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7 COMMITMENTS TO FUTURE WORKS

A number of commitments have been made to carry out work prior to, during and post construction in order to satisfy TPAP O. Reg. 231/08. The potential impacts, mitigation measures, and net effects have been described in other sections of this EPR. All commitments to future work should be reviewed during detail design and prior to project construction to confirm that the list of commitments is comprehensive.

A two-part Environmental Management and Monitoring Plan (EMMP) will be developed to document the implementation of the mitigation and compensation measures during and after construction. Part one of the EMMP will consist of a Construction Monitoring Plan to monitor construction-related impacts and to document the success or deficiency of the mitigation measures and provide guidance on remedial actions when mitigation is not successful. Part two will consist of a long-term Post-construction Monitoring Plan to evaluate the success of the restoration / compensation efforts and to assess cumulative impacts. The plan should include contingency / remedial provisions that will be triggered if effects exceed a pre-determined threshold. Both plans are to be developed during detail design.

7.1 PROPERTY ACQUISITION

The London BRT project aims to stay within the municipal ROW, where possible. In constrained areas, property acquisition may be required. During detail design, property requirements will be refined and a property acquisition strategy will be developed. Property will be acquired through negotiations and/or expropriation, as necessary. Potential property requirements are shown in Appendix A. The potential property requirement does not represent the ultimate right-of-way width (“Planned Street Width”) that is identified in the London Plan, and does not represent a refinement of the planned street width. The Planned Street Width for Rapid Transit Boulevards identified in the London Plan will remain at 50 m, despite the potential property requirements identified in Appendix A. Future road allowance widenings to implement the Planned Street Width will be dedicated through the planning and development process as required in the London Plan and as permitted by the Planning Act, R.S.O. 1990 c.P.13. The Planned Street Width is required to accommodate the streetscape features and amenities needed to realize the long term vision, goals and character for Rapid Transit Boulevards identified in the London Plan.

Through the detailed design process for the rapid transit corridors, a high level conceptual plan will be developed that builds on the preliminary engineering design (Appendix A) and also illustrates how the Planned Street Width may be developed over time. This will support the implementation of the preliminary engineering design of this rapid transit project, while providing direction for future road allowance dedications taken through the planning and development process to implement the London Plan.

7.2 STOP DESIGN RECOMMENDATIONS

Future work related to BRT stop design, to be completed during detail design, includes:

- Integrating BRT stops with development, where possible, to provide an easy and efficient transition between street, building and transit. The earlier in the design this is established, the better for City and developer, as there are greater opportunities for cost savings.
- Considering the early involvement of an artist and/or cultural heritage specialist to define the scope and expectations for context-sensitive design of BRT platforms and shelters, and other elements around BRT stops. Early integration can result in cost efficiencies and a better design that reflects the surrounding neighbourhood.
- Establishing two or three shelter prototypes based on the different types of stops along the BRT network. Prototype testing will facilitate design, construction and prefabrication to generate budget savings and construction efficiencies.
- Establishing a materials and colour palette involving a range of City divisions including operations and maintenance. Consider engaging the public in this design process and consider crime prevention through environmental design and anti-graffiti materials.
- Continuing the design development by establishing different modules that can be prefabricated. Ideally the design development will be undertaken along with the chosen manufacturer to design according to their strengths.
- Developing level of service calculations during detail design so accurate passenger capacity of the platforms can be determined. A specialized transit code consultant should be retained for the next design stage.
- Developing access ramp options early in the detail design phase in order to evaluate impacts to platform design, property take, pedestrian access and street layouts.

7.3 FUTURE CONSULTATION

During the pre-planning and TPAP process, the consultation program described in Section 5 helped to inform the development of the project. The project team worked with a wide range of stakeholders and interested persons to identify and resolve issues and concerns. However, given the nature of planning and preliminary engineering design, there are issues that should be carried forward to the next design phase. The following commitments to future consultation are noted by the project team:

- Develop a Communications Plan for detail design and construction, which will include strategies for public engagement and stakeholder relations. The communications focus will be on providing frequent information and updates to the public throughout construction; working closely with partners and local businesses to mitigate impacts, while maintaining excitement and momentum for the project.

- On-going consultation with the public, property owners, business owners, Indigenous communities, approval authorities, utility companies, city operations, and the construction community to advance and finalize the design and implementation plan.
- Work with business owners along the corridors to refine property access, parking and loading strategies. As part of the next design phase, delivery and loading/unloading areas will be reviewed for affected property and/or business owners.
- Continue to coordinate and consult with other planned infrastructure improvements in the City of London to look for construction and cost efficiencies.
- Continue consultation with Solid Waste Collection and Management divisions to develop operational practices and procedures based on corridor configuration and land use and establish service standards for platform maintenance.
- Continue consultation with Transportation, Roadside and Forestry Operations to develop operational practices and procedures for winter maintenance based on corridor configuration and establish service standards for platform maintenance.
- Presentations and updates through municipal committees, advisory committees and Council.
- Consider marketing opportunities for the opening of the system.

- Coordinate the design with the findings of the East-West Bikeway Evaluation.
- Consider wider crosswalks at signalized intersections with higher pedestrian volumes.
- Determine the pavement material to be used for the designated BRT lanes.
- Review and confirm signal timing plans including consideration of Leading Pedestrian Intervals at certain intersections, transit-only phases, turning movement phases or restrictions.
- Development of a Construction Management Plan, including but not limited to construction schedule, methods, phasing, staging, and traffic management.
- Develop and implement a downtown parking and loading strategy for the construction period and post-construction, in concert with other infrastructure projects.
- Confirm BRT vehicle type and fleet. Continue working with LTC on economic modelling for electrification, including maintenance and exploring funding and partnership opportunities.
- Confirm spacing and location of municipal appurtenances such as fire hydrants, maintenance holes, and valve chambers.
- Continue working with emergency service providers to develop strategic breaks in the medians to facilitate access to adjacent developments, as appropriate.
- Consider the recommendations of the Safety Assessment of At-Grade Railway Crossings (March 2018) in the detail design of the two at-grade rail crossings.
- Consider the recommendations of the Road Safety Audit in the detail design phase.
- Confirm the need for permits and approvals by the Canada Transportation Agency and the Railway Safety Act during detail design.
- Consider wayfinding and signage elements across BRT network.
- Develop access agreements, permanent and temporary property easements and other instruments, as required.
- Develop relocation plans for municipal services and private utilities.
- Finalize cost sharing agreements with utility owners.
- Further consultation will be undertaken with the UTRCA in the development of the park-and-ride at Exeter Road.

7.4 DESIGN

Future work to be completed during detail design includes:

- Conduct a subsurface utility engineering investigation, up to and including Quality Level A, in critical areas, including the Hydro One underground facilities.
- Review and confirm the design to accommodate utilities along the BRT corridors and on the City's structures, for example within the structure or attached to the side.
- Consider design elements to minimize or avoid property impacts, specifically in environmentally sensitive areas and properties with identified or potential cultural heritage value or interest.
- Structural design and geotechnical analysis for existing structures planned to be widened (bridges, overpasses, etc.) and new structural retaining walls.
- Geotechnical analysis for roadway condition and design as well as relevant monitoring wells.
- Update or refine hydraulic analysis in coordination with the Upper Thames River Conservation Authority (UTRCA), where appropriate.
- Refine design for bicycle and pedestrian infrastructure, including bike boxes, bike signals, and two-stage queue boxes at signalized intersections, conflict zone markings through intersections, bike parking in boulevards at key locations, cycling pavement marking and signage plans.

7.5 SOCIAL, CULTURAL AND NATURAL ENVIRONMENT

A list of the future works related to the social, cultural and natural environment to be completed during detail design and construction, is detailed in Exhibit 7-1.

Future work to be completed during detail design, to minimize impacts to the social, cultural and natural environments, includes:

- A Stage 3 Test Excavation and Deeply Buried Resource survey is to be completed within the boundaries of AfHh-244, Victoria Park.
- Stage 2 Test pit survey is recommended in association with AGHh-72 near Western University.
- Consult with the Ministry of Tourism, Culture and Sport, (MTCS) and Museum of Ontario Archaeology to determine the extent of the original investigations into AfHh-182 O'Brien Block, followed by Stage 2 and/or 3 investigations for the project footprint within the registered site area.
- Prepare Cultural Heritage Evaluation Reports (CHER) and/or undertake Heritage Impact Assessments (HIA) at select sites, including Victoria Park, in consultation with the London Advisory Committee on Heritage (LACH), City of London, and MTCS. Specific actions include:
 - Due to the number of properties with direct impacts, it is recommended that the LACH and Council identify, prepare and approve a prioritization strategy for cultural heritage studies following TPAP.
 - 12 properties were identified as having potential cultural heritage value or interest and may be directly or indirectly impacted. Cultural Heritage Evaluation Reports (CHERs) are recommended for these properties following the completion of TPAP. Additional details are provided in Exhibit 7-1.
 - 10 properties were identified as having known cultural heritage value or interest, and may be directly or indirectly impacted. Heritage Impact Assessments (HIAs) are recommended for these properties, including Victoria Park and one easement property, following the completion of TPAP. Additional details are provided in Exhibit 7-1.
 - 32 properties were identified as being located within an HCD and may be directly or indirectly impacted. HIAs are recommended for these properties, following the completion of TPAP. Additional details are provided in Exhibit 7-1.
 - Present all CHERs and HIAs to LACH and Council.
 - Coordinate with Western University to evaluate heritage landscape of the overall campus to inform HIAs for BRT infrastructure.
- Prior to construction, identified CHRs should be documented and archived in advance of landscape alteration. This work should be conducted in consultation with LACH, and may include photographic documentation of individual resources with representative views, histories, mapping, and historic photographs where available and appropriate.
- If additional BRT infrastructure that was not contemplated as part of TPAP is identified during detail design, a qualified heritage consultant will be retained to confirm impacts of

such infrastructure and develop appropriate recommendations to mitigate and/or avoid impacts.

- Design principles and branding strategies for the BRT network should be developed that compliment adjacent cultural heritage resources and are sensitive to contextual values and character.
- During construction or excavation adjacent to known or potential cultural heritage resources, vibration impact will be monitored and work will stop immediately if vibration thresholds are exceeded.
- Once all technical cultural heritage studies (CHERs, HIAs) are complete and the project design has been finalized, the project team will provide MTCS a summary update on which properties were confirmed to have CHVI and how cultural heritage resources will be conserved, for MTCS records
- Notify the Ontario Heritage Trust (OHT) should any changes be made to the design near 399 Ridout Street (Middlesex County Courthouse) or 481 Ridout Street (Eldon House). Any change to the easement-protected property would require Trust review and approval.
- Consult with the Ministry of Natural Resources and Forestry (MNR) during detail design, approximately one year prior to initiation of site preparation and construction activities at Sites 1 to 7 to: confirm the necessary permits and approvals, changes to species listings, and to address applicable legislation/regulations. The extent and nature of the proposed disturbance identified on detailed design drawings must be evaluated by the MNR before a decision can be made regarding permit requirements. Additional field work or screening may be necessary to confirm the proposed works will not have an impact on species-at-risk (SAR).¹
- Consult with Bird Studies Canada and the MNR to confirm the most appropriate survey protocol (e.g., Ontario SwiftWatch Protocol (Bird Studies Canada, 2015)).
- Additional SAR screening may be required based on future changes to species' listings or habitat regulations of the Endangered Species Act.
- Prepare and implement arborist reports, tree protection plans, edge management and streetscape plans.
- Determine areas where compensation for vegetation loss will be required in consultation with the UTRCA; determine quantity and type of species to be used; and, identify sites where restoration efforts would be maximized.
- Prepare an erosion and sedimentation control plan, which complies with prevailing UTRCA and City of London water guidelines and requirements.

¹ During the TPAP, the responsibility for Species at Risk under the Endangered Species Act, 2007, transitioned to MECP from MNR.

- Prepare an Air Quality Management Plan during detail design and to be submitted to the Ministry of Environment, Conservation and Parks (MECP) for review prior to commencement of construction.
- Update the greenhouse gas study once the fuel source of the BRT fleet is known, to be provided to MECP for review.
- Prepare an EMMP monitoring plan in accordance with subsection 9.2.8 of Ontario Regulation 231/08 to verify the effectiveness of mitigation measures, in consultation with UTRCA.
- Include noise, vibration and air quality monitoring and mitigation measures and construction site maintenance and upkeep requirements in construction contract documents.

- Submit a comprehensive environmental controls and methods plan to address, among other elements, effluent control, prior to construction.
- Monitor construction activities to ensure that no unintentional chemical discharges occur to the environment. This information is to be included in the Environmental Plan for approvals and should include such items as the following:
 - Refueling and cleaning of equipment is to occur away from the watercourse;
 - Fuel spill equipment should be available for emergency spills of deleterious substances
 - A contact list for any further required equipment or materials should be prepared and made available for emergency use.
- During detail design of the BRT routes, potential chemical impacts are to be noted in the tender documents along with appropriate mitigation measures that the contractor is to implement.
- During construction, a regular program of geotechnical inspections, monitoring and materials testing should be carried out to confirm that the subsurface conditions encountered are consistent with those encountered during design and that contract compliance is achieved.
- The disposal of contaminated materials will be directed to an MECP approved soil treatment site or waste disposal site. The monitoring of these facilities is the jurisdiction of the MECP.
- Should previously unknown or unassessed deeply buried archaeological resources be uncovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act. Any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Consumer Services.
- Should human remains be encountered at any point, all site alteration activities must cease immediately and the Quality Assurance / Environmental Administrator and Construction Manager will be contacted to implement the response protocol.
- Construction activities should be monitored by a qualified Environmental Inspector to frequently review the efficacy of the air quality mitigation measures and construction best management practices to confirm they are functioning as intended. In the event that mitigation is found to not be effective, revised mitigation measures designed to improve effectiveness will be implemented.
- The Contractor will be required to comply with the City of London's noise by-law (Noise By-Law, PW-12) regarding noise emission standards for construction equipment that may be in place at the time of construction.

7.6 CONSTRUCTION AND MONITORING

The following commitments will be carried out during detail design and prior to or during construction:

- Adhere to the Transportation Association of Canada's guidelines for road salt management, snow storage and spill prevention.
- Develop traffic, parking, transit, cycling and pedestrian management strategies to be included in construction contract documents.
- Develop utility, pipeline and municipal servicing relocation plans in consultation with service providers (including but not limited to Bell Canada, Enbridge Gas Distribution, Rogers Cable, London Hydro, Hydro One, and Start Communications).
- Develop emergency response plans with emergency service providers to maintain fire, police and emergency medical services during construction.
- Undertake Designated Substances Surveys for any buildings or structures which require demolition and to reflect the findings in construction contract documents.
- Develop procedures for disposal of excavated materials, including excess soils, in accordance with MECP requirements.
- Identify temporary staging areas for construction materials and equipment, temporary road by-passes and other potential temporary works.
- Undertake buildings, structures, and railway protection and monitoring.
- Manage any brownfield sites in accordance with Ontario Regulation 153/04 as amended.
- Conduct a Phase 1 and 2 Environmental Site Assessment for any areas of existing contamination prior to property acquisition for the BRT and consult with MECP as appropriate.

- General noise control measures (not sound level criteria) will be referred to, or placed into the City of London contract documents. Construction activities should comply with the requirements of MOE Publication NPC-207. Noise emissions from construction equipment are to be in compliance with the limits set out in NPC-115 and NPC-118.
- Establish a complaint response protocol for nuisance effects, such as dust, for local residents, property owners, and businesses to provide feedback.

Exhibit 7-1: Commitments to Future Work for Social, Cultural and Natural Environment

Matter of Importance	Phase	Environmental Concern	Location	Future Commitment
Archaeology	Detail Design	Impacts to archaeological features	Study Area	Stage 2 Archaeological Assessments, and Stage 3 and 4 Archaeological Assessments as recommended by Stage 2 and 3, in advance of any activities that have the potential to disturb archaeological resources. Relevant Indigenous communities will be informed of Archaeological Assessment findings.
Cultural Heritage	Following TPAP	Timing of heritage studies	Study Area	Work with LACH and Council to prioritize the timing of the cultural heritage studies.
	Detail Design	Properties with known cultural heritage value or interest that may be directly or indirectly impacted	10 Properties	<p>A detailed HIA should be conducted to determine the cultural heritage value or interest and to evaluate design options and recommend appropriate mitigation options. The HIA should be conducted by a qualified heritage consultant during the early stages of detail design. The HIA should identify associated heritage attributes, and provide appropriate recommendations. Ongoing consultation with the Ontario Heritage Trust is recommended to ensure that any potential indirect impacts are mitigated during detailed design, and that all easement requirements are fulfilled.</p> <p>North Corridor: Victoria Park 1132 Richmond Street 1603 Richmond Street</p> <p>Downtown Corridor: 481 Ridout Street N, 531 Ridout Street N</p> <p>East Corridor: 163 Oxford Street West 871 Dundas Street 1156 Dundas Street 850 Highbury Avenue N</p> <p>West Corridor: 75 Riverside Drive 77 Riverside Drive</p>

Matter of Importance	Phase	Environmental Concern	Location	Future Commitment		
Cultural Heritage (continued)	Detail Design	Properties within an HCD that may be directly or indirectly impacted	32 Properties	<p>Direct impacts to these properties may occur including removals / demolition. Detailed HIAs should be conducted to determine the cultural heritage value, evaluate design options and recommend appropriate mitigation options. The HIAs should be conducted by a qualified heritage consultant during the early stages of detail design. The HIA should identify associated heritage attributes, and provide appropriate recommendations.</p> <p>Landscape impacts within an HCD may negatively impact landscape heritage attributes. The HIAs should be conducted by a qualified heritage consultant during the early stages of detail design. An HCD HIA will be completed to assess impacts using the relevant HCD plan policy, and will provide detailed mitigation strategies, including, but not limited to retention of landscape features, replacement of vegetation, documentation and commemoration.</p> <p>These HIAs may be grouped, where determined to be appropriate through consultation with the City of London and the LACH.</p> <table border="0" data-bbox="1774 828 2815 1524"> <tr> <td data-bbox="1774 828 2396 1524"> <p>North Corridor: 472 Richmond Street 568 Richmond Street</p> <p>Downtown: 100 Queens Avenue 120 Queens Avenue 421 Ridout Street North 99 Dundas Street 195 Dundas Street 130 King Street</p> <p>East Corridor: 320 King Street</p> <p>West Corridor: 12 Wilson Avenue 25 Wilson Avenue (2 parcels requiring HIAs) 10 Riverside Drive (3 parcels requiring HIAs) 53 Riverside Drive</p> </td> <td data-bbox="2396 828 2815 1524"> <p>West Corridor Continued: 59 Riverside Drive 61 Riverside Drive 63 Riverside Drive 65 Riverside Drive 67 Riverside Drive 69 Riverside Drive 70 Riverside Drive 71 Riverside Drive 73 Riverside Drive 78 Riverside Drive 227 Wharncliffe Road North 230 Wharncliffe Road North 232 Wharncliffe Road North 40 Oxford Street West 42 Oxford Street West 46 Oxford Street West</p> </td> </tr> </table>	<p>North Corridor: 472 Richmond Street 568 Richmond Street</p> <p>Downtown: 100 Queens Avenue 120 Queens Avenue 421 Ridout Street North 99 Dundas Street 195 Dundas Street 130 King Street</p> <p>East Corridor: 320 King Street</p> <p>West Corridor: 12 Wilson Avenue 25 Wilson Avenue (2 parcels requiring HIAs) 10 Riverside Drive (3 parcels requiring HIAs) 53 Riverside Drive</p>	<p>West Corridor Continued: 59 Riverside Drive 61 Riverside Drive 63 Riverside Drive 65 Riverside Drive 67 Riverside Drive 69 Riverside Drive 70 Riverside Drive 71 Riverside Drive 73 Riverside Drive 78 Riverside Drive 227 Wharncliffe Road North 230 Wharncliffe Road North 232 Wharncliffe Road North 40 Oxford Street West 42 Oxford Street West 46 Oxford Street West</p>
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Matter of Importance	Phase	Environmental Concern	Location	Future Commitment						
Cultural Heritage (continued)	Detail Design	Properties with potential cultural heritage value or interest that may be directly or indirectly impacted	12 properties	<p>CHERs will be completed for 11 properties following the completion of TPAP:</p> <table border="0"> <tr> <td>North Corridor: 1111 Richmond Street</td> <td>South Corridor: 72 Wellington Street</td> </tr> <tr> <td>East Corridor: 1033 Dundas Street 100 Kellogg Lane</td> <td>90 Wellington Street 92 Wellington Street 120 Wellington Street</td> </tr> <tr> <td>West Corridor: 127 Oxford Street West</td> <td>327 Wellington Street 331 Wellington Street 333 Wellington Street</td> </tr> </table> <p>A CHER will also be undertaken in coordination with Western University following the completion of TPAP for the Western University property (1151 Richmond Street), including the University Gates, a likely heritage attribute, as a part of the Master Site Development Agreement prior to the construction of the north section of the BRT.</p> <p>The CHERs should be conducted by a qualified heritage consultant during the early stages of detail design. If a CHER finds a property has CHVI, an HIA will be completed by a qualified heritage consultant during the early stages of detailed design.</p>	North Corridor: 1111 Richmond Street	South Corridor: 72 Wellington Street	East Corridor: 1033 Dundas Street 100 Kellogg Lane	90 Wellington Street 92 Wellington Street 120 Wellington Street	West Corridor: 127 Oxford Street West	327 Wellington Street 331 Wellington Street 333 Wellington Street
North Corridor: 1111 Richmond Street	South Corridor: 72 Wellington Street									
East Corridor: 1033 Dundas Street 100 Kellogg Lane	90 Wellington Street 92 Wellington Street 120 Wellington Street									
West Corridor: 127 Oxford Street West	327 Wellington Street 331 Wellington Street 333 Wellington Street									
	Detail Design	Impacts to properties determined to have cultural heritage value or interest through the CHERs completed during TPAP	10 Properties	<p>Direct impacts to these properties and/or structures may occur including removals / demolition. A detailed HIA should be conducted to determine the cultural heritage value, evaluate design options and recommend appropriate mitigation options. The HIA should be conducted by a qualified heritage consultant during the early stages of detail design. The HIA should identify associated heritage attributes, and provide appropriate recommendations.</p> <table border="0"> <tr> <td>North Corridor: 736 Richmond Street 742 Richmond Street 1110 Richmond Street University Bridge</td> <td>South Corridor: 16 Wellington Road 26 Wellington Road 28 Wellington Road 30 Wellington Road 174 Wellington Road 243 Wellington Road</td> </tr> </table>	North Corridor: 736 Richmond Street 742 Richmond Street 1110 Richmond Street University Bridge	South Corridor: 16 Wellington Road 26 Wellington Road 28 Wellington Road 30 Wellington Road 174 Wellington Road 243 Wellington Road				
North Corridor: 736 Richmond Street 742 Richmond Street 1110 Richmond Street University Bridge	South Corridor: 16 Wellington Road 26 Wellington Road 28 Wellington Road 30 Wellington Road 174 Wellington Road 243 Wellington Road									
	Detail Design	Impact to cultural heritage features	Study Area	<p>Prior to construction, identified cultural heritage resources should be documented and archived in advance of landscape alteration. This work should be conducted in concert with LACH, and include photographic documentation of individual resources with representative views, histories, mapping, and historic photographs where available and appropriate.</p>						

Matter of Importance	Phase	Environmental Concern	Location	Future Commitment
Cultural Heritage (continued)	Detail Design	Impact on intersecting streets or additional BRT infrastructure	Study Area	<p>During the detail design process, if modifications to intersecting streets are identified, cultural heritage elements should be reviewed to identify any additional potential impacts.</p> <p>If additional BRT infrastructure is identified during detail design which was not contemplated as part of this report, a qualified heritage consultant should be retained to confirm impacts of such infrastructure and develop appropriate recommendations to mitigate and/or avoid impacts.</p>
	Detail Design	Design sensitive to cultural heritage	Study Area	Design principles and branding strategies for the BRT network can be developed that compliment adjacent cultural heritage resources, are sensitive to contextual values and character. There are opportunities to integrate the proposed infrastructure into London’s heritage resources, including stop infrastructure, shelters, platforms, signage, lighting, art and seating, resulting in a project that compliments existing cultural heritage resources.
	Detail Design	Cultural heritage resources	Study Area	Once all technical cultural heritage studies (CHERs, HIAs) are complete and the project design has been finalized, the project team will provide MTCS a summary update on which properties were confirmed to have CHVI and how cultural heritage resources will be conserved, for MTCS records
	Construction	Vibration during construction	Directly and indirectly impacted resources Refer to Appendix K.	<p>During adjacent construction or excavation, monitor for vibration impacts and stop work immediately if vibration thresholds are exceeded. This applies to potential, listed, and/or designated properties. Where vibration impacts are anticipated, a pre-construction condition assessment will be conducted. The pre-construction condition assessment should be completed after identification of CHVI and/or heritage attributes.</p> <p>Should any heritage attribute or CHVI of a property of a known cultural heritage resource be damaged as a result of construction vibration, the repair or restoration of the damaged elements would be guided by the Statement of Cultural Heritage Value or Interest.</p>
	Construction	Inadvertent impacts to cultural heritage properties	Directly and indirectly impacted resources Refer to Appendix K.	Temporary fencing will be erected at the lot line of a property of a known cultural heritage resource to provide a physical marker during construction. This should reduce the risk of inadvertent impacts to cultural heritage resources.
Natural Environment	Detail Design	Barn Swallows (<i>Hirundo rustica</i>)	Sites 2, 3, 4, and 5	Nest surveys for Barn Swallows (and other applicable species at risk present at the time) in the breeding season prior to construction activities on bridges.
	Detail Design	Chimney Swifts (<i>Chaetura pelagica</i>)	Where damage to suitable chimneys is scheduled to occur	Entry-exit surveys for Chimney Swifts where damage to suitable chimneys is scheduled to occur, to be completed during the breeding season prior to commencement of the demolition or construction activities.

Matter of Importance	Phase	Environmental Concern	Location	Future Commitment
Natural Environment (continued)	Detail Design	Little Brown Myotis (<i>Myotis lucifuga</i>), Northern Myotis (<i>Myotis septentrionalis</i>), Tri-coloured Bat (<i>Perimyotis subflavus</i>), SAR mussels	Sites 3, 4, 5, and 6	Screening for suitable bat cavity trees where removal of mature trees are proposed to permit road widening. The need for additional targeted surveys for SAR mussels will be discussed with MNRF and DFO at detailed design, once footprint impacts are known, to address potential permitting and related works issues. Mussel rescue/relocations will be required at all locations where mussels have been confirmed within the in-water footprint.
	Detail Design	Butternut (<i>Juglans cinerea</i>)	Lambton Drive	Completion of a Butternut Health Assessment for Butternut trees adjacent to Lambton Drive, if realignment or widening of the road is to occur within 50 m of the trees.
	Detail Design	Species at Risk	Study Area	Additional screening as required based on future changes to species' listings or habitat regulations of the ESA.
	Detail Design	Species at Risk	Study Area	Overall benefit permits will be obtained where required by the MNRF.
	Detail Design	Vegetation	Study Area	A tree removal, restoration and compensation plan will be developed.
	Construction	Vegetation	Study Area	Tree protection zones will be established and protective materials will be installed prior to construction to prevent damage including, but not limited to, root destruction and soil compaction.
Natural Environment	Construction	Species at Risk	Study Area	Vegetation clearing will take place outside of the bird timing window. An ecologist will confirm that nests are no longer active, if encountered during clearing.
	Construction	Species at Risk	Study Area	In-water works will be completed inside the appropriate timing windows.
Noise and Vibration	Detail Design	Noise	106 Bees Court 38 St Bees Place 1 Ambleside Drive 2 Kennon Place 13 Bond Street 484 Moore Street 226 Cooper Street	Noise barriers will be designed and installed to reduce the noise effects at identified locations.
	Construction	Noise	Study Area	Communication protocol will be developed to inform affected persons of timing and duration of construction activities including anticipated noise effects. Nighttime construction activities will be avoided to reduce the potential impact of construction noise. Noise emissions from construction equipment are to be in compliance with the limits set out in NPC-115 and NPC-118.
	Construction	Vibrations	Study Area	Vibration mitigation measures will be constructed to mitigate potential impacts.
Air Quality	Construction	Air Quality	Study Area	Dust suppressant measures will be used and disturbed areas will be re-vegetated to mitigate potential impacts. Equipment will be washed and mud mats used where practical at construction site exits to limit the migration of soil and dust. Soil and other friable materials will be stockpiled in locations that are less exposed to wind and away from sensitive receptors, where possible. Dust-generating activities will be minimized during conditions of high wind.

Matter of Importance	Phase	Environmental Concern	Location	Future Commitment
	Detail Design	Air Quality	Study Area	Prepare an Air Quality Management Plan during detail design and to be submitted to the Ministry of Environment, Conservation and Parks (MECP) for review prior to commencement of construction.
	Detail Design	Air Quality	Study Area	Update the greenhouse gas study once the fuel source of the BRT fleet is known, to be provided to MECP for review.
	Construction	Air Quality	Study Area	Construction activities should be monitored by a qualified Environmental Inspector to frequently review the efficacy of the air quality mitigation measures and construction best management practices to confirm they are functioning as intended. In the event that mitigation is found to not be effective, revised mitigation measures designed to improve effectiveness will be implemented.
Drainage and Stormwater Management	Detail Design / Construction	Increase in erosion and sedimentation during construction	Study Area	An Erosion and Sediment Control plan will be developed prior to construction. Best management practices will be implemented during construction.
	Construction	Increase in stormwater runoff quantity	Study Area	Low Impact Development measures will be implemented to promote infiltration.

