » More congestion and queueing than Scenario 2. (S/RB) » Reduction in vehicle capacity. (S/RB) » Potential maneuvering challenges with roundabouts. (RB) S: OKAY RB: GOOD	» Minimal property acquisition required with exception of at roundabout intersections. (RB) » Minimal impact to utilities. (S/RB) » Opportunity for wider buffers, tree planting. (S/RB) » Most energy efficient cross-section. (S/RB) S: BETTER RB: GOOD	S: $ RB: $$
SCENARIO 2: Expanded	» Wide sidewalks with roadway buffer. » Longer crossing distances (6-7 lane). » Separate from bicycles. GOOD	» Wide one-way bikeways with roadway buffer. » Longer crossing distances, more vehicles. BETTER	» Improved transit time + reliability. » Dedicated transit lane in both directions. » Right turn except buses at signals. BETTER	» Maintain two through lanes for cars with strategic turn lanes. » Less congestion and queueing than the existing corridor. » Less congestion and queueing than Scenario 1. » Higher vehicle capacity. BETTER	» Property acquisition along the corridor for widening on both sides. » Significant impact to utilities. » Opportunity for wider buffers, tree planting. » Less energy efficient cross-section, more asphalt. OKAY	$$$



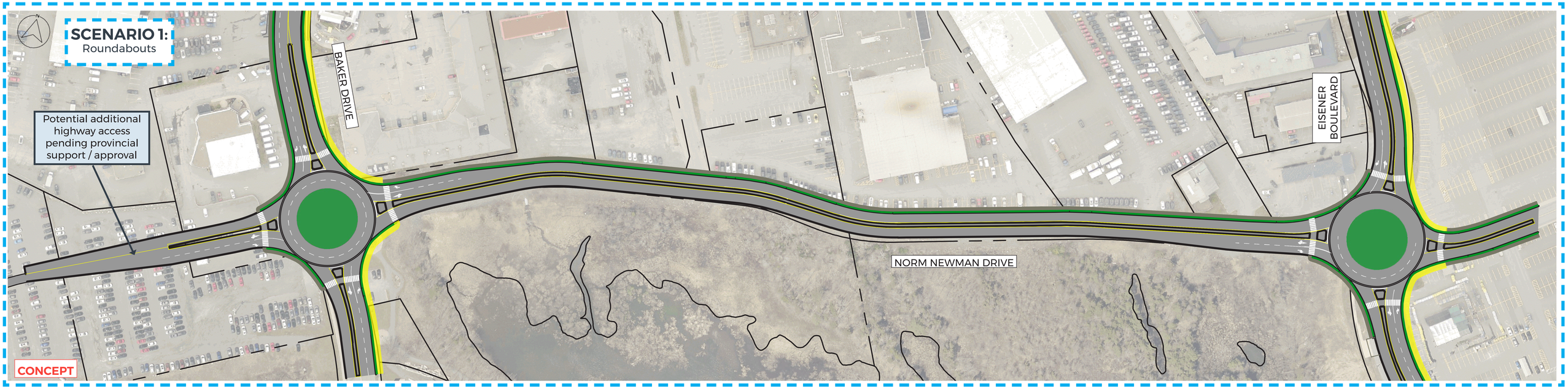




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NORM NEWMAN DRIVE: BAKER DRIVE TO EISENER BOULEVARD

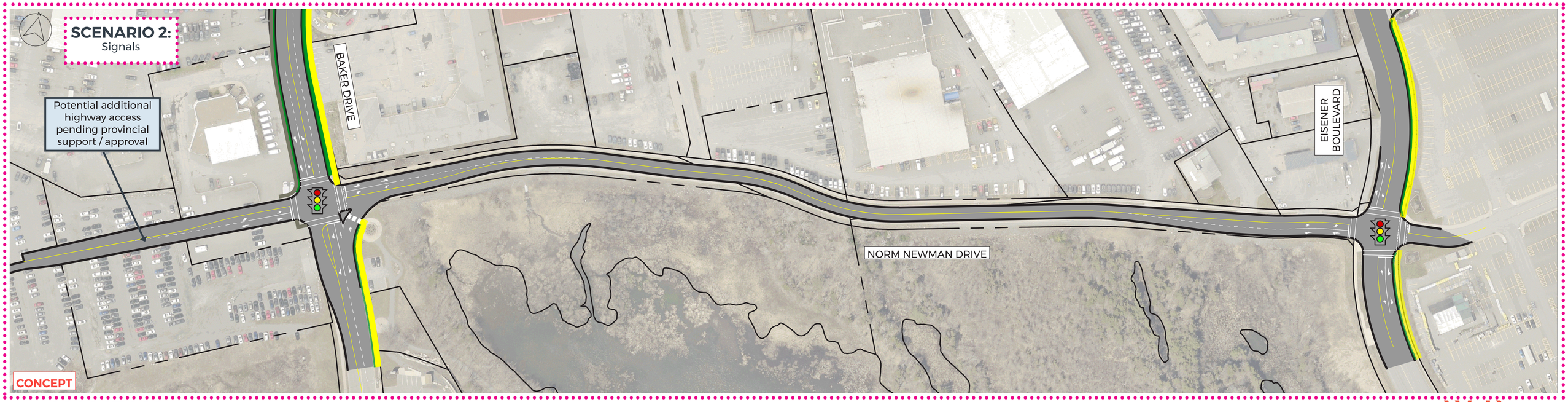




LEGEND

- Sidewalk
- Grass Boulevard
- Multi-Use Pathway

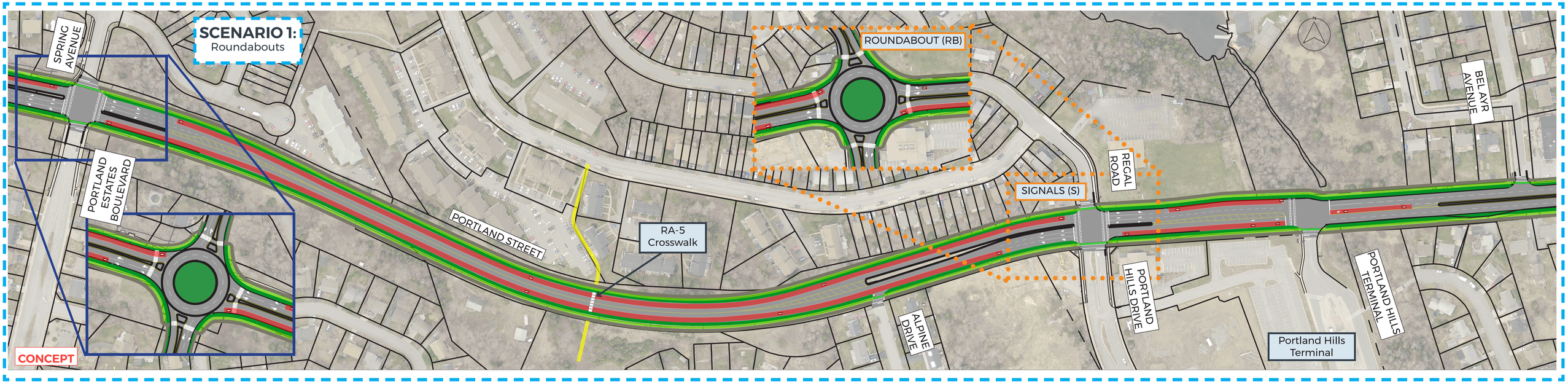
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SCENARIO 1: Roundabouts	» Wide sidewalk with roadway buffer on the north side of Norm Newman Drive. » 2-3 lane crossing distances. » Two stage crossing 1-2 lanes at a time across a roundabout. » Longer path and roundabout crossings. » Multi-use pathway shared with bikes on Baker and Eisener. GOOD	» Multi-use pathway connections on Baker Drive and Eisener Boulevard. » Challenges with roundabout crossings, less direct route. GOOD	» No impact to transit. N/A	» Less congestion and queueing than the existing corridor. » Less congestion and queueing than Scenario 2. » Increase to vehicle capacity at roundabouts. » Potential maneuvering challenges at roundabouts. BETTER	» Property acquisition for roundabouts. » Property acquisition for access realignment. » Minimal impact to utilities. » Potential traffic calming effect of roundabout and fewer conflict points. OKAY	$$
SCENARIO 2: Signals	» Wide sidewalk with roadway buffer on the north side of Norm Newman Drive. » 2-3 lane crossing distances. » Multi-use pathway shared with bikes on Baker and Eisener. BETTER	» Multi-use pathway connections on Baker Drive and Eisener Boulevard. » Signalized crossing is more direct but with more delay. BETTER	» No impact to transit. N/A	» Less congestion and queueing than the existing corridor. » More congestion and queueing than Scenario 1. » No change to vehicle capacity. GOOD	» Property acquisition for access realignment. » Minimal impact to utilities. GOOD	$



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PORTLAND STREET: PORTLAND ESTATES BOULEVARD TO PORTLAND HILLS TERMINAL

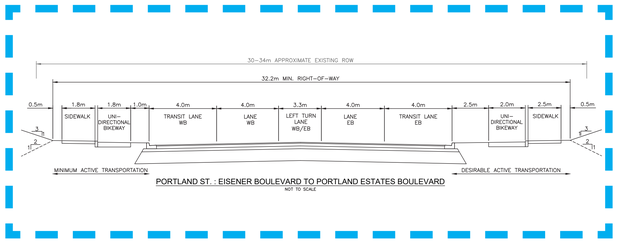


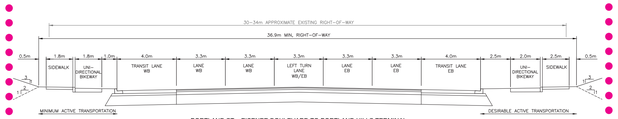


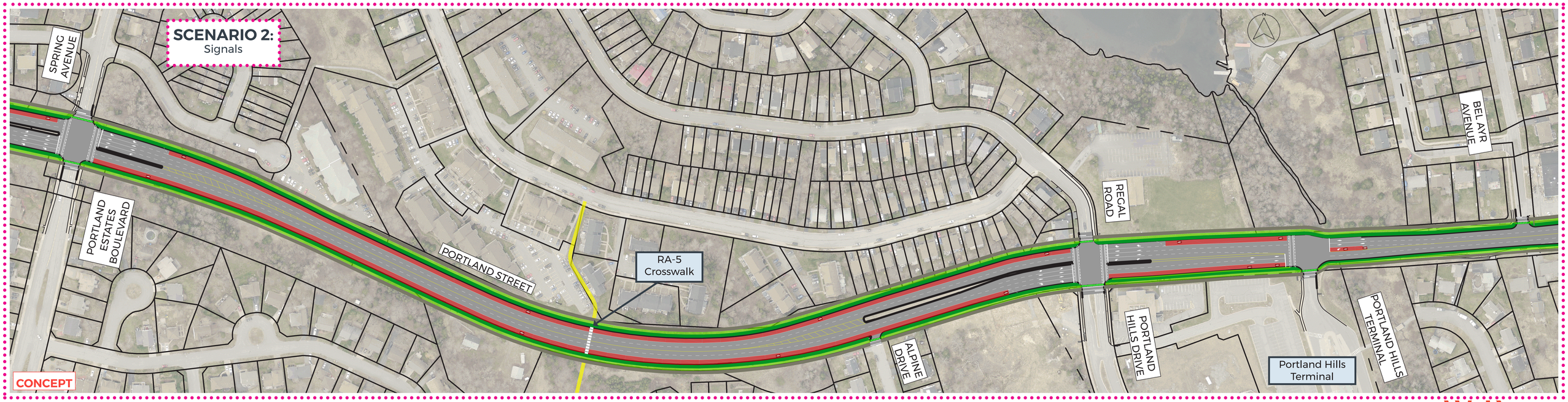
LEGEND

- Sidewalk
- Grass Boulevard
- Dedicated Transit Lane
- Cycle Lane

						$ $-$$$
SCENARIO 1: Reallocated	» Wide sidewalks with roadway buffer. (S/RB) » Shorter crossing distances (4-5 lane). (S/RB) » Two stage crossing of 1-2 lanes at a time across roundabout. (RB) » Longer path and roundabout crossings. (RB) » Entirely separate from bicycles. (S/RB) S: BETTER RB: GOOD	» Wide one-way bikeways with roadway buffer. (S/RB) » Potential roundabout crossings. (RB) S: BEST RB: GOOD	» Improved transit time + reliability. (S/RB) » Dedicated transit lane in both directions. (S/RB) » Right turn except buses at signals or roundabouts. (S/RB) S: BETTER RB: GOOD	» One through lane for cars with strategic turn lanes. (S/RB) » Less congestion and queueing than the existing corridor. (S/RB) » More congestion and queueing than Scenario 2. (S/RB) » Reduction in vehicle capacity. (S/RB) » Potential maneuvering challenges with roundabouts. (RB) S: OKAY RB: GOOD	» Improved emergency access. (S/RB) » Minimal property acquisition required with exception of at roundabout intersections. (RB) » Minimal impact to utilities. (S/RB) » Opportunity for wider buffers, tree planting. (S/RB) » Most energy efficient cross-section. (S/RB) S: BETTER RB: GOOD	S: $ RB: $$
SCENARIO 2: Expanded	» Wide sidewalks with roadway buffer. » Longer crossing distances (6-7 lanes). » Entirely separate from bicycles. GOOD	» Wide one-way bikeways with roadway buffer. BETTER	» Improved transit time + reliability. » Dedicated transit lane in both directions. » Right turn except buses at signals. BETTER	» Maintain two through lanes for cars with strategic turn lanes. » Less congestion and queueing than the existing corridor. » Less congestion and queueing than Scenario 1. » Higher vehicle capacity. BETTER	» Improved emergency access. » Property acquisition along the corridor for widening on both sides. » Significant impact to utilities. » Opportunity for wider buffers, tree planting. » Less energy efficient cross-section, more asphalt. OKAY	$$$







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RENDERINGS: REALLOCATED VS EXPANDED

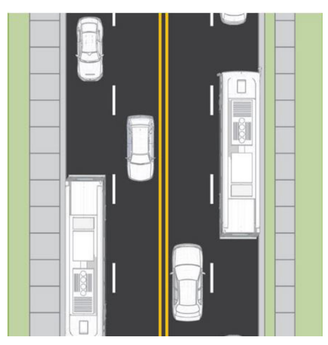
Woodlawn/Baker to Portland Hills Terminal

To achieve high quality bus rapid transit (BRT) service on Portland Street, we need to install dedicated transit lanes as much as possible. This will help buses stay out of congestion and move people faster.

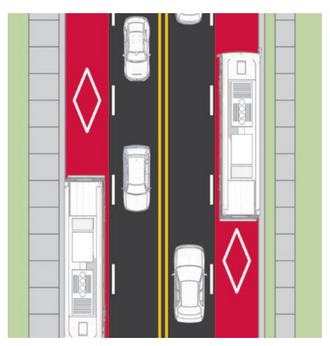
Where there are currently two mixed traffic lanes in each direction, the available options are to:

(1) Covert existing curb lanes to dedicated bus lanes, or

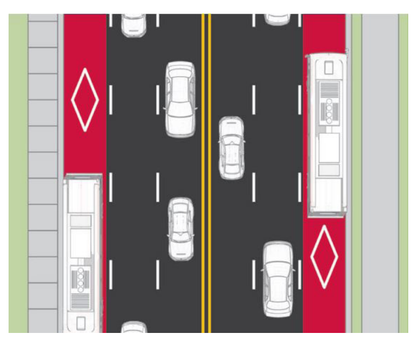
(2) Widen the street to add additional dedicated bus lanes



Existing:
Shared Traffic Lanes



(1) Convert Existing
Curb Lanes to Bus Lanes



(2) Widen the Street to Add
Additional Bus Lanes

See below for a visualization of what these changes could look like at the intersection of Portland Street at Eisener Boulevard.

(1) Reallocated / Lane Conversion Scenario



Scenario 1 -- Portland at Eisener Looking East (Outbound)



Scenario 1 -- Portland at Eisener Looking West (Inbound)

Trade Offs:

-- Quickest, least expensive way to achieve high quality BRT
-- Minimal property requirements or impacts to trees + utilities
-- Less vehicle capacity with only one through lane (some turn lanes)
-- Overall greater people-moving efficiency + range of transport options
-- Shorter crossing distances for people walking/rolling and cycling
-- Slower travel speeds, reduced severity of collisions

-- Better aligns with IMP and HalifACT policies
-- Assumes transit ridership of over 35% , driving rate of under 50%

(2) Expanded / Street Widening Scenario



Scenario 2 -- Portland at Eisener Looking East (Outbound)



Scenario 2 -- Portland at Eisener Looking West (Inbound)

Trade Offs:

-- More expensive way to achieve high quality BRT while maintaining existing vehicle capacity (two through lanes)
-- Requires significant property acquisition for road widening on one or both sides. This could take many years to achieve.
-- Impacts to trees, utilities, and adjacent homes/businesses
-- Provides transport options without incentivizing transit ridership
-- Longer crossing distances for people walking/rolling and cycling
-- Enables faster travel speeds, potentially increased collision severity

-- Does not align as well with IMP and HalifACT policies
-- Assumes transit ridership of under 25%, driving rate of over 65%

PORTLAND STREET - COLE HARBOUR ROAD FUNCTIONAL PLAN

POTENTIAL FOR MEDIAN TRANSIT LANES

Current Design: Curbside Transit

The proposed scenarios for Portland Street focus on dedicated transit lanes travelling along the curb (outside) lane. This matches other bus lane treatments around the Municipality. Curbside bus lanes are typically easier to build as there are less infrastructure changes required.

Future Consideration: Median Transit

Other cities are considering the installation of median transit, aka centre running bus lanes to furthur improve travel time reliability and priority at intersections. Nearby examples include Columbus Ave (Boston) and Chapman Mills Dr (Ottawa). See sample photo below.

Key features include:

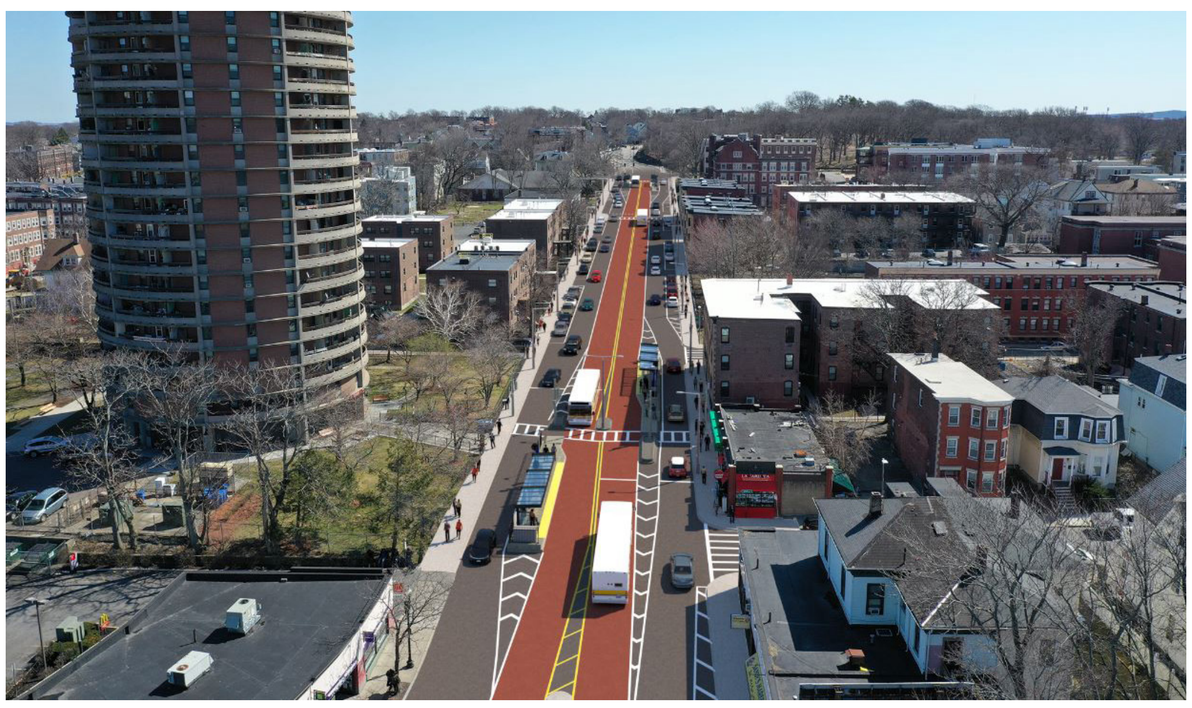
-- Dedicated bus lanes in the centre of the street

-- Stops located in the centre of the street at signalized intersections

-- Left turns permitted only at signalized intersections. The centre transit island restricts left turns into and out of unsignalized side streets and driveways

-- Minimal interaction between buses and private vehicles e.g. no lane sharing on intersection approach and maintained priority at intersection

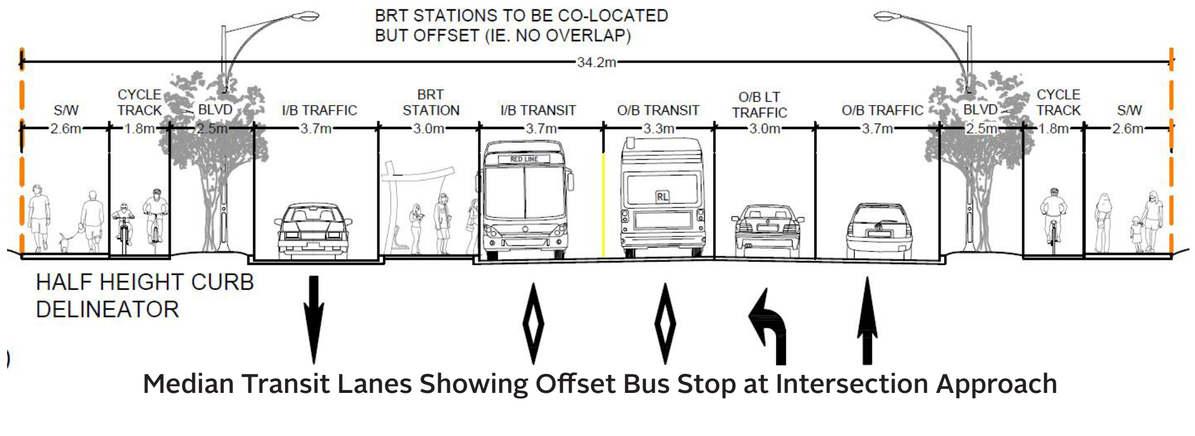
-- More easily converted to light rail in future if needed



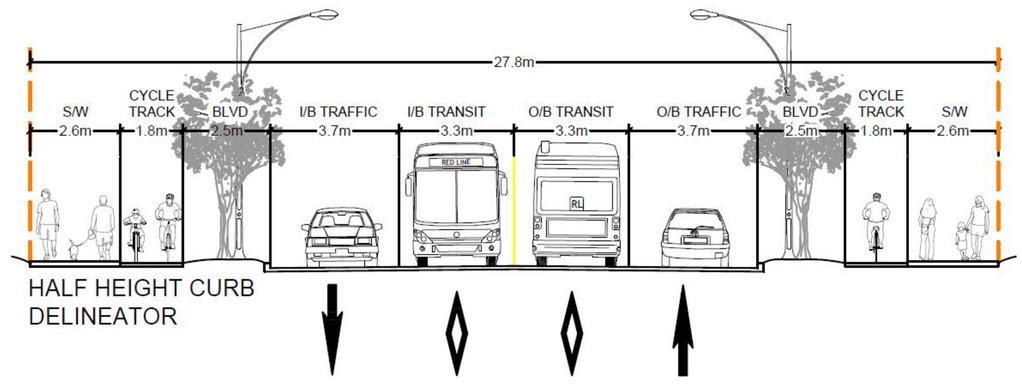
Aerial View of Columbus Avenue Median Transit Lanes in Boston, USA

For Portland Street, median transit lanes could be considered as a future treatment between Penhorn Terminal and Portland Hills Terminal. See he adjacent cross sectionsfor what median transit could look like.

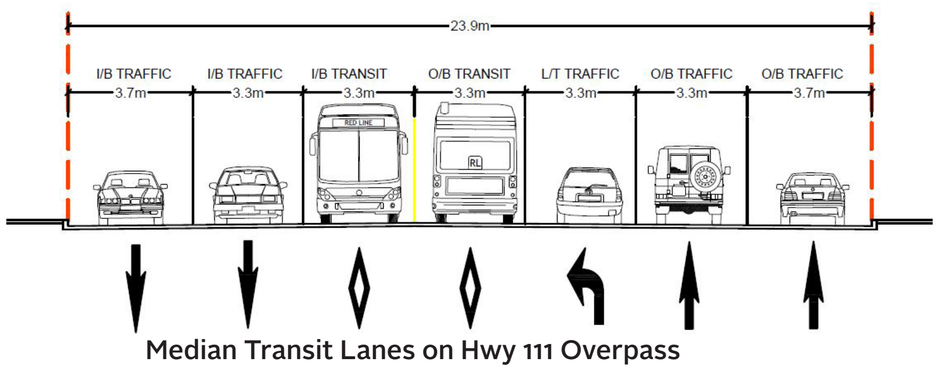
Some property acquistion would be required, particularly around intersections to accommodate bus stops and added turn lanes. However, there is likely less mid-block property acquisition required than the 'Expanded' Scenario 2 for this segment.



Median Transit Lanes Showing Offset Bus Stop at Intersection Approach



Median Transit Lanes Mid-Block



Median Transit Lanes on Hwy 111 Overpass

Comparison Summary

Curbside Transit Lanes:

-- Easiest to retrofit

-- Less property requirements

-- Good reliability, transit priority

-- Mixing with right turning cars at intersections and driveways

-- Longer crossing distances

Median Transit Lanes:

-- Best reliability, travel times, overall transit priority

-- More infrastructure required, acquisition at intersections

-- Enhances safety with fewer turning conflicts with traffic

-- Multiple short crossings

Seed Question:

Should HRM take a phased approach to install curbside bus lanes first, or skip directly to installing median bus lanes?

Implementation Phasing

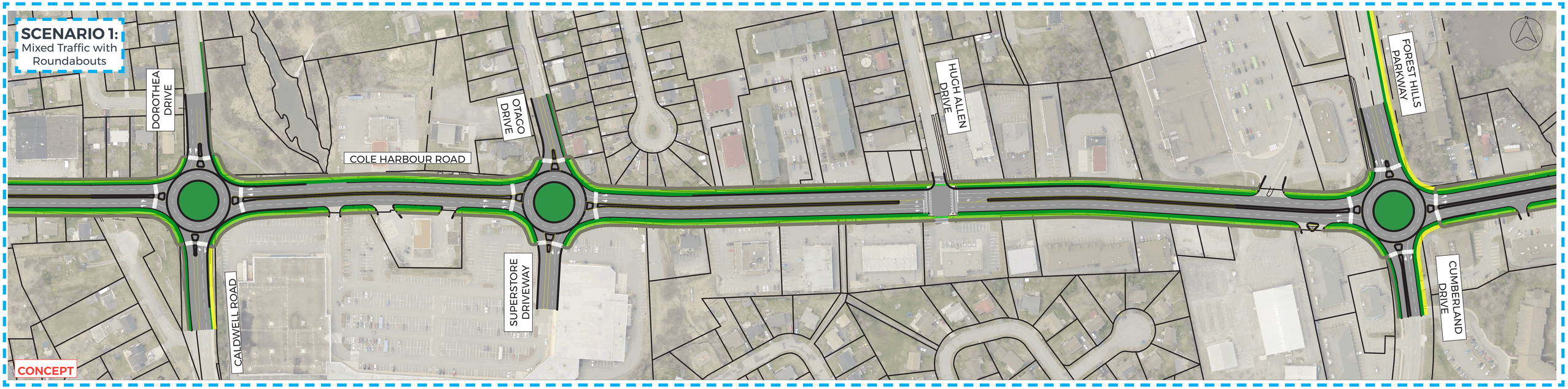
Curbside transit (as proposed) could be installed in the **near-term** while we design and implement larger infrastructure changes associated with median transit as the **longer term vision**.

Scenario 1 'Reallocated' aligns best with this time frame, where the repurposing of lanes could happen quickly. If Scenario 2 'Expanded' is selected, the additional property acquisition required could take longer. As a result, the interim curbside transit phase would be shorter or could be skipped. The median transit concept could also be revisited to include two vehicle travel lanes in each direction similar to the 'Expanded' scenario.

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COLE HARBOUR ROAD: CALDWELL ROAD TO FOREST HILLS PARKWAY

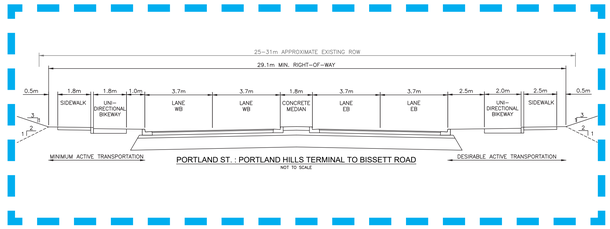


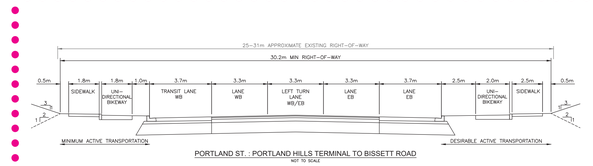


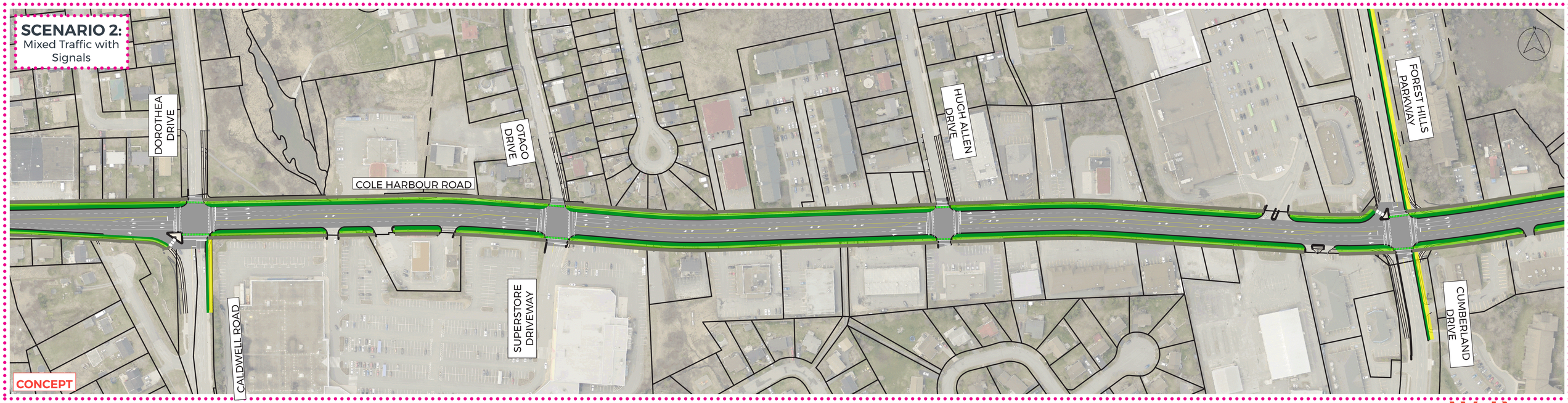
LEGEND

- Sidewalk
- Grass Boulevard
- Multi-Use Pathway
- Cycle Lane

SCENARIO 1: Mixed Traffic with Roundabouts	» Wide sidewalks with roadway buffer. » Two stage crossing of 1-2 lanes at a time across roundabout. » Longer travel distance and roundabout crossings. » Entirely separate from bicycles. GOOD	» Wide one-way bikeways with roadway buffer. » Roundabout crossings. » Multi-use pathway connections at Caldwell Road and Forest Hills Parkway. GOOD	» Conventional transit service (no BRT). » Buses in mixed traffic. » Potential maneuvering challenges for buses. » Retains potential for BRT extension in future. GOOD	» Less congestion and queueing than the existing corridor. » Less congestion and queueing than Scenario 2. » Increase in vehicle capacity at roundabout intersections. » Potential maneuvering challenges with roundabouts. BETTER	» No impact to emergency vehicle access. » Some property acquisition along the corridor for roundabouts and active transportation facilities. » Significant impact to utilities. » Opportunity for wider buffers, tree planting. GOOD	$$$
SCENARIO 2: Mixed Traffic with Signals	» Wide sidewalks with roadway buffer. » Entirely separate from bicycles. » More accessible at signals. » Greater potential delay at signals. GOOD	» Wide one-way bikeways with roadway buffer. » Multi-use pathway connections at Caldwell Road and Forest Hills Parkway. BEST	» Conventional transit service (no BRT). » Buses in mixed traffic. » Retains potential for BRT extension in future. BETTER	» Less congestion and queueing than the existing corridor. » More congestion and queueing than Scenario 1. » No impact to vehicle capacity. GOOD	» No impact to emergency vehicle access. » Some property acquisition along the corridor for active transportation facilities. » Significant impact to utilities. » Opportunity for wider buffers, tree planting. BETTER	$



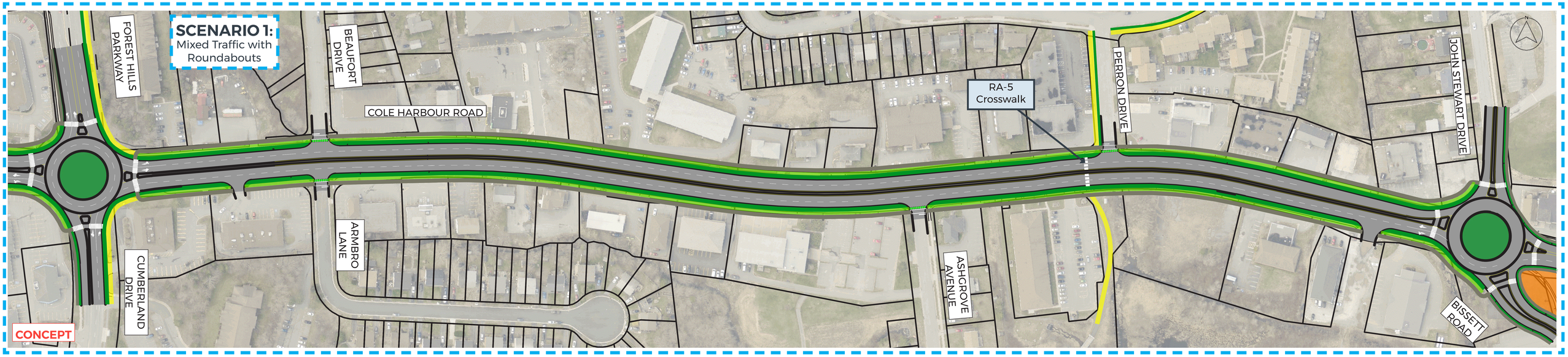




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COLE HARBOUR ROAD: FOREST HILLS PARKWAY TO BISSETT ROAD

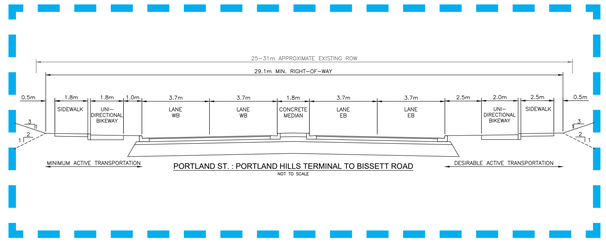


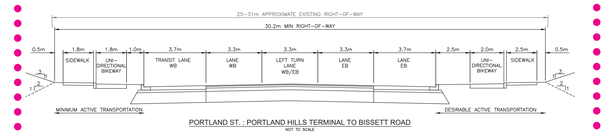


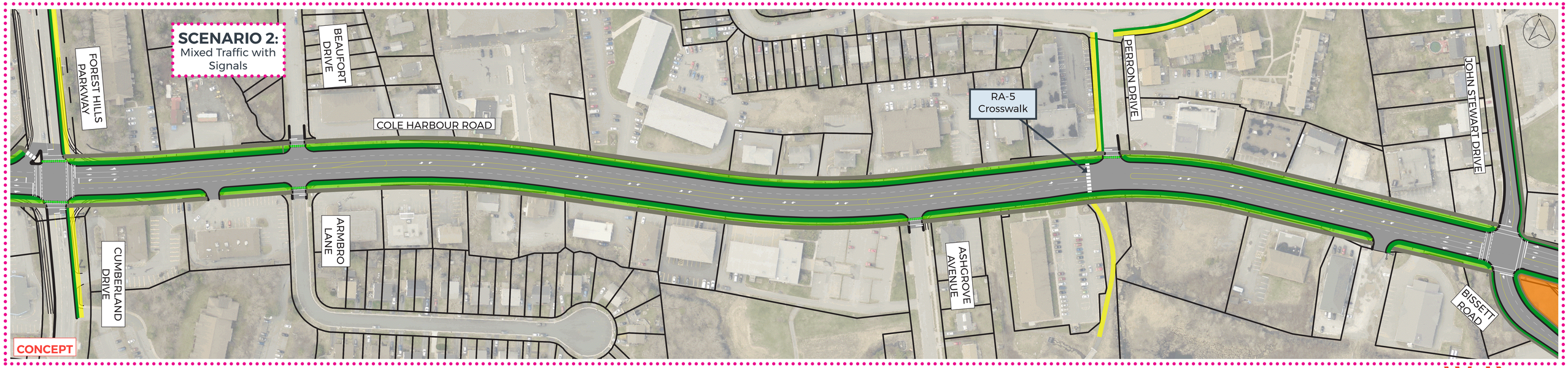
LEGEND

- Sidewalk
- Grass Boulevard
- Multi-Use Pathway
- Cycle Lane
- Closures/Realignments

						$
						$-$$$
SCENARIO 1: Mixed Traffic with Roundabouts	» Wide sidewalks with roadway buffer. » Two stage crossing of 1-2 lanes at a roundabout. » Longer path and roundabout crossings. » Entirely separate from bicycles. GOOD	» Wide one-way bikeways with roadway buffer. » Roundabout crossings at Bissett, end of facility. » Multi-use pathway connections at Forest Hills Parkway and Perron Drive. GOOD	» Conventional transit service (no BRT). » Buses in mixed traffic. » Potential maneuvering challenges for buses. » Retains potential for BRT extension in future. GOOD	» Less congestion and queueing than the existing corridor. » Less congestion and queueing than Scenario 2. » Increase in vehicle capacity at roundabout intersections. » Potential maneuvering challenges with roundabouts. BETTER	» No impact to emergency access. » Some property acquisition along the corridor for roundabouts and active transportation facilities. » Significant impact to utilities. » Opportunity for wider buffers, tree planting. GOOD	$$$
SCENARIO 2: Mixed Traffic with Signals	» Wide sidewalks with roadway buffer. » Entirely separate from bicycles. » More accessible at signals. » Greater potential delay at signals. GOOD	» Wide one-way bikeways with roadway buffer. » Multi-use pathway connections at Forest Hills Parkway and Perron Drive. BEST	» Conventional transit service (no BRT). » Buses in mixed traffic. » Retains potential for BRT extension in future. BETTER	» Less congestion and queueing than the existing corridor. » More congestion and queueing than Scenario 1. » No impact to vehicle capacity. GOOD	» No impact to emergency access. » Some property acquisition along the corridor for active transportation facilities. » Significant impact to utilities. » Opportunity for wider buffers, tree planting. BETTER	$







HALIFAX

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SHEARWATER CONNECTOR

What is the Shearwater Connector?

This is a proposed connector road between Caldwell Road and Highway 111. It aims to reduce transportation demands on Portland Street and accommodate future growth of the Morris Lake area. See adjacent map.

The first phase of the project was built in 2006 and involved a new interchange at Mount Hope Avenue with connection to Baker Drive.

Remaining phases have been on hold due to challenges associated with cost and proximity to the CFB Shearwater airfield. HRM must get permission from the Federal government to build the road on DND land.

Other challenges include:

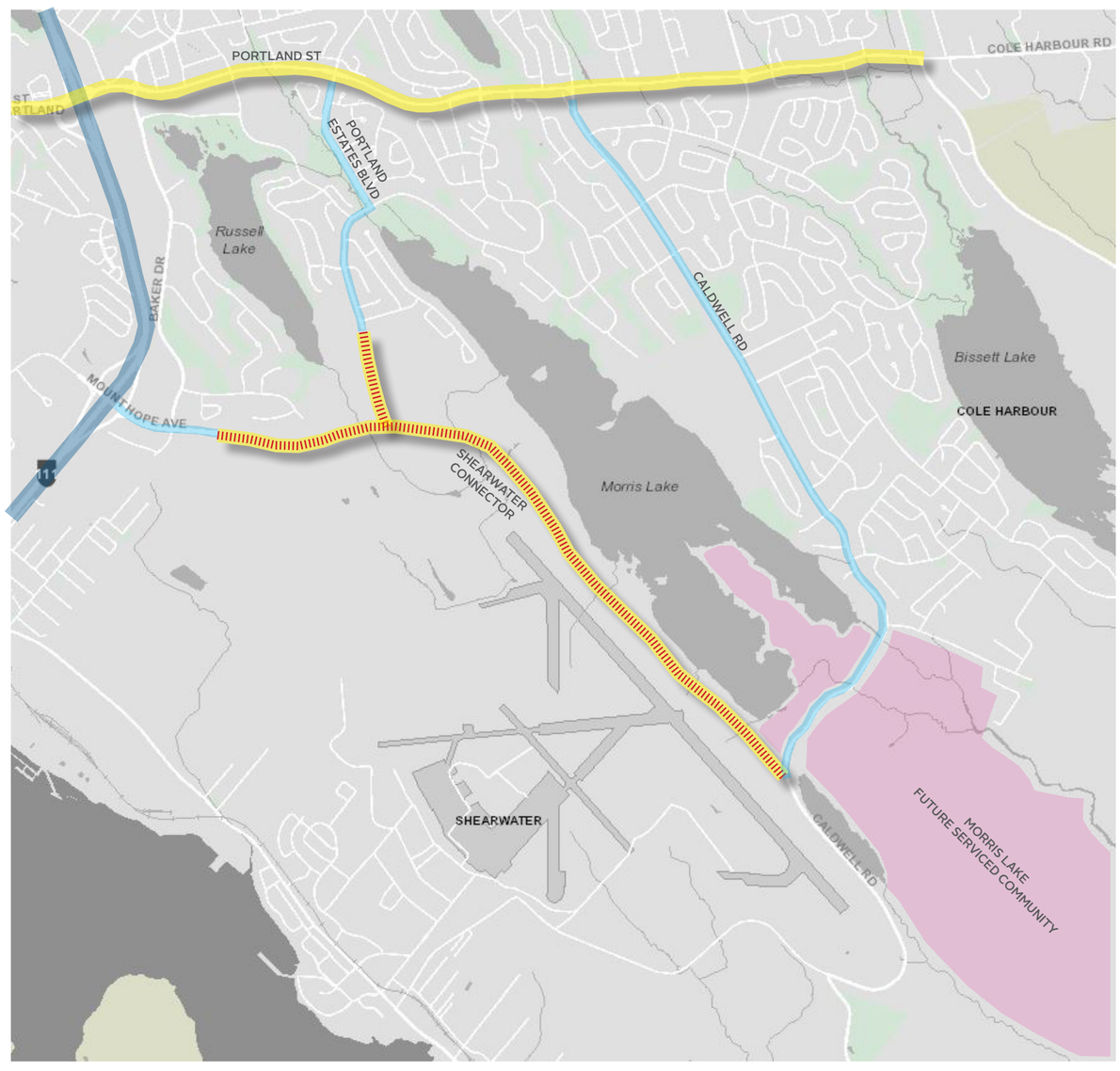
-- High cost of constructing this 4km road connection

-- Required compliance with Airfield Zoning Regulations (profile lower than runways, no lighting interference)

-- Road through the trees without direct neighbourhood frontage

-- Land Use By-law requires the entire connector to be constructed prior to connecting Portland Estates Blvd

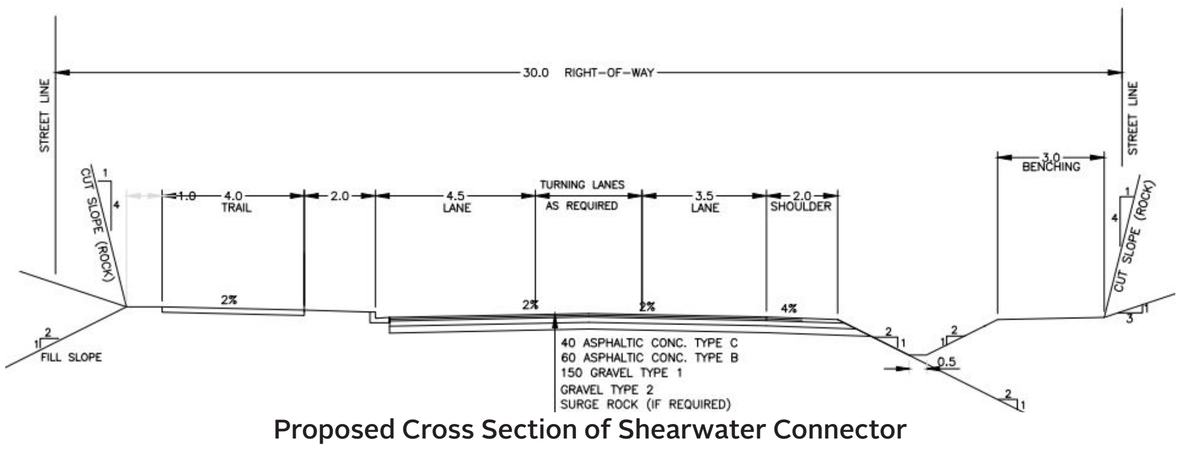
Due to the above uncertainties, it is hard to provide an exact timeline for construction. However, construction is anticipated to take place in the coming years pending budget availability.



Context Map of Shearwater Connector

What will it look like?

The Shearwater Connector will have a 'rural connector' cross section with one driving lane in each direction. Turn lanes will be added at intersections where necessary. A wide, multi-use pathway will be built on one side to promote use by people walking, rolling, and cycling.



Proposed Cross Section of Shearwater Connector

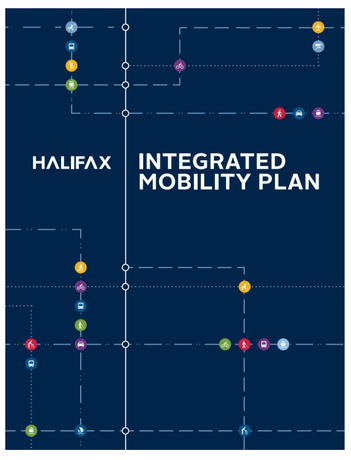
What is induced demand?

Studies have shown that building new roads makes it easier to choose driving trips and will lead to a greater number of vehicles on the road. Rather than alleviating congestion, the extra capacity fills in with new cars. This is also true when it comes to widening existing roads. This phenomenon is known as 'induced demand'.



Illustrating Induced Demand (Source: Volker + Sintetos, UC Davis 2021)

How does this relate to policy?



ACTION 124 of the Integrated Mobility Plan:

Where total corridor road capacity is increased through the construction or expansion of a parallel road, explore opportunities to give higher priority to active transportation or transit within that corridor.

The above policy direction suggests that by introducing more car capacity by building the Shearwater Connector, HRM should consider reallocating existing capacity on parallel corridors such as Portland Street. This also helps to reduce the negative effects of **induced demand**.

This means giving more road space to improved transit, walking, and cycling infrastructure. This will help balance the number of car trips added to the network and help us meet our sustainable mode share targets into the future.

Why is it significant to Portland Street Functional Planning?

Construction of this connector road had potential to reduce some transportation pressures from the Portland Street - Cole Harbour Road corridor. It is a parallel street that will absorb some demand for east-west travel. However, the roads are not entirely equal in terms of utility and parallel capacity. The Connector could still serve as an additional option for people travelling to and through the area but will not entirely replace reliance on Portland Street for many users.

With the Shearwater Connector in place, the role of Portland Street in the network could change. For example, the Shearwater Connector could become the higher speed throughfare for moving cars, and Portland could become the slower commercial 'high street' supportive of an active street life and multi-modal transport options including bus rapid transit service.

wsp

HALIFAX

PORTLAND STREET - COLE HARBOUR ROAD FUNCTIONAL PLAN

SCENARIO SUMMARY

FULL LENGTH SCENARIO 1

» Benefits **people walking + rolling** by providing shorter crossing distances at intersections and an improved pedestrian streetscape.

» Includes protected bike lanes for **people cycling** along the study corridor between Bissett and Lakefront, with alternative routing to Shubie Greenway.

» Achieves high level of priority for **people taking transit** in dedicated bus lanes for most of the length with exception of Alderney to Gaston (queue jump lanes only).

» Provides reduced capacity for **people driving** in one through lane per direction. Some additional delay is experienced. However, some cars are taken off the road as a result of these transport options.

» **Most sustainable** scenario. Less carbon emissions from transportation. Sustainable transport modes are incentivized. Less asphalt and potential tree loss.

COST + FEASIBILITY

» Least expensive to build

» Least impact to adjacent landowners and property acquisition requirements

» Can be constructed more rapidly

SCENARIO 1

TRAVEL TIME ESTIMATES*

Existing Drive Time:	**10 - 13 minutes**
AM Peak Drive Time:	**10 - 16 minutes**
PM Peak Drive Time:	**12 - 14 minutes**

FULL LENGTH SCENARIO 2

» Some improvement for **people walking + rolling** in terms of sidewalk width and connectivity. However, requires seven lane crossing distance at intersections.

» Includes protected bike lanes for **people cycling** along the study corridor between Bissett and Lakefront, with alternative routing to Shubie Greenway.

» Achieves high level of priority for **people taking transit** in dedicated bus lanes for most of the length. Addition of inbound bus lane from Gaston to Alderney. Gap across Hwy 111 overpass.

» Maintains existing capacity for **people driving** in two through lanes per direction. Leads to less delay in the PM peak, but more delay in the AM peak as there are more cars on the road as a result.

» **Less sustainable** scenario. More carbon emissions from transportation based on two lanes of vehicle traffic. Sustainable transport modes are not incentivized. More asphalt and potential tree loss.

COST + FEASIBILITY

» Significantly more expensive to build

» Requires additional infrastructure + acquiring a wide swath of property for road widening

» Will take more time to buy property and build

SCENARIO 2

TRAVEL TIME ESTIMATES*

Existing Drive Time:	**10 - 13 minutes**
AM Peak Drive Time:	**10 - 18 minutes**
PM Peak Drive Time:	**9 - 11 minutes**

TRANSIT BEFORE:	15 - 23 mins (AM Inbound) 18 - 20 mins (PM Outbound)	**TRANSIT AFTER:**	10 - 11 mins ALL DAY Alderney to Portland Hills

** Draft travel time simulation in VISSIM for Alderney to Portland Hills Terminal segments. Remaining segments are forthcoming.*

FEEDBACK / QUESTIONS / COMMENTS

ALDERNEY TO PENHORN

PENHORN TO PORTLAND HILLS TERMINAL

PORTLAND HILLS TERMINAL TO BISSETT

SAMPLE QUESTIONS:

Do you have any feedback on a particular section?

Which trade-offs are most important to you?

How would these changes influence your travel behaviour for commuting or other personal trips?

Do you have a preferred scenario considering cost, trade-offs, and future growth in the next 15-20 years?