SUPPORTING DOCUMENT 1: EVALUATION OF ALTERNATIVE DESIGNS FOR MONTREAL-BLAIR ROAD TRANSIT PRIORITY CORRIDOR ENVIRONMENTAL ASSESSMENT STUDY

SUMMARY OF EVALUATION CRITERIA AND EVALUATION RESULTS

To assist in understanding how the evaluation was conducted, Table 1 details the evaluation scale used. Each alternative was evaluated based on how it performs in meeting each individual indicator ranging from performing very good to failure assuming best management practices and standard mitigation measures would be applied. An accessible format is used. A full solid dark circle indicates the best performing alternative, whereas an empty solid white circle indicates failure.

Table 1 Evaluation Scale and Definitions

Assessment Scale	Definition
Very Good ●	The design is expected to result in the achievement of best design practices, benchmarks, regulatory standards, or values expressed by stakeholders and, in policy and guidelines, with the performance often exceeding benchmarks.
Good ◕	The design is expected to result in the achievement of best design practices, benchmarks, regulatory standards, or values expressed by the stakeholders and in policy and guidelines as it relates to the fulfillment of the indicator.
Adequate ◑	The design is expected to result in the achievement of best design practices, benchmarks, regulatory standards, or values expressed by stakeholders and in policy and guidelines, with the performance just meeting or approaching benchmarks.
Poor ◔	There is a risk that the design may fall short of best design practices, benchmarks, regulatory standards, or values expressed by stakeholders and in policy and guidelines.
Fail ○	The design is expected to fall short of best design practices, benchmarks, regulatory standards, or values expressed by stakeholders and in policy and guidelines with the performance often below benchmarks.

The evaluation of Montreal Road is provided in Table 2. The detailed evaluation reveals that overall Alternative 1, Transit Priority with sections of exclusive bus lanes outperform across most indicator groups compared to the other four alternatives.

The evaluation of Blair Road (south of Montreal Road) is provided in Table 3. The detailed evaluation reveals that overall Alternative 2, incorporating a multi-use pathway (MUP) into the roadway outperforms across most indicator groups compared to the Alternative 1.

The evaluation of alternative sites for the Montreal Station bus loop is provided in Table 4. The detailed evaluation reveals that overall Alternative 1, the existing LRT construction staging area at the northeast corner of the OR 174/St. Joseph interchange outperforms across most indicator groups compared to the other three alternatives.

Table 2 Evaluation of Alternative Designs for Montreal Road

			Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	
	CRITERIA	INDICATORS	TRANSIT PRIORITY WITH SECTIONS OF EXCLUSIVE BUS LANES	FOUR LANE ROADWAY WITH CURBSIDE BUS LANES	SIX LANE ROADWAY WITH CURBSIDE BUS LANES	FOUR LANE ROADWAY WITH MEDIAN BUS LANES	SIX LANE ROADWAY WITH MEDIAN BUS LANES	RATIONALE
TRANSPORTATION SUSTAINABILITY								
1	Ensure accessibility and inclusion	Provides accessible routes for persons of all ages, abilities, ethnicities, gender, and socio-economic background along the corridor, at transit stops and crossings	◑	◕	◑	◕	◑	Median bus platforms require pedestrians to cross cycle tracks and the roadway to access transit, however the crossing is at a traffic signal-controlled location. For curb side bus stops, pedestrians are required to cross cycle tracks at some non-signal controlled locations. Walking distance to bus stops at intersections will be greater for 6 lane alternatives.
2	Pursue pedestrian safety and comfort	Minimizes conflicts between pedestrian movements and other modes	◕	◕	◑	●	●	All alternatives provide new sidewalks, seating and other amenities. Crossing distances for return travel in curb side alternatives will be longer than for station locations within the median. Acknowledge that curb side stops will be closer for one direction travel.
3	Pursue cyclist safety and comfort	Minimizes conflicts between cyclist movements and other modes	◕	◕	◑	◕	◑	All alternatives provide raised cycle tracks and protected intersections. Median bus lane alternatives eliminate the need for pedestrian/cyclists to mix at bus stops.
4	Maximize Transit Ridership	Reduces transit travel time	◕	◕	◕	●	●	All alternatives except for alternative 1 include continuous exclusive bus lanes. However, the median bus lane alternatives will avoid the need for buses to mix with right-turning vehicles at intersections and private approaches, and the Curb Side 2 + 2 (alternative 2) will bring some added additional congestion that buses will need pass through. Alternative 1 and 2 score similarly as transit priority will increase transit travel times during peaks and allow for increased vehicle travel during non-peak transit times.
5		Improves transit reliability	◑	◕	◕	●	●	All alternatives include exclusive bus lanes in some portion of the study area. However, the median bus lane alternatives will avoid the need for buses to mix with right-turning vehicles at intersections and private approaches, and the Curb Side 2 + 2 alternative (alternative 2) will bring some additional congestion that buses will need pass through.
6		Maximizes choice for frequency of bus stops and flexibility in location	●	●	●	◑	◑	The median bus lane alternatives require decisions on permanent bus platform locations and may result in greater spacing and longer walking distances to bus stops.
7		Provide transit user amenities	◕	◕	◕	●	●	All alternatives provide transit platforms and shelters. The median options provide more space for amenities including the potential for ticket vending machines, security systems, seating, and bicycle parking.
8		Enable turning movements for side street buses turning to/from the corridor	●	●	●	◔	◔	Median bus lanes introduce some complexities for local bus routes to turn to/from side streets. Alternative 1 also introduced complexity for turning onto the corridor when mixed with general traffic.
9		Facilitate connectivity to/from Confederation Line LRT System and adjacent/complimentary networks	●	●	●	◑	◑	Connection at Montreal Station on Confederation line will be a curb side platform and would require transitions for median options (alternatives 4 and 5). Transit Priority Corridor west of St. Laurent Boulevard includes curb side transit priority lane in the westbound direction that would require a transition for median options.
10		Flexibility in converting design in the future to accommodate future changes in technology (i.e., LRT corridor, Streetcar, or other technologies)	◑	◔	◕	◕	●	The 6-lane alternatives protect a wider corridor for possible conversions in the future and allow for the possibility of providing on-street parking in mainstreet locations to support adjacent mixed use land uses or accommodate electric vehicle charging stations.
11	Provide arterial road capacity and level of service for general purpose traffic and trucks	Provides an acceptable level of service for general purpose vehicles	◕	◔	●	◔	●	The 6-lane alternatives and transit priority alternative maintain the existing roadway capacity and similar levels of service at the major intersections. The 4-lane continuous bus lane alternatives will reduce existing roadway capacity and may reduce levels of service at intersections, and this may cause delay for general traffic. Further, should left or right-turn queues exceed their storage capacity, potential spill-over to the single general-purpose lane could occur. The median bus lane options have the benefit of removing buses from traffic flow along the curb. This will decrease delays, queues and driver frustration increasing safety within the corridor.

			Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	
	CRITERIA	INDICATORS	TRANSIT PRIORITY WITH SECTIONS OF EXCLUSIVE BUS LANES	FOUR LANE ROADWAY WITH CURBSIDE BUS LANES	SIX LANE ROADWAY WITH CURBSIDE BUS LANES	FOUR LANE ROADWAY WITH MEDIAN BUS LANES	SIX LANE ROADWAY WITH MEDIAN BUS LANES	RATIONALE
12		Maintains truck route function	●	◑	●	◔	◕	The 6-lane alternatives maintain the existing roadway capacity and similar levels of service at the major intersections. The 4 lane alternatives will reduce existing roadway capacity and may reduce levels of service at intersections, and this may delay goods movement. The median bus lane options have the benefit of removing buses from traffic flow along the curb.
13		Provides acceptable access and adaptability for emergency vehicle travel	◕	◑	●	◑	●	All alternatives will be designed to ensure emergency vehicles have room to maneuver in case of an emergency, although the 6-lane alternatives will provide an additional general-purpose lane to assist in maintaining traffic flow should lanes become blocked.
14		Maintains safety and function for service vehicles such as school buses and accessibility transportation programs (ParaTranspo)	●	◑	●	◑	●	School buses could travel in general purpose traffic while ParaTranspo buses could make use of the transit lanes as required. Additional congestion may be experienced in the 4-lane alternatives.
		CRITERIA GROUP SUBTOTAL	●	◕	●	◕	●	
LAND USE, SOCIAL AND COMMUNITY SUSTAINABILITY								
15	Be compatible with existing or planned land uses	Supports the land use vision for Arterial Mainstreets	◕	●	◑	●	◑	All alternatives can help promote a mixture of land uses and development patterns where buildings are located along the street lot line with minimal setbacks, with parking to be provided to the rear or sides of buildings. 4-lane alternatives more aggressively support the city's objective to promote more sustainable modes.
16		Facilitates land use intensification	◕	◑	◕	◕	●	The 6-lane median bus lanes alternative best facilitates land use intensification as it best maximizes transit ridership while also maximizing capacity and level of service for general purpose traffic and trucks.
17		Minimizes the displacement of existing buildings or loss of land with redevelopment potential	◕	●	◑	◑	◔	The 6-lane alternatives require a wider right-of-way and have the potential to displace more buildings and development land.
18		Minimizes the loss of private approaches from the arterial road or side street	●	◕	◑	◔	◔	The 6-lane alternatives would require median separation to eliminate left-turn movements to individual properties between intersections. Continuous curb-side options introduce the variant of bus movements at driveways.
19	Ensure health, safety and security of users of the facilities	Provides location of bus stops to areas of activity or areas of high visibility	◕	◕	◕	●	●	All bus stop locations will be ideally located in activity nodes providing high visibility for all alternatives. Bus stops in the median alternatives will be well illuminated with the adjacent roadway with clear lines of site.
20	Protect against noise and vibration effects.	Maximizes distance between the roadway (a potential noise and vibration source) and sensitive receivers	◕	●	◔	◕	◑	Buses may result in greater noise and vibration levels depending on technologies used and the condition of the road, therefore alternatives that locate buses away from land uses (i.e., in the median) would perform better recognizing that 6-lane alternatives also bring the roadway closer to land uses by consuming more ROW. Slower traffic in more congested lanes may also reduce noise and vibration from vehicles.
21	Protect known or potential cultural heritage resources or landscapes	Minimizes impact on existing or known cultural heritage resources or landscapes	No difference between Alternatives					Existing and potential cultural heritage resources and landscapes occur along the corridor. Differences between alternatives will be insignificant.
22	Protect known or potential archeological resources	Minimizes impact on existing or known archaeological resources	No difference between Alternatives					Archaeological potential occurs along the corridor adjacent to the existing ROW. Differences between alternatives will be insignificant.

			Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	
	CRITERIA	INDICATORS	TRANSIT PRIORITY WITH SECTIONS OF EXCLUSIVE BUS LANES	FOUR LANE ROADWAY WITH CURBSIDE BUS LANES	SIX LANE ROADWAY WITH CURBSIDE BUS LANES	FOUR LANE ROADWAY WITH MEDIAN BUS LANES	SIX LANE ROADWAY WITH MEDIAN BUS LANES	RATIONALE
		CRITERIA GROUP SUBTOTAL	●	●	◕	◕	◕	
PHYSICAL AND ECOLOGICAL SUSTAINABILITY								
23	Protect terrestrial or aquatic species, protected habitats, or linkage corridors	Minimizes direct impact to species or their habitats and linkage corridors	◕	◕	◑	◕	◑	The corridor is located in an existing urban centre with only small sections of natural areas including the lands associated with the Aviation Parkway and Urban Natural Feature in the southwest corner of the Codd's/Montreal/Carsons intersection. Corridor landscaping is largely absent however some treed development sites exist currently but are zoned for development. Differences between alternatives will be minimal.
24	Limit risk to human health from areas of known contamination	Minimizes footprint in areas of known contamination (soil or groundwater)	◕	◕	◑	◕	◑	Sites adjacent to the corridor range from low to high risk with respect to contamination, depending on the historical use of the lands. Differences between the alternatives will be minimal.
25	Limit or reduce contribution to greenhouse gas emissions	Maximizes positive modal shift to walking, cycling and transit versus private automobile use	◕	●	◑	●	◕	Alternatives that maximize walking, cycling, and transit ridership, and that limit automobile capacity, will provide greater incentive for modal shift that in turn would result in lower greenhouse gas emissions.
26		Maximize fuel efficient driving behavior	◕	◔	◑	◑	●	Alternatives that maintain existing capacity for general traffic will reduce congestion and limit the need for stop and go traffic movement resulting in more fuel-efficient driving behavior. Curb side bus lane alternatives require buses to mix with general traffic at intersections that could contribute to congestion.
27		Minimizes the amount of materials used in construction	◕	●	◑	◕	◔	Facilities with fewer travel lanes will require less materials for construction including roadbed materials and asphalt.
28	Protect corridor users from the effects of climate change	Reduce or avoid exposure to extreme temperatures or weather events	◕	◕	◑	◕	◑	Narrower road surface areas will provide more room in boulevard areas for street landscaping. Curb side facilities will provide more opportunity for shelter enhancements.
29	Protect existing and planned infrastructure from the effects of climate change	Maximizes ability to build in resiliency to infrastructure and reduce future operational costs	◕	◕	◑	◕	◑	All alternatives require full reconstruction and offer opportunities to build-in resiliency measures however 4-lane alternatives provide less overall infrastructure vulnerable to climate change extreme weather events.
		CRITERIA GROUP SUBTOTAL	◕	◕	◑	◕	◕	
ECONOMIC SUSTAINABILITY								
30	Preserve or re-use of	Minimizes the requirement to relocate existing infrastructure (e.g., water, sewer, and utilities)	◕	●	◑	◑	◔	All alternatives will require relocation of overhead utilities. Underground watermains occur between St. Laurent and Wanaki/Bathgate Roads and between Ogilvie Road and Hwy 174. Stormwater collection pipes occur between St. Laurent and Brittany, Cummings and Den Haag, Marquis and Ogilvie Road.

			Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	
	CRITERIA	INDICATORS	TRANSIT PRIORITY WITH SECTIONS OF EXCLUSIVE BUS LANES	FOUR LANE ROADWAY WITH CURBSIDE BUS LANES	SIX LANE ROADWAY WITH CURBSIDE BUS LANES	FOUR LANE ROADWAY WITH MEDIAN BUS LANES	SIX LANE ROADWAY WITH MEDIAN BUS LANES	RATIONALE
	existing infrastructure							
31	Limit capital construction costs	Minimizes construction costs (infrastructure, complexity)	●	●	◑	◑	◔	The 4-lane alternatives will result in lower capital cost than 6-lane alternatives due to the width of the corridor required. Median alternatives will be slightly more costly due to more materials required.
32	Limit operational costs	Minimizes operations costs	●	●	◑	◔	◑	The 4-lane alternatives will result in lower operational costs than 6-lane alternatives due to the width of the corridor required. Median alternatives will be slightly more costly due to more materials in place and snow removal will take two lane widths and require closure of the bus lane to complete. The same complexities will occur for other repairs.
33	Provide ability to phase construction	Maximizes opportunities for a phased project	◑	◑	◑	◔	◕	All alternatives require full reconstruction with limited opportunity to maintain existing infrastructure. Wider right-of-way allows more flexibility to maintain traffic flow in both directions during construction.
34	Limit land requirements	Minimizes property acquisition costs	◕	●	◔	◑	◔	4 lane alternatives will result in lower property acquisition costs than 6 lane alternatives due to the width of the corridor required.
		CRITERIA GROUP SUBTOTAL	●	●	◑	◑	◑	
		TOTALS ACROSS CRITERIA GROUPS	●	◕	◔	◑	◑	

Table 3 Evaluation of Alternative Designs for Blair Road south of Montreal Road

			Alternative 1	Alternative 2	
	CRITERIA	INDICATORS	TWO LANE SHARED ROADWAY WITH DESIGNATED CYCLING LANES	TWO LANE SHARED ROADWAY WITH MUP AND CYCLE TRACK	RATIONALE
TRANSPORTATION SUSTAINABILITY					
1	Ensure accessibility and inclusion	Provides accessible routes for persons of all ages, abilities, ethnicities, gender, and socio-economic background along the corridor, at transit stops and crossings	◔	◕	Alternative 1 provides a sidewalk on the east side only and buffered on-road bike lanes on either side to accommodate cyclists and other mobility devices. Pedestrians would have to cross at intersections to access uses on the west side. On-road cycling is not considered ideal for all ages and abilities. Bike lane may be blocked by cars and buses around bus stops. Alternative 2 includes separated raised cycle track and improved sidewalk on the east side and multi-use pathway (MUP) on the west side which will allow for access for both users on either side of the roadway. Potential conflicts between pedestrians and other users will be slightly greater on the MUP as users are mixed in both directions.
2	Pursue pedestrian safety and comfort	Minimizes conflicts between pedestrian movements and other modes	◑	◕	Conflict between pedestrians and other modes of traffic is minimized by Alternative 1 as bicycles are accommodated on the street however motorized vehicles and buses will block the cycling lane at bus stops, and no pedestrian facility is provided on the west side. Alternative 2 separates pedestrians and cyclists on the east side only. Potential for conflicts also occur at bus stops as cyclists and pedestrians will be at the same level.
3	Pursue cyclist safety and comfort	Minimizes conflicts between cyclist movements and other modes	◔	◕	Alternative 1 provides on-road cycling facilities only. Alternative 2 provides a separated facility (cycle track) on the east side, and shared multi-use pathway on the west side. While conflicts may occur on either facility, the potential to encounter motorized vehicles is greater in alternative 1.
4	Maximize Transit Ridership	Reduces transit travel time	◕	◕	Transit priority is provided at the intersection of Blair and Montreal Road for both alternatives.

			Alternative 1	Alternative 2	
	CRITERIA	INDICATORS	TWO LANE SHARED ROADWAY WITH DESIGNATED CYCLING LANES	TWO LANE SHARED ROADWAY WITH MUP AND CYCLE TRACK	RATIONALE
5		Improves transit reliability	◕	◕	Transit priority is provided at the intersection of Blair and Montreal Road for both alternatives.
6		Maximizes choice for frequency of bus stops and flexibility in location	◕	◕	Transit priority is provided at the Blair and Montreal Road intersection for both alternatives. Bus stops can equally be placed within the corridor.
7		Provide transit user amenities	◕	◕	Additional space will be required to accommodate bus stops in either alternative.
8		Enable turning movements for side street buses turning to/from the corridor	◕	◕	Roadway configuration is equal to both alternatives.
9	Provide arterial road capacity and level of service for general purpose traffic and trucks	Provides an acceptable level of service for general purpose vehicles	◕	◕	Roadway configuration is equal to both alternatives.
10		Maintains truck route function	◕	◕	Roadway configuration is equal to both alternatives.
		CRITERIA GROUP SUBTOTAL	◑	◕	
LAND USE, SOCIAL AND COMMUNITY SUSTAINABILITY					
11	Be compatible with existing or planned land uses	Supports the land use vision for arterial road and transit priority corridor	◑	●	Alternative 2 provides a MUP connecting to the existing Blair Station, Gloucester Centre, and future Blair Mixed-Use Centre south of Ogilvie and making a more friendly and adaptable transit corridor for use by the public by adjacent employment uses on the west side of the corridor.
12		Facilitates land use intensification	◑	●	Employment lands exist on the west side of the corridor with space for intensification compared to east side which is composed of a mature residential neighborhood where only minor infill projects are likely to occur. Alternative 2 provides a better opportunity to serve land use intensification by providing both pedestrian and cycling facilities on both sides of the corridor.
13		Minimizes the displacement of existing buildings or loss of land with redevelopment potential	◕	◕	Additional land is required to accommodate multi-use pathway for Alternative 2 and at intersections for both alternatives. No existing buildings are impacted.
14		Minimizes the loss of private approaches from the arterial road or side street	◕	◕	Both options do not impact existing private approaches either than if in proximity to major intersections.
15	Ensure health, safety and security of users of the facilities	Provides location of bus stops to areas of activity or areas of high visibility	●	●	All bus stop locations will be ideally located in activity nodes providing high visibility for all alternatives. Bus stops will be well illuminated with the adjacent roadway with clear lines of site.
16	Protect against noise and vibration effects.	Maximizes distance between the roadway (a potential noise and vibration source) and sensitive receivers	◕	◕	Slowing of traffic and buses within mixed traffic lanes has potential to reduce vibrations and noise from fast moving vehicles. Residences will be slightly more setback in Alternative 2 with wider road edge design to accommodate the cycle track.
17	Protect known or potential cultural heritage resources or landscapes	Minimizes impact on existing or known cultural heritage resources or landscapes	●	◕	The employment lands on the west side of the corridor are considered potential cultural heritage resources, however the rural character of the roadway will be preserved. Alternative 2 encroaches on the adjacent lands (Hydro One corridor primarily) to accommodate the multi-use pathway.
18	Protect known or potential archeological resources	Minimizes impact on existing or known archaeological resources	●	◕	Areas of archaeological potential occur along edges of the corridor. Alternative 2 includes a larger construction area footprint and has the potential to uncover more artifacts compared to Alternative 1.

			Alternative 1	Alternative 2	
	CRITERIA	INDICATORS	TWO LANE SHARED ROADWAY WITH DESIGNATED CYCLING LANES	TWO LANE SHARED ROADWAY WITH MUP AND CYCLE TRACK	RATIONALE
		CRITERIA GROUP SUBTOTAL	◕	◕	
PHYSICAL AND ECOLOGICAL SUSTAINABILITY					
19	Protect terrestrial or aquatic species, protected habitats or linkage corridors	Minimizes direct impact to species or their habitats and linkage corridors	◕	◑	Some tree removals on the west side of the corridor will be required to enable construction. Alternative 2 has a greater construction footprint than alternative 1.
20	Limit risk to human health from areas of known contamination	Minimizes footprint in areas of known contamination (soil or groundwater)	◕	◕	Sites adjacent to the corridor range from low to high risk depending on the historical use of the lands. Differences between the alternatives will be minimal.
21	Limit or reduce contribution to greenhouse gas emissions	Maximizes positive modal shift to walking, cycling and transit versus private automobile use	◑	◕	Alternative 2 provides greater opportunity to maximize walking, cycling, and transit ridership, and that limit automobile capacity; will provide greater incentive for modal shift that in turn would result in lower greenhouse gas emissions.
22		Maximize fuel efficient driving behavior	◑	◕	As neither option provide continuous designated bus lanes, fuel efficiency may be impacted with increased traffic or use of the corridor by cyclists and pedestrians. Alternative 2 provides for better traffic flow as the raised bike lanes prevent cyclists from having to enter traffic to move around buses stopped in the cycling lanes, causing further delay and impact to cars.
23		Minimizes the amount of materials used in construction	●	◕	Alternative 1 requires a larger road area and associated roadbed materials however has less facilities in the boulevard areas.
24	Protect corridor users from the effects of climate change	Reduce or avoid exposure to extreme temperatures or weather events	◕	◕	Alternative 1 will require less removal of existing vegetation. Both alternatives provide opportunities for additional trees. Bus shelters will require room in both alternatives. The MUP in Alternative 2 provides an additional option for cyclists and pedestrians seeking shade by adjacent trees.
25	Protect existing and planned infrastructure from the effects of climate change	Maximizes ability to build in resiliency to infrastructure and reduce future operational costs	◕	◕	As both alternatives offer full roadway reconstruction the opportunity for built in resiliency into the new designs are equal and evident.
		CRITERIA GROUP SUBTOTAL	◕	◕	
ECONOMIC SUSTAINABILITY					
26	Preserve or re-use of existing infrastructure	Minimizes the requirement to relocate existing infrastructure (e.g., water, sewer, and utilities)	◕	◑	Both alternatives preserve hydro infrastructure within their existing alignments. Alternative 2 will require full reconstruction of the existing ditch, whereas alternative 1 requires only modifications.
27	Limit capital construction costs	Minimizes construction costs (infrastructure, complexity)	●	◕	Alternative 1 requires the least materials and footprint for construction.
28	Limit operational costs	Minimizes operations costs	◕	◑	Alternative 2 requires additional maintenance for the multi-use pathway.
29	Provide ability to phase construction	Maximizes opportunities for a phased project	◔	◕	Alternative 2 allows for staging of construction to accommodate pedestrians, cyclists and other mobility users while the roadway is constructed.
30	Limit land requirements	Minimizes property acquisition costs	●	◕	Additional property is required for Alternative 2 for construction of the Multi-Use Pathway in addition to that required at intersections for both alternatives.

			Alternative 1	Alternative 2	
	CRITERIA	INDICATORS	TWO LANE SHARED ROADWAY WITH DESIGNATED CYCLING LANES	TWO LANE SHARED ROADWAY WITH MUP AND CYCLE TRACK	RATIONALE
		CRITERIA GROUP SUBTOTAL	◑	◕	
		TOTALS ACROSS CRITERIA GROUPS	◑	◕	

Table 4 Evaluation of Alternative Sites for Montreal Station Bus Loop

			Alternative 1	Alternative 2	Alternative 3	Alternative 4	
	CRITERIA	INDICATORS	EXISTING STAGING AREA - N/E CORNER OF MONTREAL AND OR 174	S/E CORNER OF MONTREAL AND OR 174	ADJACENT TO ST. JOSEPH - ~400M EAST OF BEARBROOK/SIR GEORGE-ETIENNE CARTIER PKWY	NORTH SIDE OF ST. JOSEPH BOULEVARD, WEST OF THE ST. JOSEPH BOULEVARD AND BEARBROOK ROAD INTERSECTION (ALSO REQUIRES NEW ROUNDABOUT AT ST. JOSEPH AND BEARBROOK INTERSECTION)	RATIONALE
TRANSPORTATION SYSTEM SUSTAINABILITY							
1	Pursue pedestrian safety and comfort	Minimizes conflicts between pedestrian movements and other modes and reduces risk of serious injuries	◕	●	●	◑	For alternative 1, buses must cross an existing sidewalk, however, can be mitigated with proper access design. Access to Alternative 2 and 3 will not cross a sidewalk (there is currently no existing sidewalk here). Alternative 4 may introduce conflicts between sidewalk users and buses/operators.
2	Pursue cyclist safety and comfort	Minimizes conflicts between cyclist movements and other modes and reduces risk of serious injuries	◕	◕	◕	◑	Alternatives 1-3 require buses to cross an existing bike lane which can be mitigated with proper access design. Alternative 4 will be located adjacent to bike lanes and introduce potential conflicts at roundabout.
3	Maximizes transit efficiency	Provides adequate left and right turn accessibility	◕	◔	●	◔	Alternative 3 is slightly better but both alternative 1 and 3 maximize accessibility to/from Montreal LRT Station bus stop without requiring traffic signals, although left turn lane would be required. Alternative 1 is the most optimal location from a distance and access/egress perspective for buses. Alternative 2 will require traffic signals for left turn on exit towards LRT bus stop, and proximity to existing OR174 off ramp and existing signals is problematic. Alternative 4 is on-street and does not require turns, but can only be accessed from WB direction.
4		Provides a location that easily distinguishes bus loop entrances and exits to prevent general traffic from entering	◕	◕	●	◔	Alternative 3 is slightly better as Bus loop entrance can be made distinct and distinguishable, median provides enhanced signage opportunity. Alternative 1 and 2 do not have the ability to retain the median. Alternative 4 has greatest potential for general traffic to access as it is located on-street.
5		Provide adequate space for bus lay-by area and bus circulation	●	◕	◕	◔	Alternatives 2 and 3 provide sufficient space. Alternative 1 provides more space than required, which can be utilized for other uses. Alternative 4 provides limited space and no ability for re-circulation of buses.
6		Minimizes distance from planned LRT bus stop location to proposed bus loop	●	●	◔	◑	Alterntaives 1 and 2 provide the bus loop as close as practical. Alternatives 3 and 4 are a notable distance from bus stop.
7		Maximizes access to all directions of travel from bus loop to highway/major arterials/travel lanes	◑	◑	◑	◔	Alternatives 1-3 are equally accessible to/from all directions. Traffic signals not warranted but eastbound left-turn bus movements into Sites 1 and 3 face heavy opposing (westbound) volumes. Alternative 4 is only accessible from WB lanes and requires EB buses to make a u-turn at new roundabout to access.
8		Supports proposed bus route network and operating requirements	●	◔	◕	◔	Alternatives 1 and 3 support proposed routing, however alternative 3 is much further from Montreal Station. Alternative 2 exit to the west is problematic and requires relocation of OR174 off ramp, new signal and complex operational manouvers. Alternative 4 no exit to east is possible.

9	Minimizes disruption to existing general purpose traffic	Minimizes additional delay to general purpose traffic	◕	◔	◕	◕	Delay from Alternatives 1 and 3 can be minimized by adding a left turn lane for buses to access the bus loop. Alternative 2 will require a traffic signal to be added and this would delay general purpose traffic. Alternative 4 will not introduce delay but requires a new roundabout with additional ancillary lanes to operate acceptably.
10	Pursue road safety and comfort	Maximizes the opportunity to incorporate road safety objectives such as: minimizes speed differential, provides most acceptable intersection spacing, manages existing roadside hazards/doesn't introduce new roadside hazards and doesn't introduce queuing and storage issues.	◕	◔	◕	◑	Alternatives 1 and 3 support designing to best practices for safety. Alternative 2 requires traffic signal close to existing signal or modification of existing signal to unconventional configuration. Alternative 4 requires a new large roundabout at the St. Joseph/Bearbrook intersection.
		Criteria Group SubTotal	●	◑	●	◔	
Land Use, Social and Community Sustainability							
11	Be compatible with existing or planned land uses	Supports existing or future land uses, avoids fragmentation of land uses	◑	◔	◔	◔	Alternatives 2, 3 and 4 would conflict with existing land use and would require land transfer from others. Alternative 3 would negatively impact a fruit farm and the shared use with Hydro One is uncertain if compatible. Residual space on Alternative 1 is available for future uses.
12	Ensure health, safety, security, and comfort of employees	Location is in an area of high visibility	●	●	◕	◕	Alternatives 3 and 4 are located in more isolated locations.
13		Maximizes opportunity/space for user amenities such as washrooms and rest areas	●	◕	◕	◕	Alternative 1 has the most flexibility for the location and size of amenities. Sufficient space for alternatives 2, 3 and 4.
14	Protect against noise and vibration effects	Maximizes distance between facility and sensitive receivers	●	●	◔	◑	Alternatives 1 and 2 located over 300m from closest sensitive receiver. Alternative 3 is partially located within 1367 St. Joseph Blvd a Montessori school. Alternative 4 is close to the school as well.
15	Protect known or potential cultural heritage resources or landscapes	Minimizes impact on known or potential cultural heritage resources or landscapes	●	●	◔	●	Alternatives 1, 2 and 4 have no anticipated impacts. Alternative 3 is partially located within 1367 St. Joseph Blvd a protected heritage property and adjacent to listed heritage property
16	Protect known or potential archeological resources	Minimizes impact on known or potential archaeological resources	●	◕	◑	◑	Alternative 1 has been completely cleared during LRT preparations. Alternatives 3 and 4 have archaeological potential. For alternative 2 most of site has stage 2 completed for LRT works and cleared of further archaeological assessment (AA) requirements; some stage 2 AA still required for unassessed areas.
		Criteria Group SubTotal	●	◕	◔	◑	
Physical and Ecological Sustainability							
17	Reduce loss of or impact to environmentally sensitive land uses or designated green spaces	Minimizes impacts to designated Greenbelt/NCC lands or other naturalized areas	●	◑	◔	◔	Alternative 1 is completely clear of anything sensitive. Alternatives 2 and 3 would have negative impacts to the Greenbelt. Alternative 4 may have a negative impact to the Greenbelt. Alternative 2 is close to the conservation authority regulation limit which adds complexity. Alternatives 2, 3 and 4 pose grading challenges.

18	Protect terrestrial or aquatic species, protected habitats or linkage corridors	Minimizes direct impact to species or their habitats including linkage corridors and urban trees	●	◑	◑	◑	Alternatives 2, 3 and 4 require vegetation clearing that may or may not restrict development. Alternative 1 is completely clear of natural vegetation and habitat.
19	Limit risk to human health from areas of known contamination	Minimizes footprint in areas of known contamination (soil or groundwater)	◕	◑	◔	◑	Alternatives 2, 3 and 4 will require clean up prior to development. Alternative 3 has known high risk contamination present. Alternative 1 was cleaned as part of initial site clearing process.
20	Minimizes stormwater management complexity and maintenance	Maximizes the opportunity to adopt enhanced stormwater management techniques. Minimizes impervious areas which create more runoff.	●	◑	◑	◑	Alternatives 2 and 3 have watercourses that are within the sites which would require additional stormwater management. No perceived conflict with Alternative 1. Alternative 4 would result in impacts to existing stormwater infrastructure.
21	Limit or reduce contribution to greenhouse gas emissions	Minimizes conflict between existing general traffic lanes and entrance and exits to bus turnaround to reduce congestion and promote efficient driving	◕	◑	◑	◑	Alternative 1 results in the least amount of idling and congestion due to its proximity to the station. Alternative 2 requires a signal which will increase the amount of idling. Alternatives 3 and 4 are furthest away which adds to overall travel and added emissions.
		Criteria Group SubTotal	●	◑	◔	◑	
Economic Sustainability							
22	Preserve or re-use of existing infrastructure	Minimizes the requirement to relocate existing infrastructure (e.g. water, sewer, and utilities) and maximizes re-use of existing infrastructure	◕	◔	◑	◔	Alternatives 2 and 3 conflict with existing hydro infrastructure. Alternative 2 and 4 conflict with piped infrastructure.
23	Limit capital construction costs	Minimizes costs associated with construction duration and complexity	●	◑	◑	◔	Costs are significantly lowest for Alternative 1 given that it is already cleared. Alternatives 2 and 3 are generally less desirable as they are not prepared and a bus loop is not consistent with existing land use. Alternative 4 would be the most expensive.
24	Limit life cycle costs	Minimizes infrastructure operation and maintenance costs	◕	◕	◑	◑	Alternatives furthest away from the LRT station will cost more over time.
25	Limit land requirements	Minimizes property acquisition costs	◕	◑	◑	◑	Alternative 1 is completely City-owned. All other alternatives require land from others which adds cost and complexity. Alternative 2 has notable grade raise requirements as well as a partial relocation of OR174 off ramp which increase cost and land requirement
		Criteria Group SubTotal	◕	◑	◑	◔	
		Totals Across Criteria Groups	●	◑	◑	◔	