

Durham-Scarborough Bus Rapid Transit Welcome

Thank you for attending **Public Information Centre #2**
for the Durham-Scarborough Bus Rapid Transit Project.

www.metrolinxengage.com/dsbrt

dsbrt@metrolinx.com



What do you want to know?

Look for these symbols and colours to find related content:



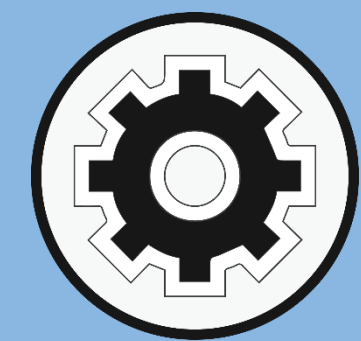
Project Information



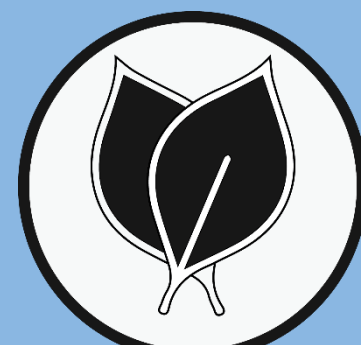
Initial Business Case



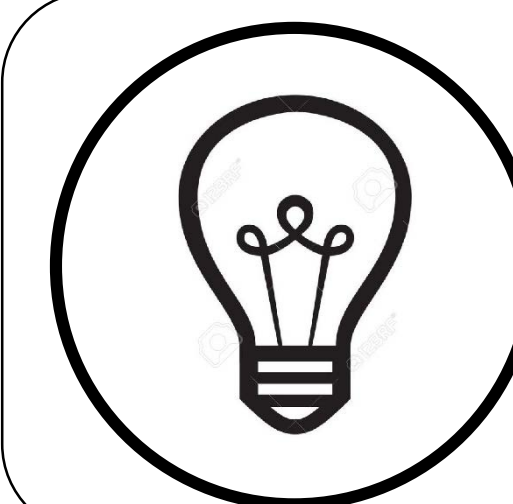
Bus Rapid Transit



Technical Information



Environmental Studies



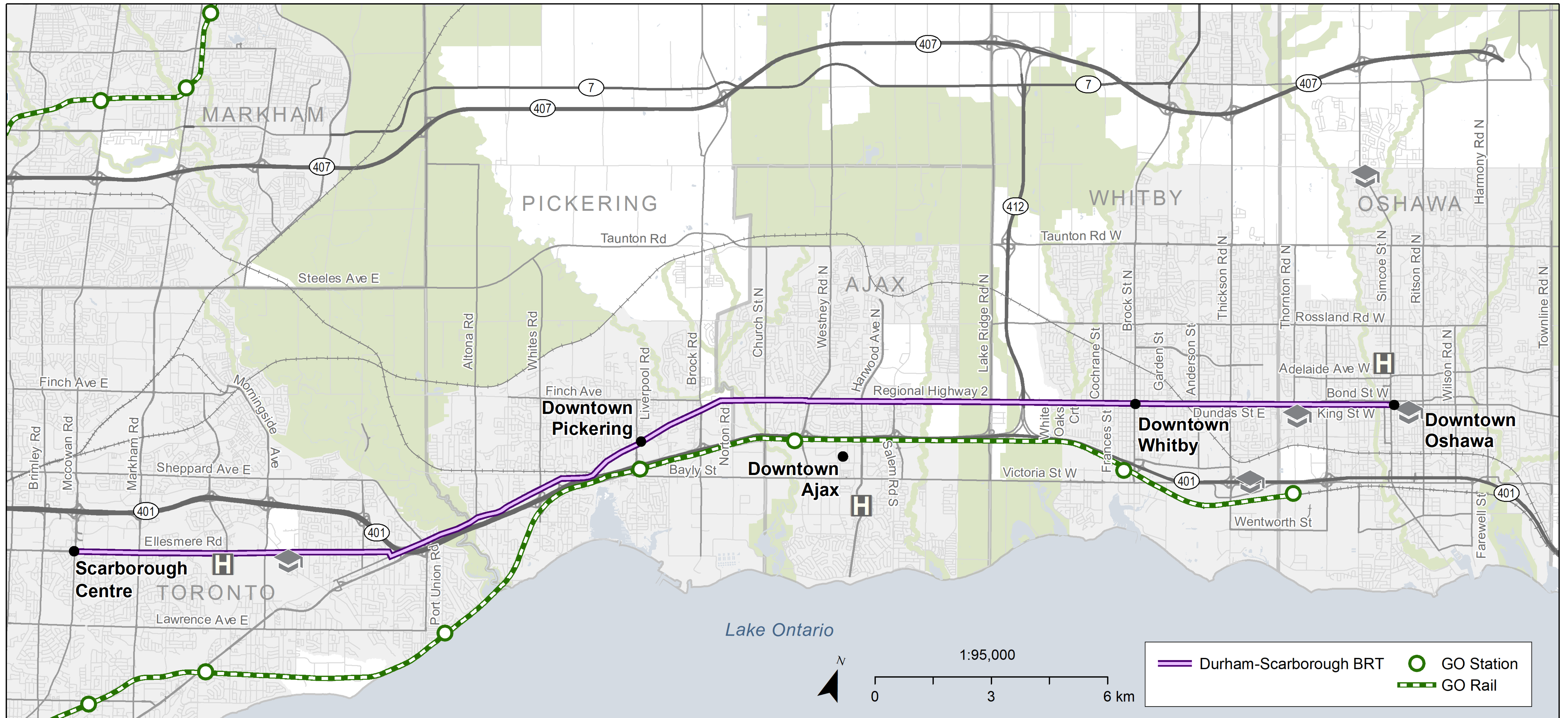
This symbol indicates that we want your feedback. Fill out a comment sheet or add sticky notes to provide input.



This symbol indicates that more information is available in a handout. Ask a project team member for a copy.

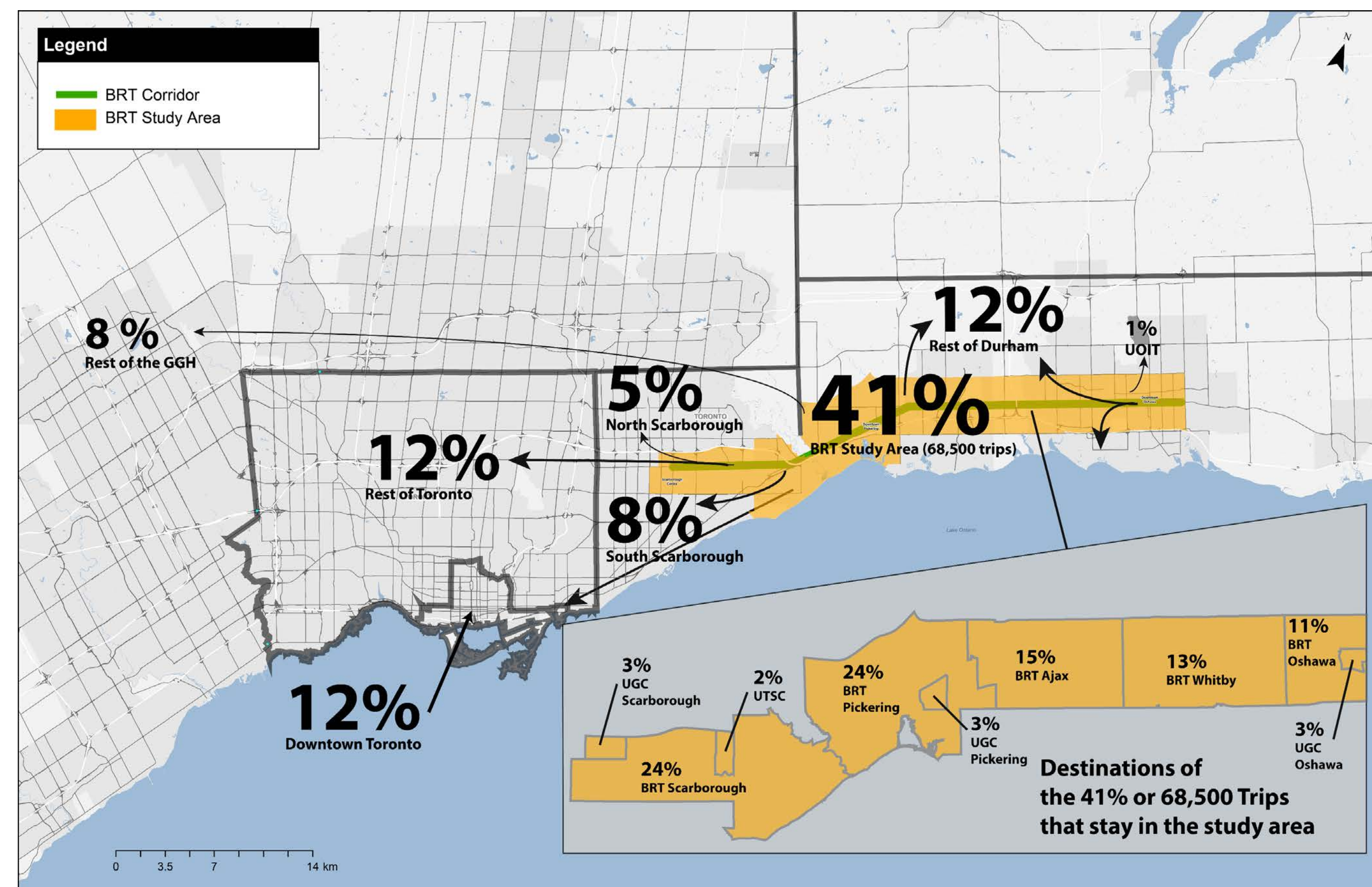


Durham-Scarborough Bus Rapid Transit Corridor



What is Durham-Scarborough Bus Rapid Transit?

The Durham-Scarborough Bus Rapid Transit project proposes approximately 36 kilometres of dedicated transit infrastructure, connecting downtown Oshawa, Whitby, Ajax, Pickering and Scarborough. This project builds on the existing PULSE service and will provide more dedicated transit infrastructure along Highway 2 and Ellesmere Road to connect to Scarborough Centre.



Source: 2011 Transportation Tomorrow Survey, Durham-Scarborough BRT Initial Business Case 2018

Problem and Opportunity Statement:

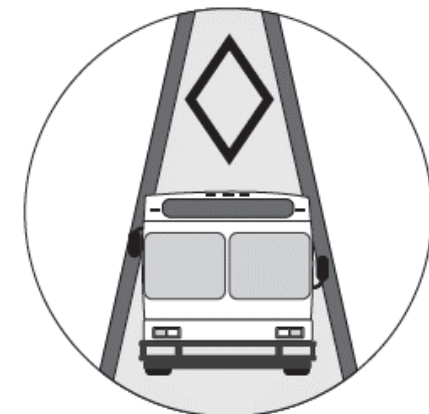
The Highway 2 Bus Rapid Transit corridor is a crucial transportation corridor connecting people through the Region of Durham and Scarborough. The corridor has varied traffic, land use conditions and constraints.

With rapid growth in the past decade and an expectation for this growth to continue into the future, demand for travel along the corridor will continue to increase and a higher capacity form of transit will be needed to link communities and employment on both sides of the Toronto-Durham boundary.

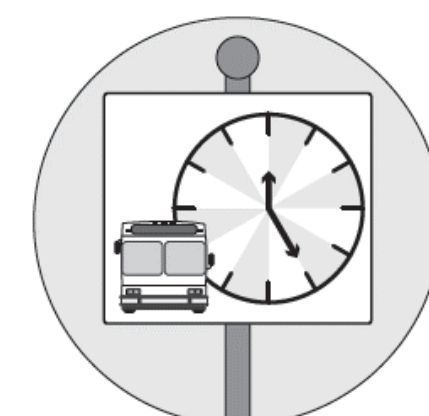
We asked for your feedback on the Problem and Opportunity statement at PIC #1. Based on the feedback received, the Problem and Opportunity statement has been confirmed, and will continue guiding the study.



What is Bus Rapid Transit?



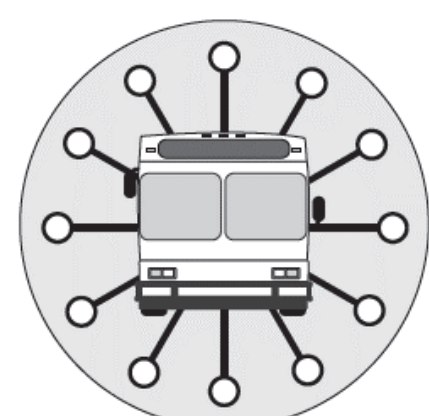
Dedicated lanes for buses, where feasible, resulting in shorter travel times and more reliable transit service.



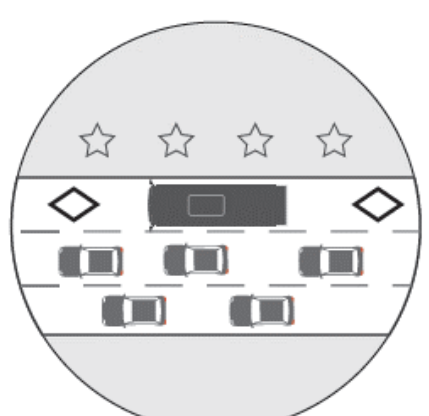
Frequent service with a bus every 5 minutes or less during peak hours.



Smart signals on Highway 2 are already installed and will adapt to support smoother traffic flow for all commuters.



Better connections: TTC, DRT and GO Transit routes can use the dedicated lanes and share the same stops, making it easier to travel throughout the region.



Reliable service with buses that are separated from general traffic in most areas.

Benefits of Durham-Scarborough Bus Rapid Transit

The Initial Business Case identified the following benefits:



162

Kilotonnes of CO₂ Reduced



9.5

Minutes Saved Per Rider



208

Fewer Traffic Related Injuries or Deaths



686

Millions of Dollars of Economic Benefits

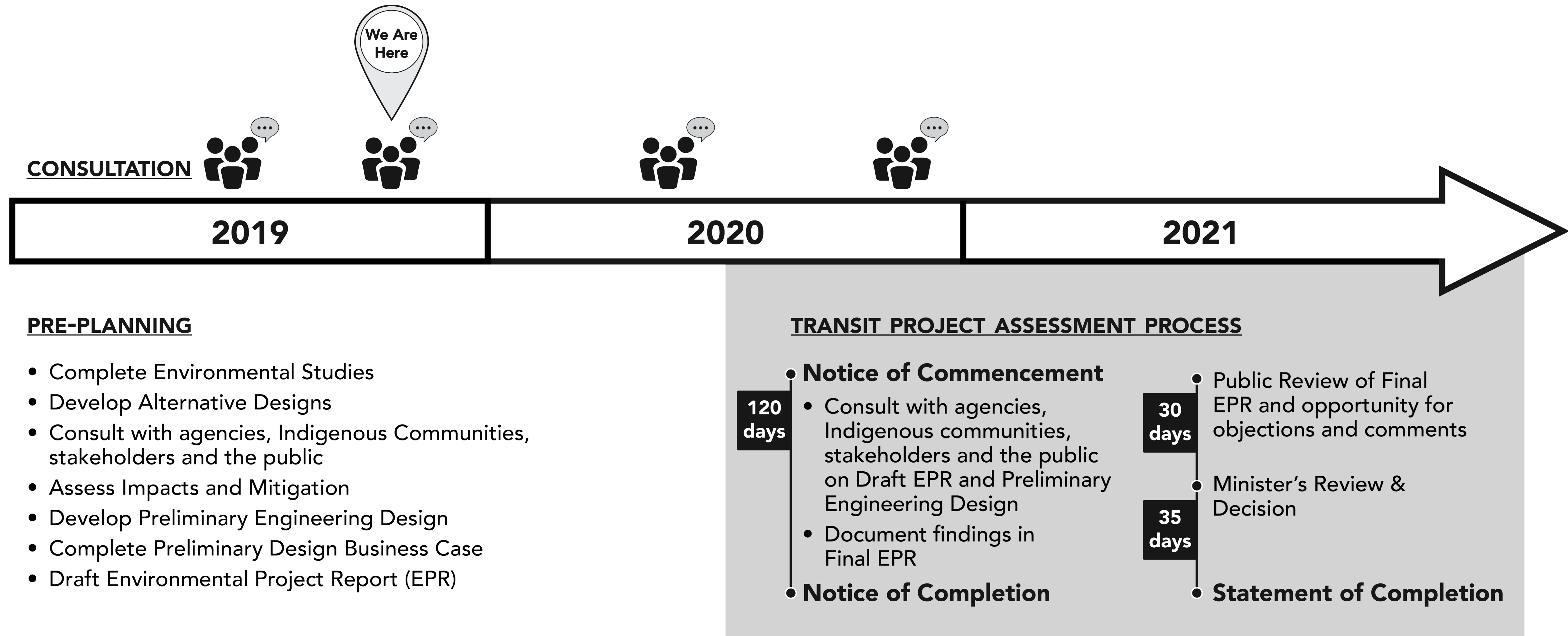


1.29

Benefit to Cost Ratio



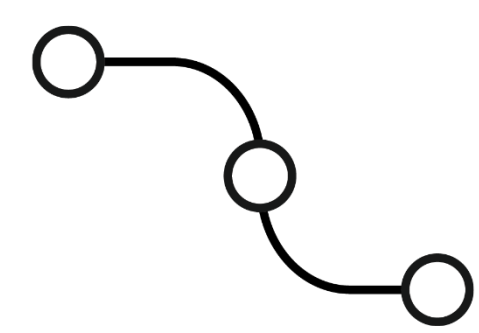
Study Process



What We Heard at Public Information Centre #1

Public Information Centre #1 was held in Durham Region in June and in Scarborough in September. Members of the public were able to provide feedback by filling out a comment sheet, completing an online survey, or emailing the project team directly. Feedback showed that the public was generally supportive of the project and interested in learning more about potential impacts as the project progresses. The public identified:

Opportunities to



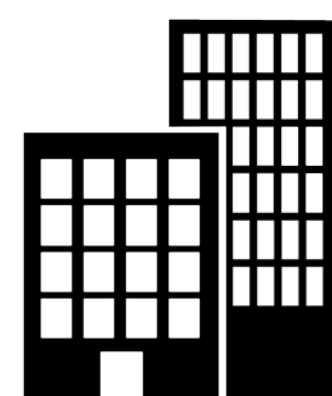
Provide the highest priority for transit, and improve speed, reliability, comfort and convenience for passengers



Expand the active transportation network to fill in existing gaps and enhance the public realm

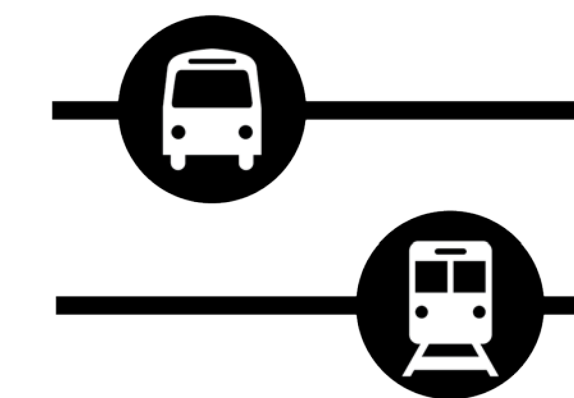


Positively impact the environment through the reduction of traffic congestion and greenhouse gases



Improve connections to existing major trip generators within Durham Region and Scarborough

Concerns about



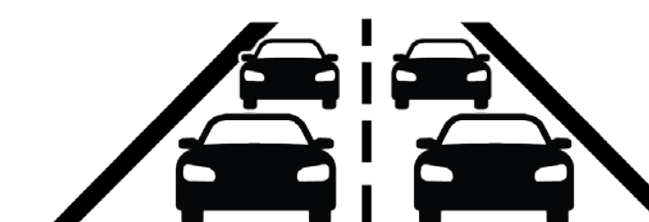
Potential duplication of service with the Lakeshore East GO train corridor



Potential increase in traffic congestion and access restrictions due to medians



Potential business impacts



Existing congestion at the Ellesmere Road and McCowan Road intersection



What is an Initial Business Case?

An Initial Business Case was completed for Durham-Scarborough Bus Rapid Transit in 2018.

An Initial Business Case sets out the rationale for why an investment should be implemented to solve a problem or address an opportunity. Options to address that problem or opportunity were developed and analyzed. The recommended option is the basis for further study and will be further refined in the Preliminary Design Business Case.

A Preliminary Design Business Case will be completed as part of this project. A draft will be presented at Public Information Centre 3.



Copies of the Initial Business Case are located at the sign-in table.

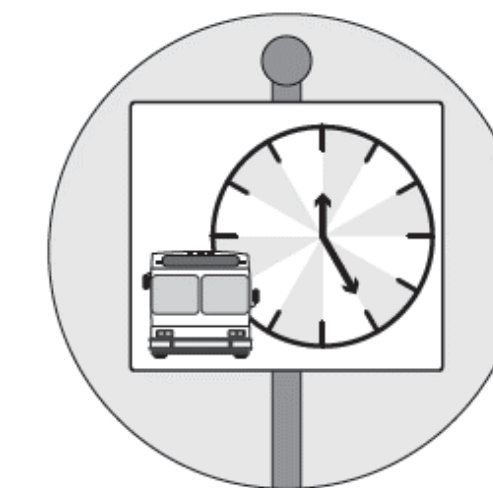
Initial Business Case Recommended Option

Bus routing options



Identified Highway 2 and Ellesmere Road as the optimal transit route.

Bus service options



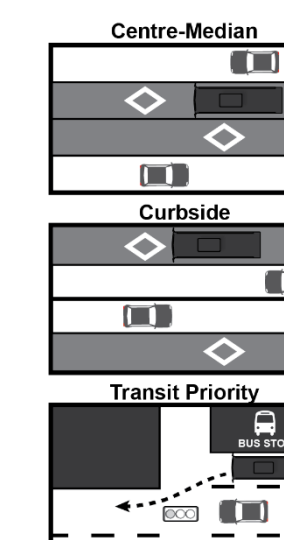
Recommended buses every 5 minutes in Durham Region, and a bus every 2 minutes in Scarborough.

Stop spacing options



Recommended an average stop spacing of 700 to 800 metres.

Right-of-way options

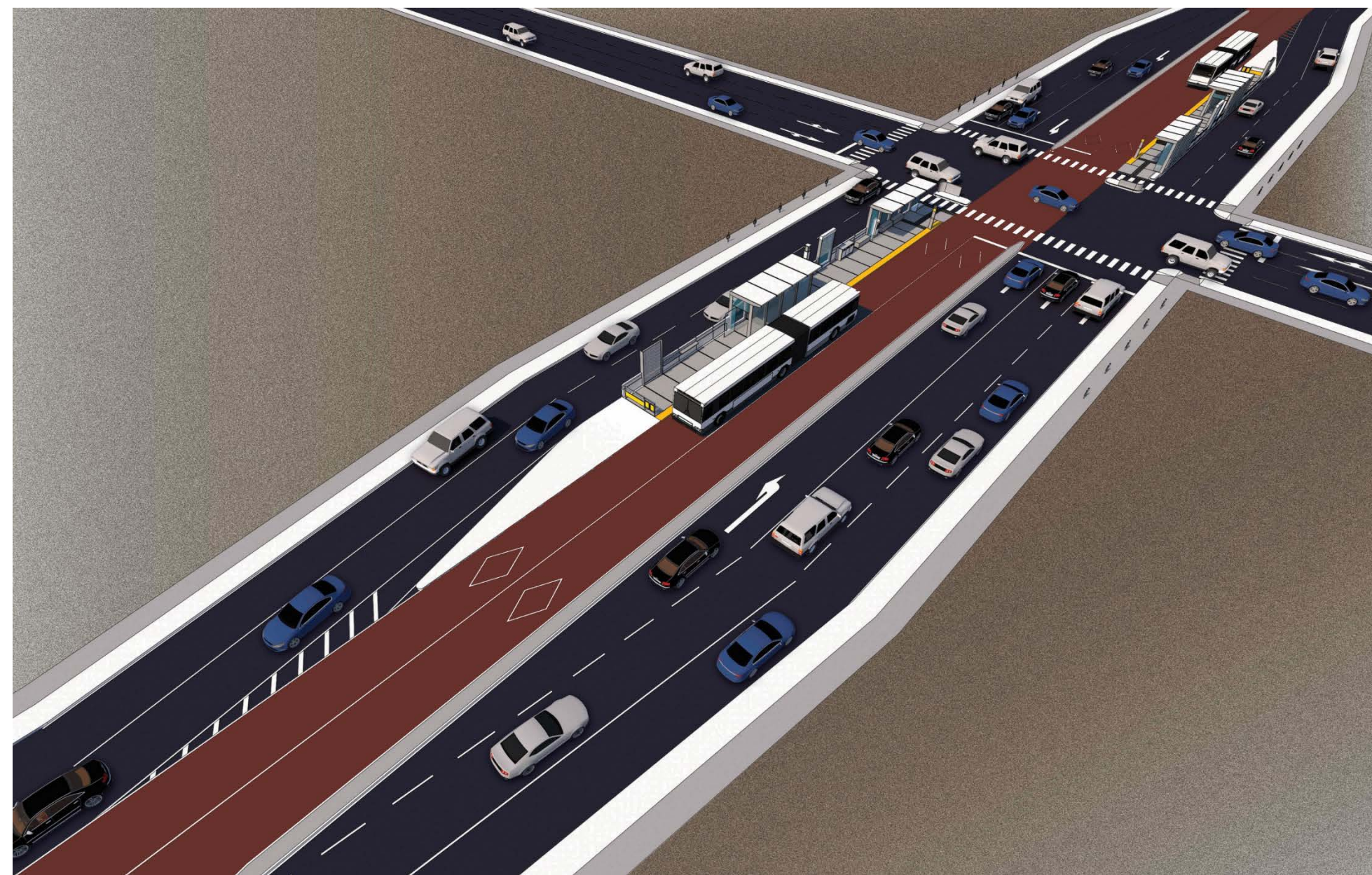


Recommended a hybrid option, with a mix of centre-median lanes, curbside lanes, and transit priority measures.



BRT Lane Options

Centre-median bus lanes



- Dedicated transit lanes in the centre of the road.
- Stops in the centre of the road at signalized intersections. Pedestrians can access stops through a two-stage crossing.
- Centre raised island restricts left-turns into and out of unsignalized side streets and driveways.

Curbside bus lanes



- Dedicated transit lanes on the outside of the road.
- Stops on the side of the road at signalized intersections.

In general, dedicated transit lanes are preferred, where feasible:

✓ **Reliable**

Most consistent Rapid Transit travel time between destinations.

✓ **Wise Investment**

Multiple service providers can use the lanes, supporting improved network integration.

✓ **Safe**

Fewer conflict points between turning traffic and transit.

✓ **Walkable**

More opportunities for streetscaping in between Rapid Transit stops.

✓ **Future proof**

Dedicated lanes are more flexible to future uses such as Light Rail Transit.



BRT Vehicles



Vehicles are accessible with low-floor entry and visual and audio guidance.

Vehicles are high capacity carrying up to 90 people.



Source: NGT news



Vehicles run primarily in dedicated lanes and have priority through intersections to maintain service reliability.

Transit agencies are researching alternative energy systems.

BRT Stops



Rendering of proposed centre median Bus Rapid Transit stop in London, Ontario.

Bus Rapid Transit curbside stop in Brampton, Ontario.



Bus Rapid Transit curbside stop in Durham Region.

Rendering of centre median Bus Rapid Transit stop in Ottawa, Ontario.





Accessing Centre-Median Stops



1 Jane arrives at her stop and pushes the “push to walk” button.



2 ...and waits to cross the street.



3 When the walk sign goes on, Jane crosses one direction of traffic to get to the westbound platform – her direction of travel.



4 Jane gets to the stop platform and walks toward the boarding area.



5 She checks the bus arrival information and sees that her bus will arrive in 3 minutes.



6 Great! That’s enough time for her to pay her fare using her PRESTO card before she boards the bus.



7 Jane waits for her bus on the bench in the platform shelter.



8 Shortly after, her bus arrives, and she’s on her way.



Environmental Studies

The Transit Project Assessment Process (TPAP), a streamlined Environmental Assessment process, is being completed for this project. To support the TPAP, a number of environmental studies will be completed to document the existing conditions in the corridor and assess any potential impacts the Bus Rapid Transit project could have.

The studies will also document the potential mitigation measures that could be applied to reduce or eliminate potential impacts.

Work has begun on these environmental studies, and field teams will continue to be in the corridor throughout 2020 collecting and assembling the data.

Mitigation measures proposed through the studies will be used by the design team to review and improve the design.

Next Steps

The following studies are currently underway or will begin shortly to assess all aspects of the environment. The findings will be presented at future public meetings.

These studies will form part of the Environmental Project Report which will be posted for public review.

Natural Environment Studies

- Natural Heritage Assessment
- Tree Inventory
- Noise and Vibration Assessment
- Air Quality Assessment

Social Environment Studies

- Stage 1 Archaeological Assessment
- Cultural Heritage Resource Assessment
- Socio-economic and Land Use Study

Geotechnical Studies

- Geotechnical Assessment
- Phase 1 Environmental Site Assessment



Natural Heritage

Biologists, ecologists and botanists have surveyed the corridor to determine where fish and fish habitat, mammals, herpetofauna (frogs/toads), reptiles/amphibians, birds, breeding birds, and bat habitat is located within the study area.

Vegetation and spring field investigations have also been completed. A tree inventory will be undertaken in spring 2020.



1. Adult Chinook Salmon in Highland Creek



4. Tributary of Lynde Creek Upstream of Dundas Street



2. Little Rouge Creek Upstream of Kingston Road



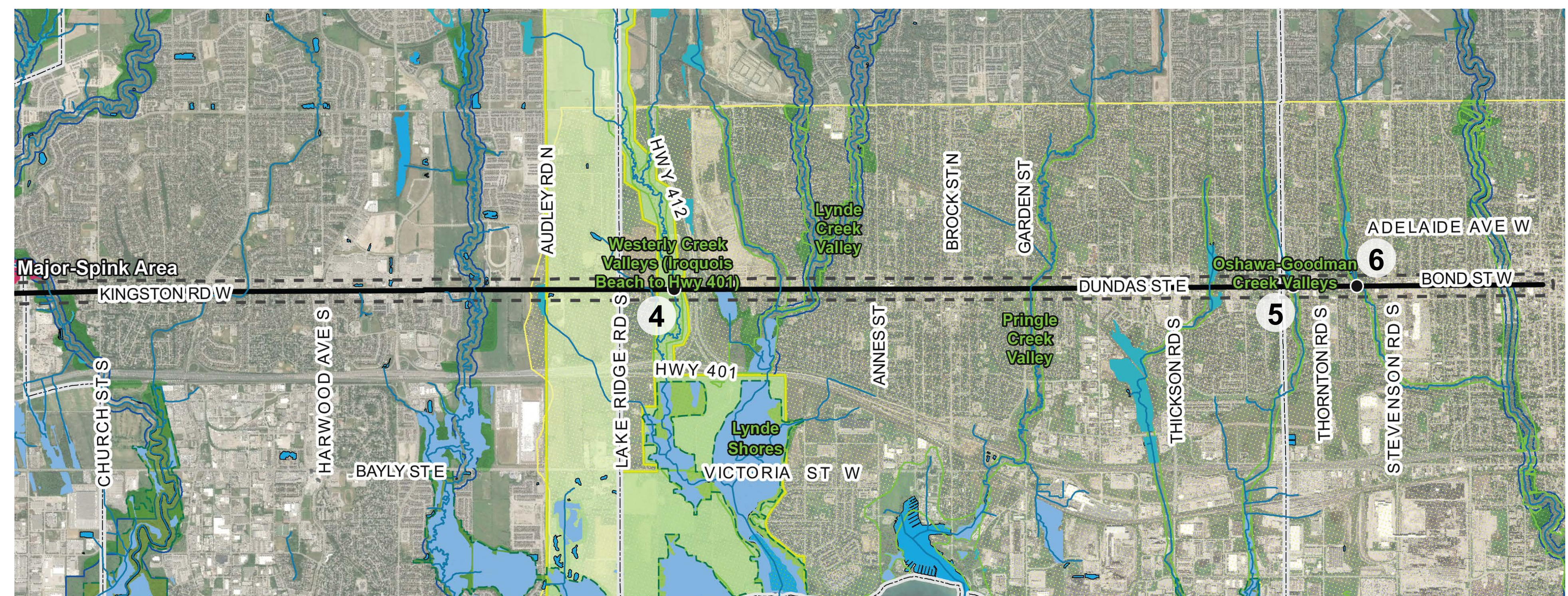
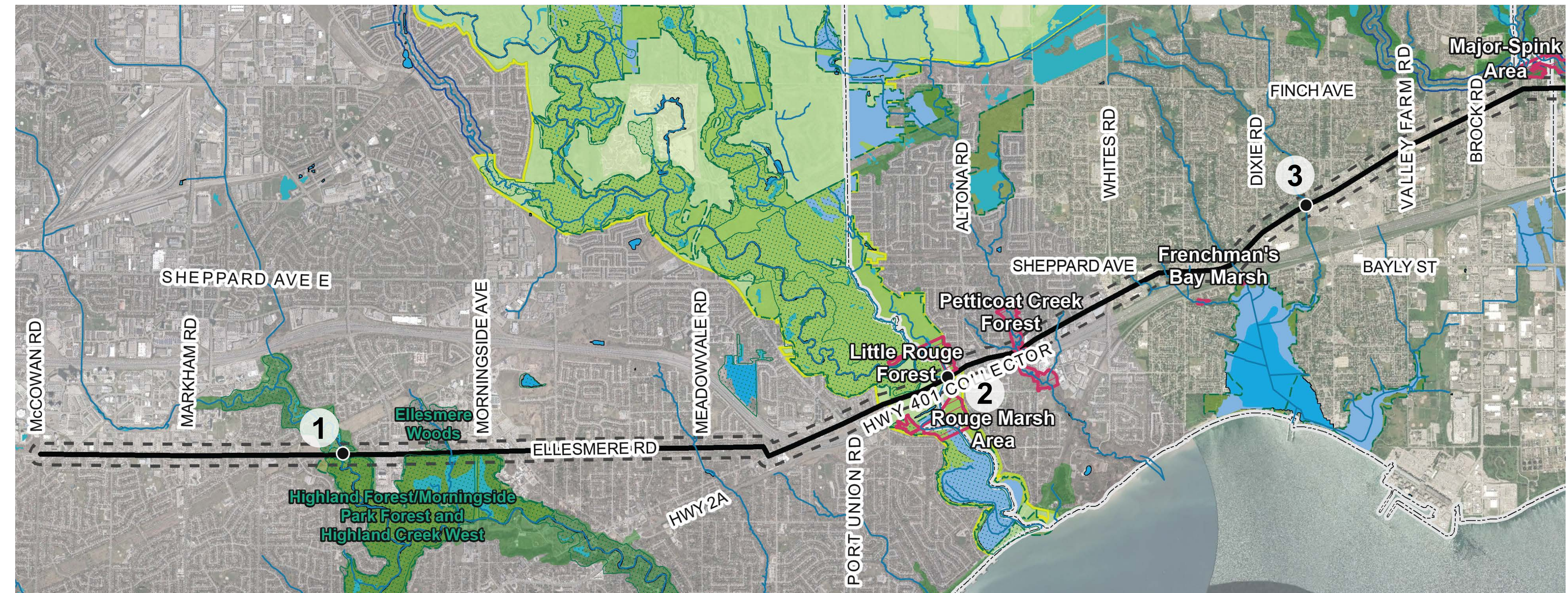
5. Corbett Creek Upstream of Dundas Street



3. Pine Creek Downstream of Kingston Road



6. Goodman Creek Upstream of Dundas Street



LEGEND

- DS BRT Route
- Evaluated Wetland Other
- Evaluated Wetland Provincial
- Wetland Not Evaluated per OWES
- Waterbody
- Watercourse
- Protected Countryside (Greenbelt Plan 2017 Designation)
- Urban River Valley (Greenbelt Plan 2017 Designation)
- Growth Plan for the Greater Golden Horseshoe (2017)
- Area of Natural and Scientific Interest
- Environmentally Sensitive Area (TRCA)
- Environmentally Sensitive Area (City of Toronto)
- Environmentally Sensitive Area (CLOCA)
- Environmentally Sensitive Area - Low Sensitivity (CLOCA)



Cultural Heritage and Archaeology

Cultural heritage specialists and archaeologists have completed a desktop review of the corridor to determine where known cultural heritage properties (designated properties and heritage conservation districts), potential cultural heritage properties (listed properties), cemeteries, and areas with archaeological potential exist within the study area.



Copies of the Natural Heritage, Cultural Heritage, and Stage 1 Archaeological Assessment mapping are located at the sign-in table.

LEGEND

- Individually Designated Property
- Individually Designated Property in a Heritage Conservation District
- Heritage Conservation District
- Potential Cultural Heritage Resource
- Listed Property
- National Historic Site
- DS BRT Route
- Cemetery

1 Cemetery

1 Cemetery

3 Cemeteries

TOWN OF AJAX

TOWN OF WHITBY

CITY OF OSHAWA

N

0 4km

CITY OF TORONTO

Ellesmere

5 Total

1 Known Cultural Heritage Property
4 Potential Cultural Heritage Properties

Pickering Village

61 Total

1 Heritage District
11 Known Cultural Heritage Properties
39 Potential Cultural Heritage Properties
1 Cemetery

Downtown Whitby

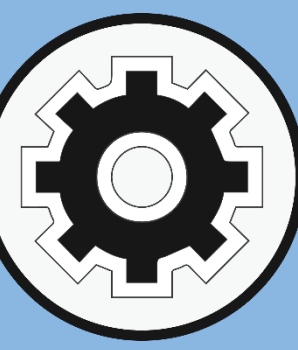
30 Total

2 Known Cultural Heritage Properties
1 Heritage District
27 Potential Cultural Heritage Properties

Downtown Oshawa

77 Total

1 Known Cultural Heritage Property
76 Potential Cultural Heritage Properties



Socio-Economic Conditions

An existing conditions review was completed to understand the population that exists in the study area. Census data was reviewed to determine factors such as population and business density, age structure, household income, immigration and education attainment.

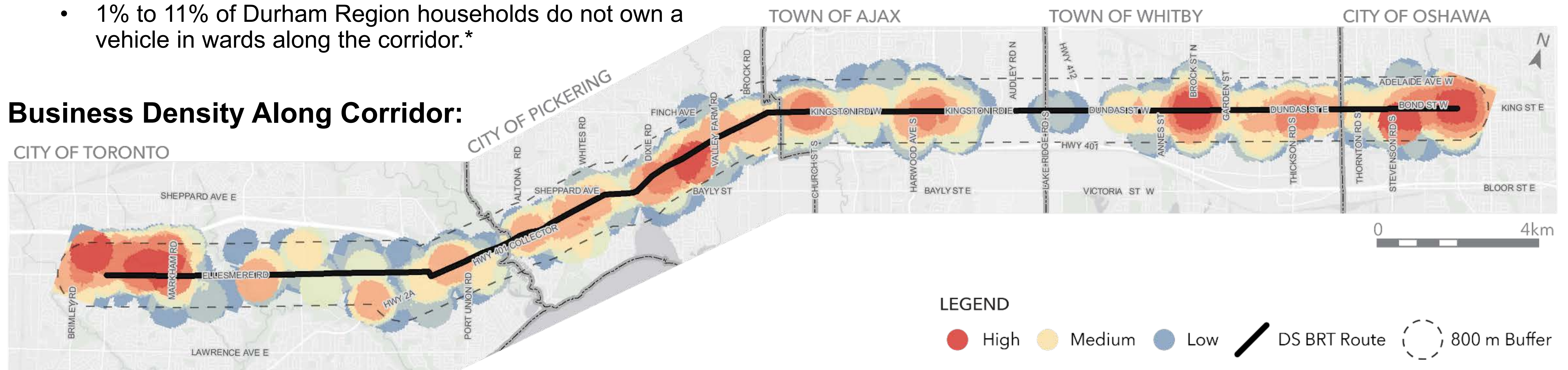
Bus Rapid Transit will provide independence for those who are unable to drive. The review found that:

- 16% of residents along the corridor are aged 65 or older.
- 30% of residents along the corridor are under the age of 25.
- 8% to 25% of Scarborough households do not own a vehicle in wards along the corridor.*
- 1% to 11% of Durham Region households do not own a vehicle in wards along the corridor.*

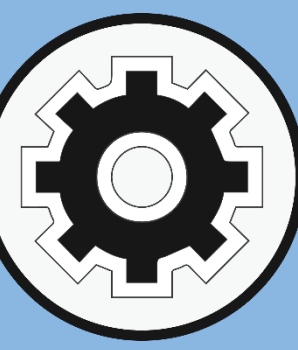
A review of existing businesses in the study area was completed. There are areas with a high density of businesses located throughout the corridor. Bus Rapid Transit will connect even more people to these businesses.

While there may be short-term disruptions during construction, it has been proven that building Bus Rapid Transit pays off in the long-term by spurring investment along the corridor.

Business Density Along Corridor:



*Statistics from Transportation Tomorrow Survey (2016)



Traffic

Traffic along the corridor currently experiences congestion, resulting in unreliable travel times for transit and general traffic.

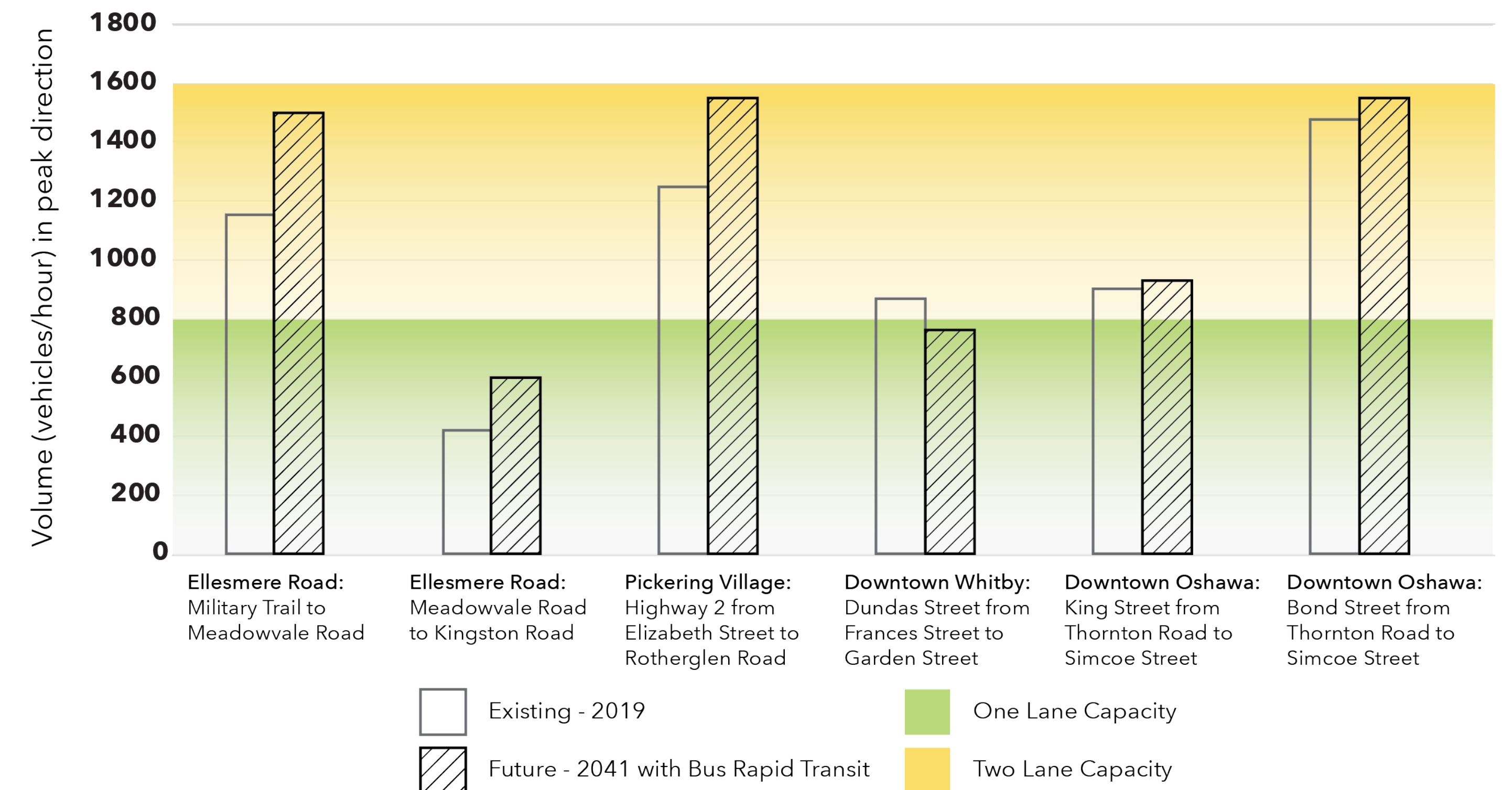
As part of this study, we will examine existing and future traffic conditions, including:

- Existing – to identify current operations and constraints, and for calibration and comparison purposes.
- Future (2041) “business as usual” – to understand how the corridor will function with no transit improvements.
- Future (2041) “with Bus Rapid Transit” – to understand how the corridor will function with additional Bus Rapid Transit infrastructure.

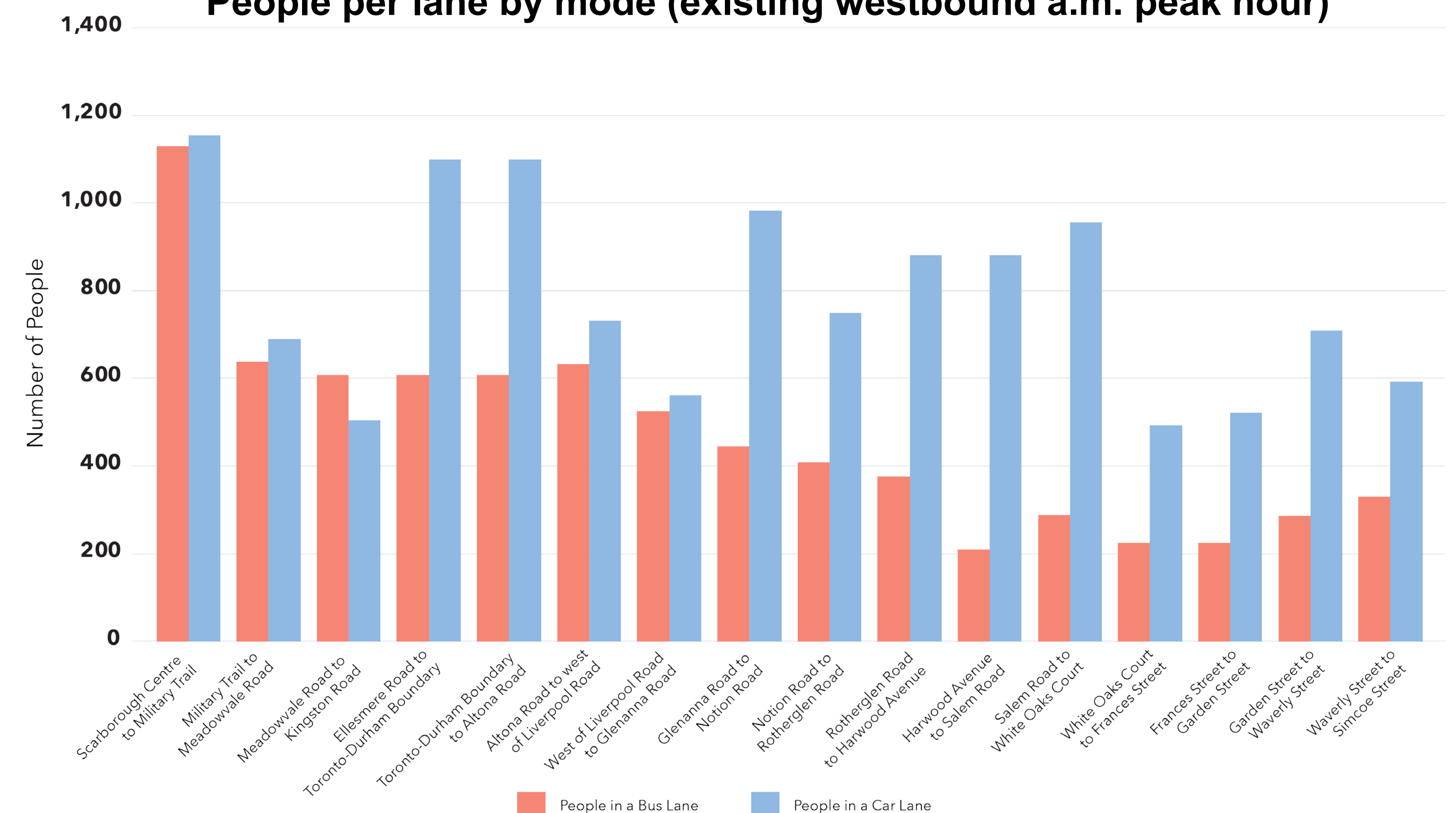
Next steps:

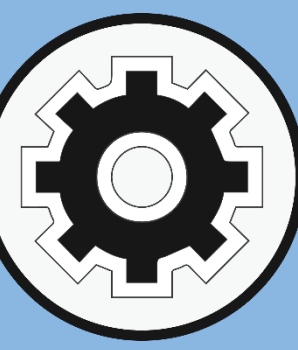
- More detailed traffic analysis for each pinch point.
- Overall corridor traffic and transit operations analysis.

Existing and future traffic volumes per lane by pinch point



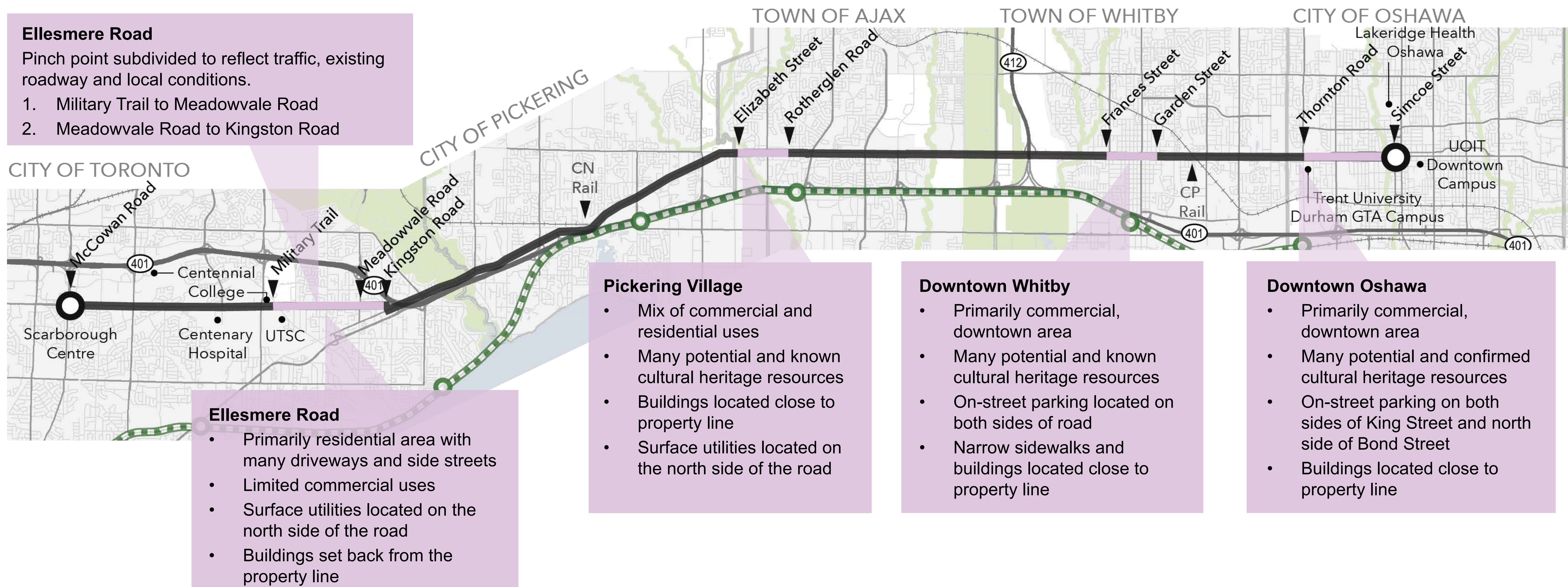
People per lane by mode (existing westbound a.m. peak hour)

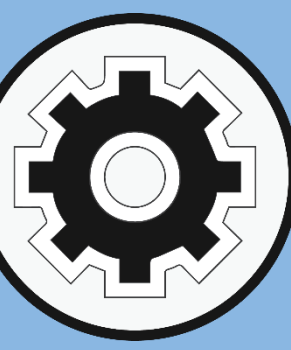




Pinch Points along the Corridor

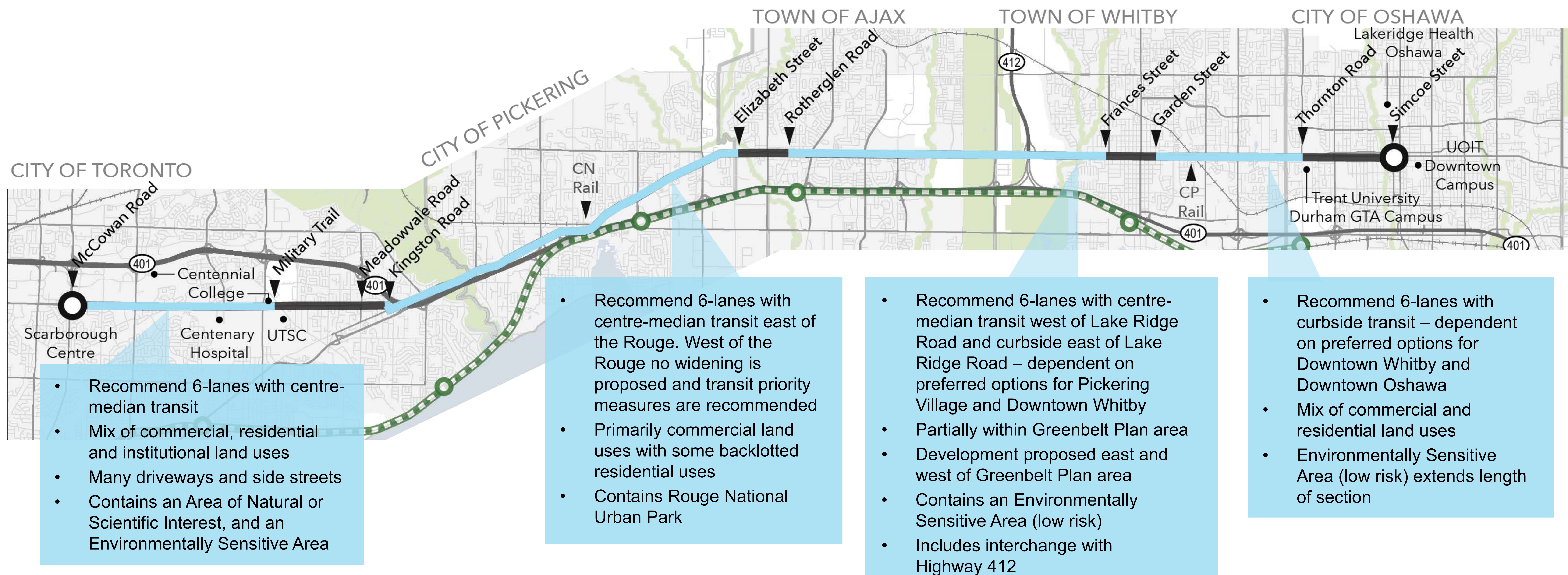
The Initial Business Case identified four constrained locations, or “pinch points” along the corridor, which require more detailed analysis. These pinch points are illustrated in the graphic below, along with their specific constraints. A number of options have been considered in these locations. The evaluation of these options is presented on the following boards.

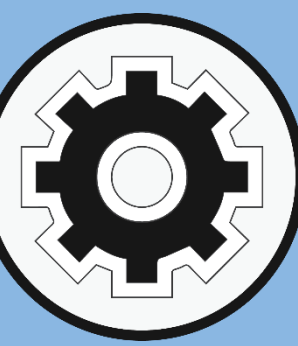




Between the Pinch Points

Outside of the pinch points, the Initial Business Case (IBC) recommended 6-lane cross-sections with either centre-median or curbside running transit lanes. Transit priority measures were recommended over the Rouge Valley to avoid the environmental impacts of widening the bridge. The technically preferred option is described below, along with specific context.





Evaluation Criteria

The following criteria was presented at Public Information Centre #1. Based on the feedback received, the criteria were confirmed and used to evaluate the options for the pinch point locations.

The criteria considers all aspects of the natural, cultural, and built environment and aligns with the typical criteria used by the City of Toronto and Durham Region.



Each pinch point was evaluated using this criteria. See handout for details on how each option performed.

Compatible with Adjacent Communities

- Noise, vibration and air quality
- Community character
- Area business viability
- Development incentives

Protect Historical, Cultural and Archaeological Resources

- Archaeological resources
- Cultural heritage resources
- Protection of public open spaces

Protect, Improve and Restore the Natural Environment

- Surface water and groundwater
- Aquatic and terrestrial habitat
- Flora and Fauna
- Ecological linkages

Increase Transit Ridership, Quality and Access

- Connectivity with other transit services
- Quality and reliability of transit service
- Accessibility to transit
- Safety and security

Support A Sustainable Transportation System

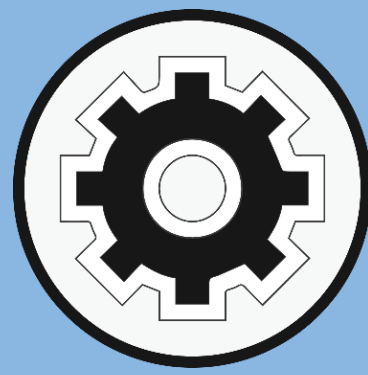
- Pedestrian and cycling networks
- Transportation system capacity
- Goods movement

Connect Major Facilities and Support Lands Designated for Development

- Catchment potential
- Transit-oriented development

Provide a Wise Investment

- Existing and future infrastructure investments
- Capital costs
- Operation and maintenance costs
- Land acquisition costs



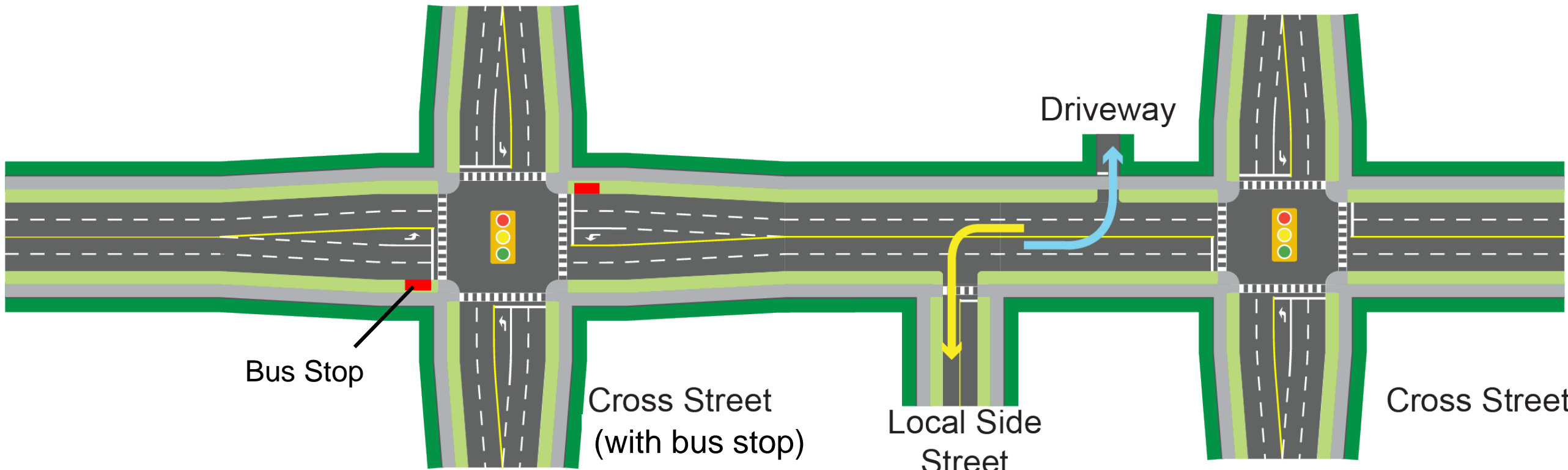
Comparison of Options

- Bus Stops
- Through Lanes
- HOV Lanes
- Dedicated Transit Lanes
- Boulevard
- Active Transportation

The project team evaluated a number of options to implement the Bus Rapid Transit system in the pinch point locations. An overview of each of the options is presented below, with images that illustrate how travel patterns would change. The options are arranged in increasing degree of transit priority.

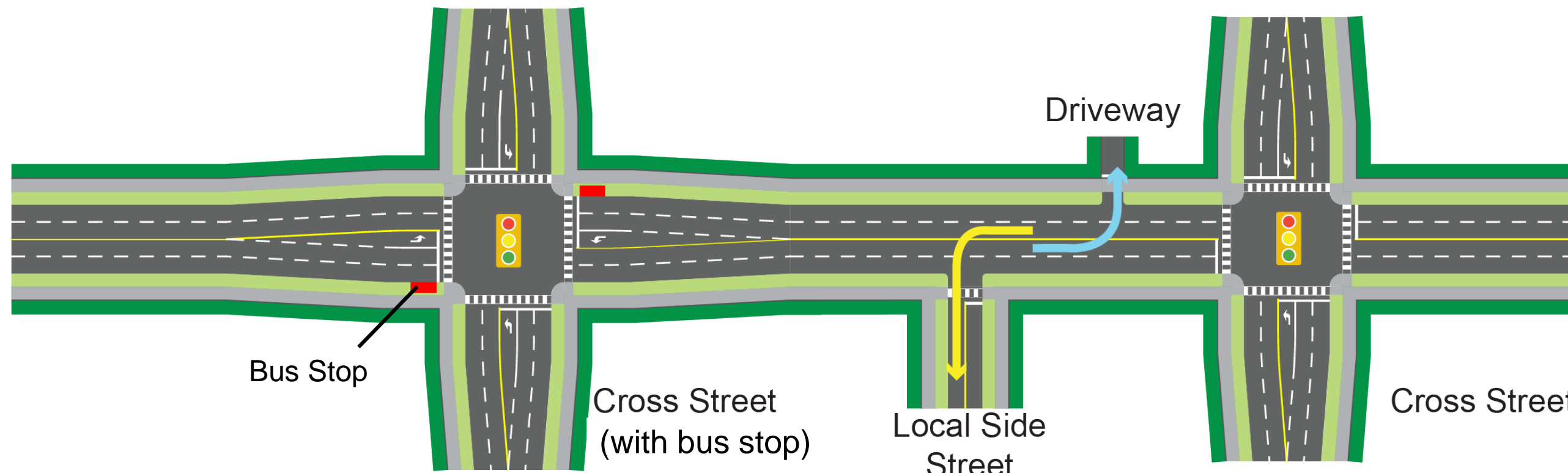
Existing 4-Lane Roadway

- Buses in mixed traffic with nearside bus stops
- No improvement in transit travel time or reliability
- Left-turns generally permitted at unsignalized side streets and driveways



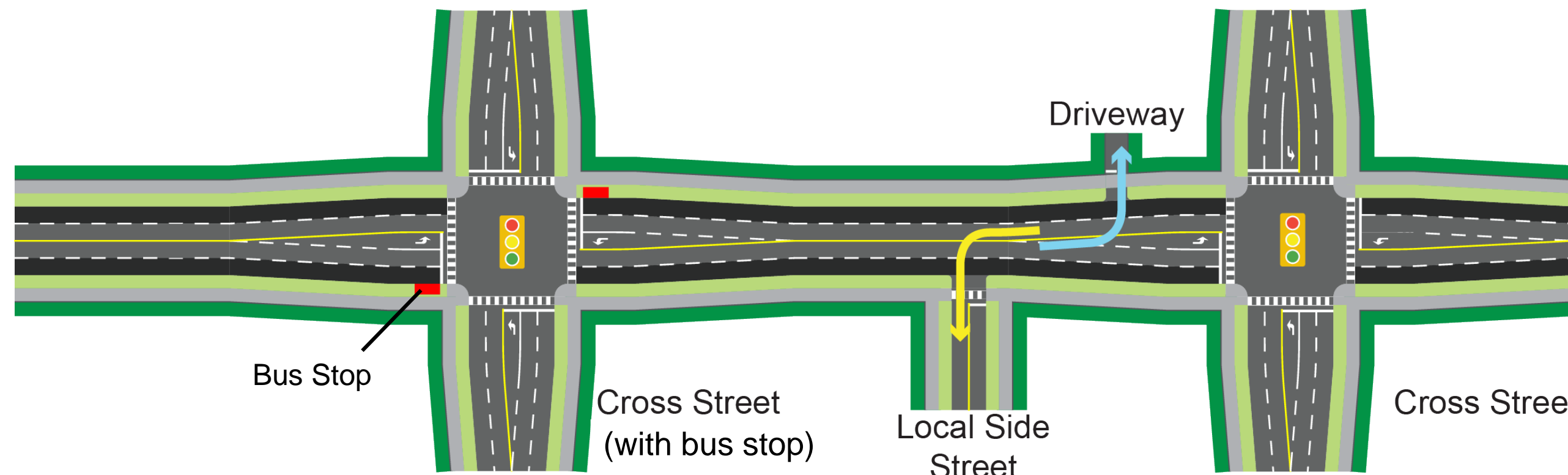
Transit Priority Measures

- Buses in mixed traffic with nearside bus stops
- Optimized traffic signals and queue jump lanes at some signalized intersections provide minimal improvements
- Left-turns generally permitted at unsignalized side streets and driveways



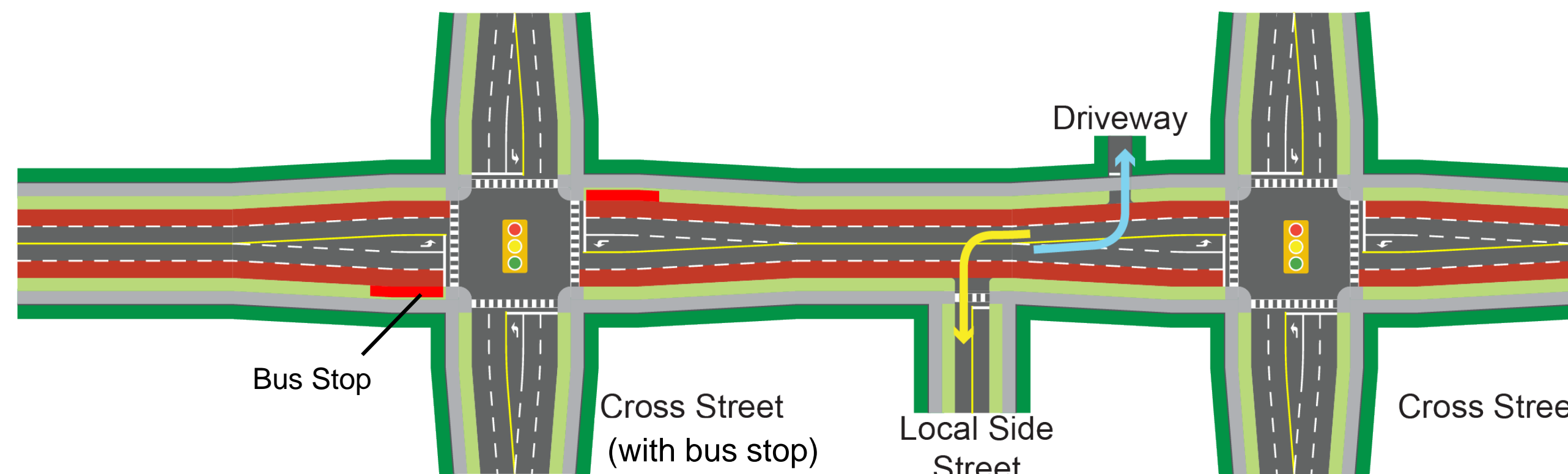
HOV Curb Lanes

- Buses and High Occupancy Vehicles (HOV) share the curb lane
- Turning traffic conflicts with HOV lanes
- Left-turning traffic blocks general lane
- Enforcement is challenging; compliance is limited



Curbside BRT Lanes

- Buses operate in dedicated curb lanes
- Right turning traffic must cross the BRT lanes
- Enforcement is reasonably good with clearly marked lanes
- Reasonable improvement for transit



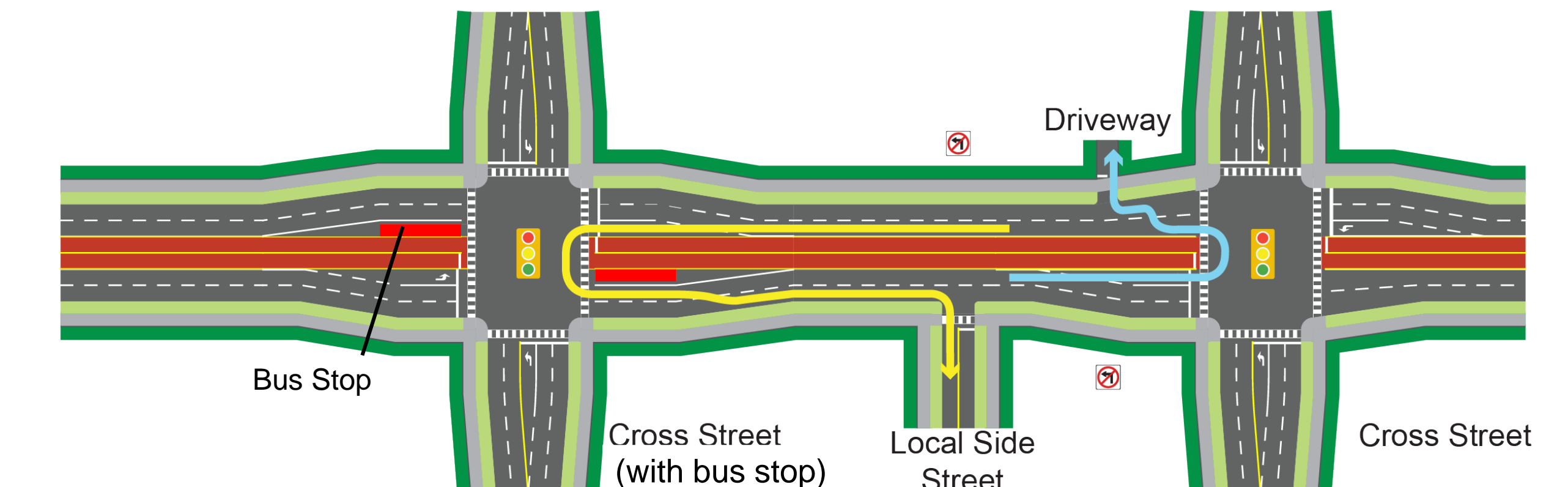
Centre-Median BRT Lanes (4-Lanes)

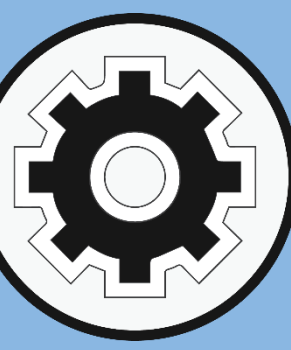
- Buses operate in dedicated median lanes, separated by a curb-height median
- Farside stops reduce delays and are space-efficient
- Very good transit travel time and reliability
- Enforcement very good; compliance is good
- Left/U-turns at signalized intersections only
- Will encourage and support increased walking and cycling



Centre-Median BRT Lanes (6-Lanes)

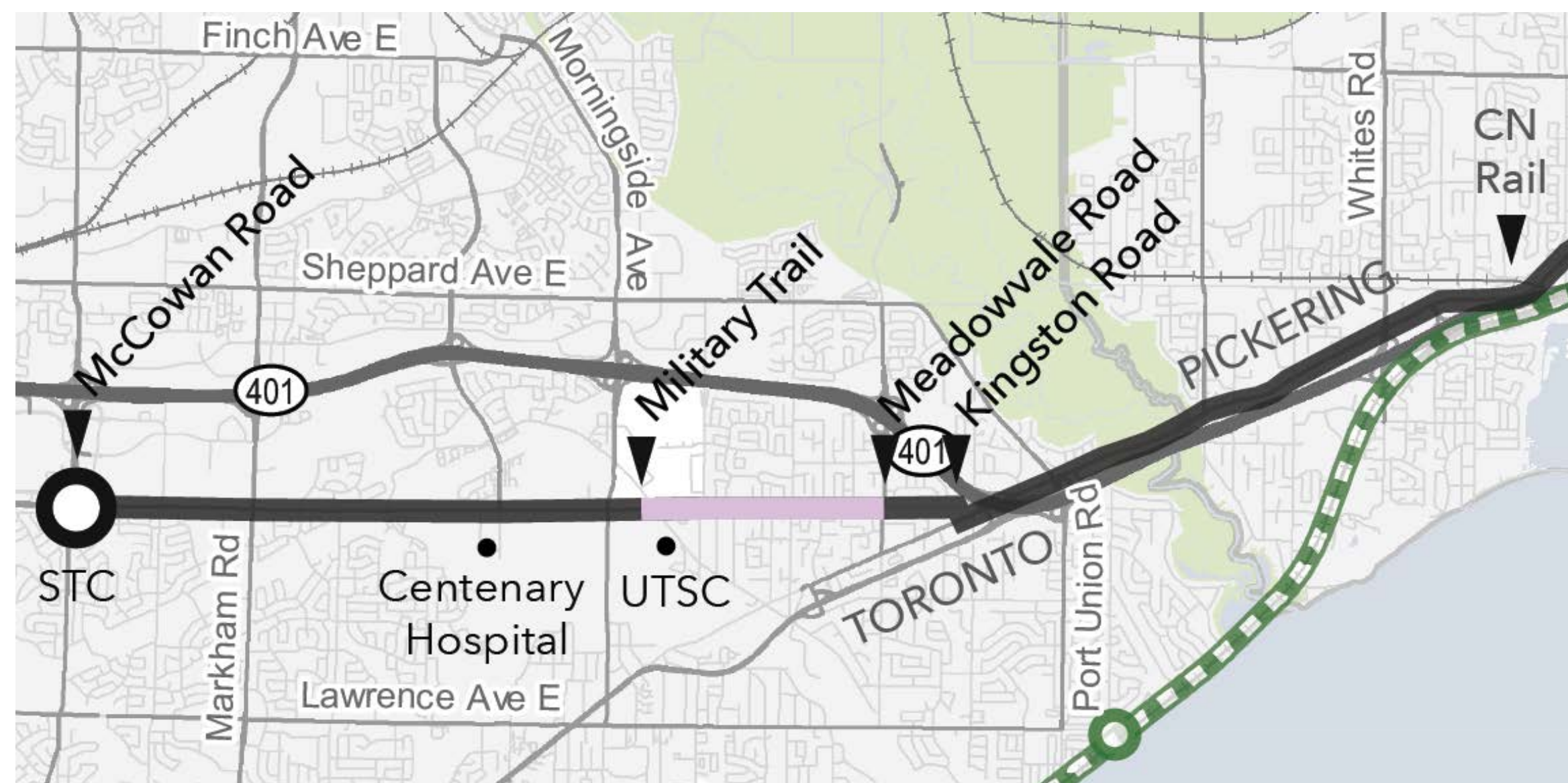
- Same configuration as Centre-Median BRT
- Additional traffic lanes to maintain existing traffic capacity





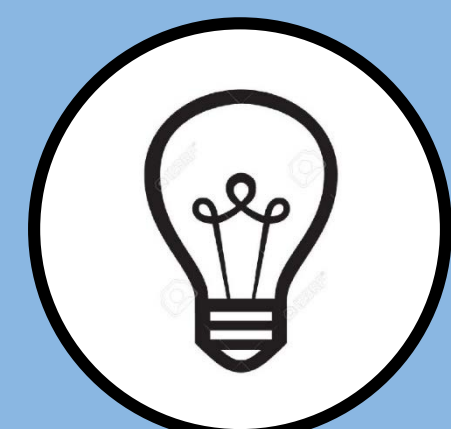
Ellesmere Road – Military Trail to Meadowvale Road

Study Area:



Key considerations for the Ellesmere Road pinch point are:

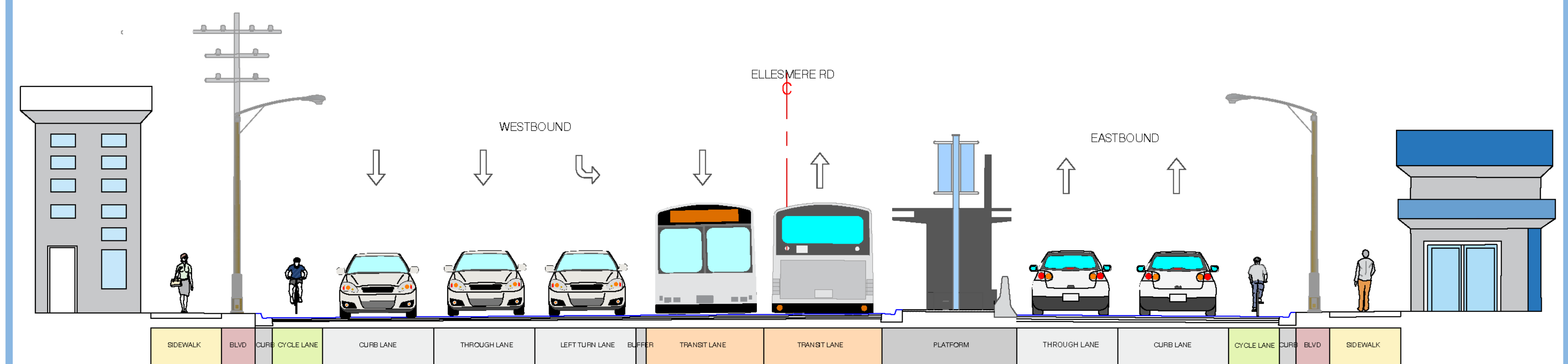
- Minimal property acquisition required to achieve Official Plan right-of-way
- High forecasted traffic volumes in 2041
- Minimal natural heritage features and cultural heritage resources



What are your thoughts on these options? Tell us by filling out a comment sheet.

Technically Preferred Option: Centre-median (6 Lanes)

Widen to add two dedicated transit lanes and maintain current number of general traffic lanes.



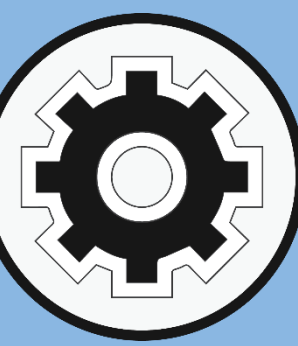
Cross-sections are conceptual

Pros

- Provides the highest priority for transit, improving speed, reliability, comfort and convenience
- Maintains existing traffic capacity
- Provides opportunities to improve existing active transportation network
- Local transit can serve stops from curb lanes between rapid transit stops

Cons

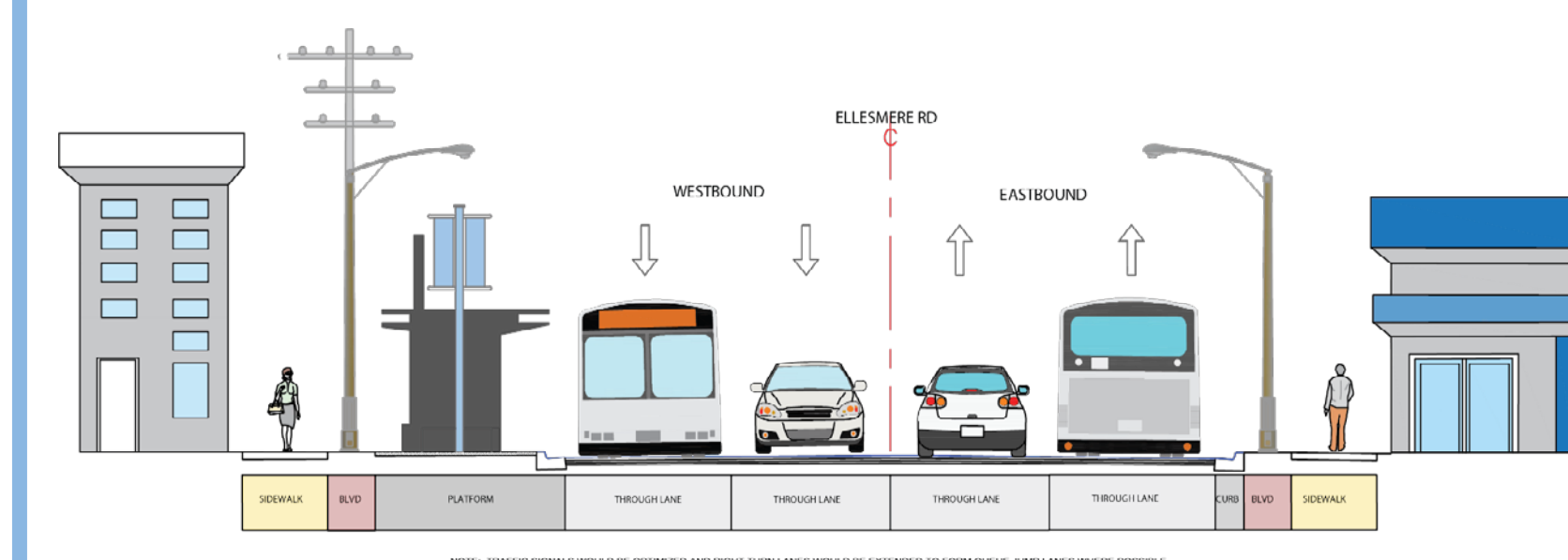
- Requires all left-turns to occur at signalized intersections
- Limited potential impacts to a few cultural heritage resources



Ellesmere Road – Military Trail to Meadowvale Road

Transit Priority Measures

Add transit priority measures such as queue jump lanes and signal timing to minimize delays for buses at intersections.



Cross-sections are conceptual

Pros

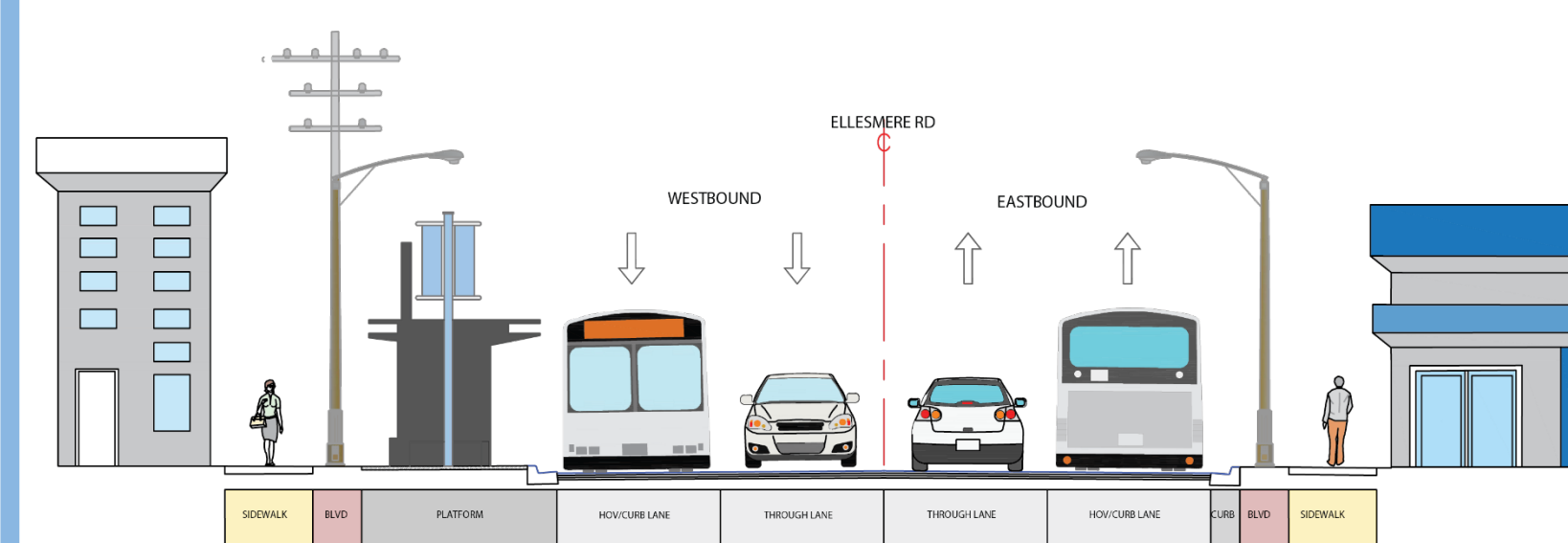
- Maintains existing left-turn access to driveways

Cons

- Least reliable transit service
- BRT shares curbside lane with general traffic and local transit, resulting in more delays and longer travel times
- No opportunities to improve existing active transportation network
- Very minimal cultural heritage resource impacts

HOV (4 Lanes)

Convert general traffic lanes to HOV lanes to be used by transit and vehicles with a specified minimum number of occupants.



Cross-sections are conceptual

Pros

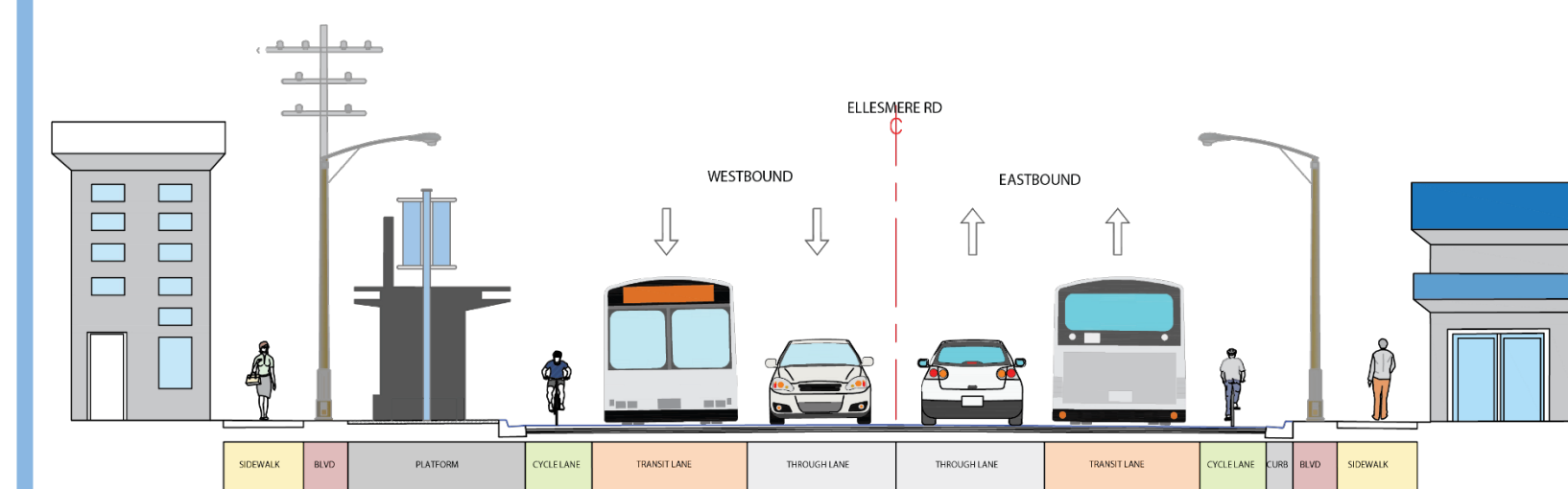
- Maintains existing left-turn access to driveways
- No impacts to cultural heritage features

Cons

- Less reliable transit service than options with dedicated bus lanes
- BRT shares curbside lane with HOV traffic and local transit, resulting in delays and longer travel times
- No opportunities to improve existing active transportation network

Curbside (4 Lanes)

Convert curbside general traffic lanes to dedicated transit lanes.



Cross-sections are conceptual

Pros

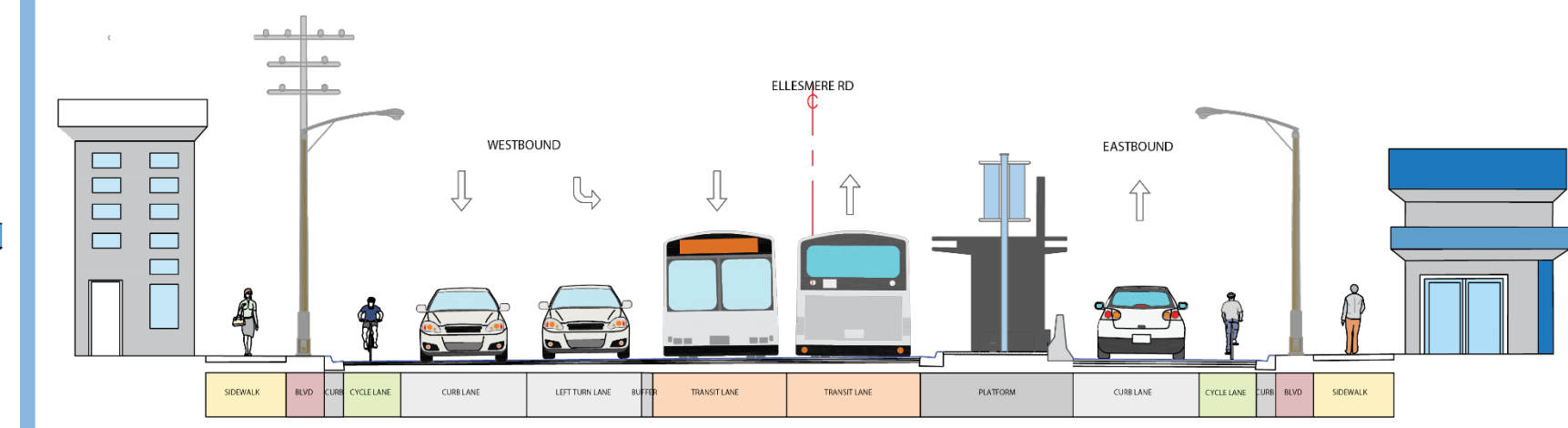
- Maintains existing left-turn access to driveways
- Provides opportunities to improve existing active transportation network

Cons

- Less reliable transit service than options with centre-median dedicated bus lanes
- Reduces capacity for general traffic and goods movement
- BRT shares curbside lane with local transit, resulting in delays and longer travel times

Centre-median (4 Lanes)

Convert general traffic lanes in the centre of the road to dedicated transit lanes.



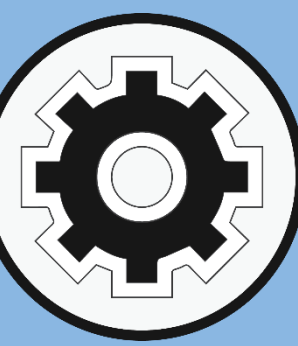
Cross-sections are conceptual

Pros

- Provides the highest priority for transit, improving speed, reliability, comfort and convenience
- Provides opportunities to improve existing active transportation network

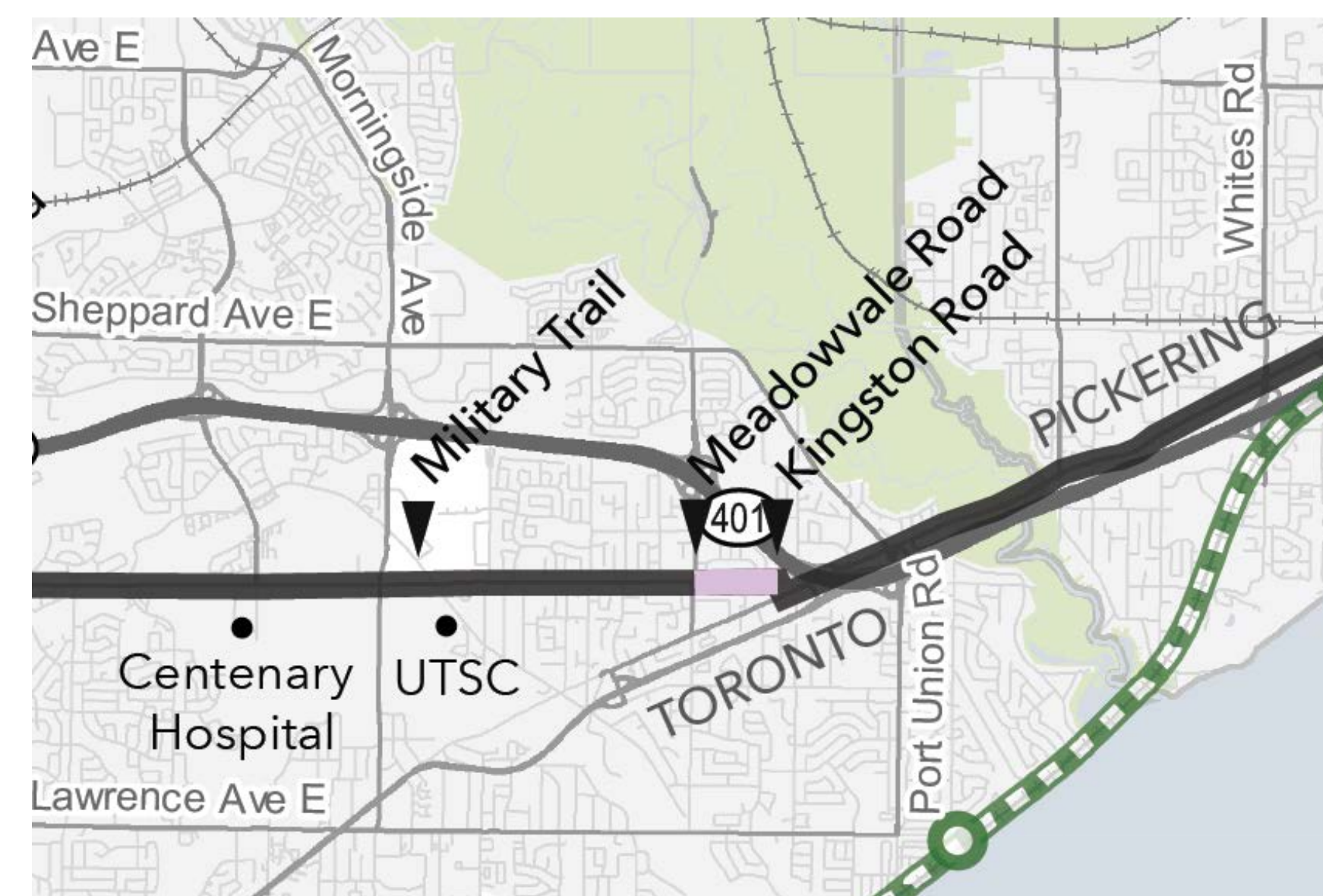
Cons

- Reduces capacity for general traffic and goods movement
- Restricts left-turns to signalized intersections, requiring a change in travel patterns
- Minimal cultural heritage resource impacts



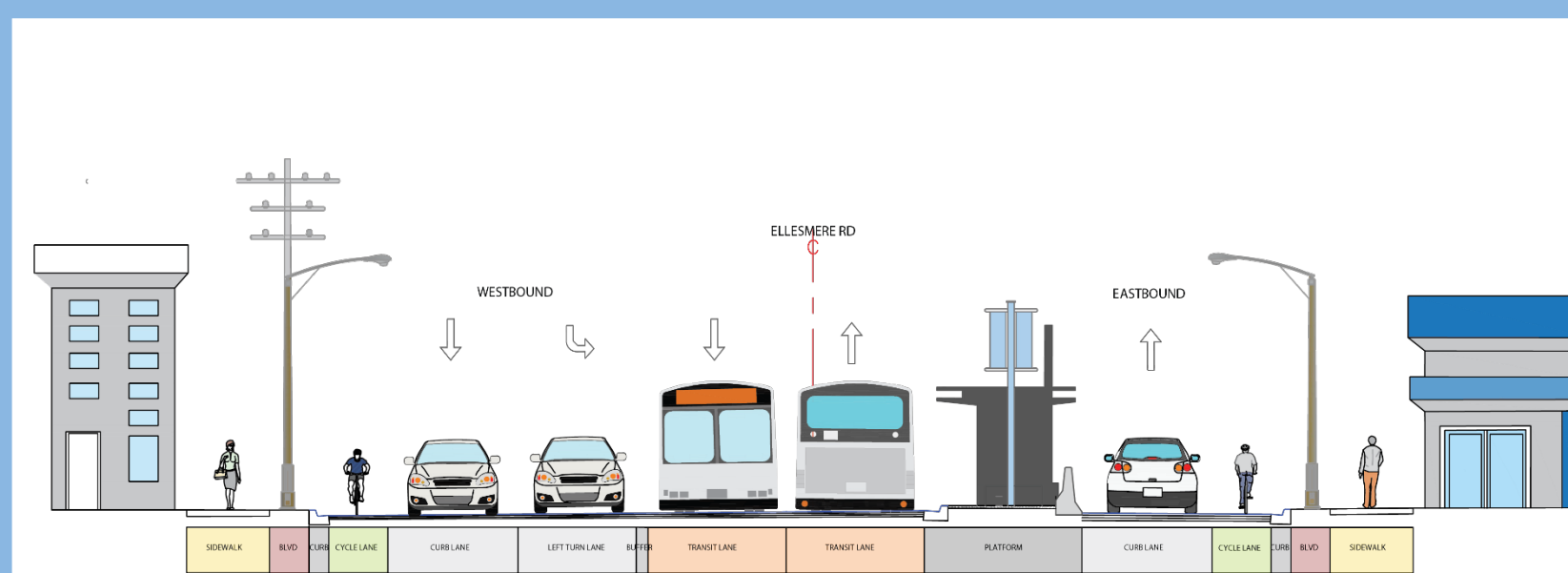
Ellesmere Road – Meadowvale Road to Kingston Road

Study Area:



Technically Preferred Option: Centre-median (4 Lanes)

Widen to add two dedicated transit lanes and maintain current number of general traffic lanes.



Cross-sections are conceptual

Pros

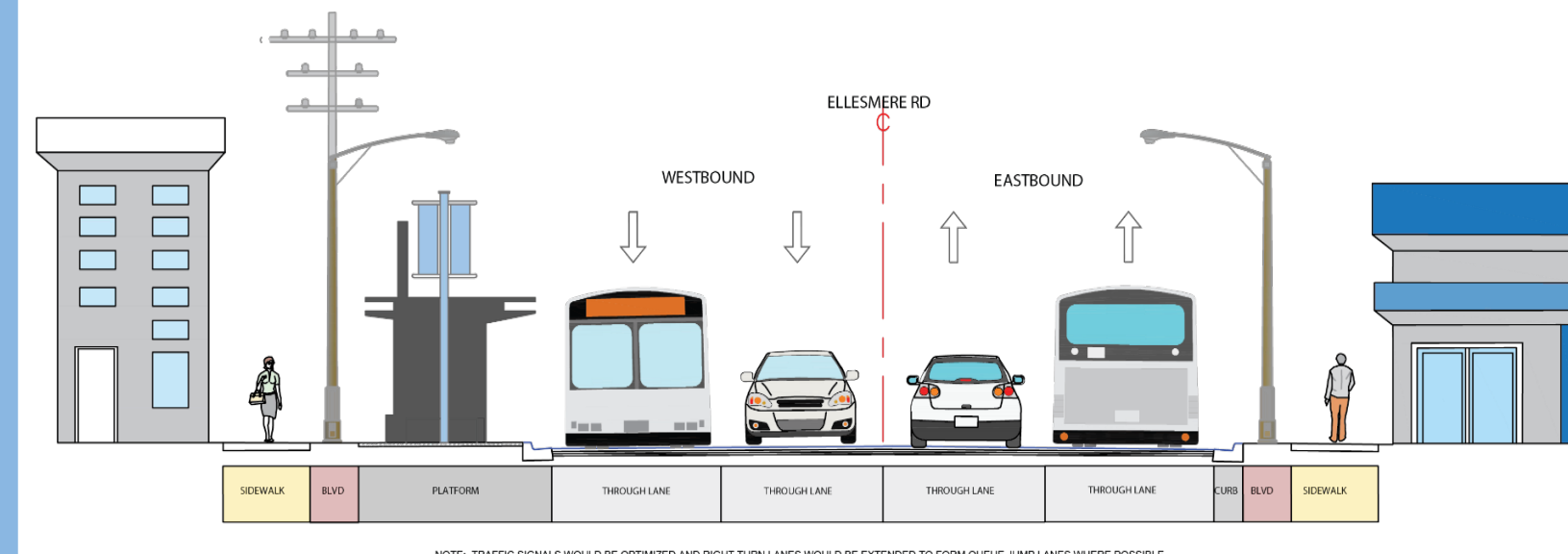
- Provides the highest priority for transit, improving speed, reliability, comfort and convenience
- Maintains existing traffic capacity
- Provides opportunities to improve existing active transportation network
- Local transit can serve stops from curb lanes between rapid transit stops

Cons

- Requires all left-turns to occur at signalized intersections, requiring a change in travel patterns

Transit Priority Measures

Add transit priority measures such as queue jump lanes and signal timing to minimize delays for buses at intersections.



Cross-sections are conceptual

Pros

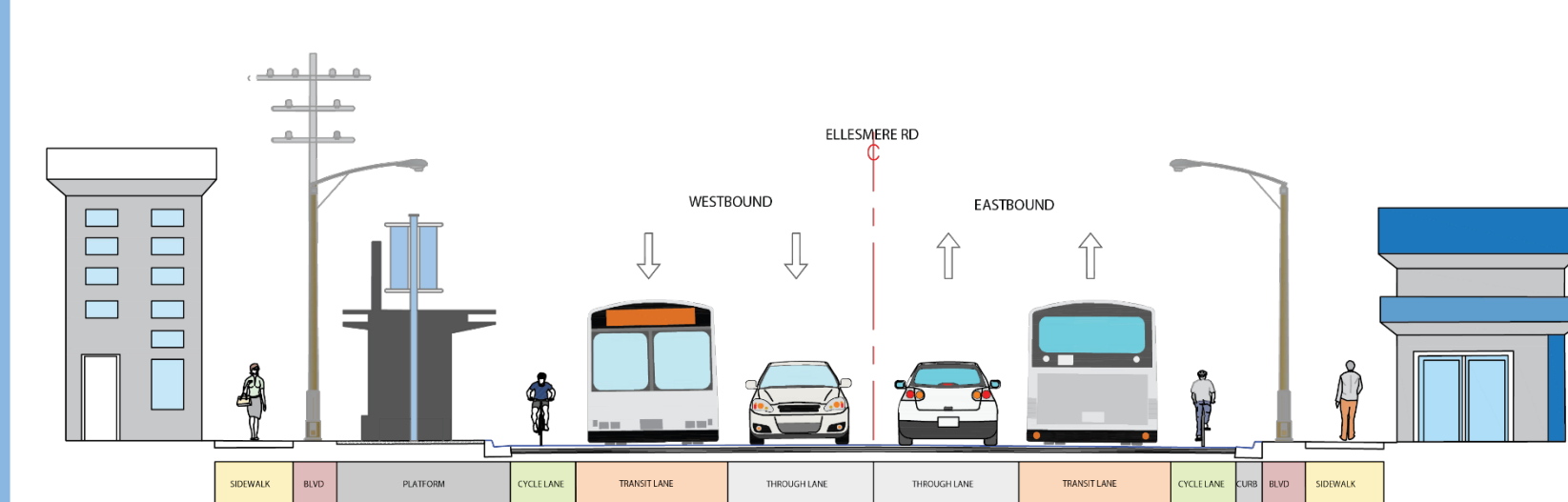
- Maintains existing left-turn access to driveways

Cons

- Least reliable transit service
- BRT shares curbside lane with local transit, resulting in delays and longer travel times
- No opportunities to improve existing active transportation network

Curbside (4 Lanes)

Widen to add two dedicated curbside transit lanes and maintain current number of general traffic lanes.



Cross-sections are conceptual

Pros

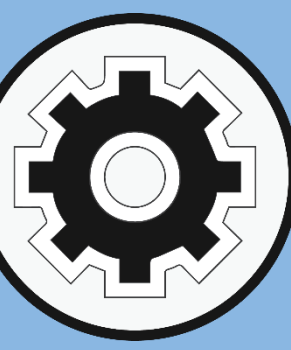
- Maintains existing left-turn access to driveways
- Provides opportunities to improve existing active transportation network

Cons

- Less reliable transit service due to right-turning vehicles
- BRT shares curbside lane with local transit, resulting in delays and longer travel times



What are your thoughts on these options? Tell us by filling out a comment sheet.



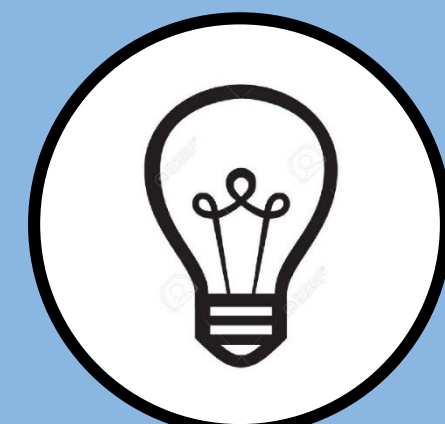
Pickering Village – Elizabeth Street to Rotherglen Road

Study Area:



Key considerations for the Pickering Village pinch point are:

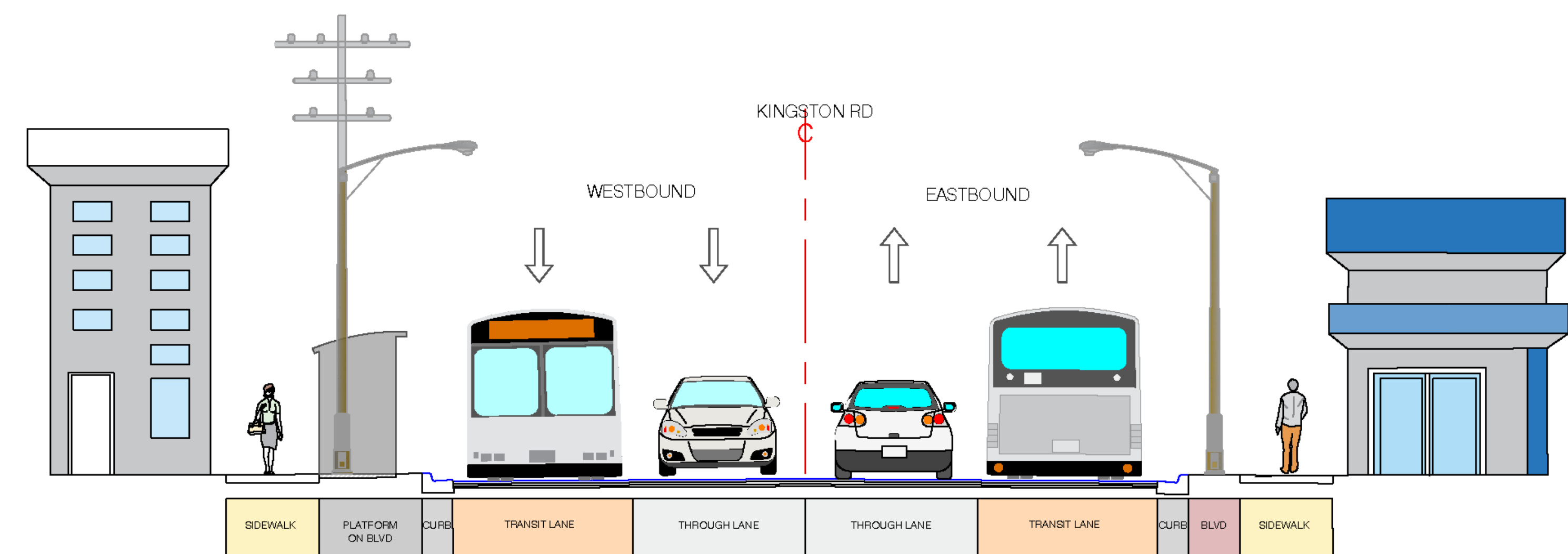
- High forecasted eastbound traffic volumes in 2041
- Numerous cultural heritage resources
- Future development and transportation network upgrades
- Buildings located close to the property line



What are your thoughts on these options? Tell us by filling out a comment sheet.

Technically Preferred Option: Curbside (4 Lanes)

Convert curbside general traffic lanes to dedicated transit lanes.



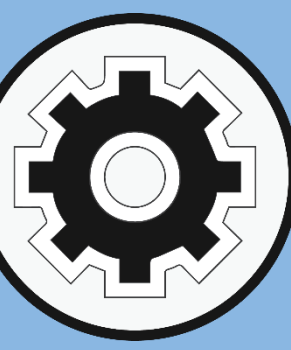
Cross-sections are conceptual

Pros

- Provides priority for transit, improving speed, reliability, comfort and convenience
- Minimizes potential impacts to cultural heritage resources
- Supports future development and future transportation network upgrades

Cons

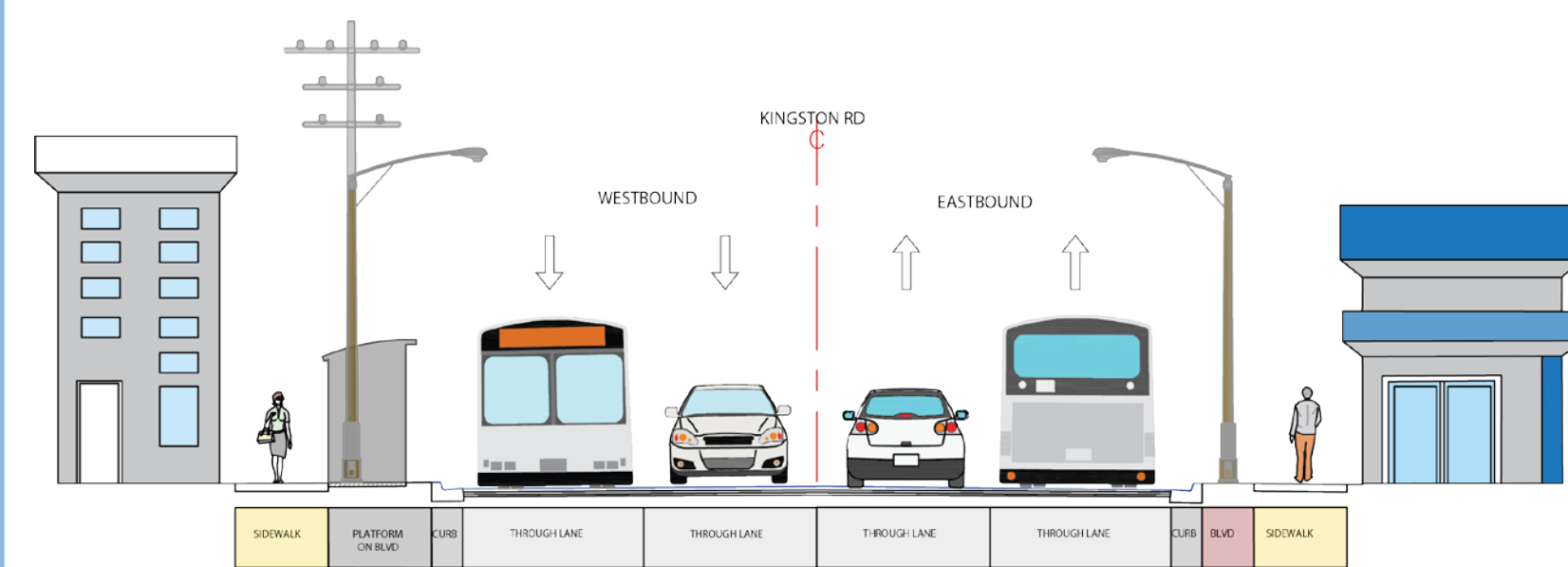
- Reduces capacity for general traffic and goods movement, may not be suitable for afternoon eastbound traffic
- BRT shares curbside lane with local transit, resulting in delays and longer travel times



Pickering Village – Elizabeth Street to Rotherglen Road

Transit Priority Measures

Add transit priority measures such as queue jump lanes and signal timing to minimize delays for buses at intersections.



Cross-sections are conceptual

Pros

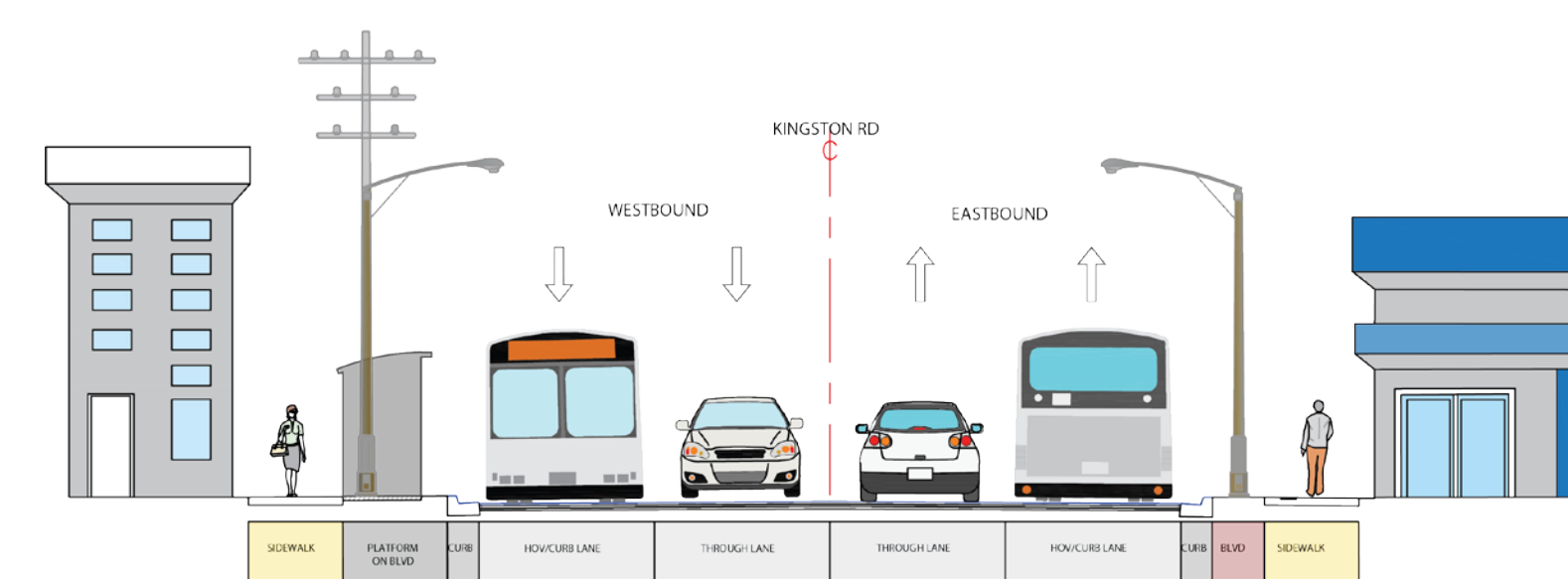
- Maintains existing left-turn access to driveways

Cons

- Least reliable transit service
- Minimal cultural heritage resource impacts
- BRT shares curbside lane with general traffic and local transit, resulting in delays and longer travel times

HOV (4 Lanes)

Convert general traffic lanes to HOV lanes to be used by transit and vehicles with a specified minimum number of occupants.



Cross-sections are conceptual

Pros

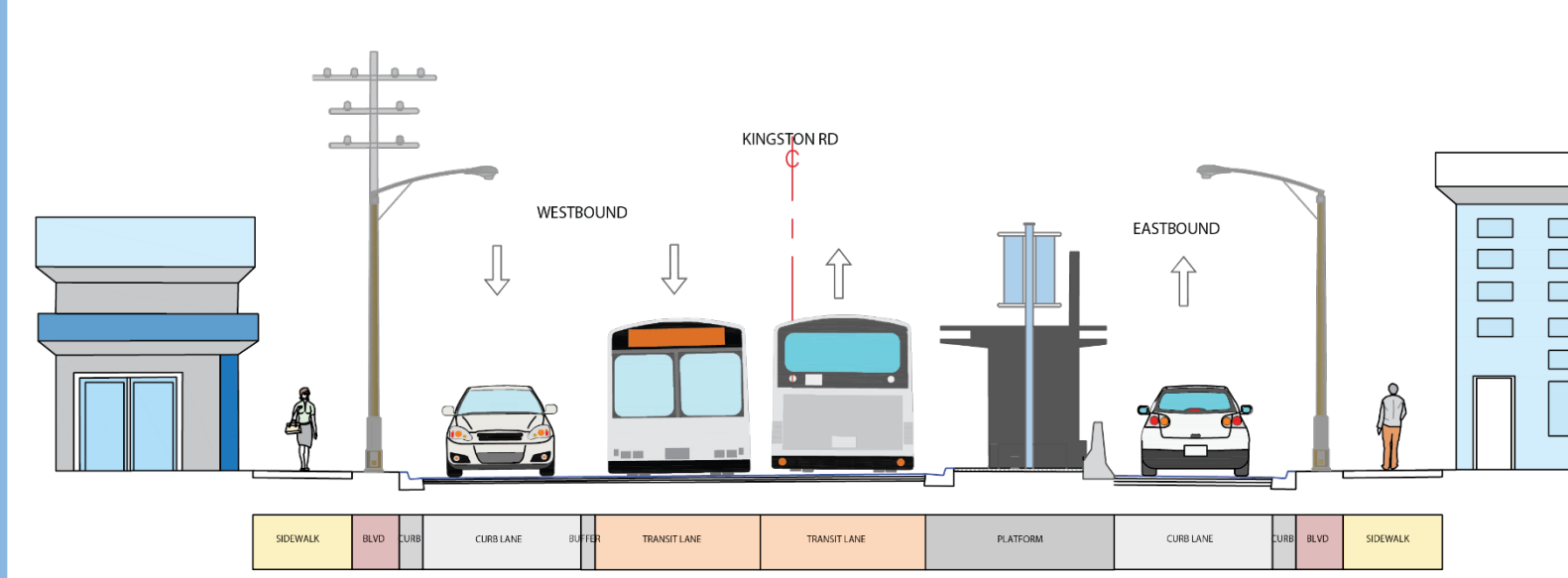
- Maintains existing left-turn access to driveways
- No impacts to cultural heritage features or property

Cons

- Less reliable transit service than options with dedicated bus lanes
- BRT shares curbside lane with HOV traffic and local transit, resulting in delays and longer travel times
- Reduces capacity for general traffic and goods movement, may not be suitable for afternoon eastbound traffic

Centre-median (4 Lanes)

Convert general traffic lanes in the centre of the road to dedicated transit lanes.



Cross-sections are conceptual

Pros

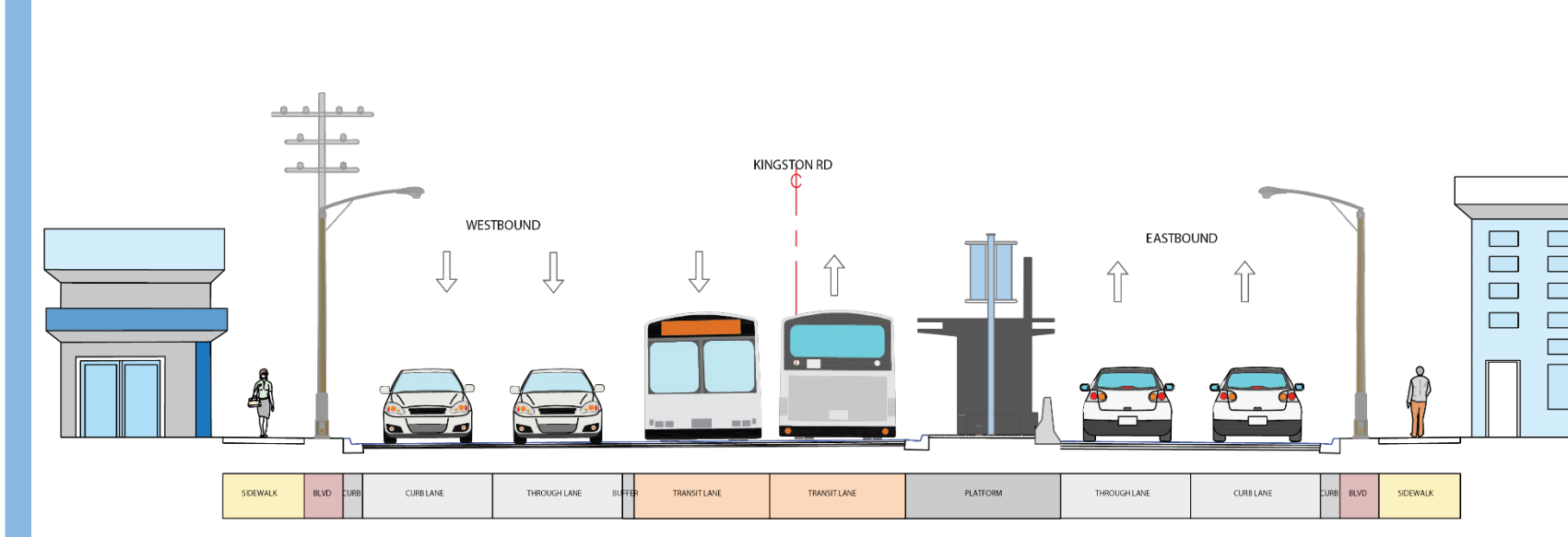
- Provides the highest priority for transit, improving speed, reliability, comfort and convenience

Cons

- Reduces capacity for general traffic and goods movement, may not be suitable for afternoon eastbound traffic
- More cultural heritage resource and property impacts than curbside option
- Restricts left-turns to signalized intersections, requiring a change in travel patterns

Centre-median (6 Lanes)

Widen to add two dedicated transit lanes and maintain current number of general traffic lanes.



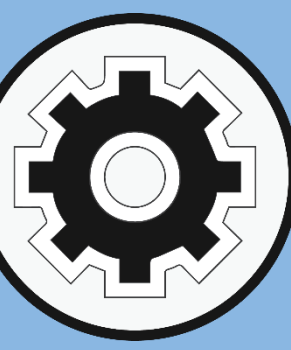
Cross-sections are conceptual

Pros

- Provides the highest priority for transit, improving speed, reliability, comfort and convenience
- Maintains capacity for general traffic and goods movement

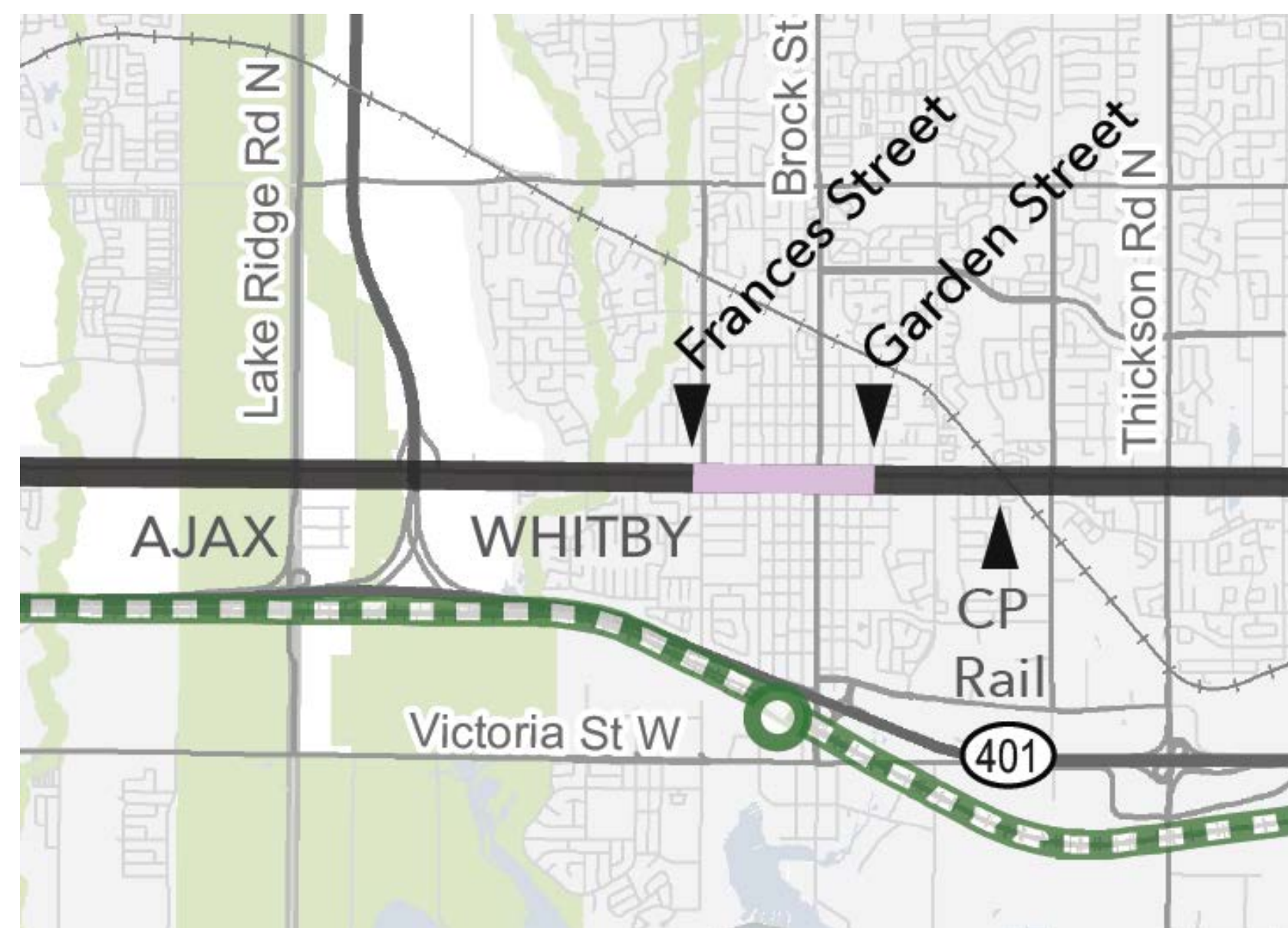
Cons

- Significant impacts to cultural heritage resources and properties
- Restricts left-turns to signalized intersections, requiring a change in travel patterns



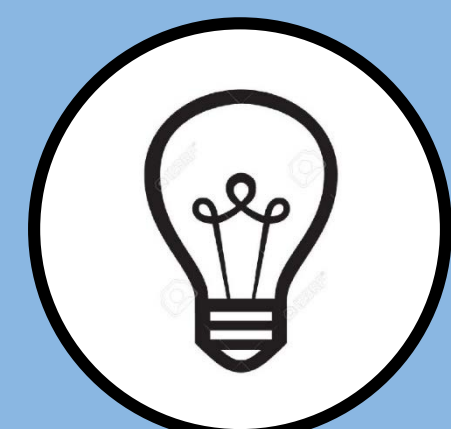
Downtown Whitby – Frances Street to Garden Street

Study Area:



Key considerations for the Downtown Whitby pinch point are:

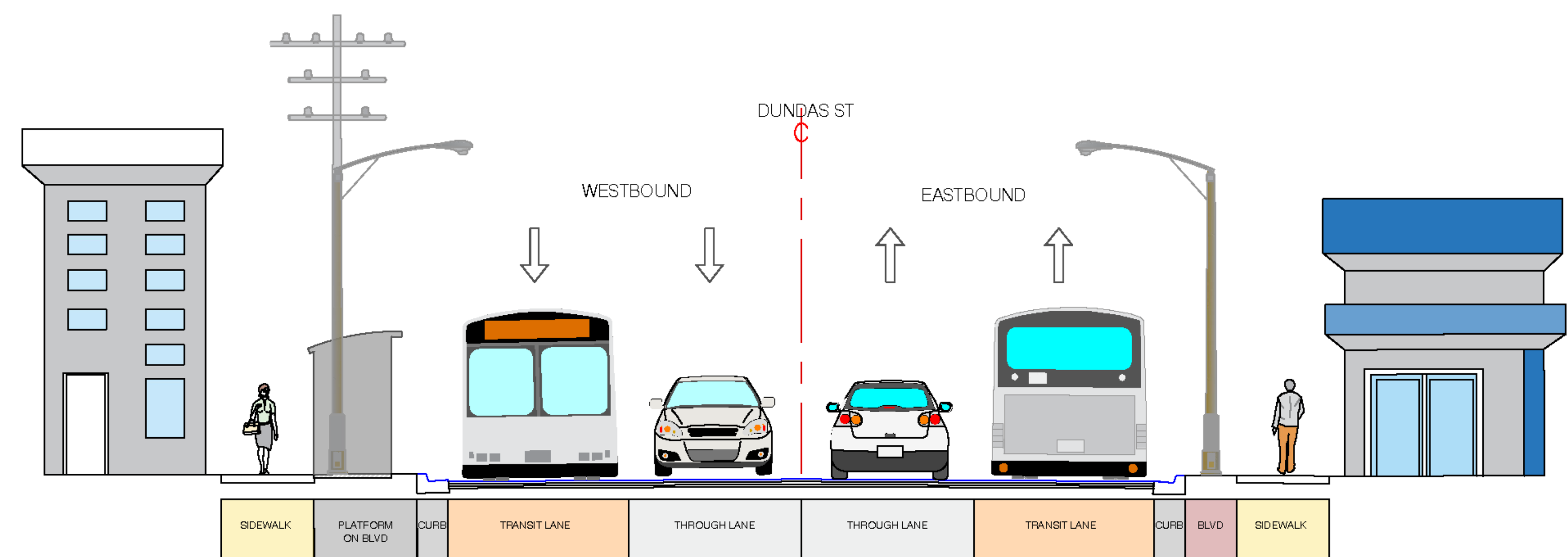
- Narrow right-of-way with buildings located close to the property line
- Some cultural heritage resources
- On-street parking will need to be removed or relocated



What are your thoughts on these options? Tell us by filling out a comment sheet.

Technically Preferred Option: Curbside (4 Lanes)

Convert curbside general traffic lanes to dedicated transit lanes.



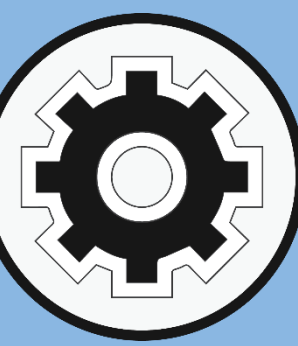
Cross-sections are conceptual

Pros

- Provides priority for transit, improving speed, reliability, comfort and convenience
- Avoids impacts to buildings
- Minimizes potential impacts to cultural heritage resources

Cons

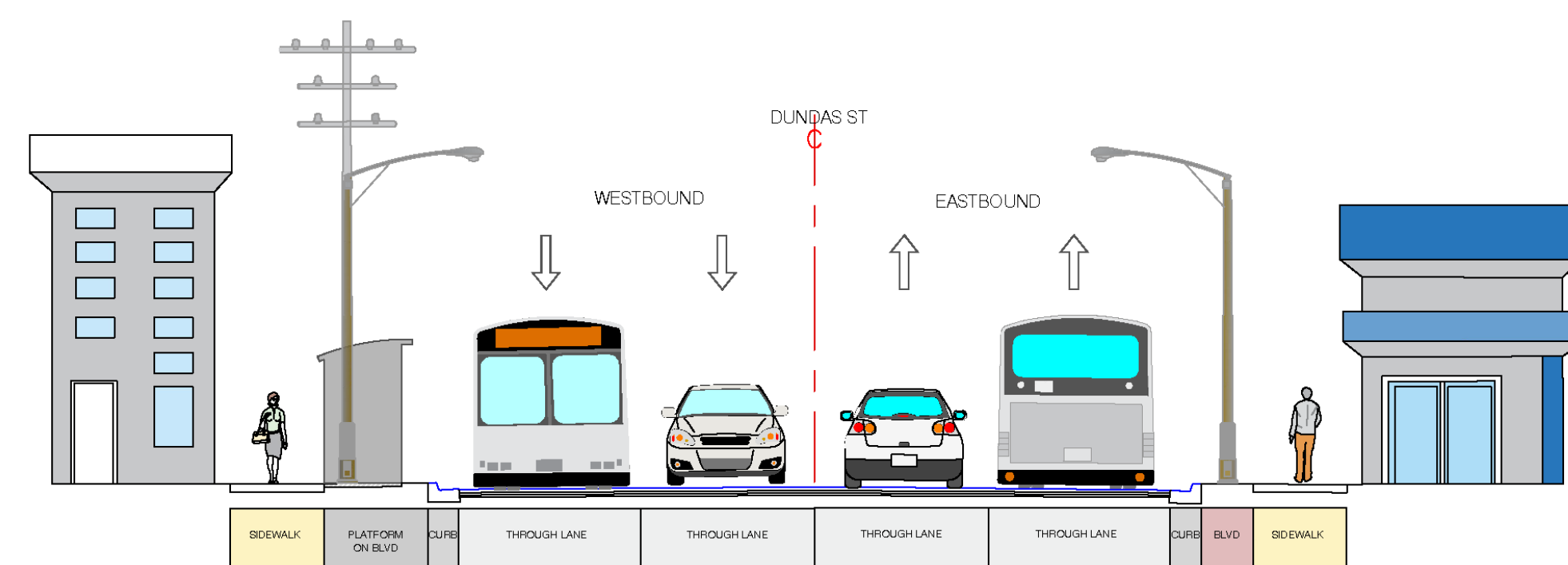
- On-street parking will need to be relocated to side streets or municipal parking facilities. Today on-street parking is restricted in peak hours in peak directions.
- BRT shares curbside lane with local transit, resulting in delays and longer travel times
- Reduces capacity for general traffic and goods movement



Downtown Whitby – Frances Street to Garden Street

Transit Priority Measures

Add transit priority measures such as queue jump lanes and signal timing to minimize delays for buses at intersections.



NOTE: TRAFFIC SIGNALS WOULD BE OPTIMIZED AND RIGHT TURN LANES WOULD BE EXTENDED TO FORM QUEUE JUMP LANES WHERE POSSIBLE.

Cross-sections are conceptual

Pros

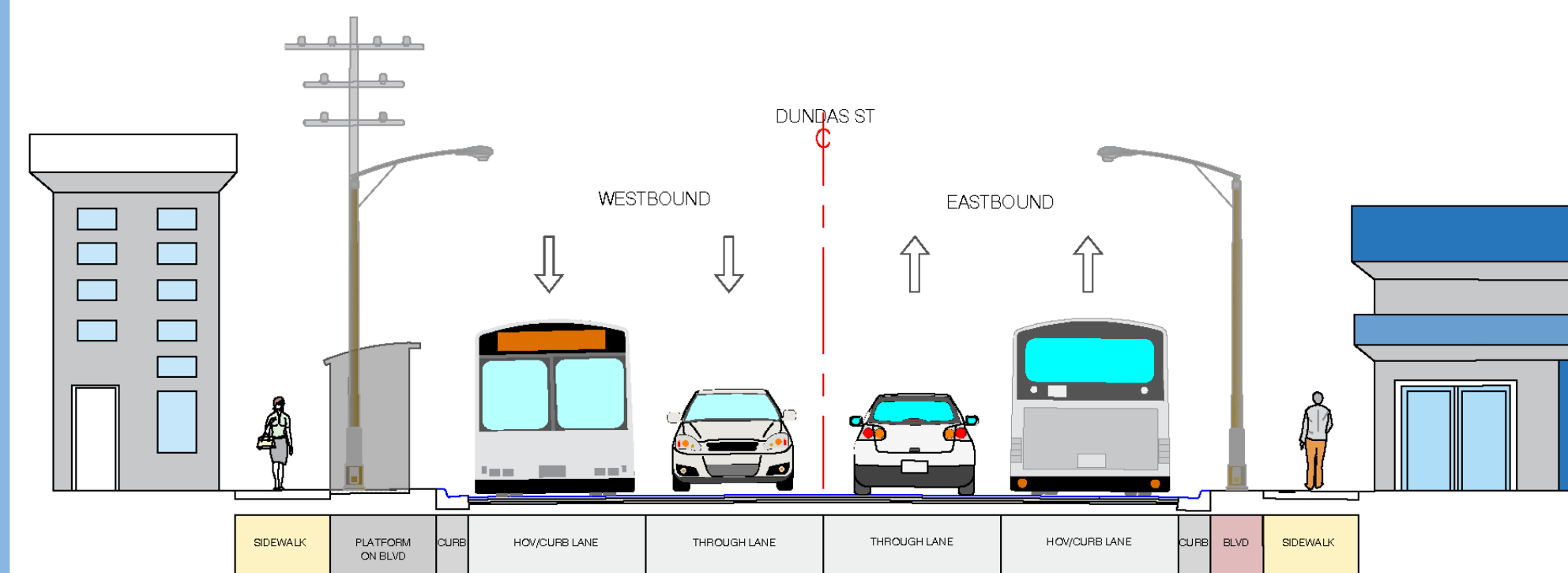
- Maintains existing left-turn access to driveways
- May not affect on-street parking

Cons

- Least reliable transit service
- Minimal cultural heritage resource impacts
- BRT shares curbside lane with general traffic and local transit, resulting in delays and longer travel times

HOV (4 Lanes)

Convert general traffic lanes to HOV lanes to be used by transit and vehicles with a specified minimum number of occupants.



Cross-sections are conceptual

Pros

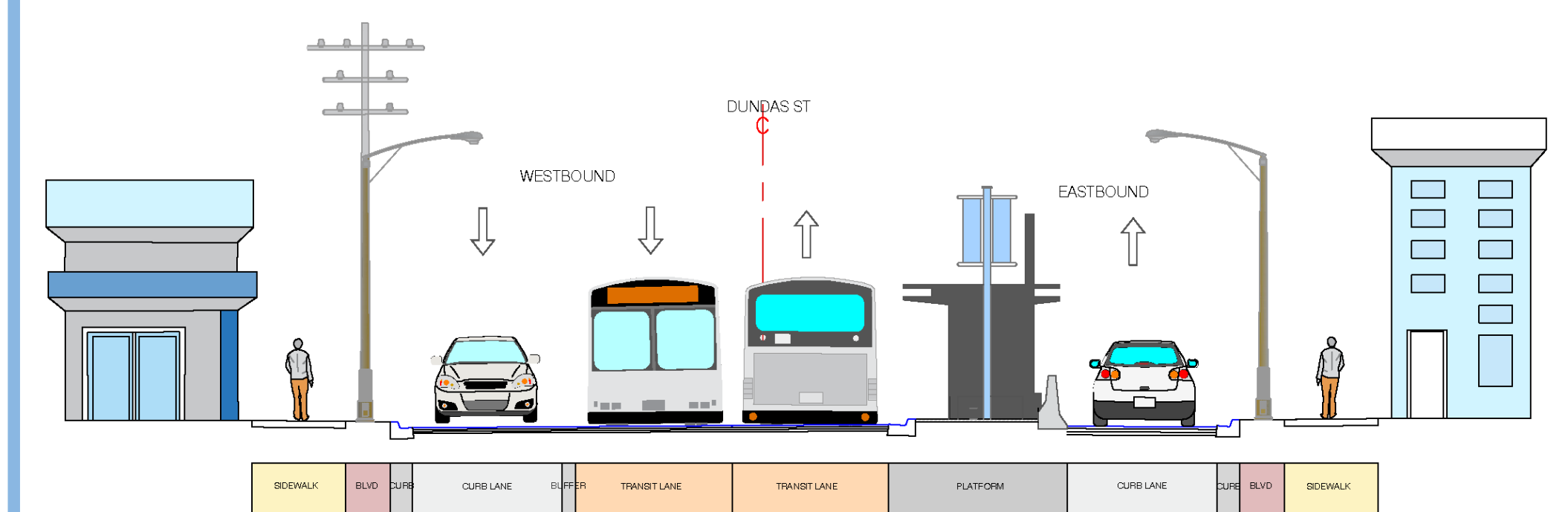
- Maintains existing left-turn access to driveways
- No impacts to cultural heritage resources

Cons

- May affect on-street parking
- BRT shares curbside lane with HOV traffic and local transit, resulting in delays and longer travel times

Centre-median (4 Lanes)

Convert general traffic lanes in the centre of the road to dedicated transit lanes.



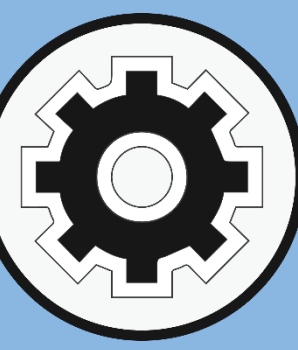
Cross-sections are conceptual

Pros

- Provides the highest priority for transit, improving speed, reliability, comfort and convenience

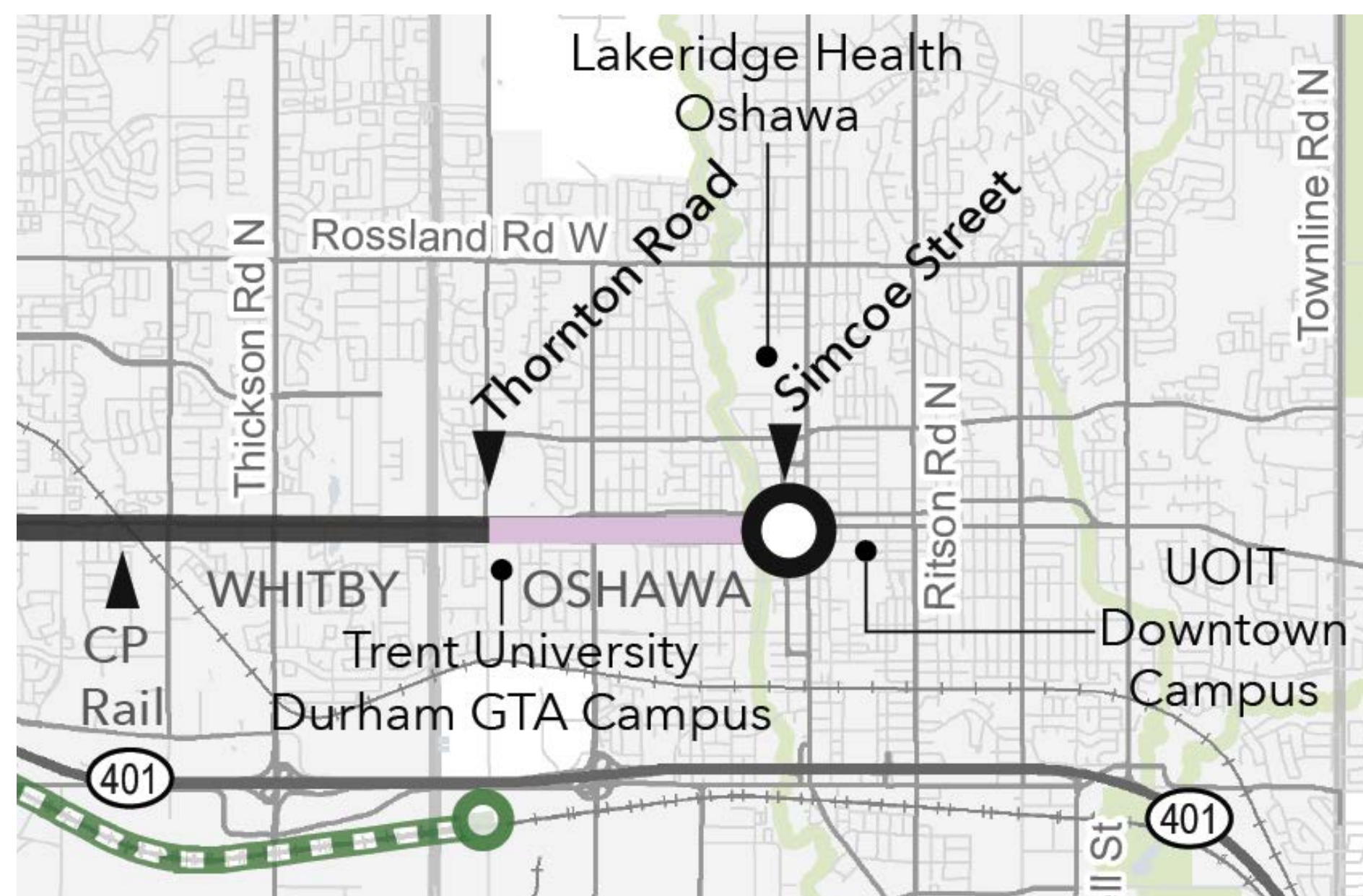
Cons

- Requires on-street parking to be relocated
- Reduces capacity for general traffic and goods movement
- Restricts left-turns to signalized intersections, requiring a change in travel patterns
- Impacts to buildings and properties and cultural heritage resources



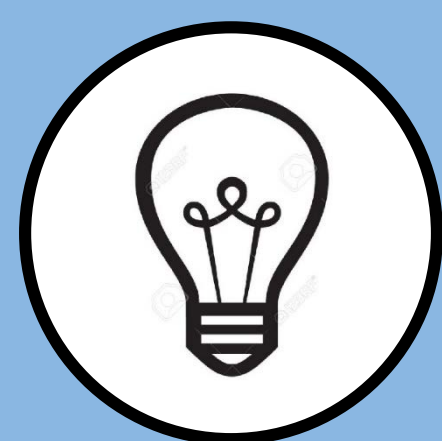
Downtown Oshawa – Thornton Road to Simcoe Street

Study Area:



Key factors in the Downtown Oshawa pinch point are:

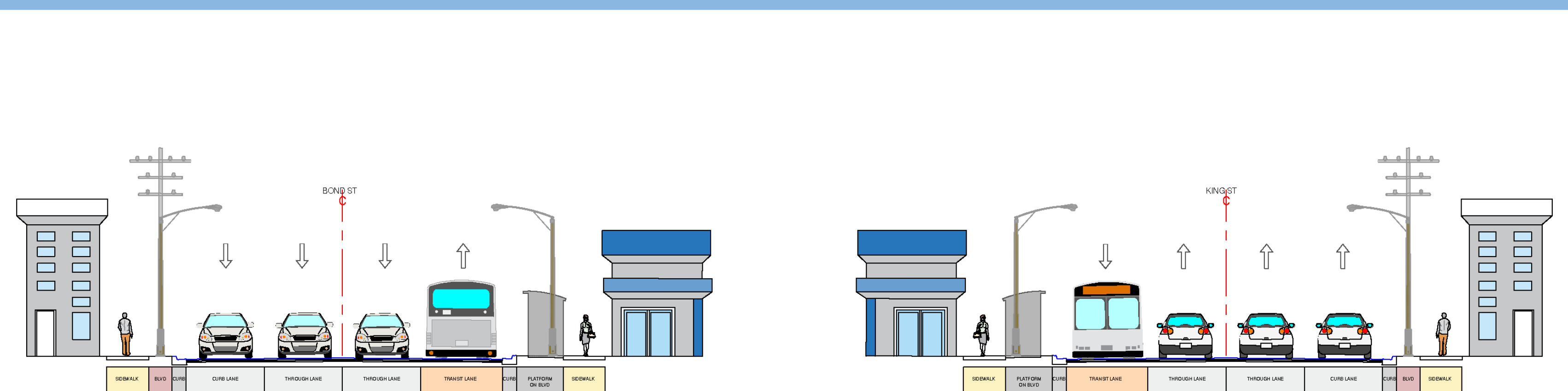
- Narrow right-of-way with buildings located close to the property line
- Minimal natural heritage features
- Some cultural heritage resources
- On-street parking will need to be removed or relocated



What are your thoughts on these options? Tell us by filling out a comment sheet.

Technically Preferred Option: Contraflow Lanes (Couplet)

Convert curbside general traffic lanes on King Street and Bond Street to dedicated transit lanes. Buses would run in the opposite direction of traffic.



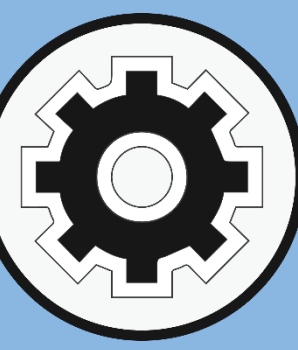
Cross-sections are conceptual

Pros

- Provides the highest priority for transit, improving speed, reliability, comfort and convenience
- Avoids impacts to buildings and cultural heritage resources
- Increases compliance of general traffic to dedicated bus lane with BRT running opposite to general traffic

Cons

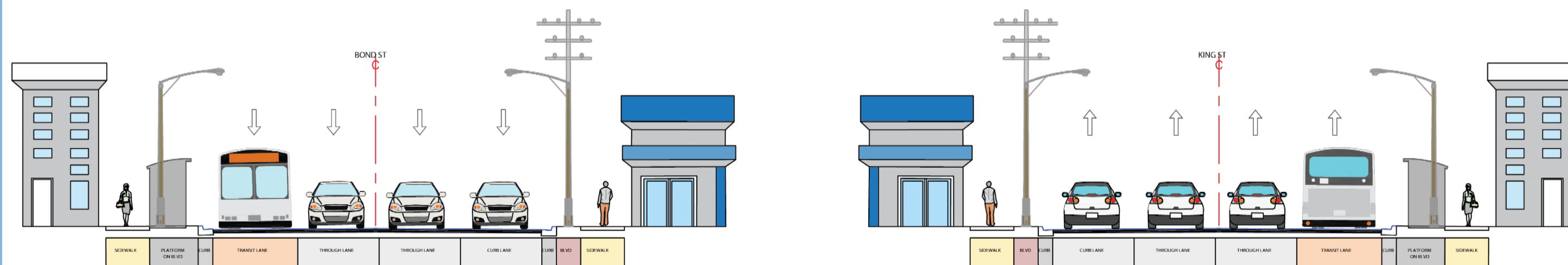
- Two-way operation will require public education and changes in travel patterns
- Changes in local bus service may be required
- Requires relocation of on-street parking on the north side of King Street



Downtown Oshawa – Thornton Road to Simcoe Street

Curbside (Couplet)

Convert curbside general traffic lanes on King Street and Bond Street to dedicated transit lanes. Buses would run in the same direction as traffic.



Cross-sections are conceptual

Pros

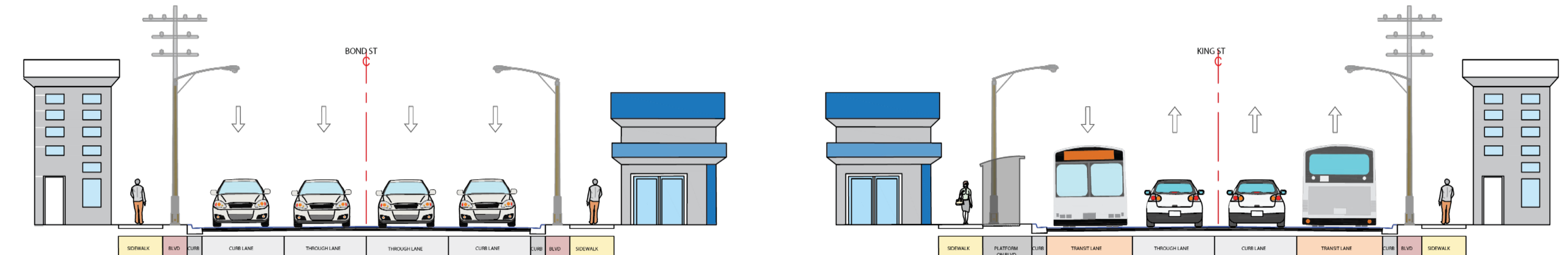
- Provides priority for transit, improving speed, reliability, comfort and convenience
- No change in local bus service required
- Avoids impacts to buildings and cultural heritage resources

Cons

- Right-turn movements have the potential to reduce transit reliability
- Remove parking on the south side of King Street and north side of Bond Street
- BRT shares curbside lane with local transit resulting in delays and longer travel times.

Hybrid (BRT on King Street)

Convert curbside general traffic lanes on King Street to dedicated transit lanes. One lane would operate as a contraflow lane.



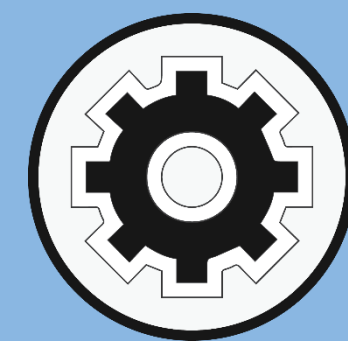
Cross-sections are conceptual

Pros

- Provides good priority for transit, improving speed, reliability, comfort and convenience, assuming no left-turns on King Street

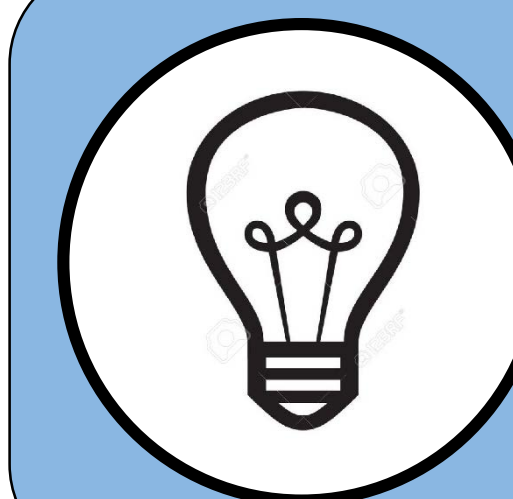
Cons

- Westbound buses would run contraflow to general traffic
- Right-turn movements have the potential to reduce transit reliability
- Two-way operation will require public education
- Left-turns may be restricted on King Street, requiring a change in travel patterns
- Requires removal of all parking and patio extensions on both sides of King Street between Queen Street and Simcoe Street



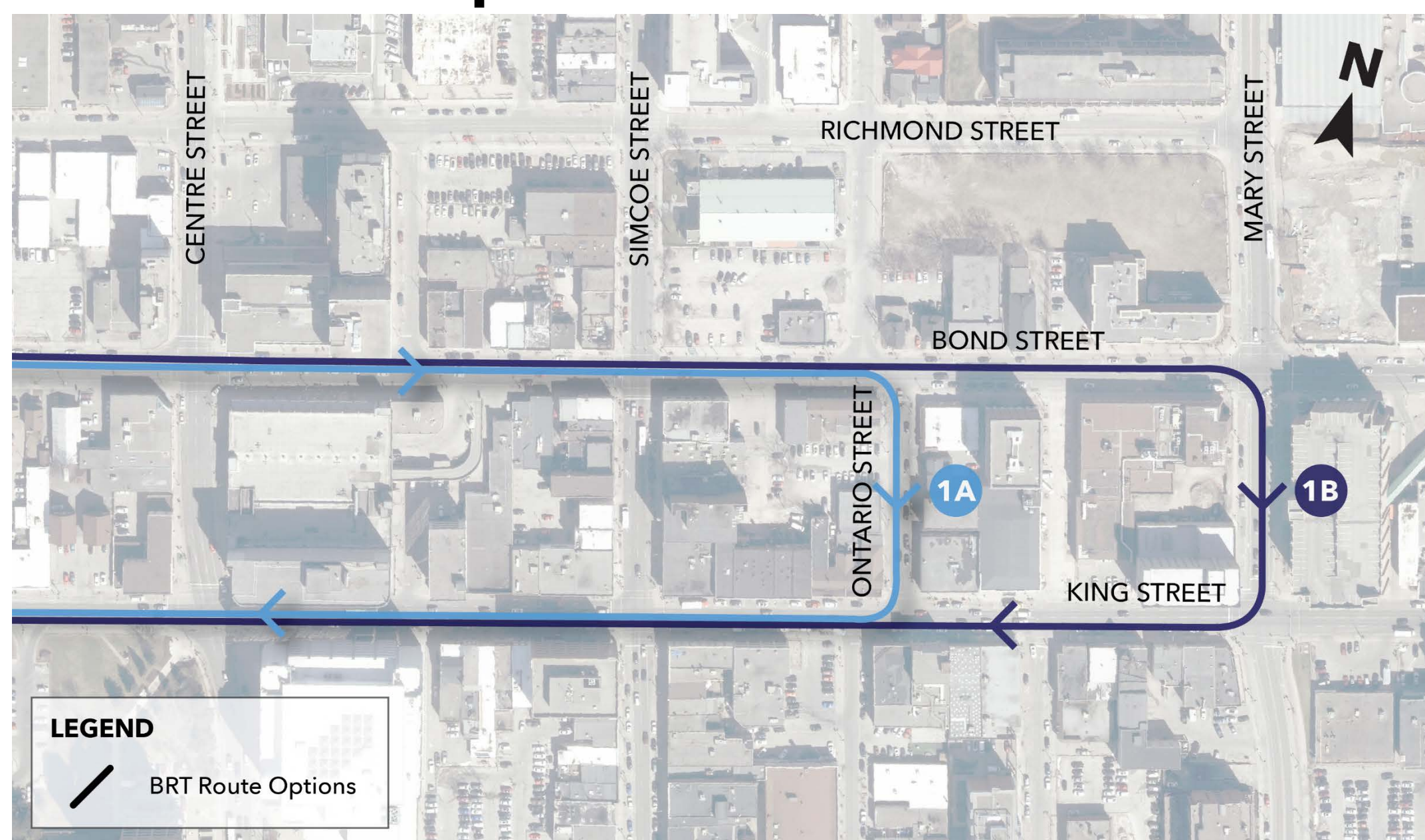
East End of Corridor

There are a number of potential routes that could be used as a turnaround for buses in Downtown Oshawa. The three route options below correspond to the three pinch point options for Downtown Oshawa, presented on the previous board. These turnaround options will be further considered in consultation with Durham Region Transit. Layover space may be required in the downtown.



What are the benefits and drawbacks of these options? Tell us by filling out a comment sheet.

Contraflow Option:



1A Via: Bond Street » Ontario Street » King Street

1B Via: Bond Street » Mary Street » King Street

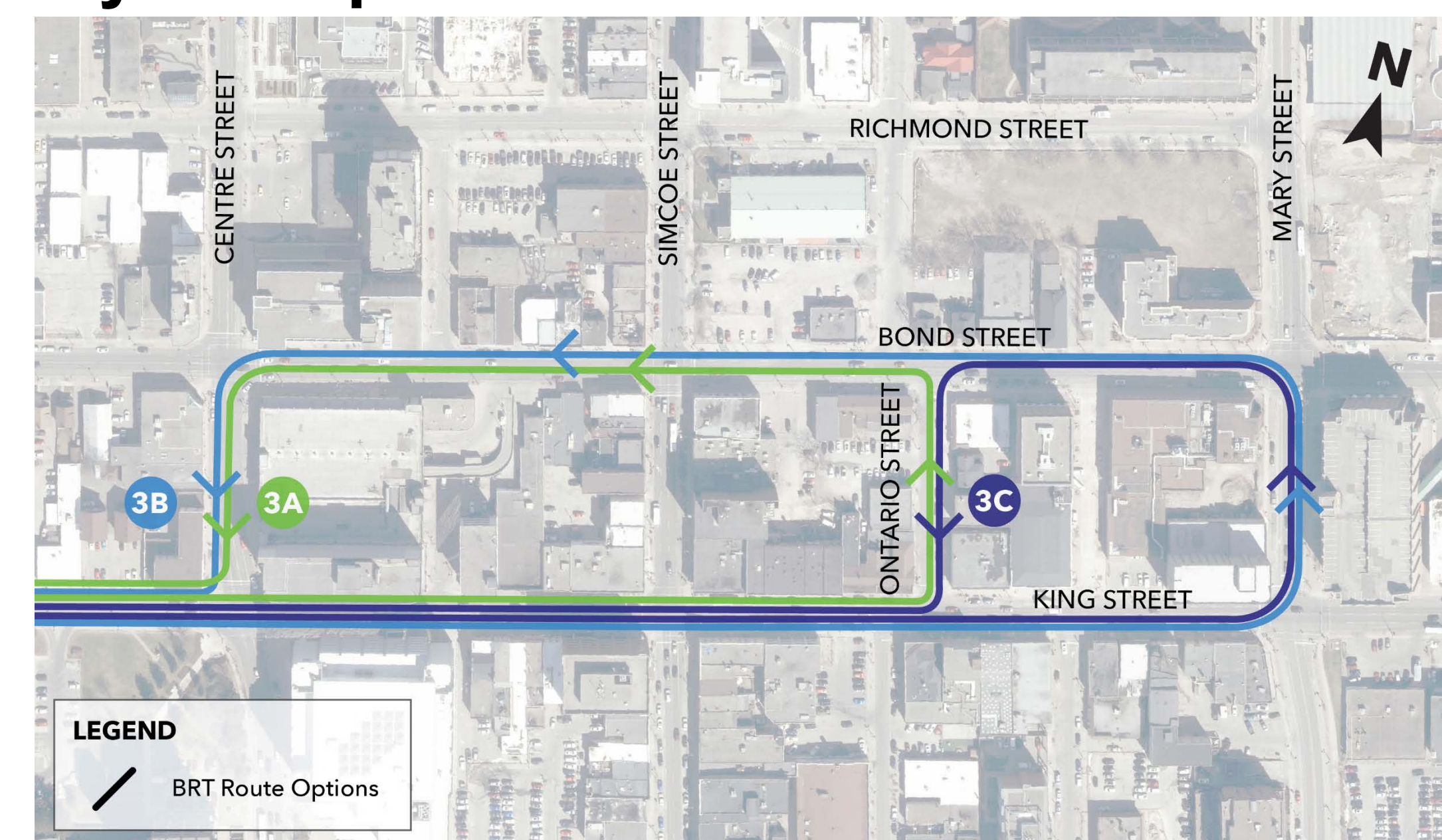
Curbside Option:



2A Via: King Street » Ontario Street » Bond Street

2B Via: King Street » Mary Street » Bond Street

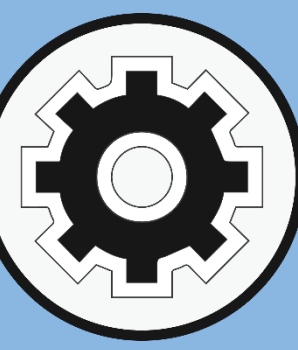
Hybrid Option:



3A Via: King Street » Ontario Street » Bond Street » Centre Street » King Street

3B Via: King Street » Mary Street » Bond Street » Centre Street » King Street

3C Via: King Street » Mary Street » Bond Street » Ontario Street » King Street



Oshawa One-Way Streets

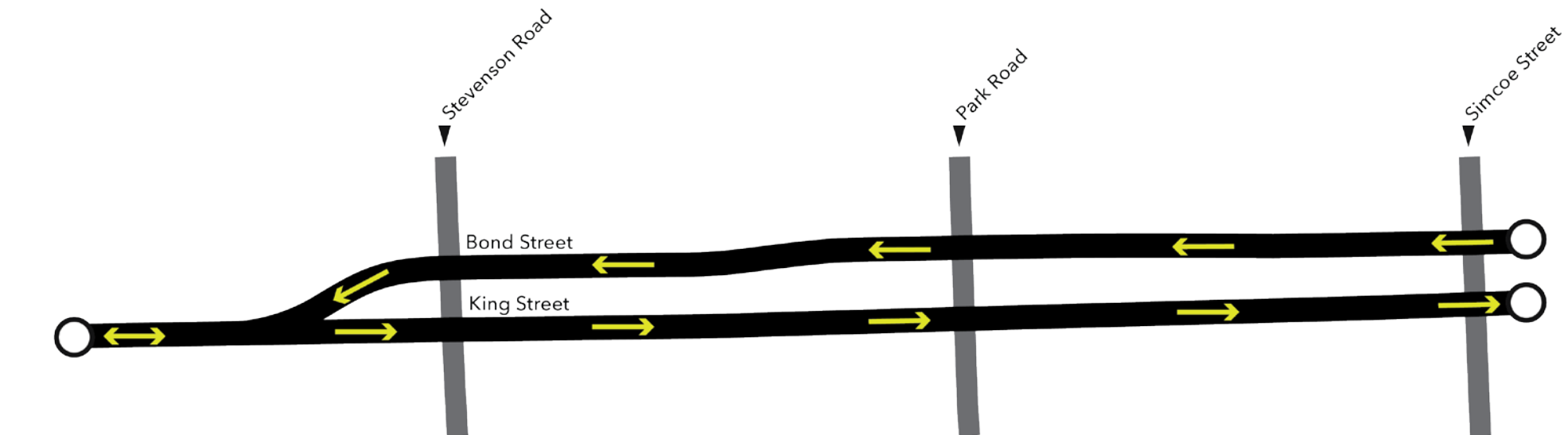
King Street and Bond Street currently operate as one-way streets. The City of Oshawa recently passed a motion directing city staff to study the feasibility of converting King Street and Bond Street to two-way operations, along with Centre, Simcoe, Albert and Celina streets.

The Bus Rapid Transit system can work with either one-way or two-way streets. The Bus Rapid Transit system elements which could be impacted include:

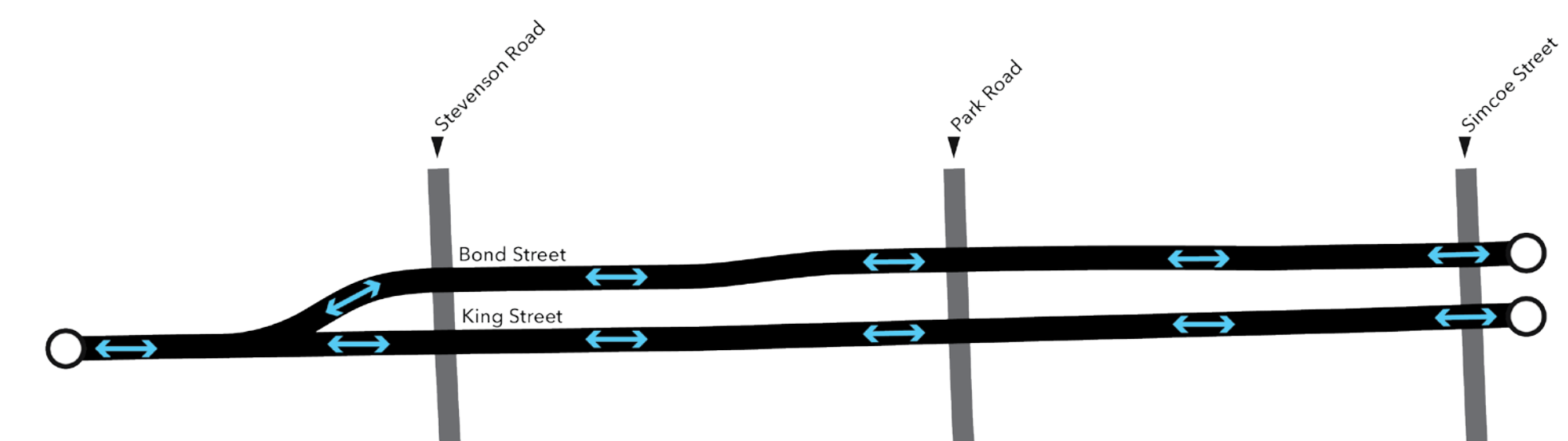
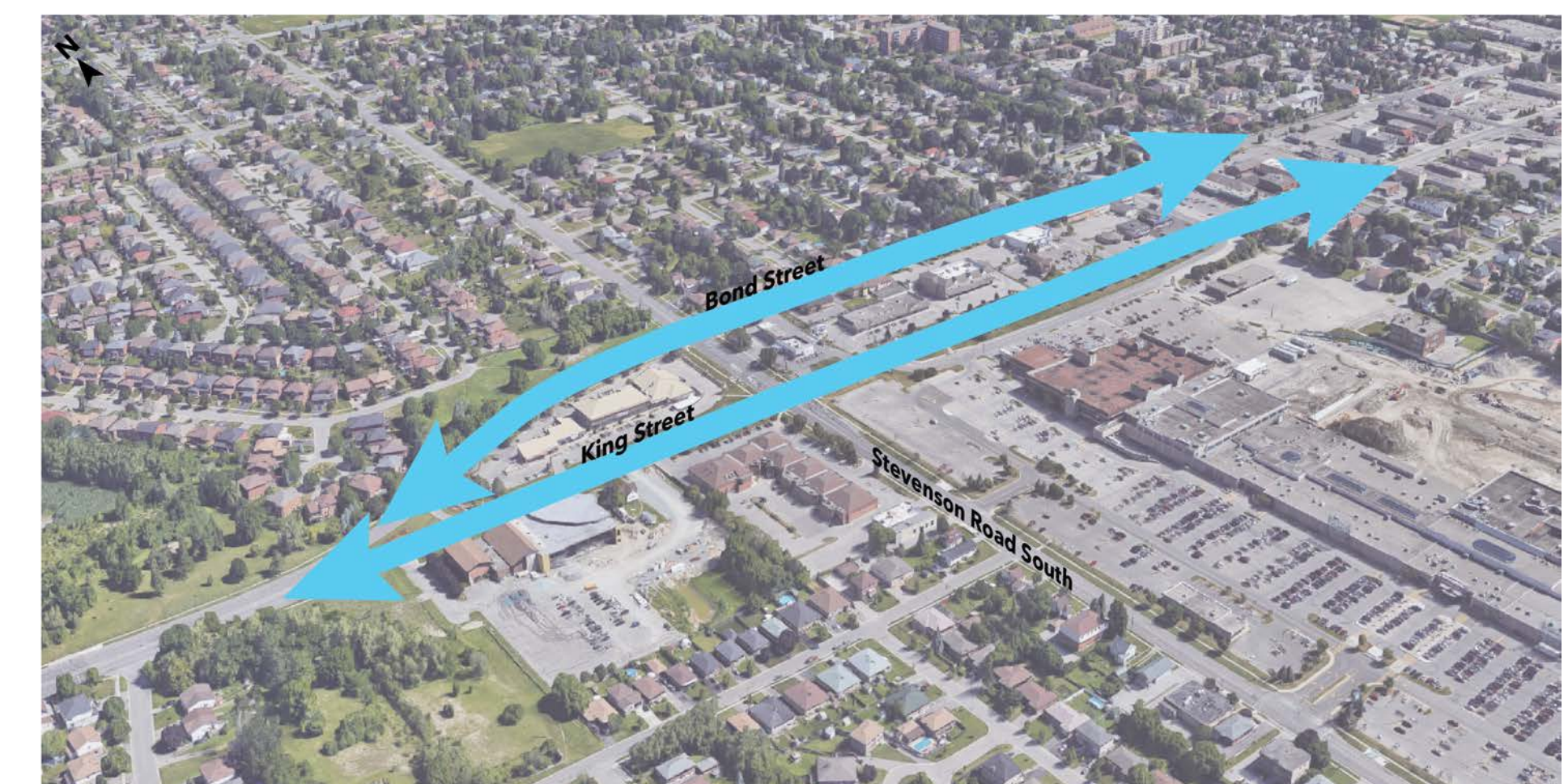
- Bus stop locations
- Intersection design
- Intersection operations

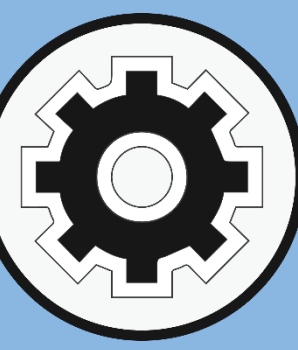
Metrolinx will work with Durham Region and the City of Oshawa, should the lanes be converted, to maintain Bus Rapid Transit service reliability through this section.

Existing One-Way Configuration:



The City is Considering Converting to Two-Way:





Contraflow Lanes

A contraflow lane is a lane that moves vehicles in the opposite direction of the surrounding lanes.

On King Street and Bond Street in Oshawa, the conversion of an existing traffic lane to a contraflow lane would mean that the streets would continue to operate as one-way streets for general traffic, but as a two-way street for buses.

Contraflow lanes exist in a number of cities across North America, including San Francisco, Boston, Indianapolis, Minneapolis and Seattle.

If contraflow lanes are the preferred option, the following measures will be considered to increase safety:

- Public education campaigns
- Special signage and pavement markings
- Red pavement for bus lanes
- Painted double yellow line separating general traffic from bus lanes
- Flexible bollards

To access properties between King Street and Bond Street, drivers would make a left-turn that would cross the dedicated bus lane.

Contraflow Lanes in Boston



Contraflow Lanes in San Francisco



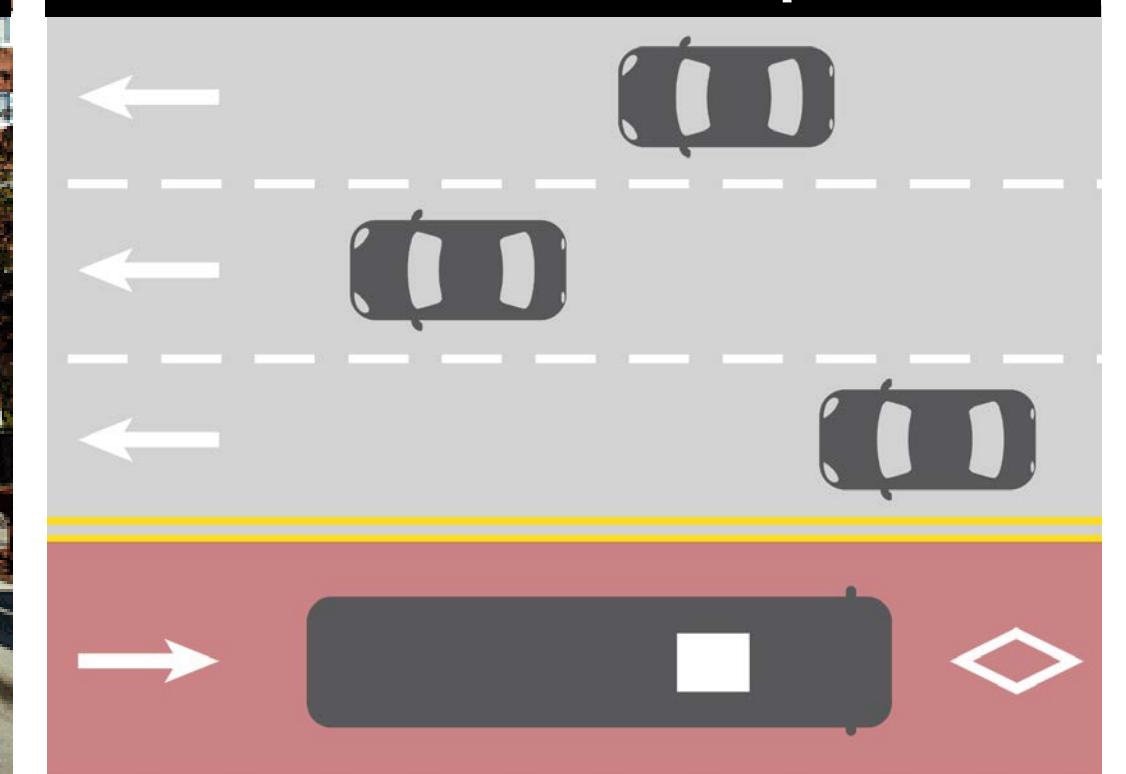
Road Signage in Seattle



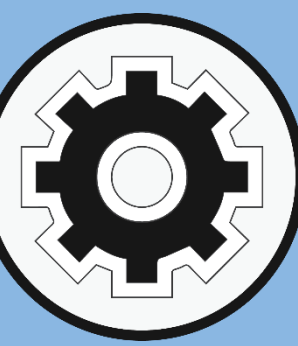
Contraflow Lanes in Minneapolis



Contraflow Lane Concept



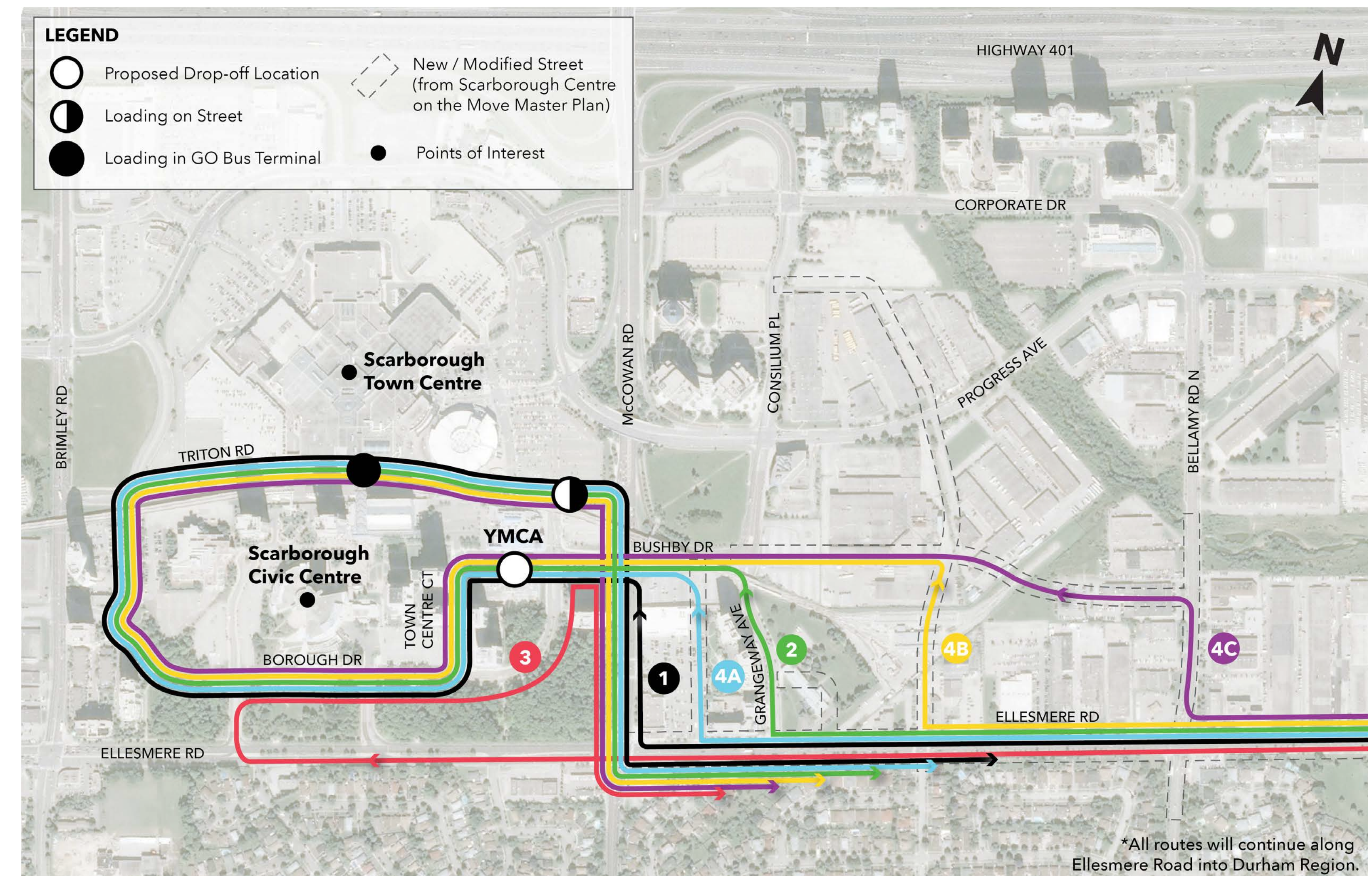
Sources: Google Maps and Google Images



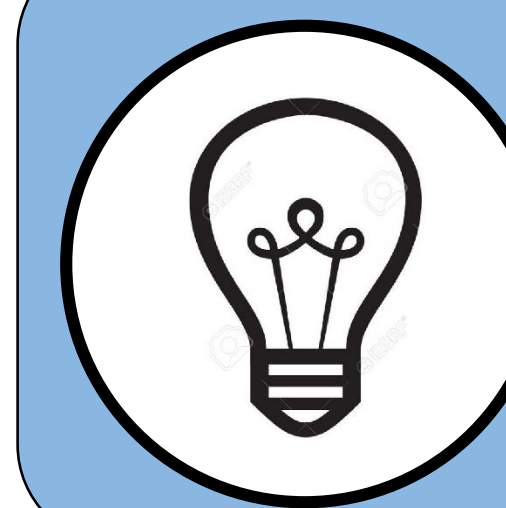
West End of Corridor

There are a number of potential routes to connect to Scarborough Centre. Some the proposed routes show connections on roads that do not currently exist, but are proposed in the Scarborough Centre Master Plan.

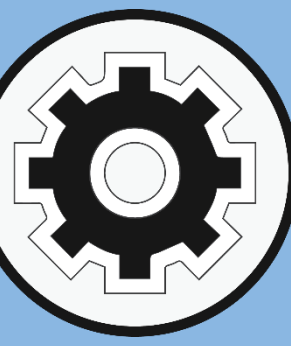
- 1 Via: Ellesmere Road » McCowan Road » Town Centre Court » Borough Drive » Triton Road » McCowan Road » Ellesmere Road
- 2 Via: Ellesmere Road » Grangeway Avenue » Bushby Drive » Town Centre Court » Borough Drive » Triton Road » McCowan Road » Ellesmere Road
- 3 Via: Ellesmere Road » West Borough Drive Access » Borough Drive » McCowan Road » Ellesmere Road
- 4A Via: Ellesmere Road » Stoneton North (*new*) » Bushby Drive » Town Centre Court » Borough Drive » Triton Road » McCowan Road » Ellesmere Road
- 4B Via: Ellesmere Road » Parkington North (*new*) » Bushby Drive (*new section*) » Town Centre Court » Borough Drive » Triton Road » McCowan Road » Ellesmere Road
- 4C Via: Ellesmere Road » Bellamy Road (*new section*) » Bushby Drive (*new section*) » Town Centre Court » Borough Drive » Triton Road » McCowan Road » Ellesmere Road



Note: All new/modified streets are conceptual and are subject to future study.



What are the benefits and drawbacks of these options? Tell us by filling out a comment sheet.



Bus Rapid Transit Stops

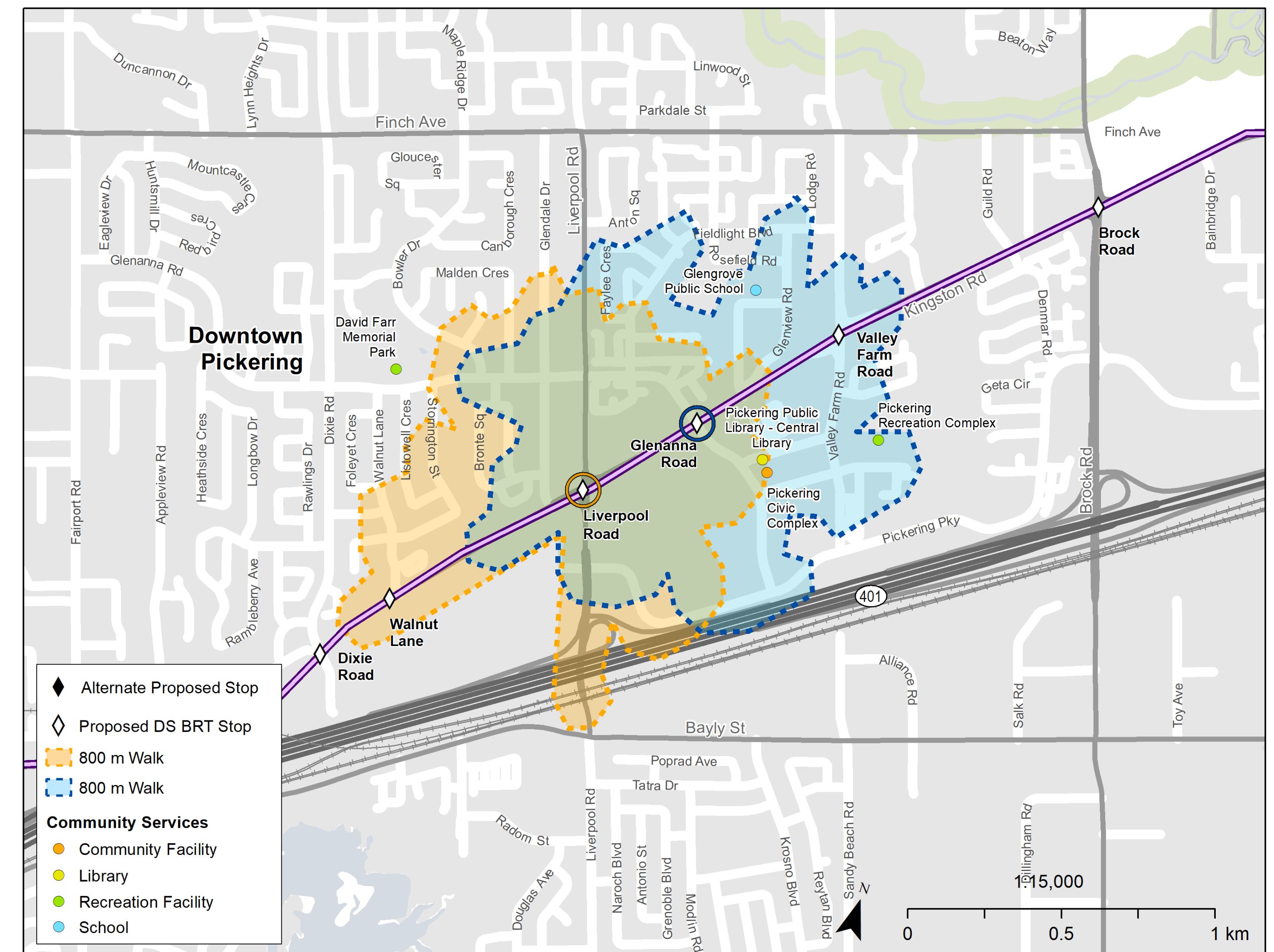
When selecting stop locations, access must be balanced with travel time. Each stop adds approximately 30 seconds to the transit system's total travel time.

People will generally walk up to 800 metres, or a 10 minute walk, to reach rapid transit.

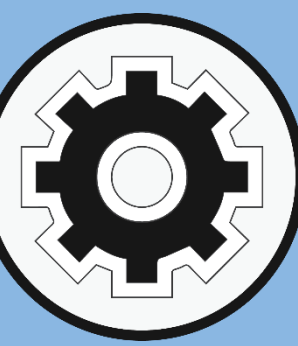
47 stop locations are proposed **760 m** average stop spacing

The stop locations were selected based on a review of the following elements within an 800 metre walk of the proposed stops:

- Existing transit connections and ridership
- Density
- Land use
- Proposed development
- Community services
- Major trip generators



Example of a 10 minute walk around two potential stops:
Liverpool Road and Glenanna Road



Proposed Stop Locations

We want to hear your thoughts on the proposed stop locations. To provide input, complete a comment sheet or visit our online interactive Bus Rapid Transit stop map. To access the map please visit www.dsbrtmap.ca or scan the QR code below.



1. Open your smartphone camera
2. Hold it over the QR code
3. Open the link and view the stop map
4. Add your comments to the map

By the Numbers:

47 stop locations are proposed

760 m average stop spacing

CITY OF TORONTO
12
stops

CITY OF PICKERING
10
stops

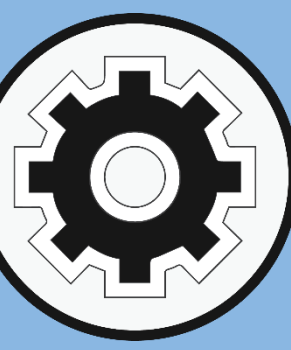
TOWN OF AJAX
9
stops

TOWN OF WHITBY
10
stops

CITY OF OSHAWA
6
stops



*Stops proposed for the future.



What is Preliminary Design?

We are working to advance the preliminary design. As part of this process, the following elements will be developed:

- Number and locations of stops
- Transitions between transit lane options
- Intersection layouts and lane configurations
- Location and type of sidewalks, bike lanes and streetscaping
- Bridge and structural design

The following roadway elements will be reviewed:

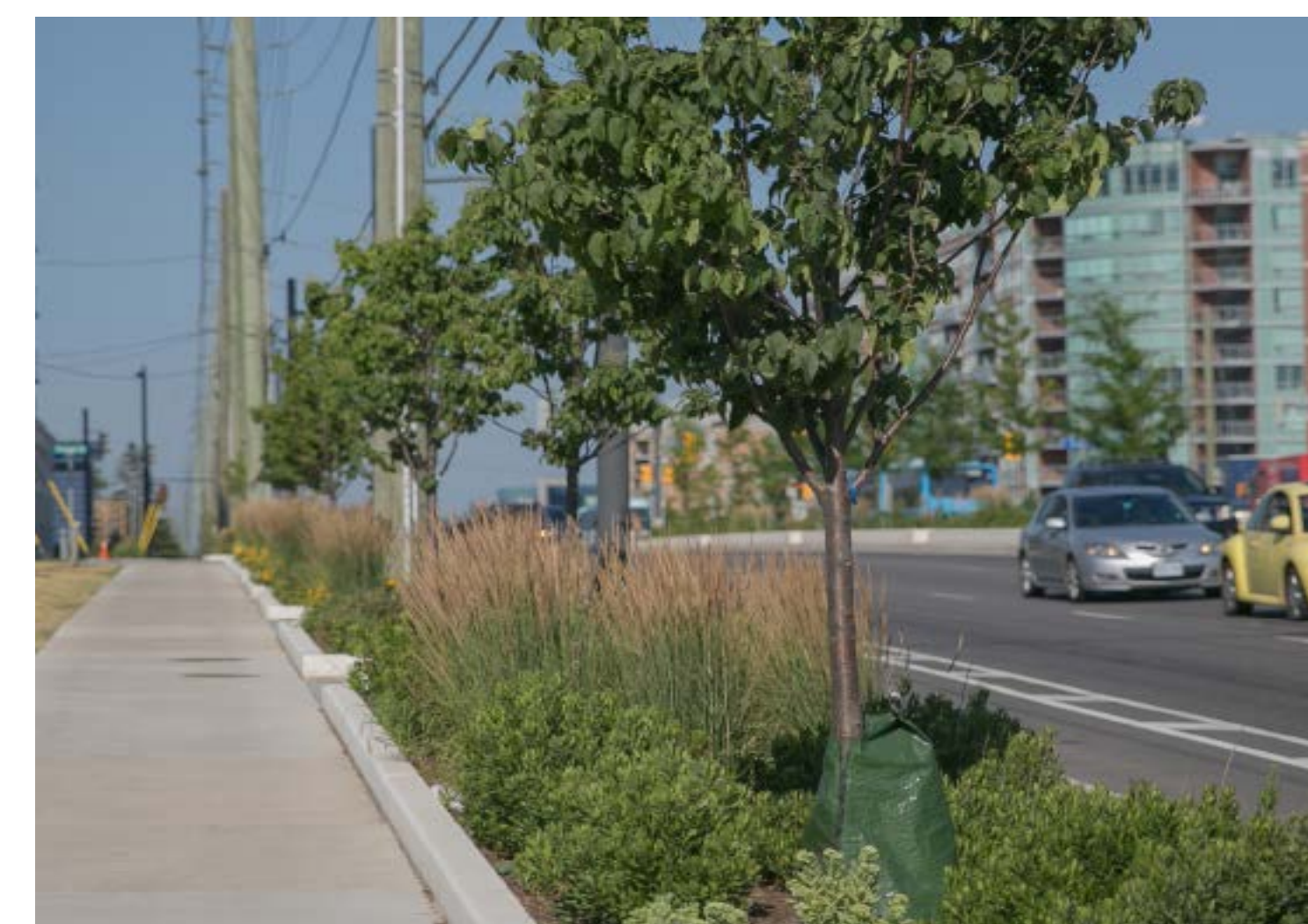
- Driveways and property impacts
- Traffic and parking operations and impacts
- Utility relocations, where needed
- Tree planting opportunities



Bike lane with parking



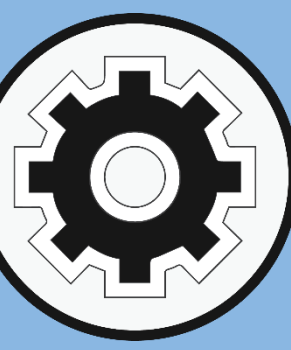
Cycle track with physical barrier



Street trees in planters



Street trees in grates



Construction and Deliverability

- Construction is planned to occur in phases. Areas with existing congestion should be prioritized.
- The existing curbside lanes already in place through Pickering and Ajax have been constructed to minimize additional construction costs.
- Construction timing will depend on funding, property acquisition, permits and approvals.
- The corridor design will consider potential future conversion to Light Rail Transit.



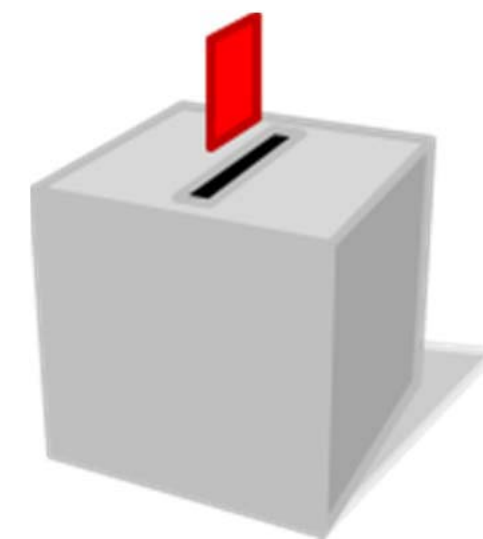
Source: Durham Region Transit Twitter



Providing Feedback

Thank you for attending. We appreciate your feedback. Please let us know your thoughts by:

- Completing a comment sheet and dropping it in a comment box.
- Talking to a project team member.
- Emailing or mailing your comment sheet to the project team, at dsbrt@metrolinx.com or the address listed below.
- Filling out the online survey on the project website.



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Parsons
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Next Steps

- All information from today's meeting will be available on the project website.
- The project team will begin to determine impacts and mitigation measures.
- A Preliminary Design Business Case will be developed to refine the recommended option, clarify the scope and cost of the project, and request construction funding for the project
- The next round of public meetings are planned for spring 2020.

Stay up-to-date by:

- Signing-up for the project mailing list: dsbrt@metrolinx.com
- Visiting the project website: www.metrolinxengage.com/dsbrt

Information collected will be used in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record.