

## 9 Implementation and Approvals

The Barrhaven LRT and Rail Grade-Separations Planning and EA Study has followed the Transit Project Assessment Process. During the Pre-Planning Phase and the Transit Project Assessment Phase, the City of Ottawa worked with Public and Technical Agencies to address the environmental concerns and issues. The potential impacts, mitigation measures and the associated residual impacts were identified, evaluated, and assessed and documented in the previous sections. The future implementation, including detailed design, will need to be carried out in accordance with the recommendations in this report. This section outlines the future commitments that inform implementation of the project.

### 9.1 Project Costs

Detailed costing of the project has been carried out based on the Recommended Plan. Costing information includes an estimate for design, project management, construction, vehicles, soft costs and contingency. Experience during the Confederation Line preliminary engineering and procurement process has also shown that, in the case of large-scale infrastructure projects, it is beneficial to avoid breaking down the cost estimate to its various components (running way, guideway, track, structures, etc.), including the contingency. By keeping the project costs whole, the City will be in a better position to drive competition through the preliminary engineering and procurement phases.

Even though the Barrhaven LRT Extension is beyond the City's 2031 Affordable Rapid Transit Network (2013 TMP), the study examined how the project could be implemented in sections based on available funding. The proposed phasing priority is based on ridership and capital cost. Cost for estimates are prepared in 2023 dollars (Class C estimate) and summarized below in **Table 9-1** according to the proposed implementation and staging plan.

Table 9-1 Barrhaven LRT and Rail Grade-Separations Estimated Capital Cost

Staging Priority	Capital Cost
Baseline Station - Fallowfield Station (including the Grade-separation structures over the railway line)	\$2.717 B
Fallowfield Station - Barrhaven Centre Station	\$1.302 B
<b>Total Project Cost</b>	<b>\$4.019 B</b>

As part of the project phasing and implementation, it is possible that the rail grade-separations may proceed in advance of the LRT Extension. The cost estimate to advance this project component in isolation (with the Southwest Transitway Rail Grade-separation constructed as a BRT facility) is estimated to be \$535 M in 2023 dollars (Class C estimate).

### 9.2 Property Acquisition

The Recommended Plan for the Barrhaven LRT is primarily within the protected Right-of-Way of the south-west transitway owned by the City of Ottawa. Some additional lands are required from adjacent landowners where new sections have been identified. Preliminary property requirements are shown on the Recommended Plan. The acquisition of temporary property needs, including temporary construction easements, will proceed as definitive property plans are developed as part of detailed design phase of the project.

### 9.3 Future Considerations

Consultation throughout the study was undertaken with many stakeholders. The discussions in these meetings were specific to individual property impacts and due to the functional nature of the design at the EA level, will require additional consultation at the detailed design stage.

### 9.3.1 CONSULTATION

#### 9.3.1.1 Royale Equestrian Centre

As a result of the rail grade-separation of Woodroffe Avenue and the Southwest Transitway at the VIA Rail line, a new entrance to the Royale Equestrian Centre (REC) located at 2191 Woodroffe Avenue is required and is included in the Recommended Plan. The property is owned by the National Capital Commission and leased to the current tenant. The Recommended Plan includes a new signalized intersection providing access to Fallowfield Station (LRT and VIA) and Park and Ride. The eastern leg of the intersection would provide signalized access to the REC. Through consultation with REC and the NCC, this entrance was designed to allow large farm vehicles to access the property as well as improve the documented safety concerns related to current vehicle access to the site. The existing NCC MUP would be maintained with the proposed entrance design presented. The Study Team met directly with the owners of the REC on numerous occasions to discuss their concerns with the design of this entrance and discussed possible alternative configurations and opportunities for additional lands to be owned by the City and NCC to benefit the REC near Fallowfield Road (Individual Stakeholder Meetings **Table 1-5**). A mutually acceptable design was not achieved during the discussions with REC. The NCC, as the property owner, were involved in these discussions and provided feedback on the Recommended Plan as presented in this EPR for this intersection. Additional consultation with the NCC and the REC will be required at the preliminary and detailed design stage of the project. Federal approvals will also be required during preliminary and detailed design stage of the project as described in **Section 9.5.1.2**. Future work outlined in the impact assessment identifies the need to continue consultation with REC and NCC to minimize temporary disruption from construction through project phasing and implementation of noise and vibration minimizing techniques as well as ensuring continued access to the property through project construction. The foregoing is also applicable during the watermain relocation required as described in **Section 7.2.9.2** as part of this project which may occur at a different time.

#### 9.3.1.2 Algonquins of Pikwàkanagàn First Nation

Over the course of the study, engagement with the Algonquins of Pikwàkanagàn First Nation (AOPFN) was undertaken to obtain feedback on the proposed project and address areas of concern. This engagement included a field visit to areas impacted by the project on May 15<sup>th</sup> 2024. The AOPFN have shared the following areas of interest:

- Archaeology and cultural heritage (built heritage);
- Fish and fish habitat;
- Wetlands;
- Watershed/subwatershed impacts;
- Rare post-glacial sand dunes in Pinhey Forest;
- Landscaping plans;
- Unique and regionally rare flora;
- Wildlife crossings;
- Species at Risk (SAR) and Species of Conservation Concern including SAR bats;
- Black Rapids Creek;
- Black Ash;
- Algonquin signage at LRT stations;
- Tallwood Woods;
- Corridor Drainage and Stormwater Management Plans (including monitoring); and
- Site visit prior to finalizing detailed design and construction.

The City of Ottawa is amenable to working with AOPFN during the detailed design phase of the project regarding the areas of interest listed above, where feasible within the scope of the undertaking. The details of this future collaboration and engagement will be determined as the project moves into the detailed design phase.

## 9.4 Design Details

---

The project as illustrated in **Section 8** is designed at a functional level. Refinements to the Recommended Plan will continue in subsequent stages of design to achieve the following:

- Improve operating characteristics;
- Reduce future maintenance requirements;
- Minimize construction related impacts;
- Reduce capital and operating costs; and,
- Minimize the impacts on adjacent properties.

The detail design team will evaluate and assess construction methods and staging prior to undertaking the project. The end result will be project documentation that includes, but not limited to the following:

### Drawings

- Implementation / Staging and Detours.
- Alignment.
- Removals.
- Grading and Drainage.
- Geometry and General Layout.
- Pavement Elevations.
- Ditches, Culverts, Sewers and SWM facilities.
- Services/Utility Relocations.
- Pavement Markings.
- Typical Sections.
- Non-Standard Details.
- Landscaping Plan.
- Electrical (Illumination / Street Lighting / Stations).
- Mechanical (Stations).
- Architectural Details (Bridges, Stations).
- Structural Drawings (Bridges, Culverts, Retaining Walls, Stations).

### Specifications

- Modified OPS General Conditions.
- PPQ Sheets.
- Special Provisions.
- Special Provisions General.
- Standard Drawings and Standard Specifications.

Refinements to the Recommended Plan will be subject to the commitments and amending process outlined in the Transit Project Regulation.

## 9.5 Future Permits, Approvals and Other Requirements

---

Approval under the Transit Project Assessment Process under the *Ontario Environmental Assessment Act, R.S.O. 1990* does not constitute approval under other legislation required to construct the project. Specific approvals will be required for components of the project. The following is a list of approvals and permits that may be required and associated agencies that should be consulted.

### 9.5.1 FEDERAL

#### 9.5.1.1 Federal Land Use, Design and Transaction Approval (FLUDTA)

Approval from the NCC pursuant to the *National Capital Act* will be required for this project due to the requirement for NCC lands within the NCC Greenbelt, to accommodate the track and station elements at the Nepean Sportsplex, to construct the rail-grade separations for Woodroffe Avenue and Fallowfield Road over the VIA Rail line, and for other transit priority measures within the Woodroffe Avenue Corridor. To initiate this process, the City must submit to the NCC a Federal Land Use, Design and Transaction Approval (FLUDTA) application. Projects are evaluated in terms of their impact on Canada's Capital Region. The NCC's mandate is to ensure that land and building projects are planned and designed to standards appropriate to their significance and location. The NCC also evaluates applications based on their alignment with relevant federal plans, policies and legislation.

Through correspondence with the NCC the following elements have been identified of interest to the NCC and should be discussed further during preliminary and detailed design in support of the FLUDTA:

- Station Design for the Nepean Sportsplex and Fallowfield Station.
  - Opportunities to incorporate public art at Fallowfield Station to recognize the Greenbelt's contribution to the Capital character and as a Capital Arrival.
- Opportunities to further reduce the land requirements i.e., further review/consideration of design speeds.
- Mutual agreement on lighting design through the Greenbelt.
- Eco-crossing design and mitigation requirements.

#### **9.5.1.2 Impact Assessment Act**

As described in **Section 1.3** as federal lands are required for various phases of project completion, an Environmental Effects Analysis of all the physical activities proposed on federal lands is required, under Section 82 of the IAA. No approvals from the National Capital Commission under the *National Capital Act* can be issued before these obligations are fulfilled. An Environmental Effects Analysis of a proposed project will determine the need to eliminate or mitigate adverse effects, or to recommend monitoring based on detailed design. **Section 7.8.2** details the impact assessment based on the Recommended Plan described herein. Many of the potential impacts that will also be analyzed through the federal Environmental Effects Analysis are included.

ECCC will participate in the IAA review, at NCC's request, when the City proceeds to detailed design and FLUDTA and undertakes a Section 82 review under the IAA. ECCC would also be an Authority responsible for a Section 82 review and decision should a SARA permit be required for impacts to Endangered or Threatened SARA listed species on federal land. An assessment and mitigation of impacts to species listed as Special Concern under Schedule 1 of SARA is required as per section 79 of SARA in relation to all IAA assessment processes for this project.

#### **9.5.1.3 Fisheries Act**

The Department of Fisheries and Oceans Canada may review and confirm works in or near Black Rapids Creeks and its tributaries to ensure that works will not result in serious harm to fish, as per the *Fisheries Act*.

#### **9.5.1.4 Species at Risk Act**

A permit may be required if the project will result in a contravention of the SARA. A permit will only be issued if the purpose of the proposed activity is for; a) scientific research relating to the conservation of the species and conducted by qualified persons; b) the activity benefits the species or is required to enhance its chance of survival in the wild; or c) affecting the species is incidental to carry out the activity. Permit pre-conditions must also be met to ensure that all reasonable alternatives have been considered, all feasible measures will be taken to minimize impacts and the activity will not jeopardize the survival or recovery of the species.

### **9.5.2 PROVINCIAL**

#### **9.5.2.1 Environmental Compliance Approval**

Activities regulated under the *Environmental Protection Act* (EPA), R.S.O. 1990 and the *Ontario Water Resources Act*, R.S.O. 1990 (OWRA) must be carried out in accordance with those Acts. An ECA is required for activities that fall under the EPA, Section 9 (activities that may discharge, or from which may be discharged, a contaminant into the natural environment other

than water, which includes most industrial processes or modifications to industrial processes and equipment), EPA, Section 27 (Waste Management System or Waste Disposal Site), and or OWRA, Section 53 (sewage works). Due to the air quality impact and noise generated by construction activities, approvals may be necessary prior to start of construction.

#### **9.5.2.2 Permit to Take Water**

Water takings in Ontario are governed by the OWRA and the Water Taking Regulation (O. Reg. 387/04). Section 34 of the OWRA requires anyone taking more than a total of 50,000 litres of water in a day apply for a PTTW. This includes the taking of water for any use; whether agricultural, commercial, construction, dewatering, industrial, institutional, recreational, remediation, water supply or other purposes. Construction activities may trigger the requirement for a PTTW due to many factors including dewatering.

#### **9.5.2.3 Ontario Endangered Species Act**

The Ontario *Endangered Species Act, 2007* addresses the protection and recovery of SAR in Ontario. If a species is listed on the Species at Risk in Ontario list as an extirpated, endangered or threatened species, the Act protects the species and their habitat. The ESA 2007 includes flexibility tools that encourage good stewardship and benefit to species at risk. The Act also includes a permit process to authorize people to engage in an activity that may not otherwise be allowed under the ESA 2007. Permits may be granted under the following circumstances:

- The activity is necessary for human health and safety;
- The purpose of the activity is to help protect or recover the species at risk;
- The activity will result in an overall benefit to the species; and,
- Permits may also be granted for activities that result in significant social or economic benefit to Ontario. Even in these cases, the activity must not jeopardize the survival or recovery of a species at risk.

Eligibility for exemption under O.Reg. 830/21 for Butternut, Bobolink and Eastern Meadowlark could be considered. During subsequent stages of the project, an updated species at risk assessment will determine the need for a permit. The permit application will need to include justification for any required removals as well as a mitigation/recovery plan.

#### **9.5.2.4 Ontario Heritage Act**

The *Ontario Heritage Act* gives municipalities and the provincial government powers to preserve the heritage of Ontario. Part VI of the Act deals with the conservation of resources of archaeological value. Stage 2 archaeological assessment (and further stages of archaeological assessment, if recommended) will be undertaken by an archaeologist licensed under the *Ontario Heritage Act*. Archaeological assessment(s) will be undertaken as early as possible during detailed design and prior to any ground disturbing activities.

The detailed design of the proposed temporary detour for the Woodroffe Avenue Rail Grade Separation shall consider its reversibility and detour lands should, to the extent possible, be reverted to their prior form and use following decommissioning of the detour.

#### **9.5.2.5 Public Lands Act**

The Ministry of Natural Resources and Forestry (MNR) is responsible for managing Ontario's Crown land resources as outlined in the *Public Lands Act* (PLA). If there is work in-water and/or disturbance of the riverbed and shoreline of a watercourse, including Black Rapids Creek, a work permit from the MNR may be required. During detail design, plans will be sent to the MNR for review and if required, a work permit applied for under the PLA.

#### **9.5.2.6 Conservation Authorities Act**

Ontario Regulation 174/06 Development, Interference, with Wetlands and Alterations to Shorelines and Water Courses Regulation under the *Conservation Authorities Act* allows Conservation Authorities to regulate and restrict activities within floodplains, waterways, wetlands, beaches, and hazard lands. The intent of this regulation with respect to natural heritage features is to 1) prevent the destruction of natural heritage features and functions, 2) to prevent pollution of associated water systems, and 3) to promote restoration of natural heritage systems. Permits under the Regulation are authorized by conservation authorities after review of proposed works and evaluation of potential impacts and mitigation measures.

Conservation authorities provide mapping that delineates areas that are subject to regulation within their respective areas of jurisdiction or watershed. A permit to construct the project is likely required, necessary documents should be submitted to RVCA prior to construction to confirm requirements.

### 9.5.2.7 Hydro One Class EA

It is recognized that the design information required to confidently confirm whether a separate EA following the Class EA for Minor Transmission Facilities will not be available until the preliminary and detailed design for the Project is undertaken. At that time, the City will coordinate with Hydro One and determine if there are any additional EA requirements. The anticipated limits of infrastructure affected are shown in **Figure 9-1**.

Figure 9-1 Potentially Affected Hydro One Infrastructure



## 9.5.3 MUNICIPAL

### 9.5.3.1 Road Modification Approval

Where geometric modifications, or a change in the function of the existing road are required, delegated authority will be required to approve the road work on City Council's behalf in the form of a Roadway Modification Approval (RMA). An Approval Report requires: A Key Map; Context Plan; Functional Design Drawing; Turning Movement Counts; and Collision Information. Modifications covered in an environmental assessment study may not require an RMA.

### 9.5.3.2 Road Cut Permits

The City of Ottawa Road Activity By-law 2003-445, often referred to as the 'Road Cut' By-law, was established to ensure that any road cut within the road allowance is undertaken safely, with minimal disruption, and that the reinstatement of the road cut meets City standards. A road cut is defined as: "a surface or sub-surface cut in any part of the highway made by any means, including an excavation, reconstruction, cutting, saw-cutting, overlaying, crack sealing, breaking, boring, jacking or tunneling operations".

A road cut permit is required to construct the project and should be obtained prior to undertaking any cut including road surfaces; sidewalks; and boulevards. To obtain a permit a contractor must be bonded and insured and, where the work may impact traffic or pedestrian movement, the contractor must submit for approval a Traffic Management Plan. The By-law further establishes peak hour restrictions, establishes reinstatement standards and imposes a duty on the contractor to protect City-owned trees when work is undertaken in close proximity.

### 9.5.3.3 Temporary Encroachment Permits

Temporary Encroachment Permits are required for construction activities that temporarily encroach onto City of Ottawa rights-of-way. Such encroachments include placement of containers, stockpiling of materials, and parking of vehicles used in the construction process including aerial, subsurface and surface types. These permits ensure that all safety measures are taken; that the construction meets the City of Ottawa standards; and, in turn, the measures ensure that area residents and passers-by are kept safe.

Examples of encroachments include:

- Aerial encroachment – generally used to facilitate the use of tower cranes. When a crane permit (aerial encroachment) is issued, securities are always checked before the permit is released;
- Sub-surface encroachment – usually used for a tie-back, rock anchor, or other type of support placed under a street or highway to support an excavation wall; and,
- Surface encroachment – generally used for vehicles, materials, equipment, covered sidewalks and hoarding.

### 9.5.3.4 Noise By-Law Exemption

City of Ottawa By-law 2004-253 establishes the time restrictions for the operation of construction vehicles. The Contractor may apply for an exemption from the noise by-law where it is agreed that certain construction activities should take place overnight.

### 9.5.3.5 Tree Protection By-Law

The new Tree Protection By-Law came into effect on January 1, 2021 and harmonizes the previous Tree By-laws (Municipal Trees and Natural Areas Protection By-Law 2006-279 and Urban Tree Conservation By-Law 2009-200). The By-law applies to all City-owned trees and establishes minimum standards for tree protection, as well as compensation requirements for trees authorized for removal.

## 9.6 Monitoring

---

Monitoring is important to verify the accuracy of predicted effects. Monitoring measures may also determine what effects actually occurred with project implementation and may result in the modification of mitigation measures to improve effectiveness. Identified monitoring plans from **Section 7** will be developed and reviewed by the appropriate agencies prior to implementation. Construction and post construction monitoring will be required.

In addition, any monitoring identified through the application and receipt of permits and approvals will be required.

Compliance with the mitigation measures identified in this report will be monitored by the proponent as a responsibility under the *Environmental Assessment Act*. The City of Ottawa will prepare a monitoring plan in accordance with subsection 9.2.8 of Ontario Regulation 231/08 to verify the effectiveness of the mitigation measures. The monitoring plan will be designed prior to the start of construction. It will outline responsibilities related to agency review and implementation of the monitoring report.



## 9.7 Statement of Completion

---

The Transit and Rail Project Assessment Process is complete when the proponent (City) submits a Statement of Completion to the Director of the Environmental Assessment and Approvals Branch of the Ontario Ministry of the Environment, Conservation and Parks and the MECP Regional Director, excluding any unforeseen circumstances that may require a change to the transit project.

The proponent (City) will submit the Statement of Completion under one of the following circumstances:

- The Minister gives notice allowing the proponent (City) to proceed with the project in accordance with the EPR;
- The Minister gives notice allowing the proponent (City) to proceed with the project in accordance with the EPR, subject to conditions;
- The Minister gives a notice requiring further consideration of the transit project and subsequently gives a notice allowing the proponent (City) to proceed with the project in accordance with a revised EPR; or,
- The Minister gives no notice within 65 days of the proponent (City) posting the Notice of Completion.

The Statement of Completion must indicate that the proponent (City) intends to proceed with the transit project in accordance with either the:

- EPR;
- EPR subject to conditions set by the Minister; or,
- A revised EPR.

The proponent (City) must also post the Statement of Completion on its project website. Construction or installation of the transit project subject to the regulation cannot begin until the requirements described therein have been met. Subject to these requirements, the transit project may proceed to any other required approvals.

## 9.8 Modifying the Recommended Plan

---

This report is based on a functional design level of detail completed for the Barrhaven LRT and Rail Grade-Separations Planning and EA Study. The level of design does not provide as much detail as will be developed and available during later stages of the project (e.g., preliminary and detailed design). The functional design provides a sufficient level of detail to assess the environmental effects of the Recommended Plan. The effects identified in this environmental assessment are considered reliable for the Minister of the Environment, Conservation and Parks to base a decision regarding approval of the proposed project.

Some aspects of the Recommended Plan may be subject to change as detailed plans are developed. Changes may arise in terms of Study Area conditions, the development of new technology or mitigation measures, cost control, or the identification of previously unknown information. A change is consistent with the EPR if the change:

- Does not fundamentally change the planned function or location of the project;
- Does not fundamentally affect the identified impact or mitigation measures;
- Does not involve landowners that have not been previously notified; and,
- Does not create a need to involve previously uncirculated agencies.

All changes that are inconsistent with the EPR require an addendum, however not all changes require a Notice of Environmental Project Report Addendum. If the proposed change to the project is not anticipated to be significant (i.e., minor change), the proponent (City) will consult with appropriate agencies and potential stakeholders to finalize the design of the undertaking and all mitigation measures required. Should a minor change be required, the proponent (City) will prepare an addendum to the EPR in accordance with Section 15(1) of the regulation legislation. The addendum to the Transit and Rail Project Assessment Process Report will contain the following information:

- A description of the change and the reasons for the change;
- An assessment and evaluation of negative impacts that the change might have on the environment;
- A description of any measures proposed by the proponent (City) for mitigating the negative impacts that the change might have on the environment;

- Documentation of any agency or public consultation undertaken concerning the change; and,
- A statement of whether the proponent (City) is of the opinion that the change is a significant change to the transit project, and the reasons for the opinion.

The proponent (City) will be responsible for assessing the significance of the proposed change(s), which will be reviewed by the MECP. The proponent's (City) assessment will generally be based on further technical assessments and consideration of applicable policy as well as public and agency input as required. This does not apply to a change that is required to comply with another Act or regulation.

If the proponent (City) is of the opinion that a change described in the addendum is a significant change to the project, the proponent (City) shall prepare a Notice of Environmental Project Report Addendum. The Notice will contain the following:

- A description of the change.
- The reasons for the change.
- Information as to where and how members of the public may examine the addendum and obtain copies.
- A statement that there are circumstances in which the Minister has authority to require further consideration of the change to the transit project, or to impose conditions on the change, if he or she is of the opinion that,
  - the change may have a negative impact on a matter of provincial importance that relates to the natural environment or has cultural heritage value or interest, or
  - the change may have a negative impact on a constitutionally protected aboriginal or treaty right.
- A statement that, before exercising the authority referred to above, the Minister is required to consider any written objections to the change received within 30 days after the notice is first published.

The notice must be provided to the Director and Regional Director of the MECP, every property owner within 30 metres of the site of the change, Aboriginal communities that were given a Notice of Commencement, and any other person the proponent determines may be interested in the change to the transit project. The process and timelines following the notice are the same as the process leading to the Notice of Completion.

## 9.9 Lapse of Time

---

As per Ontario Regulation. 231/08: Transit Projects and Metrolinx Undertakings:

*If the project commencement date of a transit project does not occur within 10 years after the earliest date the proponent was permitted by subsection 14 (1) to submit statements of completion of the transit project assessment process, the proponent shall not proceed with the project unless,*

- a) *the proponent has prepared a review of the transit project that includes,*
  - a. *an analysis of existing environmental conditions at the site of the transit project, and*
  - b. *an analysis of whether any changes are required to the measures for mitigating any negative impacts that the transit project may have on the environment;*
- b) *the proponent has posted the review on its website, if any;*
- c) *the proponent has complied with section 15 with respect to any changes to the transit project; and,*
- d) *the proponent is of the opinion that it is still appropriate to proceed with the transit project. O. Reg. 231/08, s. 16.*

## 10 Conclusion Regarding the Project

The Barrhaven LRT and Rail Grade-Separations project has the potential to change the surrounding environments. The purpose of this environmental assessment is to guide and predict these changes and recommend measures to minimize any negative effects and to enhance or broaden the positive effects.

Through this study, the study area existing conditions were documented, alternative solutions and designs were identified and evaluated, and a Recommended Plan of the preferred design was developed. Throughout the process, the study benefited from extensive public and agency consultation including meetings with an Agency, a Business, and a Public Consultation Group, three open houses, as well as individual stakeholder meetings. The study was also subject to a civic dialogue, including media reporting. Through these meetings, and considering the community dialogue, the Study Team was able to identify impacts, avoid, minimize, or mitigate potential negative impacts for the environment, users of the infrastructure, and residents and landowners immediately adjacent to the proposed project. This study process, and stakeholder involvement culminated in the City of Ottawa Transportation Committee recommendation and subsequently Council approval of the Recommended Plan.

During the construction phase, the entire corridor will be an active construction site for some or all of the project construction period. Traffic disruptions, noise, dust, and visual interruptions will be inevitable. Ongoing communications by the City of Ottawa with the affected public will alleviate potential concerns and ensure timely sharing of project. Following the construction phase, there will be many positive effects such as increased transit service and capacity and enhanced pedestrian and cycling facilities. The project will also provide the opportunity to improve the visual environment through station architecture, landscaping, public art, and other space programming opportunities. While the project has the potential to have effects on the human and biophysical environments as a result of the project and construction, these effects can be largely mitigated with prescribed design features, sound environmental management, and continued community engagement. Through incorporating the mitigation measures recommended by this study, no significant adverse environmental effects are expected to result.

In accordance with the provisions of the Ontario Transit and Rail Projects Assessment Process, the study results are documented in this Environmental Project Report, which will be made available for public review. During the statutory Public Review Period, there will be an opportunity for an individual or a group to provide a written submission to the Minister of the Environment, Conservation and Parks. All submissions must clearly indicate that an objection is being submitted and must describe outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights.

Informed by this EPR, this project will result in the completion of detailed designs, specifications, and tender documents, as well as other associated approval for the initial stage of construction. The detailed project mitigation features and plans will be created during detailed design phase. The project will then be tendered and constructed in accordance with plans and details.

## 11 References

- Algonquins of Ontario. (2014). *Bridging the Gap Between Scientific and Aboriginal Traditional Knowledge: Exploring Algonquin and Aboriginal Relationships with the American Eel*.
- Canadian Wildlife Service. (2014). *Incidental Take of Migratory Birds in Canada*.
- Cheng, C. S. (2012). *Possible impacts of climate change on wind gusts under downscaled future climate conditions over Ontario, Canada*.
- Conservation Ontario (2020). *Mississippi-Rideau Source Protection Plan*.
- Henson, B.L. and K.E. Brodribb. (2005). Great Lakes Conservation Blueprint for Terrestrial Biodiversity. Vol. 2: Ecodistrict Summaries. Nature Conservancy of Canada and Ontario Ministry of Natural Resources.
- Lee et. al. (1998). *Ecological Land Classification for Southern Ontario: First approximation and its application*. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.
- MacPherson, Amy. (November 2018). *Personal Communication*.
- Martin, G. and P. Ballamingie. (2016). *Climate Change and the Residential Development Industry in Ottawa, Canada*.
- McBean, G. (2012). *Telling the Weather Story. Report prepared by the Institute for Catastrophic Loss Reduction for the Insurance Bureau of Canada*.
- Ministry of Environment. (2014). *Climate Ready: Ontario's Adaptation Strategy and Action Plan*.
- MOE. (1978). Model Municipal Noise Control By-Law, NPC-115 Construction Equipment.
- Ministry of the Environment, Conservation and Parks. (2019). *Source Protection Information Atlas*. Retrieved from <http://www.applications.ene.gov.on.ca/swp/en/index.php>
- MECP. (2014) *Management of Excess Soil – A Guide for Best Management Practices*
- MECP. (2003). *Stormwater Management Planning and Design Manual*.
- MECP. (1978). Model Municipal Noise Control By-Law, NPC-119 Blasting.
- Ministry of Natural Resources and Forestry (MNRF). (2017). *Wildland Fire Risk Assessment and Mitigation Reference Manual*. Toronto: Queen's Printer for Ontario.
- Ministry of Natural Resources and Forestry. (2015). *Significant Wildlife Habitat 6E Criterion Schedule*. 39p.
- MMAH. (2020). *Provincial Policy Statement*.
- MNR. (2010). *Natural Heritage Reference Manual*. Toronto: Queen's Printer for Ontario.
- MNRF. (2014). *Ontario Wetland Evaluation System: Southern Manual. Third Edition, Version 3.3*. Queen's Printer for Ontario.
- MNRF. (2014). *Significant Wildlife Habitat Mitigation Support Tool (SWHMist)*.
- MNRF. (2018). *Species at Risk in Ontario*. URL: <https://www.ontario.ca/environment-and-energy/species-risk-ontario-list>.
- MOECC. (2014). *Management of Excess Soil – A Guide for Best Management Practices*.
- MTCS. (2011). *Standards and Guidelines for Consultant Archaeologists*.
- Muncaster and Brunton. (2005). *Urban Natural Areas Environmental Evaluation Study produced for the City of Ottawa*.
- Muncaster and Brunton. (2006). *Urban Natural Areas Environmental Evaluation Study Addendum*. City of Ottawa.
- National Capital Commission (NCC). (2013). *Greenbelt Master Plan*.
- NCC. (2017). *Plan for Canada's Capital*.

- NCC. (2018). <http://ncc-ccn.gc.ca/places-to-visit/greenbelt/southern-farm-and-pinhey-forest>.
- National Fire Protection Association. (2023). *NFPA 130: Standard for Fixed Guideway Transit and Passenger Rail Systems*.
- National Wetlands Working Group. (1997). *The Canadian Wetland Classification System*, 2nd Edition. Warner, B.G. and C.D.A. Rubec (eds.), Wetlands Research Centre, University of Waterloo, Waterloo, ON, Canada. 68 p.
- OMAFRA. (October 2018). *AgMaps*. Retrieved from <http://www.omafra.gov.on.ca/english/landuse/gis/portal.htm>
- Ontario Breeding Bird Atlas. 2001. *Guide for Participants*. Atlas Management Board, Federation of Ontario Naturalists, Don Mills
- Ontario Centre for Climate Impacts and Adaptation Resources. (2012). *Getting ready for Changing Climate: What should We Do? A citizen panel workshop on climate change*.
- Raisin-South Nation Source Protection Committee. (2016). *Raisin-South Nation Source Protection Plan*.
- Rideau Valley Conservation Authority (RVCA). (2012a). *Black Rapids Creek Catchment Lower Rideau River Subwatershed Report*.
- Rowe, J.S. (1972). *Forest Regions of Canada*. Department of the Environment Canadian Forestry Service. Publication No. 1300.
- RVCA. (2012c). *Nepean Creek Catchment Lower Rideau River Subwatershed Report 2012*.
- RVCA. (2012d). *Barrhaven Creek Catchment Lower Rideau River Subwatershed Report 2012*.
- RVCA. (2014). *Black Rapids Creek 2014 Summary Report*.
- RVCA. (2017). *Pinecrest Creek 2017 Catchment Report*.
- RVCA. (2018). <https://www.rvca.ca/black-rapids-wetland-restoration-project>.
- Toronto and Region Conservation Authority (TRCA). (2014). *Evaluation, Classification and Management of Headwater Drainage Features Guidelines*. 27p.
- TRCA. (2016). *Low Impact Development Stormwater Management Practice Inspection and Maintenance Guide*.
- Transport Canada. (2000). *Standards Respecting Pipeline Crossings Under Railways*.
- University of Regina. (2018). *Ontario Climate Change Data Portal*. Retrieved from <http://www.ontarioccdp.ca/>
- World Meteorological Organization. (2013). *WMO statement on the status of the global climate in 2013*.
- Wotton, B. F. (2017). *Potential climate change impacts on fire intensity and key wildfire suppression thresholds in Canada*. *Environmental Research Letters* 12(9).
- Zhai, Y. G. (2018). *Future projections of temperature changes in Ottawa, Canada through stepwise clustered downscaling of multiple GCMs under RCPs*. *Climate Dynamics*.

### **Previously Completed Reports**

- Delcan Corporation. September 2003. *Woodroffe Avenue and Fallowfield Road Grade Separations - Preliminary Design Report*. SO1046SOA00.
- EcoTec Environmental Consultants. 2003. *Fisheries and Aquatic Habitat Assessment Report Woodroffe Avenue: Black Rapids Creek and Tributary*.
- Golder Associates Ltd. 2019. *Wetland Evaluation and Preliminary Findings - Areas East of Bank Street*.
- IBI Group. 2016. *Chapman Mills Drive Extension & BRT Corridor Environmental Assessment Study*.
- McCormick Rankin. 1997a. *Southwest Transitway Extension Baseline Station to Strandherd Drive. Environmental Assessment Report Volumes 1 to 3*.
- McCormick Rankin. 1997b. *Fallowfield Road Environmental Study Report*.

McCormick Rankin. 2004. *Merivale Road, Fallowfield Road Class EA Environmental Study Report*

Parsons Inc. 2016. *Confederation Line West LRT Extension*.

Parsons Inc. 2017. *Barrhaven and Merivale Road Rail-Grade Separation Study* (BMRRGS).

TSH. 2004. *Southwest Transitway Extension and Woodroffe Widening Federal Environmental Assessment*.

TSH. 2006. *Southwest Transitway Extension (Strandherd Drive To Cambrian Road) Environmental Assessment Study Recommendations, And Greenbank Road Widening (Malvern Drive To Cambrian Road) Class Environmental Assessment Study*.

Transportation Safety Board of Canada (TSB). 2013. *Recommendation R15-05 provided in its Railway Investigation Report R13T0192*.

### **Laws, Regulations etc.**

Government of Canada. *Impact Assessment Act*. (S.C. 2019, c. 28, s. 1). <https://laws.justice.gc.ca/eng/acts/i-2.75/index.html>

Government of Canada. *National Capital Act* (R.S.C., 1985, c. N-4). <https://laws-lois.justice.gc.ca/eng/acts/n-4/>

Government of Canada. *Ottawa Macdonald-Cartier International Airport Zoning Regulations*. SOR/2009-231: under *Aeronautics Act*. <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2009-231/FullText.html>

Government of Ontario. *Clean Water Act*, 2006, S.O. 2006, c. 22. <https://www.ontario.ca/laws/statute/06c22>

Government of Ontario. *Conservation Authorities Act*, R.S.O. 1990, c. C.27. <https://www.ontario.ca/laws/statute/90c27>

Government of Ontario. *Endangered Species Act*, 2007, S.O. 2007, c. 6. <https://www.ontario.ca/laws/statute/07e06>

Species at Risk in Ontario List. O. Reg. 230/08: under *Endangered Species Act*, 2007, S.O. 2007, c 6.

<https://www.ontario.ca/laws/regulation/080230>

Government of Ontario. *Environmental Assessment Act*, R.S.O. 1990, c. E.18. <https://www.ontario.ca/laws/statute/90e18>

Transit Projects And Metrolinx Undertakings O. Reg. 231/08: under *Environmental Assessment Act*, R.S.O. 1990, c. E.18 <https://www.ontario.ca/laws/regulation/080231>

Government of Ontario. *Environmental Compliance Approval*. <https://www.ontario.ca/page/environmental-compliance-approval>

Government of Ontario. *Ontario Heritage Act*, R.S.O. 1990, c. O.18. <https://www.ontario.ca/laws/statute/90o18>

Government of Ontario. *On-Site And Excess Soil Management*. O. Reg. 406/19 <https://www.ontario.ca/laws/regulation/r19406>

Government of Ontario. *Permit to Take Water*. <https://www.ontario.ca/page/permits-take-water>

Government of Ontario. *Public Lands Act*, R.S.O. 1990, c. P.43. <https://www.ontario.ca/laws/statute/90p43>

Government of Ontario. O. Reg. 419/05: *Air Pollution – Local Air Quality*. under *Environmental Protection Act*, R.S.O. 1990, c. E19 <https://www.ontario.ca/laws/regulation/050419>

### **City of Ottawa Documents**

City of Ottawa, *Noise By-Law No. 2004-253*

City of Ottawa, *Road Activity By-law 2003-445*

City of Ottawa, *Tree Protection By-law (No. 2020-340)*

City of Ottawa. (2023). *Climate Change Master Plan Progress Report*. 52p.

City of Ottawa. (2023). *New Infrastructure Master Plan: Draft Infrastructure Policies*

City of Ottawa. (2023). *New Transportation Master Plan Part 1*.

City of Ottawa. (2022). *New Official Plan*.

City of Ottawa. (2020). *Climate Change Master Plan*. 35p. Status Updates 2021 was also reviewed.

Ottawa Public Health. (2020). Retrieved from Health and the Built Environment:

<https://www.ottawapublichealth.ca/en/public-health-topics/health-and-the-built-environment-.aspx#How-does-the-built-environment-impact-health->

City of Ottawa. (2021). *Protected Intersection Design Guide*.

City of Ottawa. (2019). *Climate Change Master Plan*.

Ottawa Public Health. (2019). *Strategic Plan*.

City of Ottawa. (2018). *Ottawa City Council – June 27, 2018 (escribemeetings.com) Motion No. 72/8*. Retrieved from:

<https://pub-ottawa.escribemeetings.com/Meeting.aspx?Id=c95e48f2-3750-07a3-143c-bcab6bd4062e&Agenda=PostMinutes&lang=English>

City of Ottawa. (2018). *Transportation Committee - October 03, 2018 (escribemeetings.com) Motion No. 35/1*. Retrieved

from: <https://pub-ottawa.escribemeetings.com/Meeting.aspx?Id=a3885ba2-9038-90c9-a669-86a184211968&Agenda=PostMinutes&lang=English#376954>

City of Ottawa. (2016). *Environmental Noise Control Guidelines*.

City of Ottawa. (2016). *Right-of-Way Lighting Policy*.

City of Ottawa. (2014). *Air Quality and Climate Change Management Plan*.

City of Ottawa. (2015). *Complete Streets Framework*.

City of Ottawa. (2015). *Accessibility Design Standards*.

City of Ottawa. (2015). *Protocol for Wildlife Protection during Construction*.

City of Ottawa. (2013). *Infrastructure Master Plan*.

City of Ottawa. (2013). *Official Plan, consolidated*.

City of Ottawa. (2013). *Transportation Master Plan*.

City of Ottawa. (2007). *Urban Natural Features Strategy*. Retrieved from

<https://app06.ottawa.ca/calendar/ottawa/citycouncil/ec/2007/04-24/ACS2007-PTE-POL-0002%20ENGLISH.htm>

City of Ottawa. (2010). *Design Guidelines – Water Distribution*.