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Conroy Road and Davidson Road Traffic Control Device Environmental Study Report

Prepared for: City of Ottawa
CP000842

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Environmental Study Report
City of Ottawa
Conroy Road and Davidson Road
Traffic Control Device

Prepared By:

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October 24, 2025

Novatech File: 124143
Ref: R-2025-100

October 24, 2025

City of Ottawa
Infrastructure Services Department
Planning, Infrastructure and Economic Development
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Attention: Mr. Kyle Carson, P.Eng.

**Reference: CP000842 – Conroy and Davidson Traffic Control Device
Environmental Study Report
Our File No.: 124143**

We are pleased to submit the following Environmental Study Report related to improvements at the existing off-set tee intersections of Conroy Road and Davidson Road for your review. If you have any questions or comments regarding this report, please feel free to contact Nathan Quinn, or the undersigned.

Yours truly,

NOVATECH



Samantha Langford, P.Eng.
Project Manager | Public Sector Engineering

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List of Acronyms

ANSI	Areas of Natural and Scientific Interest
CCMP	Climate Change Master Plan
CO	Carbon Monoxide
CRZ	Critical Root Zone
dBA	decibel units
DBH	Diameter at Breast Height
Dillon	Dillon Consulting Ltd.
DFO	Department of Fisheries
EA	Environmental Assessment
EASR	Environmental Activity and Sector Registry
EEE	Environmental Effects Evaluation Form
ECCC	Environment and Climate Change Canada
EP	Environmental Protection
ESA	Endangered Species Act
ESR	Environmental Study Report
FDS	Functional Design Study
FLUDTA	Federal Land Use, Design and Transaction Approval
FMI	Fatal and Major Injury
Gemtec	GEMTEC Consulting Engineers and Scientists
GHG	Greenhouse gas
GMP	Greenbelt Master Plan
HC	Hydrocarbons
LOS	Level of Service
MBCA	Migratory Bird Convention Act
MBR	Migratory Birds Regulation
MCEA	Municipal Class Environmental Assessment
MECP	Ministry of the Environment, Conservation, and Parks
MCM	Ministry of Citizenship and Multiculturalism
MMF	Mitigation Measures Form
MNRF	Ministry of Natural Resources and Forestry
MTO	Ministry of Transportation Ontario
MUP	Multi-Use Pathway
NCC	National Capital Commission

NCR	National Capital Region
NOx	Oxides of Nitrogen
OP	Official Plan
OWES	Ontario Wetland Evaluation System
OWRA	Ontario Water Resources
Past Recovery	Past Recovery Archaeological Services Inc.
PIDG	Protected Intersection Design Guide
PIS	Public Information Session
PM	Particulate Matter
PSW	Provincially Significant Wetlands
PXO	Pedestrian Cross-over
ROW	Right-of-way
RSAP	Road Safety Action Plan
SAR	Species at Risk
SARA	Species at Risk Act
SGMD	Smith-Gooding Municipal Drain
SNCA	South Nation Conservation Authority
TAC	Transportation Association of Canada
TMP	Transportation Master Plan
UCC	Utility Coordinating Committee
VOC	Volatile organic compounds

1.0 INTRODUCTION

The City of Ottawa has completed an Environmental Assessment (EA) to study the proposed realignment of Davidson Road east of Conroy Road creating a single point intersection in accordance with the Municipal Class Environmental Assessment (MCEA) Schedule C process. This EA examines a range of alternatives, identifying both construction and operational impacts on all aspects of the environment, and brings forward a recommended plan detailing mitigation measures, costs and identification of the approvals required to proceed with its implementation. This Environmental Study Report (ESR) documents the study activities and results.

1.1 Project Context

The City of Ottawa initiated a Functional Design Study (FDS) in 2019, completed by Dillon Consulting Ltd. (Dillon), to review transportation demands and recommend intersection modifications for the existing off-set tee intersections of Conroy Road and Davidson Road. The existing off-set tee intersections carry significant peak period traffic volumes, particularly along Conroy Road which has free flow. The high traffic volumes have resulted in development of significant queues along both Davidson Road approaches, as well as observed collision patterns.

The Conroy Road and Davidson Road project was approved under the 2023 New Traffic Control Devices budget by the Transportation Committee (February 1, 2023). Novatech was retained by the City of Ottawa during the summer of 2024 to complete the MCEA Schedule C Process, Preliminary/Detail Design Phases, Contract Drawings, Tender Document Preparation, and Construction Administration.

The project limits identified throughout this ESR encompass the existing offset tee intersections of Conroy Road and Davidson Road, as well as the lands adjacent to Conroy Road approximately 300m north to 300m south of Davidson Road, and Davidson Road approximately 400m east to 400m west of Conroy Road. Figure 2 captures the study area and project streets.

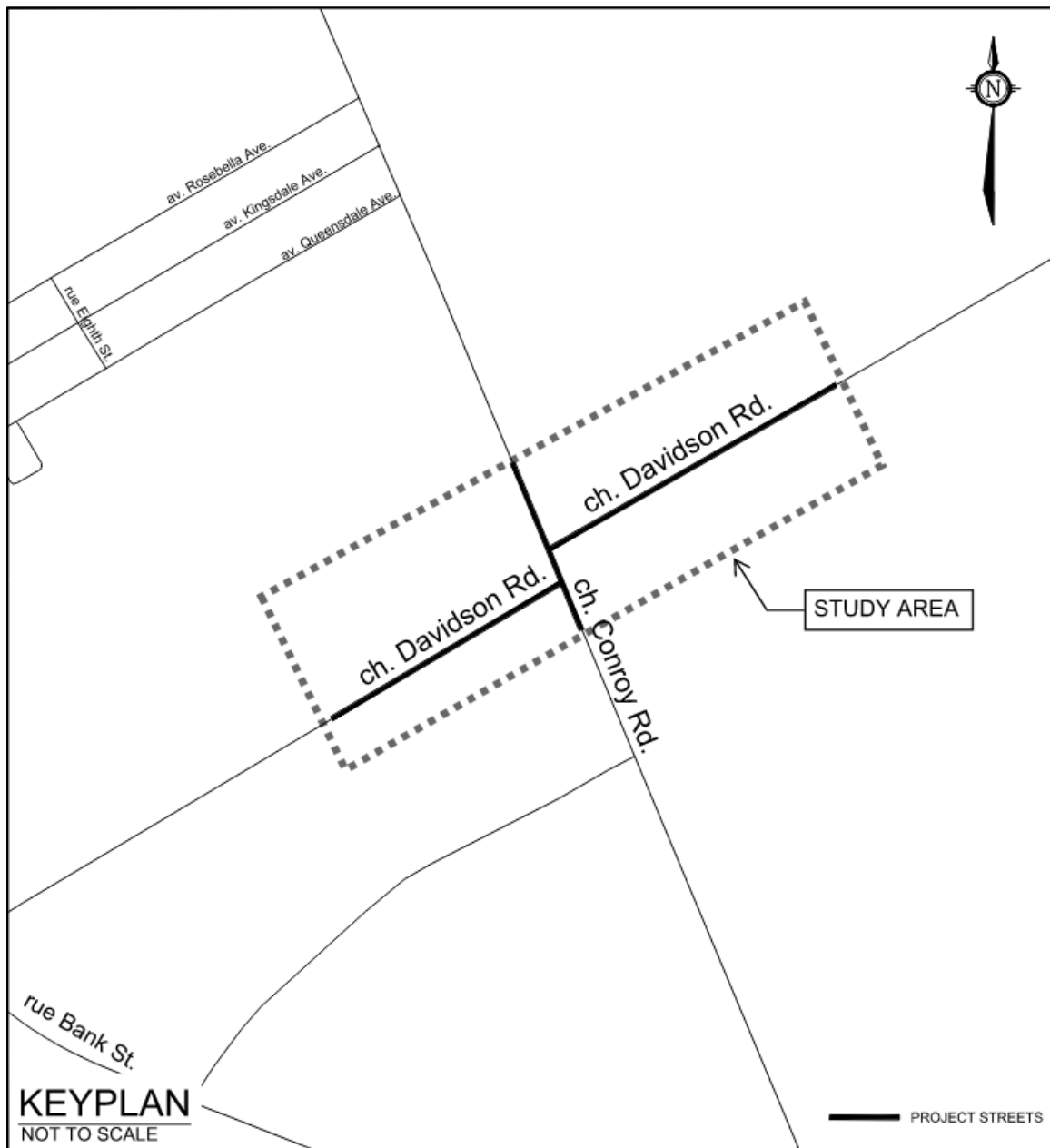


Figure 1: Study Area

1.2 Environmental Study Process

This study has been carried out following the requirements of a Schedule C project under the MCEA (February 2024) document. The MCEA process consists of five phases, outlined below and on Figure 2:

Phase 1: Problem or Opportunity

- Review existing and future traffic, road and servicing conditions
- Identify problems and opportunities

Phase 2: Alternative Solutions

- Identify Alternative Solutions
- Develop and refine evaluation criteria
- Assess and evaluate Alternative Solutions
- Finalize Selection of Alternative Solution

Phase 3: Alternative Designs

- Identify Alternative Designs
- Review evaluation criteria
- Assess and evaluate Alternative Designs
- Present Alternative Designs at Public Information Session (PIS) #1
- Summarize and consider input received at PIS #1
- Identify the Recommended Plan
- Optimize functional design including staging and utilities

Phase 4: Environmental Study Report

- Prepare ESR
- Prepare Study Completion Notice
- Provide ESR for public and agency review

Phase 5: Implementation

- Complete preliminary/detailed designs, contract drawings, and tender documents

The study is structured so that each phase builds on the previous one and provides greater clarity and support regarding the goals of the project. It is important to note that Phases 1 and 2 were completed as part of the FDS. However, the terms of reference of this study include a re-confirmation of the preferred solution for realignment of Davidson Road.

EXHIBIT A.2. MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the MCEA

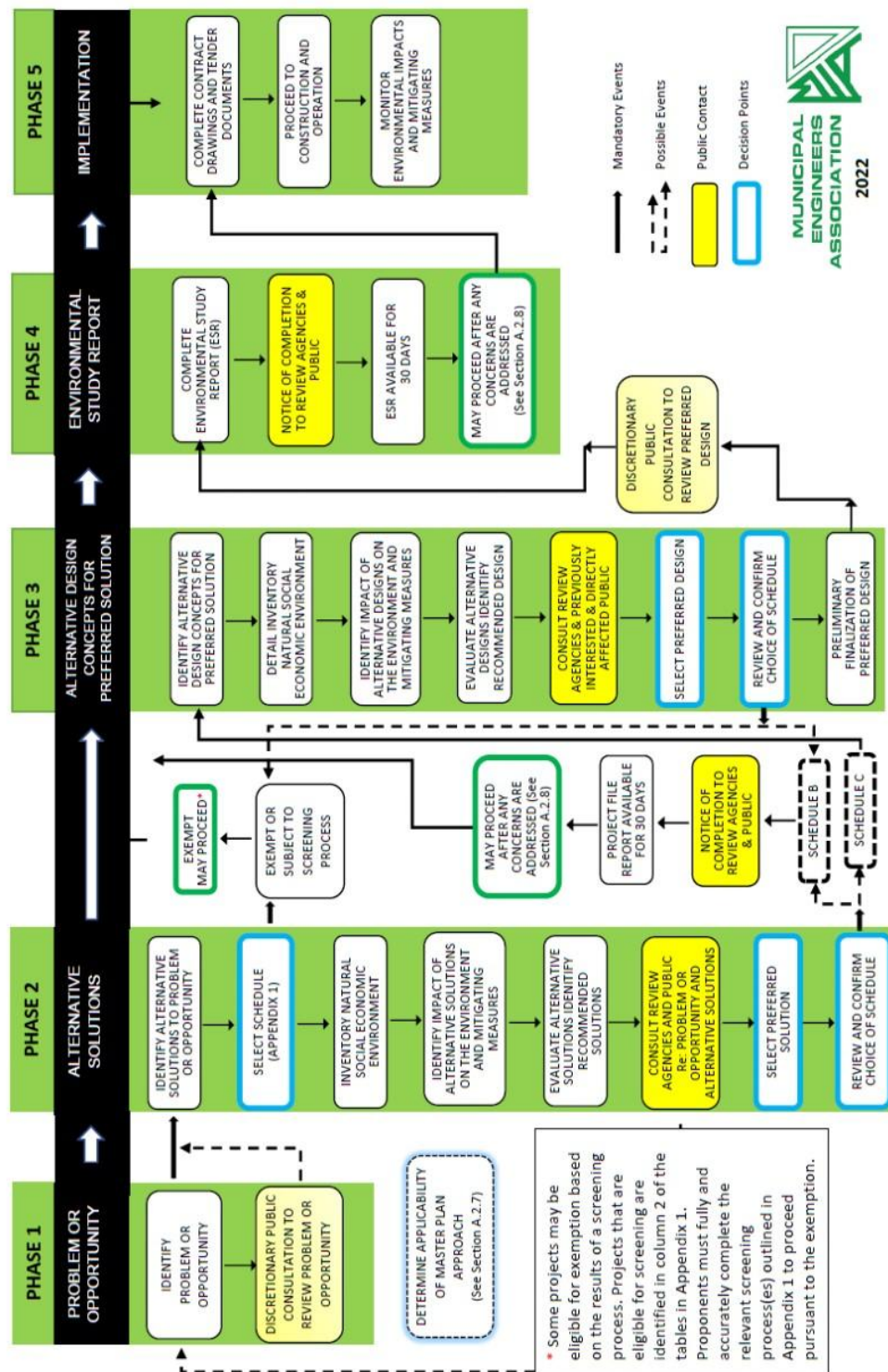


Figure 2: MCEA Planning and Design Process

1.3 Project Team

The Study Team, which included staff members from the City of Ottawa and Novatech, was responsible for the day-to-day study activities and the recommended plan. Dillon completed the FDS including traffic engineering, natural sciences investigations, and functional road designs. Novatech has led the EA completing updates to the FDS and public consultation, supported by the following sub-consultants:

- GEMTEC Consulting Engineers and Scientists (Gemtec) – Species at Risk (SAR) Screening, natural sciences validation, and geotechnical and hydrogeology
- Past Recovery Archaeological Services Inc. (Past Recovery) – Stage 1 Archaeological Assessment, and cultural heritage

Novatech's EA Study commenced in September 2024 following confirmation from the Ministry of the Environment, Conservation, and Parks (MECP) regarding MCEA Schedule C Requirements.

1.4 Consultation

Public Consultation is an integral part of the EA process. Consultation and the exchange of information was undertaken throughout this assessment using a variety of methods including meetings with the general public and major project stakeholders, internet postings, newspaper advertisements, and mail outs. This section of the report provides an overview of the consultation processes, while more detailed accounts of the consultation activities are described throughout this report.

1.4.1 Public Information Session #1

The first PIS was held during the Phase 3 Design Alternatives Evaluation stage of the project to obtain feedback from the public on the work completed to date, the work planned, and potential design configurations. The PIS was held virtually, with the City of Ottawa and Novatech presenting project materials and providing a Question-and-Answer period. Bi-lingual material from the PIS was made available on the City website, with a two-week comment period.

1.4.2 Major Project Stakeholders

The National Capital Commission (NCC) owns the land surrounding the Conroy Road and Davidson Road rights-of-way (ROW). As such, coordination has occurred with the NCC regarding the project since initiation. One workshop was held during the Phase 3 Design Alternatives Evaluation stage of the project with the NCC to present the FDS materials, additional investigations that have occurred, and review the criteria and weighting for the Alternative Design Evaluation Matrix. Project material was shared with NCC representatives following the workshop and they were provided with a two-week comment period.

1.4.3 Project Website

The City of Ottawa developed and maintained a project website with information about the proposed project (<http://www.Ottawa.ca/conroydavidson>). The information prepared for the PIS was posted on project web site, formatted in a manner that fulfilled accessibility requirements related to graphics and other printed materials.

1.4.4 Indigenous Consultation

Consultation with Indigenous Communities was achieved by reaching out to groups identified by the MECP and NCC, sharing project documentation including Public Consultation Materials and the Stage 1 Archaeological Assessment. Representatives from Indigenous Communities were invited to monitor the Stage 2 Archaeological Assessment field investigations. As of the finalization of this ESR, no Indigenous Community interests have been received.

2.0 PROBLEM STATEMENT

2.1 Project Need

The Transportation Master Plan (TMP) outlines principals and objectives for City of Ottawa transportation infrastructure. Similarly, the Road Safety Action Plan (RSAP) identifies locations to be considered for improvement across the City to work towards achieving Vision Zero Policy.

The FDS completed by Dillon between 2019 and March 2023 confirmed the need for modifications to the existing off-set tee intersections of Conroy Road and Davidson Road from a traffic operations perspective. This was further supported by completion of traffic signal warrant reviews using existing traffic volume counts available at that time (2018). Based on the traffic signal warrants, both tee intersections met justification requirements for traffic signals. When traffic signal warrants are met, its standard practice that both traffic signals and roundabouts be considered as the traffic control device type.

2.2 Existing Transportation Conditions

2.2.1 Road Network

The off-set tee intersections of Conroy Road and Davidson Road are located approximately 2.1km south of Hunt Club Road and approximately 1.4km north of Bank Street. The east and west legs of Davidson Road are offset by approximately 55 metres in the north-south direction. Davidson Road is stop controlled in the eastbound and westbound directions; northbound and southbound traffic on Conroy Road flows freely through the intersection.

Conroy Road is a two-lane arterial roadway running north-south, there are no turn lanes provided at either of the Davidson Road intersections. A rural cross section is present with ditches on both sides of the roadway for drainage and run-off. The posted speed limit within the study area is 70 km/h. The existing ROW is approximately 30 metres wide at Davidson Road. ROW protection requirements vary for this section of Conroy Road due to its location wholly within the Greenbelt. As per Schedule C16 of the City's Official Plan (OP), *"...right-of-way requirements vary depending on: the number and width of travel lanes; the treatment of curbs, medians, and road drainage; and other amenities to be provided in the corridor. On this basis, the right-of-way to be acquired by the City and the means to acquire the land will be determined with involvement of the NCC on a case-by-case basis when road modifications are being planned"*. Outside of the Greenbelt, ROW protection for Conroy Road is 46.0m.

Davidson Road is a two-lane roadway running between Bank Street in the west and Hawthorne Road in the east, it has a rural cross-section with ditches on both sides of the roadway for drainage and run-off. West of Conroy Road, Davidson Road is classified as a collector road while east of Conroy Road, Davidson Road is a local roadway. The posted speed limit is 80 km/h. Davidson Road is stop controlled at Conroy Road and there are no turn lanes provided. Near the Conroy Road intersection, the Davidson Road ROW width is approximately 20 metres. As per the City's OP Schedule C16, a 26.0m ROW should be protected along Davidson Road however due to its location within the Greenbelt, ROW requirements may vary.

2.2.2 Pedestrian and Cycling Networks

At the time of the FDS, the 2013 TMP designated Conroy Road and Davidson Road west of Conroy Road as Spine Cycling Routes. However, there are no Active Transportation Projects identified for Conroy Road or Davidson Road as part of the 2024 draft TMP and no formal cycling facilities are present within the road ROWs in the study area.

Paved shoulders are present along Conroy Road within the project limits. Narrow paved shoulders are available on Davidson Road west of Conroy Road, and narrow gravel shoulders are available on Davidson Road east of Conroy Road.

There are several active transportation trails through the Greenbelt surrounding the study area with informal connections to both Conroy Road and Davidson Road within the study area. The Pine Grove Trail head is located on Davidson Road approximately 1.5 km east of Conroy Road.

2.2.3 Transit

At the time of the FDS, OC Transpo bus route #93 operated along Conroy Road and through the subject intersection. From OC Transpo's New Ways to Bus route map, which became active April 27, 2025, there are no transit routes through the subject intersection. It is noted that during a site visit completed on May 6, 2025, bus stop #6949 was located on the west side of Conroy Road south of Davidson Road, indicating its use was "School Routes Only".

2.2.4 Access

There is one commercial driveway (Geosynthetic Systems, 3543 Conroy Road) with all way access to Conroy Road south of Davidson Road, and two residential driveways with all way access to Davidson Road both east (3359 Davidson Road) and west (3302 Davidson Road) of Conroy Road.

2.2.5 Collision History

Historical collision data from the last five years available was obtained from the City's Public Works and Service Department for the study intersection. The number of collisions from January 1, 2018 to December 31, 2022 are summarized in Table 1. Copies of the collision summary reports are included in **Appendix A**.

Table 1: Reported Collisions

Intersection	Impact Type				Total
	Angle	Rear End	Turn Mvmt	SMV / Other ¹	
Conroy Rd / Davidson Rd N	5	4	1	1	11
Conroy Rd / Davidson Rd S	9	3	-	1	13

1. SMV = Single Motor Vehicle

Conroy Rd / Davidson Rd N

A total of 11 collisions were reported at this intersection over five years, of which there were five angle impacts, four rear-end impacts, one turning movement, and one single vehicle/other impacts. Two collisions resulted in injuries, but none caused fatalities. None of the collisions involved cyclists or pedestrians.

Of the 11 collisions at this intersection, two occurred during rain conditions, two occurred during snow conditions, and one occurred during freezing rain conditions. For all other collisions, weather was not a factor. Additionally, of the 11 collisions, four of them occurred during daylight hours. Nine of the 11 collisions (92%) occurred in poor driving conditions.

Of the five angle collisions,

- Three involved northbound vehicles turning right and westbound vehicles (either stopped or going ahead),
- One involved a westbound vehicle turning left and a southbound vehicle going ahead, and
- One involved an eastbound vehicle going ahead and a northbound vehicle going ahead.

Of the two rear-end collisions, they both involved eastbound vehicles going ahead.

The single turning movement collision involved two southbound vehicles, with one completing a U-turn movement.

The SMV/other collision occurred during non-daylight hours, with an eastbound vehicle being run off the road.

No approach has more than six collisions reported in five years, and therefore no collision patterns are identified.

Conroy Rd / Davidson Rd S

A total of 13 collisions were reported at this intersection over five years, of which there were nine angle impacts, three rear-end impacts, and one single vehicle/other impacts. Three collisions resulted in injuries, but none caused fatalities. None of the collisions involved cyclists or pedestrians.

Of the 13 collisions at this intersection, two occurred during rain conditions, one occurred during snow conditions, and one occurred during freezing rain conditions. For all other collisions, weather was not a factor. Additionally, of the 11 collisions, eight of them occurred during daylight hours. Seven of the 13 collisions (54%) occurred in poor driving conditions.

Of the nine angle collisions,

- Four involved eastbound vehicles turning left and southbound vehicles going ahead,
- Two involved eastbound vehicles turning left and northbound vehicles going ahead,
- One involved an eastbound vehicle slowing or stopping and a southbound vehicle going ahead,
- One involved an eastbound vehicle slowing or stopping and a northbound vehicle going ahead, and
- One involved an eastbound vehicle going ahead and a southbound vehicle going ahead.

Of the rear-end collisions, two involved eastbound vehicles going ahead, and one involved a southbound vehicle turning right.

The SMV/other collision occurred during non-daylight hours, with an eastbound vehicle being run off the road by another eastbound vehicle.

The Davidson Road approach had seven angle collisions with eastbound vehicles completing a left turn or through movement, being impacted by northbound or southbound vehicles on Conroy Road going ahead. This is considered a collision pattern.

2.2.6 Traffic Operations

Traffic Analysis was completed as part of the FDS using traffic count data from May 24, 2018 to develop 2025 future traffic projections based on area growth. A copy of the Traffic Review Report is included in **Appendix B**.

New traffic count data was collected by the City of Ottawa at the subject intersections on March 7, 2023 and is included in **Appendix C**.

For comparison purposes, Novatech has taken the March 7, 2023 traffic count data and applied a 3.5% growth rate and realignment percentages (consistent with the FDS Traffic Analysis) to develop projected 2025 traffic volumes. Figure 3 and Figure 4 below depict the 2025 traffic volume projections based on 2018 and 2023 traffic count data, respectively.

Comparing the two 2025 traffic projection figures, the FDS volumes appear to be slightly more conservative, as such the previously completely traffic analysis was not recreated.

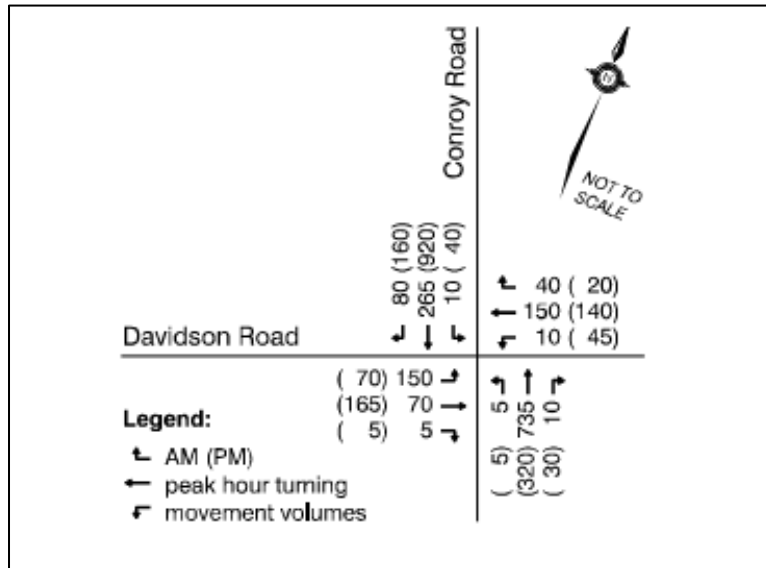


Figure 3: 2025 Traffic Volumes from 2018 Traffic Count (FDS)

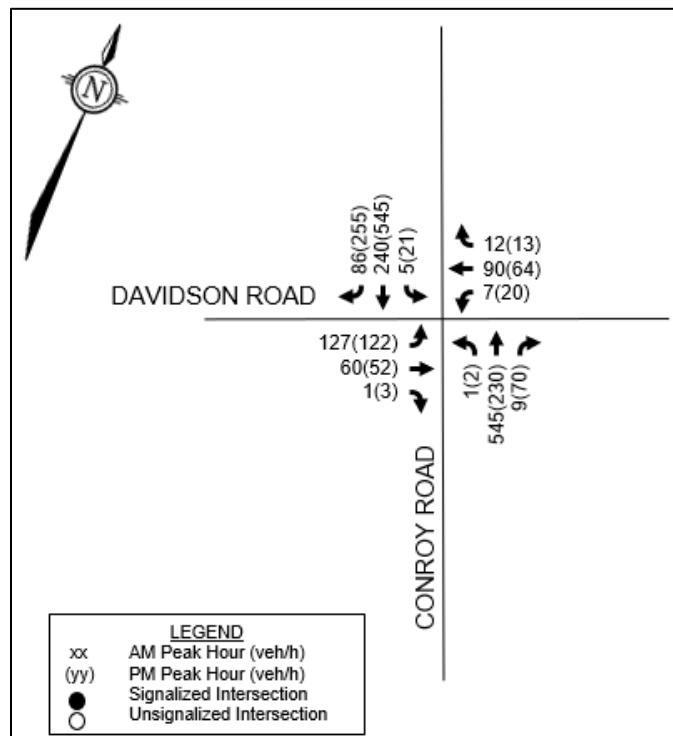


Figure 4: 2025 Traffic Volumes from 2023 Traffic Count Data

From the FDS Traffic Review Report, it was determined that if the intersection is realigned to form a single point intersection, a traditional traffic control signalized intersection or a single lane roundabout with a separate southbound right turn lane are forecast to provide adequate traffic operations in the 2025 design horizon year.

2.2.7 Traffic Composition

Conroy Road is identified as a truck route, with adjacent north-south truck routes available on Bank Street to the west and Hawthorne Road to the east. West of Bank Street, Davidson Road is also identified as a truck route.

Heavy vehicles made up approximately 6% and 5% of the 2018 and 2023 traffic volumes, respectively. Large vehicles accessing Geosynthetic Systems will have been captured as part of the traffic count data.

Agricultural businesses within a 3km radius of the subject intersection that may traverse large vehicles and equipment along Conroy Road or Davidson Road include:

- Existing farmlands at 3799 Hawthorne Road, located south of Davidson Road with several agricultural fields along Hawthorne Road.
- Kiwan Farms at 3485 Hawthorne Road, located south of Hunt Club with several agricultural fields along Hawthorne Road.

2.3 Transportation Policies and Guidelines

2.3.1 Transportation Master Plan

The 2013 TMP includes integrating the concept of complete streets, updating modal share targets, advancing strategies to improve walking and cycling, and supporting transit-oriented development as part of its key strategies which support the City's OP. At the time of the FDS, the following key principles from the 2013 TMP supported proposed modifications at the existing off-set tee intersection of Conroy Road and Davidson Road:

- Meet mobility needs through improvements to existing intersection levels of service (LOS);
- Protect public health and safety through the prioritization of road safety during planning and design; and
- Cooperate with other governments, such as the NCC, to align plans and develop balanced solutions.

The City of Ottawa has recently updated the TMP and the following objectives from the 2024 TMP Capital Infrastructure Plan support the implementation of this project:

- Encourage the use of transit and active modes to reduce pressure on roads, mitigate greenhouse gas emissions, and use space efficiently;
- Pursue road capacity projects that provide access to development and address congestion bottlenecks; and
- Invest in complete streets to support growth and intensification.

The 2024 draft TMP identifies the following projects planned as part of the Road Network Developments in the vicinity of the Conroy Road and Davidson Road intersection:

- Bank Street Widening – Leirtrim Road to Blais Road ("business-as-planned"),
- Bank Street Widening – Blais Road to Earl Armstrong Extension (Needs Based),
- Earl Armstrong Extension – Bowesville Station to Bank Street (Needs Based), and
- Leirtrim Road realignment / widening – Limebank Road to Bank Street (Needs Based).

In addition, Transit Priority Measures on Conroy Road from Rosabella Avenue and Bank Street are identified on the Needs-Based Transit Network Development projects.

2.3.2 Road Safety Action Plan

Ottawa's Strategic Road Safety Action Plan 2020-2024 (SRSAP) was developed to reduce the average rate of fatal and major injury (FMI) collisions by 20%. The yearly SRSAP Implementation Plans continue to be delivered beyond 2025, while the next iteration of the plan is developed and approved. The existing offset t-intersections of Conroy Road and Davidson Road are addressed through two areas of the City's Road Safety Action Implementation Plan:

- Intersection modifications at locations that meet warrants for enhanced traffic control; and
- Implementation of geometric modifications to reduce FMI collisions in rural areas.

2.3.3 Greenbelt Master Plan

The 2013 Greenbelt Master Plan (GMP) was developed and is used by NCC to help coordinate policy and development of documents to guide the planning and use of federal lands in the Capital Region. In the GMP the project limits are within the Pine Grove Sector, see Figure 5 for map. The area surrounding the Conroy Road and Davidson Road intersections is identified as natural environment or core natural area, with Davidson Road identified as a Scenic Route, and two nearby visitor destinations; Conroy Pit and the Pine Grove Trail, located north and east of the subject intersection, respectively.

An opportunity and challenge in this sector are the pressures resulting from continued growth of the Leirrim urban community south of the Greenbelt which is leading to the demand for more transportation infrastructure. The GMP identifies that enhancements to scenic routes in this sector should be explored.

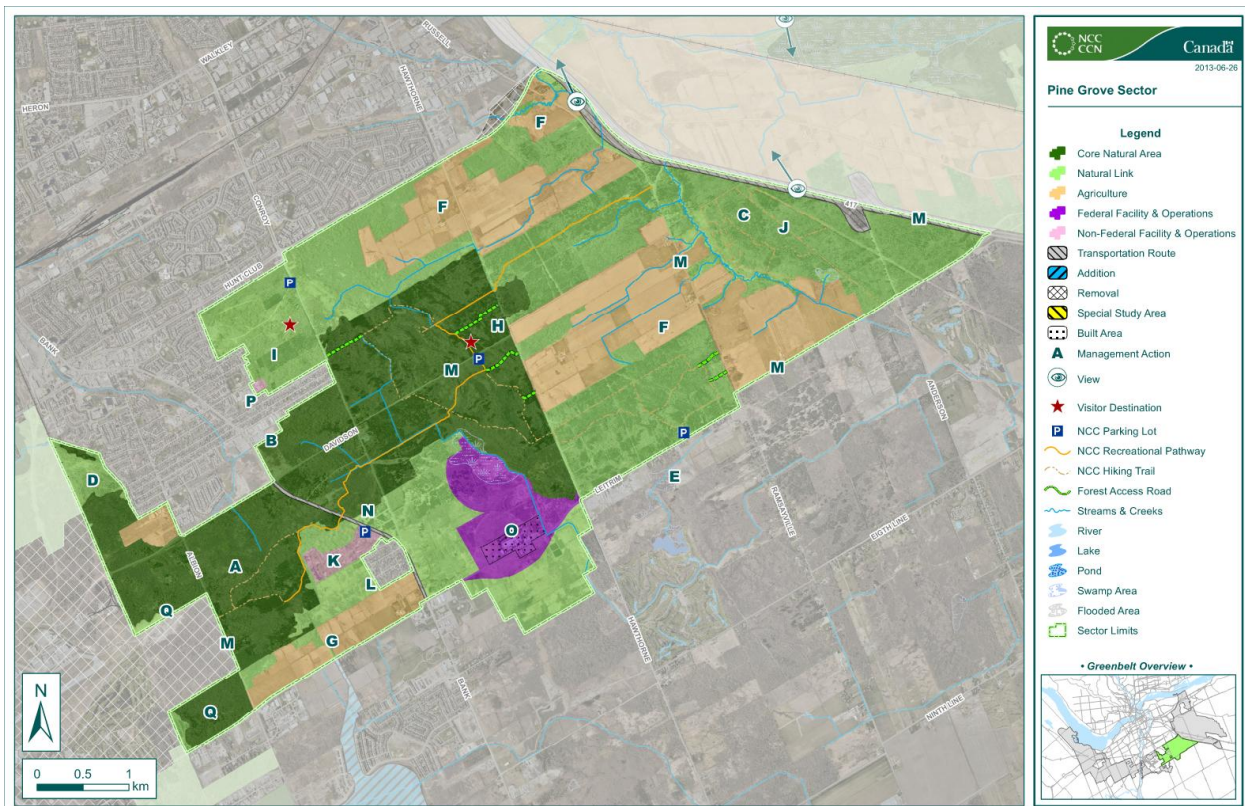


Figure 5: GMP Pine Grove Sector Map

3.0 EXISTING CONDITIONS

3.1 Social Environment

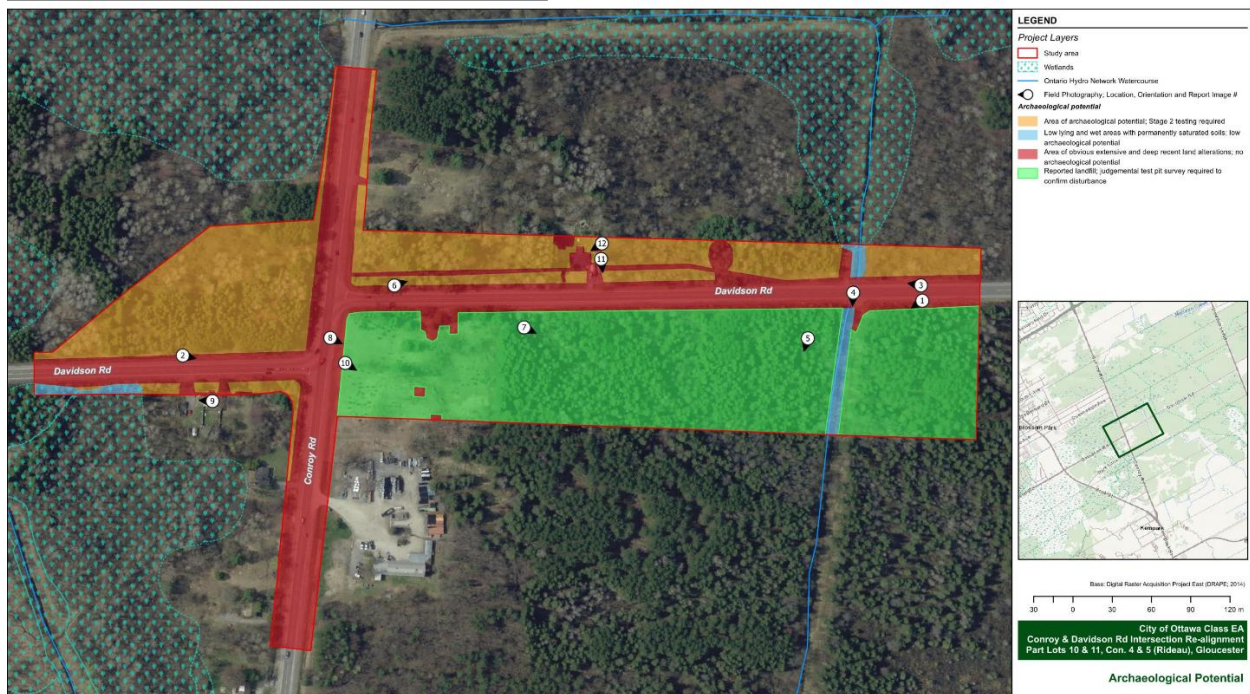
3.1.1 Land Use and Ownership

Majority of the lands in the surrounding area are undeveloped and are zoned as either Environmental Protection (EP) or Rural Countryside zones. Lands immediately adjacent to the intersection are all owned by the NCC. The lands are identified as Greenbelt space by the City OP. Adjacent developed parcels are currently used for residential and light industrial uses. The EP land use designation recognizes lands which are designated in the OP as Significant Wetlands, Natural Environment Areas and Urban Natural Features that contain important environmental resources which must be protected for ecological, educational and recreational reasons. To the east of the intersection is a flood plain area.

3.1.2 Archaeological Potential

A Stage 1 Archaeological Assessment (May 21, 2025) was undertaken by Past Recovery for the study area. A Stage 1 Archaeological Assessment consists of a review of geographic, land use and historical information for the property and the relevant surrounding area and contacting the Ministry of Citizenship and Multiculturalism (MCM) to find out whether, or not, there are any known archaeological sites on or near the property. Its purpose is to identify areas of archaeological potential and further archaeological assessment (e.g., Stage 2-4) as necessary.

A Stage 1 Archaeological Assessment (**Appendix D**) was completed and determined that portions of the study area do exhibit archaeological potential, see Figure 6. A Stage 2 Archaeological Assessment and any further recommended assessment (e.g., Stage 3 and 4) will be completed as early as possible in the preliminary design phase and prior to any ground disturbing activities.



Map 7. Recent (2022) orthographic imagery showing the results of the Stage 1 archaeological potential evaluation, as well as field photograph locations, directions and image numbers.

Figure 6: Stage 1 Archaeological Assessment Potential Map

3.1.3 Cultural Heritage Resources

The recognition or designation of cultural heritage resources (referring to built heritage features and cultural heritage landscapes) may provide valuable insight into aspects of local heritage, whether identified at the local, provincial, national, or international level. No previously identified cultural heritage resources were found within a one-kilometre radius from the study area.

3.1.4 Climate Change

The City of Ottawa Climate Change Master Plan (CCMP) sets guiding principles, greenhouse gas (GHG) emission targets and short-term priority actions. The Conroy and Davidson project falls under Priority #4 of the CCMP, which is to “Apply a climate lens to asset management and capital projects”.

Subsequently, the City in partnership with the NCC developed Climate Change Projections for the National Capital Region (2020) which identifies key climate change effects for the NCR to 2100. There is a wide range of potential impacts, such as repercussions for public health and safety, higher risks of flooding, and shorter life expectancy for roads and other infrastructure.

3.1.5 Noise and Air Quality

While a noise and air quality study were not completed as part of this MCEA, it's anticipated that vehicular traffic is the primary source of environmental noise and air-borne pollutants in the study area.

- According to the City of Ottawa's Environmental Noise Control Guidelines (2016), 55 decibel units (dBA) of roadway noise is acceptable in outdoor living areas, with mitigating measures being required as the noise levels exceed 60 dBA.
- Emissions from roadway vehicles include Carbon Monoxide (CO), Hydrocarbons (HC), Oxides of Nitrogen (NOx) and Particulate Matter (PM), among other volatile organic compounds (VOC), which contribute to ambient air quality levels.

3.2 Natural Environment

Dillon conducted detailed field work and a screening for SAR listed as Endangered or Threatened under the federal Species at Risk Act (SARA); as well as other natural environment constraints as part of the FDS. Fieldwork was conducted between September 2019 and June 2020. Surveys completed followed protocols endorsed by either Environment and Climate Change Canada (ECCC) or the MECP.

A copy of the Natural Heritage Memo (September 28, 2020) included in **Appendix E**. It is noted that the valid shelf life of the Natural Heritage Memo is 5 years.

3.2.1 Physical Environment

Areas of Natural and Scientific Interest (ANSI) are designated by the Ministry of Natural Resources and Forestry (MNRF) based on the presence of unique natural landscapes or existing features that meet specific criteria as having life or earth science values related to protection, scientific study or education. Provincially Significant Wetlands (PSW) are wetland areas that receive special protection by the province based on calculated value as determined by the scientifically based Ontario Wetland Evaluation System (OWES).

A review of the Land Information Ontario geographic database indicates that the Pine Grove Forest life science ANSI and the Lester Road Wetland Complex PSW occur within the study area. In addition, small pockets of unevaluated wetland occur in relation to both these features and wooded areas dominate the landscape. The Lester Road Wetland Complex PSW and the

Pine Grove Forest ANSI occur in the western and eastern portions of the study area, respectively, as shown on Figure 7.

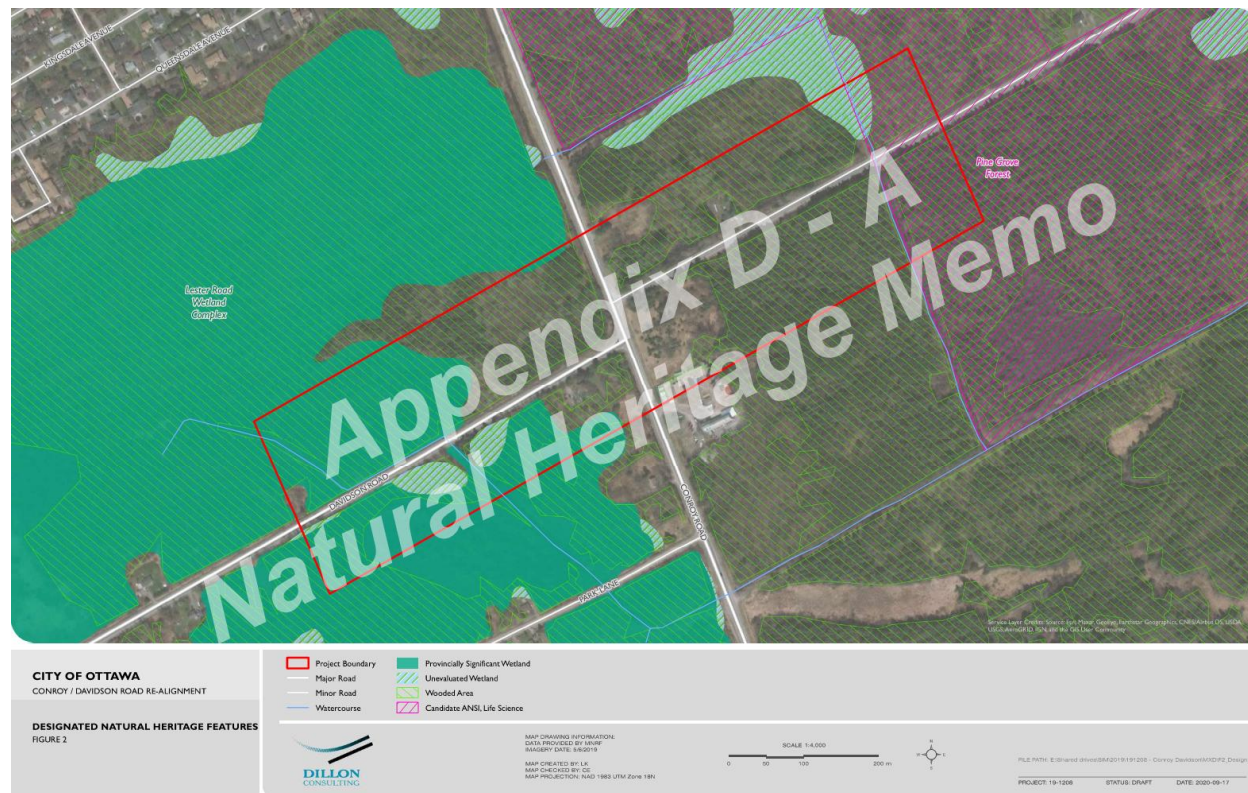


Figure 7: Natural Heritage Features Map

The study area was found to consist of primarily wooded natural communities and a few cultural areas including: deciduous and coniferous wetlands, woodlands, two small isolated low density residential housing areas and one commercial business area. Based on historical aerial imagery, several of the woodlands within the study were approximated to be at least 60 years of age or older and calculated to be 0.8 hectares in size or larger, and would therefore, be considered significant.

Additional details regarding the field investigations can be found in the Natural Heritage Memo included in **Appendix E**.

3.2.2 Species at Risk

The FDS area and adjacent natural environments were considered during Dillon's background review. Numerous plant, wildlife, and fish species may inhabit environments within the study area; which have the potential to contain several SAR. Sixteen potential SAR were identified through background review as having potential presence based on the study area.

Due to the landscape of the surrounding area being primarily natural (i.e., woodlands and wetlands) the study area was determined to likely provide suitable habitat for several SAR. Based on the presence of mature trees, wetlands, meadows and two watercourses, the following species were considered further:

- Bobolink and Eastern Meadowlark
- Butternut
- Blanding's Turtle
- Canada Warbler
- SAR bats
- Western Chorus Frog

Additional discussions related to the above SAR can be found in the Natural Heritage Memo included in **Appendix E**.

3.3 Infrastructure and Utilities

The documents reviewed to inform this section include the City of Ottawa Utility Coordinating Committee drawings (UCC), GeoOttawa web mapping, and the City of Ottawa Water and Wastewater Networks – Interactive Map.

3.3.1 Water Distribution System

There is an existing 400mm dia. ductile iron watermain (1974) along the west side of Conroy Road. This ductile iron main is from a period when cathodic protection was not installed. The design should strive to avoid the need for mainline watermain replacement or relocation.

The City of Ottawa has not scheduled any capital works improvements related to the existing water system in the study area.

3.3.2 Sanitary Sewers

An existing 675mm dia. sanitary sewer is located on the east side of Conroy Road. This sewer serves as the outlet for the Findlay Creek community. Alignment and depth of the existing sanitary sewer should be confirmed as part of the preliminary design work. The design should strive to avoid impacts to the existing sanitary sewer.

The City of Ottawa has not scheduled any capital works improvements related to the existing sanitary sewer in the study area.

3.3.3 Storm Drainage

The Smith-Gooding Municipal Drain (SGMD) crosses all four legs of the intersecting roadways outside of the project limits, generally flowing to the south-east. Ditches are present along both sides of Conroy Road and Davidson Road. Road widening and installation of curbs will impact existing ditch alignments. To limit the amount of property and/or tree removal required to realign the existing ditches, alternative methods for maintaining drainage should be considered (i.e. shallow storm sewers, CBs, and ditch inlets). Existing flow directions in ditches should be maintained where feasible.

The City of Ottawa has not scheduled any capital works improvements related to stormwater management in the study area.

3.3.4 Other Utilities

Several municipal and third-party utilities exist in the corridor. Existing utilities not impacted by recommended roadway modifications will need to be protected during construction. Utility owners may require mitigation measures (e.g. pole support, steel plates, etc.). Opportunity should be provided to utility companies to come forth with upgrades that they may want to complete on their infrastructure.

Overhead Utilities

Hydro Ottawa wood pole lines run along the north side of Davidson Road and the west side of Conroy Road. On Davidson Road, west of Conroy the pole line is within the ROW, whereas east of Conroy Road the pole line is approximately 8.5m north of the ROW in an easement. Anchor poles are located throughout the limits. There is a significant hydro pole location in the north-west quadrant of the south Davidson Road leg intersection with Conroy Road where the system along Davidson Road west connects to the system within Conroy Road.

Separate Bell wood pole lines run along the north side of Davidson Road east of Conroy Road, and the south side of Davidson Road west of Conroy Road.

Underground Telecommunications

Underground Telecom crosses both legs of Davidson Road near Conroy Road, as well as Conroy Road, continuing south on both sides of Conroy Road. An existing telecom pedestal is located on the east side of Conroy Road, opposite the south leg of Davidson Road.

3.3.5 Street Lighting

Existing street lighting is located on the west side of Conroy Road with a combination of stand-alone street light poles and street lighting on existing hydro poles. Street lighting is located on hydro poles along Davidson Road.

4.0 ALTERNATIVE SOLUTIONS

4.1 Design Solutions

Based on the primary objective of the FDS to improve traffic operations at the subject intersection, the following alignment and traffic control device type scenarios were reviewed as potential solutions:

- Design Solution 0: “Do Nothing” baseline;
- Design Solution 1: Northerly Realignment of Davidson Road with each of:
 - a) Traditional traffic signal and auxiliary lanes, or
 - b) Single lane roundabout with southbound right turn bypass.
- Design Solution 2: Centered Realignment of Davidson Road with each of:
 - a) Traditional traffic signal and auxiliary lanes, or
 - b) Single lane roundabout with southbound right turn bypass.
- Design Solution 3: Southerly Realignment of Davidson Road with each of:
 - a) Traditional traffic signal and auxiliary lanes (Preferred Alternative), or
 - b) Single lane roundabout with southbound right turn bypass.
- Design Solution 4: Maintain Davidson Road alignments with either:
 - a) A single oval-shaped roundabout with a southbound right turn bypass, or
 - b) Two roundabouts in series with additional southbound lanes.

From the Traffic Review Report operation analysis (**Appendix B**), installation of a traffic control signal (with auxiliary lanes), a single lane roundabout (with a southbound right turn by-pass), an oval-shaped roundabout, and two roundabouts all functioned acceptably.

4.2 Alternative Solution Evaluation

A formal evaluation of the alternative solutions was completed by Dillon and considered the following for each:

- Natural Environment,
- Socio-Economic Environment,
- Engineering Environment, and
- Cost.





A high-level summary of advantages and disadvantages associated primarily with the realignment component of each alternative solution is provided in Table 2.

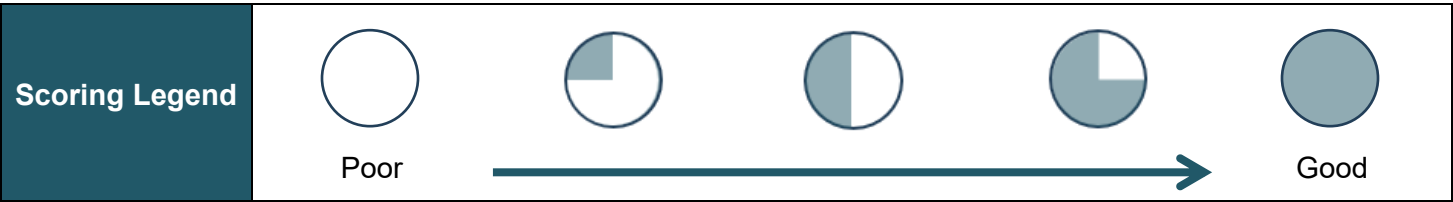
The detailed Alternative Designs Evaluation Matrix, Design Alternative configurations, and associated Class D Cost Estimates completed as part of the FDS are included in **Appendix F**.

4.3 Selection of the Preferred Solution

Based on the Table 2 summary and the Alternative Designs Evaluation Matrix completed with the FDS, the southerly realignment of the east leg of Davidson Road to create a single point intersection was identified as the preferred solution. This selection was heavily influenced by the presence of natural heritage features and minimizing impacts to ANSI, PSW, and significant woodlands. As depicted in the Alternative Designs Evaluation Matrix, Design Alternatives 3a and 3b score similarly. Identification of the preferred traffic control device type is discussed in Section 6.0.

Table 2: Alternative Alignment Summary

Alternative Solution		Advantage	Disadvantage	Overall Impact
0	Do Nothing	<ul style="list-style-type: none">No additional disruptions to the surrounding environment and habitat.	<ul style="list-style-type: none">Future intolerable delays for east and westbound traffic.Potential traffic safety implications	N/A – Does not address traffic or safety concerns
1	Northerly Realignment of Davidson Road: a) Traffic signal, or b) Roundabout.	<ul style="list-style-type: none">Significant improvements in traffic operations on Davidson Road.Corrected Davidson Road offset improves wayfinding and reduces the number of conflict points associated with an offset intersection.Avoids impacts to existing buildings in the southwest quadrant of the intersection.	<ul style="list-style-type: none">Significant environmental impacts (loss of portions of the Lester Road Wetland Complex and potential SAR habitat).Modifications to tributary of municipal drain and culvert replacement required.Property acquisition required to the west of Conroy Road.	
2	Centered Realignment of Davidson Road: a) Traffic signal, or b) Roundabout.	<ul style="list-style-type: none">Significant improvements in traffic operations.Corrected Davidson Road offset improves wayfinding and reduces the number of conflict points associated with an offset intersection.Avoids impacts to existing buildings in the southwest quadrant of the intersection.	<ul style="list-style-type: none">Significant environmental impacts (loss of portions of the Lester Road Wetland Complex and potential SAR habitat).Modifications to tributary of municipal drain and culvert replacement required.Increased construction costs and property required as both approaches to Conroy Road would be reconstructed.	
3	Southerly Realignment of Davidson Road: a) Traffic signal, or b) Roundabout.	<ul style="list-style-type: none">Significant improvements in traffic operations.Corrected Davidson Road offset improves wayfinding and reduces the number of conflict points associated with an offset intersection.No impact on the Lester Road Wetland Complex.	<ul style="list-style-type: none">Environmental impacts (loss of potential SAR habitat).Potential impacts to access the residential dwelling in the southwest quadrant of the intersection.Property acquisition required to the east of Conroy Road.	
4	Maintain Davidson Road alignments: a) Oval-shaped roundabout, or b) Two roundabouts in series.	<ul style="list-style-type: none">Improved traffic operations at the intersection.Ability to maintain existing alignments on Davidson Road east and west of Conroy Road.Minimized impact to the natural environment, including potential SAR habitat, due to the ability to maintain existing alignments on Davidson Road.	<ul style="list-style-type: none">Unusual roundabout configuration could lead to human-factor errors, including confusion during roundabout navigation.Additional small radius curves could prove problematic for navigation by large vehicles.High volumes of large vehicles could result in increased queueing in the peak periods as no other vehicles should enter the roundabout(s) when those vehicles are navigating it.More circuitous for pedestrians and cyclists to navigate.	



5.0 UPDATE TO EXISTING CONDITIONS

5.1 Natural Environment

Gemtec completed an assessment of the Natural Heritage Features to validate Dillon's previous Natural Heritage Memo due to the time elapsed since preparation. A copy of the Natural Heritage Feature and Pileated Woodpecker Habitat Assessment (May 22, 2025) is included in **Appendix G**.

It was found that presence of the Pine Grove ANSI in the eastern extents of the study area, the boundary of the Lester Road Wetland Complex PSW, and significant woodlands considered as per the urban criteria were all consistent with Dillon's Natural Heritage Memo. A map of the validated natural heritage features is included as Figure 8.

It's noted that the current PSW boundary for the Lester Road Wetland Complex is outdated and does not perfectly align with the vegetation boundaries delineated by Dillon and confirmed by Gemtec. These discrepancies could be addressed through a formal wetland boundary assessment, completed under the OWES, to ground truth the extents of the PSW. To revise the boundary of a PSW the boundary must be delineated following the OWES protocol and be completed by a qualified professional certified in OWES. The City of Ottawa will consider pursuing the PSW boundary revision if it's anticipated to impact the preferred design alternative.

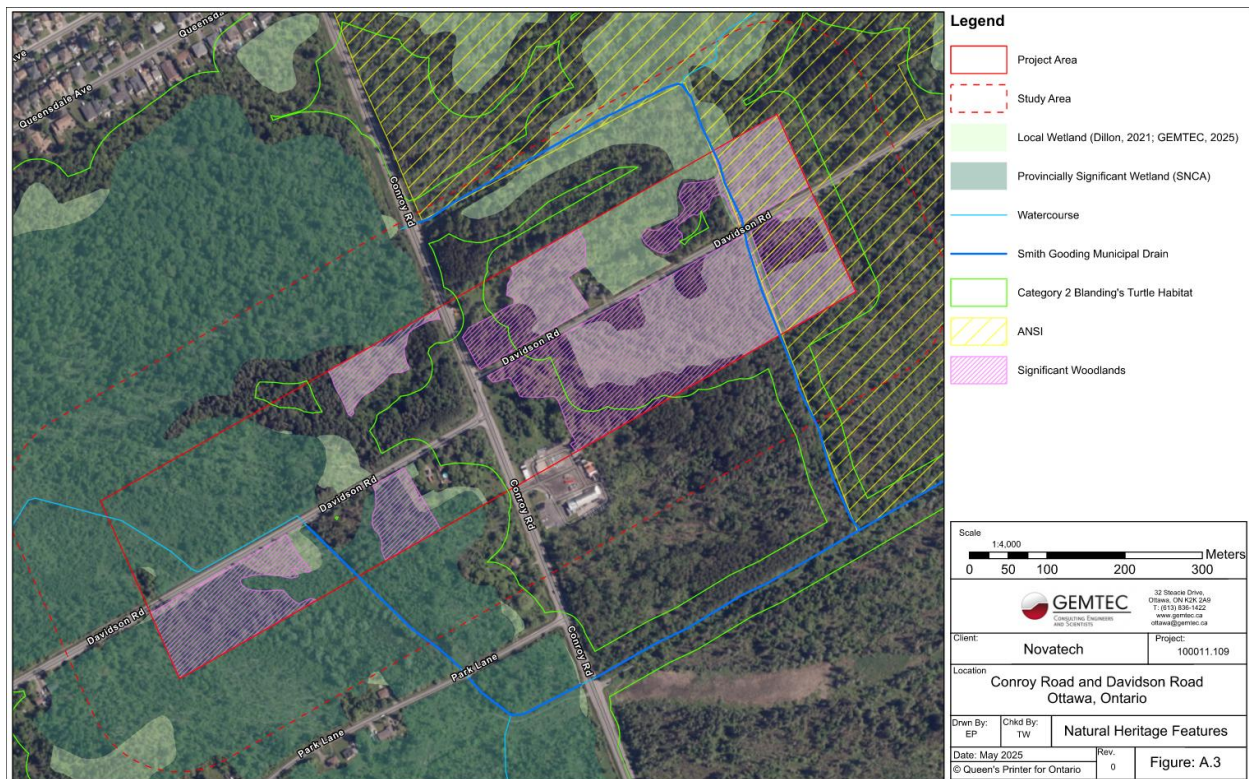


Figure 8: Validated Natural Heritage Features Map

5.2 Migratory Birds

The Migratory Birds Regulation (MBR) was amended in 2022 to include a list of Schedule 1 species whose nests are provided year-round protection. Pileated woodpecker cavity nests are listed on Schedule 1 of the MBR. In addition to the Natural Heritage Features assessment, Gemtec completed a Pileated Woodpecker Habitat Assessment as part of their investigation.

Pileated woodpeckers were observed during the 2020 Dillon's field investigations; however, were not observed through Gemtec's investigation. While suitable habitat is present within the project area, no pileated woodpecker cavities, or other pileated woodpecker activity was observed within the project area. As such, pileated woodpecker are assumed to be using the project area for foraging and in a transient manner; however, nesting habitat was not confirmed.

5.3 Aquatic Environment

Targeted surveys for fish were not completed as part of the project scope; however, an aquatic habitat investigation to characterize watercourses within the project area was completed by Gemtec as part of their Natural Heritage Feature assessment on April 30th, 2025. Surface water features within the project area include PSWs, local wetlands, an unnamed watercourse, the SGMD, and roadside ditches.

The Lester Road Wetland Complex PSW occupies most of the project area west of Conroy Road and north of Davidson Road. Stagnant standing water was observed during the field investigation. Emergent vegetation within the PSW and local wetland was sporadically dense and consisted of facultative and obligate wetland species.

An unnamed watercourse is present within the northwestern extent of the project area and is approximately 450 m long. The watercourse originates within the Lester Road PSW in the study area and traverses in a southeast direction where it enters the project area. The watercourse bisects the project area and traverses east along Davidson Road before discharging into the SGMD. At the time of the field investigation, the watercourse had substantial flow and small fish (<5 cm) were observed. In-water vegetation was present in isolated pockets. Evidence of beaver activity within the thicket swamp was observed and is assumed to impact the conditions of the unnamed watercourse.

At the time of the field investigation, the SGMD had moderate to substantial flow, no in-water vegetation, and no fish were observed during the field investigation.

At the time of the field investigation, all roadside ditches had water presence, ranging from substantial flow to standing water. Roadside ditches along Davidson Road and the entirety of Conroy Road, within the project area, were noted to hold standing water. No fish were observed within the pockets of standing water. Vegetation within the roadside ditches was dominated by grass.

5.4 Species at Risk

A SAR Screening Assessment (May 22, 2025) was undertaken by Gemtec to identify the presence or potential presence of any SAR and their regulated habitat within the project area and to recommend established and effective avoidance and mitigation measures to ensure that the project is completed in accordance with the provincial Endangered Species Act (ESA), 2007 and the federal Species at Risk Act (SARA). The provincial ESA is applicable to SAR on the City owned ROW, and the federal SARA is applicable to SAR on the federally owned NCC lands.

Sixteen SAR were identified as having a moderate to high potential to be found within the study area and are discussed in more detailed in the SAR Screening Assessment which is included as **Appendix H**.

Of these sixteen SAR, twelve SAR listed under SARA were identified to have occurred or have the potential to occur within the project area. Six of those are identified as Threatened or Endangered Species having protection under SARA on federal lands. The remaining six are

listed as Special Concern, however not protected under the SARA general prohibitions. A summary of the potential SAR is included in Table 3.

Fifteen SAR listed under the ESA were identified to have occurred or have the potential to occur within the project area. Eight of those are listed as Threatened or Endangered, provided protection under ESA on the city owned ROW. The remaining six species are listed as Special Concern and are not provided habitat protection under the ESA but are afforded protection for individuals. A summary of the potential SAR is included in Table 3.

Table 3: Potential SAR Presence Summary

Identified Under:	Threatened or Endangered	Special Concern
Federal SARA	<ul style="list-style-type: none"> • Golden-winged Warbler, • Wood Thrush, • Western Chorus Frog, • Little Brown Myotis, • Tri Colored Bat, and • Blandings Turtle 	<ul style="list-style-type: none"> • Bobolink, • Eastern Wood Pewee, • Canada Warbler, • Rusty Blackbird – <i>heard calling and observed during field investigation,</i> • Snapping Turtle, and • Midland Painted Turtle
Provincial ESA	<ul style="list-style-type: none"> • Bobolink, • Eastern Red Bat, • Eastern Small-footed Myotis, • Hoary Bat, • Little Brown Myotis, • Silver-haired Bat, • Tri-Colored Bat, • Black Ash, and • Blandings Turtle. 	<ul style="list-style-type: none"> • Eastern Wood-Pewee, • Canada Warbler, • Wood Thrush, • Golden-winged Warbler, • Rusty Blackbird – <i>heard calling and observed during field investigation,</i> and • Snapping Turtle.

6.0 ALTERNATIVE DESIGNS

Industry Guidelines used to inform this section include the Transportation Association of Canada (TAC) Geometric Design Guide, the TAC Roundabout Guide, the NCHRP 1043: Guide for Roundabouts, the Ministry of Transportation Ontario (MTO) Roadside Design Manual, and the MTO Design Supplement for TAC Geometric Design Guide.

6.1 Design Considerations

6.1.1 Conroy Road

Design Criteria for Conroy Road is as follows:

- Arterial Road and Truck Route
- Posted Speed of 70 km/h (Design Speed 80 km/h)
- One 3.5m wide travel lane in each direction
- Paved Shoulders 2.0m with a 0.5m gravel rounding on each side of the roadway

It is assumed that the existing 30.0m ROW will be maintained with local widened as required to accommodate the single point intersection configuration.

Future Multi-Use Pathway

The City of Ottawa identified the need to protect for a future 3.0m multi-use pathway (MUP) along the west side of the Conroy Road ROW. Schedule C3 of the OP identifies a major pathway along Conroy Road through the project limits however there is no timing identified for completion of this project. As such, it has been assumed that pedestrians and cyclists traversing the corridor will do so on the proposed paved shoulders. Protections for incorporation of this future MUP at a proposed Traffic Control Signal or Roundabout have been included in the alternative design concepts.

6.1.2 Davidson Road

Design Criteria for Davidson Road is as follows:

- Davidson Road is a Collector Road west of Conroy Road and Local Road east of Conroy Road
- Posted Speed of 80 km/h (Design Speed 100 km/h)
- One 3.5m wide travel lane in each direction
- Paved Shoulders 2.0m with a 0.5m gravel rounding on each side of the roadway

The FDS assumed a 36.0m ROW through the realigned east leg of Davidson Road, while maintaining the existing 20.0m ROW on the west leg of Davidson Road. Localized widening is anticipated as required to accommodate the single point intersection configuration.

6.2 Traffic Signal

6.2.1 Design Criteria

Design Criteria for a Traffic Control Signal at the realigned intersection of Davidson Road and Conroy Road is provided in Table 4.

Table 4: Traffic Signal Design Criteria

Design Criteria		Proposed	
		Conroy Road	Davidson Road
ROW		30.0m	20.0 / 36.0m
Design Speed		80 km/h	100 km/h
Posted Speed		70 km/h	80 km/h
Facility Widths	Through Lane	3.5m	
	Auxiliary Lane	3.5m	
	Median	1.5m	
	Cycle Track	2.0m	
	Sidewalk	2.0m	
	Pedestrian Refuge	2.4m	
Left Turn Lane Storage ¹	Northbound	35.0m	
	Eastbound	55.0m	
	Southbound	35.0m	
	Westbound	35.0m	
Right Turn Lane Storage	Southbound	40.0m	
Auxiliary Lane Taper		15:1-48:1	30:1-60:1
Minimum Horizontal Radius ²		400.0m	690.0m
Minimum Tangent at Intersection		20.0m	
Minimum Curb Return Radius		9.0m	

1) Minimum 35.0m required

2) With reverse crown crossfall, and maximum superelevation rate of $e=0.04\text{m/m}$

6.2.2 Traffic Signal Design

An alignment for the east leg of Davidson Road that matches the existing west leg of Davidson Road was developed achieving horizontal design criteria.

Vehicle through and auxiliary lanes are included as determined via the Traffic Review report.

Cycle Tracks and Sidewalks are proposed as uni-directional cycling facilities were identified as the near-term preferred facility type by City Staff in this area. Based on vehicle volumes and auxiliary lane requirements, a protected intersection following the City of Ottawa Protected Intersection Design Guide (PIDG) has been developed. The functional design currently accommodates the future MUP on the west side of Conroy Road, as the project moves into preliminary design these facilities will be temporarily connected to the on-road shoulder along Conroy Road until such a time as the future MUP is constructed.

A copy of the traffic signal functional design can be found in **Appendix I**.

6.2.3 Resident and Business Impacts

All-way access to the commercial driveway and two residential driveways is maintained as part of this configuration.

The frontage of residential property 3302 Davidson Road will be impacted by road widening and reconstruction of road-side ditches. It's anticipated that the existing edge of road pavement will shift between 3.5m to 4.5m towards the property line. Existing trees that currently screen out views of the road from the property will likely require removal to accommodate new road-side ditch alignments.

The existing driveway at 3359 Davidson Road will need to be extended to meet the realigned east leg of Davidson Road. It's anticipated the driveway may need to be extended up to 60.0m, likely requiring an agreement between future tenants and the NCC regarding winter snow removal.

6.2.4 Land Impacts

There is approximately 14,200m² of land required from the NCC to accommodate the proposed configuration. It's anticipated that the existing Davidson Road ROW will be provided back to the NCC as part of the land exchange. For this proposed configuration approximately 6,000m² of the existing Davidson Road ROW will be transferred back to the NCC.

Based on the land acquisition requirements, the loss of habitat will be approximately 12,700m².

6.2.5 Municipal Drain Impacts

An extension of the SGMD crossing on the east leg of Davidson Road will be required as part of this design alternative. While no fish were observed during the field investigations, additional surveys will need to be undertaken to confirm presence of aquatic species. Coordination with the Department of Fisheries (DFO) and South Nation Conservation Authority (SNCA) will be required to establish the appropriate approvals and permits required for design review and construction.

6.2.6 Utility Impacts

Several existing hydro poles will need to be relocated to accommodate this configuration. Relocation of the existing poles could be challenging and require additional property acquisition or establishment of easements. It's the NCC's preference that the existing hydro pole line located north of the existing east Davidson Road leg within an easement be relocated to within the new proposed east Davidson Road leg ROW.

6.2.7 Traffic Signal Plant and Street Lighting

Standard traffic signal plant infrastructure will be required as part of this configuration, including traffic signals heads for the uni-directional cycling facilities as per the PIDG and audible pedestrian signals. As traffic signals heads are always operational, they increase the ambient lighting levels.

Lighting levels along Conroy Road and Davidson Road will be increased to satisfy City standards based on the road classifications, intersection configuration, and surrounding areas.

6.3 Roundabout

6.3.1 Posted Speed Reductions

The introduction of a roundabout in a rural setting will require vehicles approaching from all directions to reduce their speed to achieve target roundabout speeds, typically 30-40 km/h, and safely navigate the roundabout. Additionally, pedestrian crossovers (PXO), which are utilized at

roundabouts to provide pedestrians with the right-of-way to cross vehicle lanes, can only be implemented on roadways with Posted Speeds of 60 km/h or less. As such, the City has found that approximately 150-200m upstream of a rural roundabout, Posted Speeds should be reduced to 60 km/h on all approaches.

6.3.2 Design Criteria

Design Criteria for Conroy Road and Davidson Road beginning 150-200m upstream of the proposed roundabout, and the Roundabout at the realigned Davidson Road and Conroy Road is provided in Table 5.

Table 5: Roundabout Design Criteria

Design Criteria		Proposed	
		Conroy Road	Davidson Road
ROW		30.0m	20.0 / 36.0m
Design Speed ¹		70 km/h	
Posted Speed ¹		60 km/h	
Target Speed		30 km/h	
Inscribed Circle Diameter		45.0m	
Circulatory Road Width		6.0m	
Truck Apron		4.0m	
Splitter Island Length		70.0 to 150.0m	
Facility Widths	Minimum Lane (Curb to Curb) ²	3.5m	
	Minimum Median for Pedestrian Refuge	2.4m	
	Multi-Use Pathway	3.0m	
	Boulevard	2.0m	
Southbound Right Turn Lane	Storage	40.0m	
	Taper	60.0m	
Minimum Horizontal Radius ³		290.0m	

1) Roadway Design and Posted Speeds to be reduced 150.0m upstream of the roundabout

2) Required to accommodate rural snow removal equipment

3) With reverse crown crossfall, and maximum superelevation rate of $e=0.04\text{m/m}$

6.3.3 Roundabout Design

An alignment for the east leg of Davidson Road that matches the existing west leg of Davidson Road was developed achieving horizontal design criteria.

A southbound right turn by-pass lane is included as determined via the Traffic Review report.

A MUP is proposed surrounding the roundabout to accommodate pedestrians and cyclists. Based on current standards, cyclists are not legally permitted to ride through PXO's and will be required to dismount and walk. The functional design currently accommodates the future MUP

on the west side of Conroy Road, as the project moves into preliminary design these facilities will be temporarily connected to the on-road shoulder along Conroy Road until such a time as the future MUP is constructed.

A copy of the roundabout functional design can be found in **Appendix I**.

6.3.4 Resident and Business Impacts

All-way access to the commercial driveway and two residential driveways is maintained as part of this configuration.

The frontage of residential property 3302 Davidson Road will be slightly impacted by road widening and reconstruction of road-side ditches approaching the roundabout. Immediately in front of the residence it's anticipated that the existing edge of pavement will shift 0.5-1.5m towards the property line. East of the residence, the development of the MUP will also require adjustment to the ditch alignments. Existing trees towards the east limits of the 3302 Davidson Road frontage may require removal to accommodate this configuration.

The existing driveway at 3359 Davidson Road will need to be extended to meet the realigned east leg of Davidson Road. It's anticipated the driveway may need to be extended up to 40.0m, likely requiring an agreement between future tenants and the NCC regarding winter snow removal.

6.3.5 Land Impacts

There is approximately 10,800m² of land required from the NCC to accommodate the proposed configuration. It's anticipated that the existing Davidson Road ROW will be provided back to the NCC as part of the land exchange. For this proposed configuration approximately 3,700m² of the existing Davidson Road ROW will be transferred back to the NCC.

Based on the land acquisition requirements, the loss of habitat will be approximately 10,300m².

6.3.6 Municipal Drain Impacts

This configuration does not impact the SGMD crossing. Coordination with the Department of Fisheries (DFO) and South Nation Conservation Authority (SNCA) should still occur to confirm if any approvals and permits required for design review and construction.

6.3.7 Utility Impacts

Several existing hydro poles will need to be relocated to accommodate this configuration. Relocation of the existing poles could be challenging and require additional property acquisition or establishment of easements. It's the NCC's preference that the existing hydro pole line located north of the existing east Davidson Road leg within an easement be relocated to within the new proposed east Davidson Road leg ROW.

6.3.8 Pedestrian Crossovers and Street Lighting

Based on the proposed PM Peak Hour Traffic Volumes and using the City of Ottawa expansion hours to determine the 8hr volumes, a Level 2 Type B and Level 2 Type C PXO are warranted on Conroy Road and Davidson Road legs, respectively.

Lighting levels along Conroy Road and Davidson Road will be increased to satisfy City standards based on the road classifications, intersection configuration, and surrounding areas.

6.4 Alternative Design Evaluation

Three design alternatives were analyzed through a second formal evaluation process:




- Design Alternative 0: “Do Nothing” baseline;
- Design Alternative 1: Traditional traffic signal and auxiliary lanes
- Design Alternative 2: Single lane roundabout with southbound right turn bypass.

Seven key considerations, as outlined in the MCEA Guide, were included in the evaluation process, accounting for various aspects of the project as follows:

- Land-use planning objectives – Official Plans and Policies (Road Classification, Traffic Operations, Safety, etc.) supporting modifications at the subject intersection.
- Natural heritage features – Impacts identified in Dillon’s Natural Heritage Memo, Gemtec’s Natural Heritage Feature and Pileated Woodpecker Habitat Assessment, and Gemtec’s SAR Screening Assessment.
- Social Environment – Impacts to the community and project stakeholders (including the property owner and tenants).
- Cultural Environment – Stage 1 Archaeological Assessment, with recommendation for Stage 2 Archaeological Assessment in select areas.
- Indigenous Consultation – Consideration for communities impacted by the project.
- Economic Environment – Project impact on the surrounding commercial and industrial lands has been reviewed, as well as development of construction cost estimates.
- Property – Acquisition of additional property will be minimized where possible.

The weighting of each key consideration and the scoring of the three design alternatives were reviewed in detail with City and NCC Stakeholders. The Alternative Evaluation Matrix can be found in Table 6 below. Based on the design alternative evaluation, Design Alternative 2: Single Lane Roundabout with southbound right turn bypass is the preferred configuration.

Table 6: Alternative Evaluation Matrix

<div><div><div>12345</div><div>WorseBetter</div><div>✖ Disadvantage✔ Advantage</div></div></div>		Existing Conditions (Baseline)		Option 1 – Traffic Signal		Option 2 - Roundabout	
Category	Criteria		Score		Score		Score
Option Schematic							
Option Description		Existing offset intersections of Conroy Road and Davidson Road		Southernly Realignment with a Signalized Protected Intersection		Southernly Realignment with a Roundabout	
LAND USE PLANNING OBJECTIVES (30%)	Transportation Master Plan (20%)	<ul style="list-style-type: none">Poor levels of service with long queues during peak periods on Davidson RoadTraffic Signal Warrant is metExisting rural off-set intersectionsLocated on a Greenbelt Master Plan scenic route without any unique identifying features	1	<ul style="list-style-type: none">Improved level of serviceImproved safety for vehicular traffic and vulnerable road users by addressing two Road Safety Action Plan Targets (signalization of traffic signal warrant location, correction of existing rural off-set intersections)Accommodates Greenbelt Master Plan and provides opportunity to achieve objectives	4	<ul style="list-style-type: none">Improved level of serviceImproved safety for vehicular traffic and vulnerable road users by addressing two Road Safety Action Plan Targets (traffic control device of traffic signal warrant location, correction of existing rural off-set intersections)Accommodates Greenbelt Master Plan and provides opportunity to achieve objectivesRoundabouts are scored slightly higher than a traffic signal for the Road Safety Action and Greenbelt Master Plans as they have fewer conflict points and provide more opportunity for gateway features which positively contribute to the two criteria, respectively	4
	Road Safety Action Plan (60%)		1		4		4.5
	Greenbelt Master Plan (20%)		2		4		5
	Land Use Planning Weighted Sum	0.36		1.20		1.35	
NATURAL HERITAGE FEATURES (15%)	Impact to Watercourses (20%)	<ul style="list-style-type: none">Pine Grove Forest is identified as a non-sensitive area of natural significance (ANSI)The project limits have potential for Species at Risk (SAR)Lester Road Wetland Complex is identified as a provincially significant wetland (PSW) within the limits of the Functional Design Study (north-west of Davidson and Conroy Road)	3	<ul style="list-style-type: none">Lengthening of existing crossing culverts east and west of Conroy RoadApproximately 11,200m² of forest with potential Canada Warbler and/or SAR Bat habitat impacted6,300m² of non-ANSI swamp impactedNo anticipated impact to Lester Road Wetland ComplexEstimated loss of habitat totaling 12,700m²	2	<ul style="list-style-type: none">No impact to existing creek crossingsApproximately 7,200m² of forest with potential Canada Warbler and/or SAR Bat habitat impacted3,400m² of non-ANSI swamp impactedNo anticipated impacts to Lester Road Wetland ComplexEstimated loss of habitat totaling 10,300m²	3
	Impact to SAR Habitat (30%)		3		1		2
	Impact to unevaluated wetlands (30%)		3		1		2
	Loss of Habitat (20%)		3		1		2
	Natural Heritage Features Weighted Sum	0.45		0.18		0.33	

<div><div><div>12345</div><div>WorseBetter</div><div>✖ Disadvantage✔ Advantage</div></div></div>		Existing Conditions (Baseline)	Score	Option 1 – Traffic Signal	Score	Option 2 - Roundabout	Score
Category	Criteria						
SOCIAL ENVIRONMENT (10%)	Residential & Commercial Access (20%)	<ul style="list-style-type: none">Two residential properties located on the north-east (3359 Davidson Road) and south-west (3302 Davidson Road) quadrants of the intersectionOne commercial property, Geosynthetic Systems, located in the south-east quadrant of the intersectionNo existing pedestrian facilitiesNo existing cycling facilitiesConroy Road is a full-load truck route and transit routeStop control on Davidson Road with large vehicle queues during peak periods (vehicle idling)Existing lighting levels along Conroy Road and Davidson Road are likely consistent with rural road standards	3	<ul style="list-style-type: none">Potential impact to 3302 Davidson Road as a result of road platform widening3359 Davidson Road driveway to be extended from 20m to approximately +60mDedicated separate sidewalks & off-road cycling lanesAccommodation of a future MUP on the west side of ConroyStart and stopping of large vehicles can generate noiseReduced vehicle queues on Davidson would lead to less idling of vehiclesLighting levels along Conroy and Davidson will be increased to accommodate the new traffic control device. Traffic signal heads operate at all times, making this configuration slightly more light intensive.	1	<ul style="list-style-type: none">Potential impact to 3302 Davidson Road as a result of road platform widening3359 Davidson Road driveway to be extended from 20m to approximately +35mCombined pedestrian and cycling facilities provided with MUPRoundabouts are scored slightly less than the traffic signal for cycling because due to the need to dismount and walk at pedestrian crossoversAccommodation of a future MUP on the west side of ConroyRoundabouts generally prevent the need for vehicles to come to a full stop, limiting vehicle noise (breaking) and overall vehicle idlingPublic feedback was more supportive of a roundaboutLighting levels along Conroy and Davidson will be increased to accommodate the new traffic control device. Roundabouts don't require additional lighting and pedestrian cross-overs only operate when called upon by local pedestrians.	2
	Pedestrian Facilities (16%)		1		4		2.5
	Cycling Facilities (20%)		1		4		2.5
	Noise Impacts (8%)		3		3		4
	Air Quality Impacts (8%)		2		3		4
	Lighting Impacts (8%)		3		2		3
	Public Feedback (20%)		1		3		4
	Social Environment Weighted Sum	0.18		0.29		0.30	
CULTURAL ENVIRONMENT (5%)	Archaeological Resources (40%)	Baseline	3	<ul style="list-style-type: none">Potential Archaeological Impacts identified as part of Stage 1 Archaeological Assessment; Stage 2 Archaeological Assessment Required	2	<ul style="list-style-type: none">Potential Archaeological Impacts identified as part of Stage 1 Archaeological Assessment; Stage 2 Archaeological Assessment Required	2
	Built Heritage Resources (20%)		3		2		2
	Cultural Heritage Resources (40%)		3		2		2
	Cultural Environment Weighted Sum	0.15		0.10		0.10	
INDIGENOUS ENVIRONMENT (5%)	Community Feedback (100%)	<ul style="list-style-type: none">No existing indigenous communities in proximity of project limits	3	<ul style="list-style-type: none">No existing indigenous communities in proximity of project limits	3	<ul style="list-style-type: none">No existing indigenous communities in proximity of project limits	3
	Indigenous Environment Weighted Sum	0.15	0.15	0.15	0.15	0.15	0.15

<div><div><div>12345</div><div>WorseBetter</div><div>✖ Disadvantage✔ Advantage</div></div></div>		Existing Conditions (Baseline)	Score	Option 1 – Traffic Signal	Score	Option 2 - Roundabout	Score
Category	Criteria						
ECONOMIC ENVIRONMENT (25%)	Construction Cost (40%)	Baseline	3	<ul style="list-style-type: none">Estimated Construction Cost of \$4,745,566.32Estimated Property Acquisition Cost of \$113,600 or approximately 8,200m² of property to be given to NCC in land exchange (old Davidson ROW equates to 6,000m²)NCC to confirm ecological compensation requirements, for 12,700m² estimated loss of habitat	1	<ul style="list-style-type: none">Estimated Construction Cost of \$4,362,138.12Estimated Property Acquisition Cost of \$86,400 or approximately 7,100 m² of property to be given to NCC in land exchange (old Davidson ROW equates to 3,700m²)NCC to confirm ecological compensation requirements, for 10,300m² estimated loss of habitat	2
	Property Cost (40%)		3		1		2
	Ecological Compensation (20%)		3		1		2
	Economic Environment Weighted Sum	0.75		0.25		0.50	
PROPERTY (10%)	ROW Acquisition (80%)	Baseline	3	<ul style="list-style-type: none">Approximately 14,200m² of property is required to accommodate proposed improvements.	1	<ul style="list-style-type: none">Approximately 10,800m² of property is required to accommodate proposed improvements.	2
	Owner Preference (20%)		2		4		5
	Property Weighted Sum	0.28		0.16		0.26	
TOTAL SCORE (OUT OF 7)		2.32		2.33		2.99	
OPTION RANK		3		2		1	

6.5 Preferred Design Alternative Modifications and Optimization

6.5.1 Modifications Based on Stakeholder Feedback

Public Consultation and NCC Stakeholder feedback indicated that should the roundabout be the preferred configuration, the design should be modified to remove the concrete island adjacent to the southbound right-turn by-pass lane.

From *NCHRP Report 1043: Guide for Roundabouts*, there are two types of right turn lanes that can be accommodated at roundabouts; a Merging Right Turn By-Pass Lane or a Yeilding Right Turn Only Lane, as shown in Figure 9 and Figure 10, respectively. The roundabout geometry presented to the Public and NCC included a Merging Right Turn By-Pass Lane like that shown Figure 9.

A sensitivity test for the roundabout traffic analysis model was completed to determine if a Merging Right Turn By-Pass Lane or a Yeilding Right Turn Only Lane had a significant impact on peak period operations. Only a marginal benefit was found through roundabout modeling for a Merging Right Turn By-Pass Lane during the PM peak period. Based on the negligible improvement to operations and as preferred by the Public and NCC Stakeholders, Design Alternative 2 has been updated to include a Yeilding Right Turn Only Lane.

A copy of the Roundabout Analysis Sensitivity Technical Memo is included in **Appendix J**.

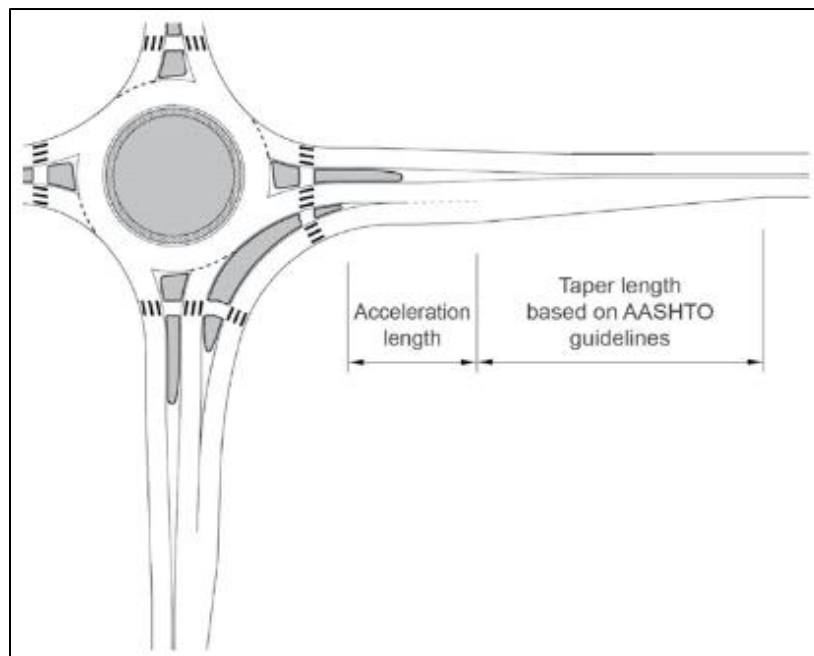


Figure 9: Merging Right Turn By-Pass Lane (Exhibit 10.82)

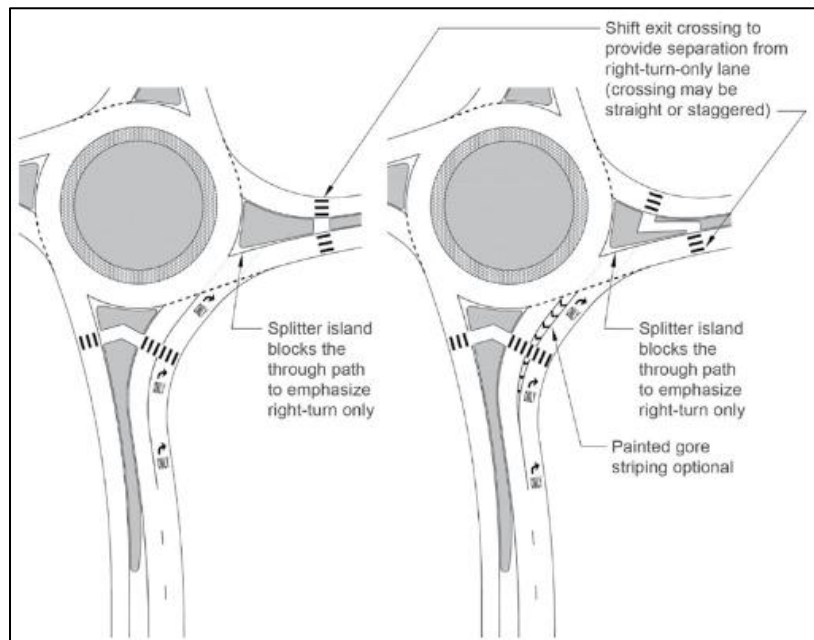


Figure 10: Yielding Right Turn Only Lane (Exhibit 10.81)

6.5.2 Inscribed Circle Location Optimization

Due to the anticipated complexity of relocating the existing hydro pole on the north-west quadrant of the south Davidson Road leg intersection with Conroy Road, adjustments to the inscribed circle location of the roundabout have been investigated. An optimized location for the roundabout has been established shifting the inscribed circle location to the north-east. This optimized location should allow for more of the existing hydro poles to remain in their current locations while also reducing the impact along the frontage of 3302 Davidson Road.

6.5.3 ROW Requirements

To minimize property acquisition from the NCC and following the City's current OP Schedule C16, a 26.0m ROW should be established for Davidson Road as a rural collector. In addition, minimum overlapping 5m x 15m corner triangles should be established due to the road classifications of Conroy Road and Davidson Road, arterial and collector, respectively. Additional ROW may be required at the roundabout. Final property impacts will be identified as part of the Preliminary Design.

7.0 RECOMMENDED PLAN

7.1 Overview of Recommended Design

Based on environmental impacts, design constraints, evaluation of design alternatives, and comments received from the Public, NCC, and City Stakeholders, a recommended configuration was prepared for Conroy Road and Davidson Road.

The recommended functional design includes the following key benefits:

- Improves road safety through the realignment of Davidson Road east leg to create a single point intersection;
- Provides acceptable capacity and level of service for the transportation network;
- Accommodates pedestrians and cyclists through an accessible and PIDG lens;
- Minimizes impacts to the surrounding natural environment;
- Maintains existing or allows for optimization of utility infrastructure systems; and
- Provides an opportunity to achieve GMP goals (gateway features along scenic routes).

A copy of the updated and recommended roundabout functional design can be found in **Appendix K**.

7.2 Infrastructure and Utilities

7.2.1 Water Distribution System

The existing water distribution system within the project area will be maintained as existing. Hydrants located in area's impacted by the proposed roundabout configuration will be relocated following City Standard requirements.

7.2.2 Sanitary Sewers

The existing sanitary sewer system within the project area will be maintained as existing. Maintenance holes will be adjusted as required to accommodate any modifications to the existing road grades.

7.2.3 Storm Drainage

Existing roadside ditches will be realigned to follow any road alignment modifications to Conroy Road or Davidson Road. Existing culverts will be removed and replaced as required to match the realigned roadside ditches. Roadside catch basins will likely be required up-gradient of the PXOs to prevent ponding within the crosswalks. Any proposed catch basins will outlet to roadside ditches. All proposed ditches and culverts will meet the existing watermain and sanitary sewer cover and clearances requirements.

7.2.4 Other Utilities

During preliminary and detail design, utility companies will be contacted to confirm the presence of their infrastructure and to discuss replacement/relocation options where required.

The City will work closely with Ottawa Hydro to develop a relocation plan, as required. Ottawa Streetlighting will work with Ottawa Hydro on the potential for joint use poles in the Greenbelt.

The location of existing telecom infrastructure, both underground and surface features, will be reviewed. Relocation of infrastructure will be coordinated with the appropriate utility company.

7.3 Landscaping and Existing ROW Naturalization

NCC Greenbelt surrounding the project area is identified as core natural area. Effort must be made to preserve the existing woodlots and wetlands. Any removals within the existing woodlots and forest edges will have a visual impact on the corridors and should be minimized and

mitigated with new planting. Removing the smaller successive plant material at the edge of woodlots exposes the lack of understory creating a negative visual impact. Additional planting will be required to soften these edges and maintain the existing natural aesthetic.

The existing east leg of Davidson Road that will be transferred to the NCC as part of the land exchange will need to be naturalized to blend into the surrounding core natural area. The existing road structure will be removed to full depth. Excess soil excavated from the realigned Davidson Road ROW can be used to level out the area, filling in existing ditches that are proposed for realignment as part of the road works. New plantings varying in size and species should be used to naturalize this area and encourage growth. Larger plantings, and any large boulders excavated on-site, should be used to provide additional screening from the road ROWs and help discourage vehicles from attempting to drive through the naturalized ROW.

7.4 Project Costs

A Class C Cost Estimate was prepared for the project, including construction, engineering, contingency, and property. It will be reviewed and updated to a Class B Cost Estimate once the preliminary design plans have been completed.

A copy of the Class C Cost Estimate can be found in **Appendix K**.

7.5 Property Acquisition

With the recommended roundabout functional design, there is approximately 7950m² of land required from the NCC. It's anticipated that approximately 3660m² of the existing Davidson Road ROW will be transferred back to the NCC.

7.6 Built-in Mitigation Measures

For this project, built-in mitigation measures are defined as actions or design features incorporated into the pre-construction, construction, and operational phases, which are intended to lessen the severity of environmental impacts which may be caused by the project. These include standard construction practices described in the below sub-sections. These measures will be updated and refined during the pre-construction, construction, and operation phases of the project.

7.6.1 Erosion and Sediment Control Plan

An Erosion and Sediment Control plan will be prepared by the Contractor, to manage and mitigate the flow of sediment resulting from project construction, including excavation, into the roadside ditches and surrounding areas. The plan shall include drawings, standard notes and reports depicting and describing the site conditions (e.g. grades, locations of natural features, soil stockpiles) during each phase of construction.

7.6.2 Environmental Protection Plan

The Contractor will be responsible to ensure that no contamination, waste or other substances which may be detrimental to aquatic life or water quality, enter the nearby watercourse. Any spills or contamination, waste or other substances which may be detrimental to aquatic life or water quality will also be immediately cleaned up. Discharge to the watercourse will be prohibited. At all times, construction activities are to be controlled in a manner that will prevent entry of deleterious materials to watercourses. Construction materials, excess materials, construction debris and empty containers will be stored away from the watercourse, the banks of watercourse and steep slopes.

7.6.3 Air Quality, Noise, and Vibration Plan

It is anticipated that the recommended plan will have negligible impact on local air quality. Future noise levels are likely to be slightly above existing conditions throughout the project limits resulting from increased roadway traffic. Noise levels are not expected to have an adverse effect on local residents and businesses. Vibration levels resulting from construction of the proposed project are not expected to exceed the level commonly considered perceptible by most building occupants.

7.6.4 Emergency Response Plan

An Emergency Response Plan will be prepared by the contractor, allowing full emergency service access during the construction period, such that there is a method to access all residential, commercial and other land uses in the event of an emergency.

7.6.5 Spills Response and Reporting Plan

A Spills Response and Reporting Plan will be prepared and adhered to by the contractor. A response plan is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and include keeping emergency spill kits on site (and in heavy machinery) in case of emergency. Any spills will be reported to the MECP Spills Action Centre.

Studies will be completed to confirm the potential for the project to interact with contaminated soil or groundwater, where existing conditions are not known. Where the potential has been confirmed, a plan to remediate the environment to the applicable standards will be prepared. The MECP and Construction Project Manager would be notified immediately upon discovery of any contaminated material encountered within the construction area. If contaminated material or contaminated groundwater is encountered within the construction limits, these are to be removed and disposed of in accordance with all applicable Acts and Regulations and reported to applicable authorities. Treatment and discharge of contaminated groundwater are to also be in accordance with applicable legislation and regulations.

7.6.6 Lighting Treatment Plan

A Lighting Plan in accordance with City of Ottawa standards (Right-of-Way Lighting Policy, 2016) will be prepared by City Street Lighting staff as part of the detailed design. The Lighting Plan will include lighting fixtures and illumination along the corridor.

7.6.7 Construction Waste and Excess Soils Management Plan

During construction there will be excess materials that will require disposal off-site. These could include concrete rubble, asphalt, waste steel/metal structural components, soil/earth, and road ROW appurtenances such as signs, lighting and utility poles. During the preliminary and detailed design phases, a Soil Characterization Report and Materials Management Plan will be developed to provide guidance to the Contractor regarding construction waste and excess soil management.

7.6.8 Archaeological Resources

A licensed archaeologist shall undertake a Stage 2 Archaeological Assessment and any further recommended archaeological assessment (e.g., Stage 3,4) as early as possible during preliminary and detailed design phases, prior to any ground disturbing activities.

Should previously undocumented archaeological resources be discovered, 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 consultant archaeologist to carry out an Archaeological Assessment, in compliance with Section 48(1) of the Ontario Heritage Act.

7.7 Site Specific Mitigation Measures

Mitigation measures have been identified for potential effects related to this MCEA study and are summarized in the below sub-sections.

7.7.1 Natural Environment and SAR

Various natural heritage features and potential SAR were identified in the study area under present day conditions. The following avoidance and mitigation measures are recommended to minimize or avoid, to the greatest extent possible, the potential impacts from the proposed rehabilitation on the local environment, including potential SAR and their habitat:

- Vegetation removal should occur outside of March 15 to November 30 to avoid the key breeding bird period and bat summer active season. The timing windows provides protection of migratory birds and roosting bats and avoids contravention of the Migratory Bird Convention Act and Endangered Species Act. If vegetation clearing activities must take place during the timing window, then a nest and acoustic survey shall be conducted by a qualified professional prior to any vegetation removal on-site.
- Active bird nests are protected under the Migratory Bird Convention Act (MBCA). Active bird nests may not be disturbed, damaged, or removed. Any disturbance, damage or removal of active bird nests must wait until after the active season, when they are no longer being used.
- To protect trees identified to be retained during construction, the Critical Root Zone (CRZ) should be identified and fenced. The CRZ is defined as 10 cm from the base of the tree for every centimetre in diameter of the tree trunk at breast height.
- Perform daily pre-work sweeps of the construction area to ensure no species at risk are present and to remove any wildlife from inside the construction area.
- Erosion and sediment control should be prepared by a qualified person and measures implemented prior to any construction works and be maintained until all disturbed ground has been permanently stabilized.
- During construction if any SAR are identified on-site all work should stop and a qualified professional and the MECP, NCC, and/or ECCC should be contacted for next steps.
- To prevent turtles nesting within the construction zone, all stockpiled materials should be covered with a geotextile between May 1 and August 1 of any year.
- To protect potential travel corridors and migrating turtles, all existing riparian zone vegetation along the watercourse should be maintained to the extent as possible to provide protection and cover, and if removed, reinstated following construction.

If in-water work will occur within the SGMD, the following general mitigation measures are recommended for the protection of water quality, fish and fish habitat:

- A Request for Review should be submitted to the DFO prior to the commencement of the proposed works to ensure that the project avoids death to fish and the harmful alteration, disruption and destruction of fish habitat.
- To protect fish habitat, no in-water works can be completed between March 15 and July 15 of the same year.
- Light-duty sediment fencing shall be installed along the downgradient edge of the construction area with accordance to the Ontario Provincial Standard Specification and Drawing (OPSD) 219.110.

- Install straw bale flow check dams as per OPSD 219.180 at the outlet and downstream of the channel.
- Maintain as much of the natural vegetation as possible within and around the construction project. Post-construction, degraded vegetation within the disturbed areas should be replaced by planting of local or non-invasive plant species, or seeded, as to prevent further soil erosion.
- Schedule work to avoid wet, windy, and rainy periods.
- Maintain erosion and sediment control measures until all disturbed ground has been permanently stabilized, suspended sediment has resettled, and runoff water is clear.
- To protect aquatic habitat for turtle and fish species, machinery should be maintained in good working condition and all machinery should be fueled a minimum of 30 m from the high-water mark.

Blanding's Turtle

When the footprint of the proposed project is finalized during preliminary and detailed design phases, the potential impact to critical habitat of the Blanding's turtle should be confirmed. If the proposed project encroaches into potential critical habitat for Blanding's turtle, consultation with the NCC and possibly ECCC may be required to determine impacts to Blanding's turtle and identify permitting requirements.

7.7.2 Stage 2 Archaeological Assessment

Areas within and adjacent to the corridor identified as having archaeological potential will be subject to Stage 2 Archaeological Assessment, and subsequent Stage 3/4 Archaeological Assessments as required, prior to construction. Any additional Stage 2, 3 or 4 archaeological assessments should be completed as early as possible in the preliminary and detailed design phases. Indigenous Communities will be involved as required based on best practices and governing municipal, provincial and federal legislation and policies.

7.7.3 Tree Conservation and Replacement Plan

A Tree Conservation Report will be prepared to identify the natural vegetation, including mature trees, stands of trees, and hedgerows, and provide a summary of trees being removed. A Tree Inventory will be completed, surveying all standing trees larger than 10 cm DBH. In addition, vegetative cover through the project limits will be identified in the report. Suggested treed areas that are beyond grading limits will be identified as priority for conservation efforts. Since all tree removals will be occurring on federal owned lands, the NCC's will review the Tree Conservation Plan and confirm minimum replacement planting requirements.

Together, the Tree Conservation Report and old Davidson Road ROW Naturalization Landscape Plan will help ensure that trees will be retained where feasible and that new trees will be planted to contribute to the Greenbelt's core natural area. Additional replacement tree plantings in different areas of the Greenbelt may be identified if its anticipated there will be a net tree loss through the project site. The Tree Conservation Report will be prepared during the preliminary and detailed design phase, prior to construction and in accordance with the City of Ottawa Guidelines.

7.7.4 Geotechnical Investigation

A detailed geotechnical and hydrogeological program will be completed as part of the preliminary and detailed design phases to advise on groundwater and subsurface conditions. Geotechnical investigations will confirm specific construction methodologies, techniques, mitigation measures, contingency plans and processes in consideration of subsurface findings.

8.0 IMPLEMENTATION, APPROVALS, AND MONITORING

8.1 Project Activities

8.1.1 Pre-Construction Phase

This phase includes completion of the preliminary and detailed designs, and preparation of contract drawings and specifications. Necessary permits will be obtained, as well as approvals from regulatory agencies. Prior to the City of Ottawa acquiring the new Davidson Road ROW from the NCC they must receive Federal Land Use, Design and Transaction Approval (FLUDTA). Once a FLUDTA application is made the NCC identify a number of requirements that must be fulfilled before approval is granted. The final step involves presentation of the project to the NCC Board of Directors at one of their quarterly meetings.

Additional considerations during the design stage are as follows:

- Confirm existing conditions through detail survey, including road geometry;
- Stormwater management design;
- Landscape materials and tree planting details, including any gateway feature plantings to enhance the corridor as per NCC GMP goals;
- PXO and Street Lighting designs;
- Utility relocations;
- Finalization of grading requirements;
- Confirmation of Geotechnical Requirements;
- Detailed Construction Staging and Phasing plans; and
- Development of all mitigation plans and strategies.

8.1.2 Construction Phase

This phase involve all activities related to construction. Physical construction activities for the intersection will include:

- Clearing and grubbing of trees and vegetation within the grading limits;
- Stripping of topsoil within the grading limits;
- Excavation of road surface;
- Management of impacted materials;
- Removal of existing asphalt and disposal at an approved facility;
- Management of excess soil as per O. Reg. 406/19 On-Site and Excess Soils Regulation;
- Preparing road bed including cutting and filling (potentially salvaging existing granular for re-use);
- Relocation of utility infrastructure;
- Installation of storm catch basins (as required), culverts, and realignment of ditches;
- Pouring concrete curbs;
- Laying granular and application of hot mix asphalt;
- Installing PXOs and lighting;
- Applying pavement markings and installing traffic signs;
- Implementation of detours for all modes;
- Installation of landscaping features including naturalization of the old Davidson Road ROW; and
- Restoration and rehabilitation of any disturbed areas extending beyond the project limits.

8.1.3 Operation Phase

This phase begins the first day of operation and covers the general operational activities such as maintenance and monitoring, on an as-required basis. Once construction is complete, monitoring of project will be initiated as part of normal City road operating practice. In addition, warranty reviews (such as landscape health) will be completed regularly. Corridor maintenance activities in accordance with City Standards include:

- Spring sweeping of the road, MUPs, and boulevards;
- Ditch cleanouts;
- Snow and ice removal in the winter;
- Landscaping maintenance including grass cutting, tree pruning in the summer; and
- Replacement of any landscaped materials.

8.2 Future Consultation

8.2.1 Stakeholders

As identified in Section 8.1.1, on-going coordination will occur throughout the Preliminary and Detailed Design Phases with the NCC as the project works towards the FLDUTA. Both NCC and City Stakeholders will be provided with project reports (preliminary design report, geotechnical reporting, etc.) for review and comment.

8.2.2 Public Information Session #2

A second Public Information Session will occur towards the end of the Detailed Design Phase to present the project to the public, identify the construction staging and phasing plan, and receive any site-specific feedback that residents and businesses may have.

8.3 Required Approvals

Completion of this ESR under the Ontario Environmental Assessment Act does not constitute approval under other legislation required to implement the project. Specific approvals will be required for many components of the project. The following is a list of approvals and permits that may be required and associated agencies that should be consulted.

8.3.1 Federal

Fisheries Act

The DFO may review and confirm works in or near SGMD and its tributaries to ensure that works will not result in serious harm to fish, as per the Fisheries Act.

FLUDTA

As identified in Section 8.1.1, the project is required to apply for FLUDTA as part of the land exchange process. Additional materials required for presentation of the project to the NCC Board of Directors for final approval shall be identified by the NCC and prepared during the Preliminary and Detailed Design Phase.

Federal Impact Assessment Act

Under the Federal Impact Assessment Act, a form will be required under Section 82, based on whether the project is identified as a basic or non-basic project. If the project is identified as a basic project, a Mitigation Measures Form (MMF) will be required for the project.

A MMF indicates that the proposed development will conform with the natural heritage policies of the NCC. The MMF is required to show that the project will not negatively impact or compromise the ecological functions of any natural heritage features which may be present on the site or within 120 m of the site.

Alternatively, if the project is identified as a non-basic project, an Environmental Effects Evaluation Form (EEE) will be required for the project.

An EEE indicates that the proposed development will conform with the natural heritage policies of the NCC. The EEE is required to show that the project will not negatively impact or compromise the ecological functions of any natural heritage features which may be present on the site or within 120 m of the site.

8.3.2 Provincial

Permit to Take Water

Water takings in Ontario are governed by the Ontario Water Resources Act (OWRA) and the Water Taking Regulation (O. Reg. 387/04). As of July 1, 2025 an Environmental Activity and Sector Registry (EASR) is required for any project taking less than 379,000 litres of water per day. This includes the taking of water for any use; whether agricultural, commercial, construction, dewatering, industrial, institutional, recreational, remediation, water supply or other purposes.

Conservation Authorities Act

Ontario Regulation 153/06 Development, Interference, with Wetlands and Alterations to Shorelines and Water Courses Regulation under the Conservation Authorities Act allows Conservation Authorities, specifically SNCA, 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 required prior to initiation of development (which includes construction, site grading and the placement or removal of fill) within the Conservation Authority regulated area. Regulation limits should be reviewed during the next phases of the project and necessary documents should be submitted to SNCA prior to construction to confirm requirements and obtain required permissions.

8.3.3 Municipal

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. An Approval Report requires: A Key Map; Context Plan; Functional Design Drawing; Turning Movement Counts; and Collision Information. Modifications covered in an ESR may not require an RMA.

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.

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.

8.4 Monitoring

Monitoring of the environmental protection measures during construction and the performance of environmental mitigation measures after construction will be required and will be subject to agreement with the NCC. 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.

8.5 Modifying the Recommended Plan

This report is based on a functional design level of detail for the Conroy Road and Davidson Road Traffic Control Device EA Study. The functional design forms the basis of subsequent Preliminary and Detailed Designs which will result in a project that can be implemented with design details and mitigation measures confirmed.

It is possible that some aspects of the Recommended Plan may be subject to change as detailed designs are developed, or as environmental conditions change, following the submission of the Notice of Completion. There are potentially two categories of possible changes to the Recommended Plan which may occur during detailed design:

- 1) Changes that are consistent with the Recommended Plan; and
- 2) Changes that are inconsistent with the Recommended Plan.

An explanation of these categories of change follows in the next two sections.

8.5.1 Changes that are Consistent with the Recommended Plan

Changes to the Recommended Plan may be considered consistent with the Recommended Plan described in this ESR in that they:

- Do not fundamentally change the planned function or location of the project;
- Do not fundamentally alter identified impacts or mitigation measures;
- Do not involve landowners that have not been previously notified; and
- Do not create a need to involve previously uncirculated approval agencies.

This would include the changes to design during the detailed design process described in Section 7.1, as well as adjustments to property acquisition requirements described in Section 7.5. Should the changes to the Recommended Plan match the descriptions contained in Section 7.0 or satisfy the above noted points, an addendum would not be required as the changes would be considered consistent with the Recommended Plan. In such cases, no action on behalf of the proponent is required.

8.5.2 Procedure for Addressing Changes Inconsistent with the Recommended Plan

Should a change be proposed that is inconsistent with the Recommended Plan contained in this ESR, at the discretion of the proponent (the City of Ottawa), an addendum may be required. The Addendum shall describe the circumstances necessitating the change, the environmental

implications of the change(s) and identify mitigation measure(s) (if required). The addendum shall be filed with the ESR and Notice of Addendum shall be given immediately to all potentially affected members of the public and review agencies as well as those who were notified in the preparation of the original ESR. It should be made clear to review agencies and the public that when an Addendum is issued, only the items in the Addendum (i.e. the changes) are open for review. A 30-day comment period following the issue of the Notice of Addendum shall be provided for comment. The Notice shall include the public's right to request a Section 16 Order within the 30-day comment period. A proponent must wait a minimum of 30-days following the end of the comment period before proceeding with the implementation and construction of the project, subject to a section 16 order request being submitted, the minister making an order or the director issuing a Notice of Proposed Order. During the 30-day comment period and 30-day waiting period, no work shall be undertaken that would adversely affect the matter under review. If no request is received by the Minister, and the Minister does not make a Section 16 Order on their own initiative, the proponent is free to proceed with implementation. If construction has already commenced when it is determined that an addendum is required, no work shall be undertaken that will adversely affect the matter under review and shall not be reactivated until the end of the review period