McKenna Casey Drive Realignment Study

An Addendum to the 1991 Strandherd Drive Highway 416 to Jockvale Road Environmental Assessment Study

November 2021

PARSONS

MCKENNA CASEY DRIVE REALIGNMENT STUDY

An Addendum to the 1991 Strandherd Drive Highway 416 to Jockvale Road Environmental Assessment Study

November 2021

EXECUTIVE SUMMARY

McKenna Casey Drive is identified as a major collector road in the Barrhaven community within in the City of Ottawa. This road has been closed at the VIA railway line since October 2020 as a planned component of the ongoing Strandherd Widening and Realignment project, and Ottawa City council has requested staff to undertake the necessary studies to plan for the realignment of this transportation facility northerly to Dealership Drive. Accordingly, the City of Ottawa initiated the McKenna Casey Drive Realignment Study as an Addendum to the 1991 Strandherd Drive Highway 416 to Jockvale Road Environmental Assessment (EA) Study.

A formal Addendum process is triggered when changes are made to the original project description, when the environmental setting has changed, or there is a lapse in time (over 10 years) since the published Notice of Completion for the original Environmental Study Report. Such is the case with the need for the realignment of McKenna Casey Drive. The Study has followed the guidance provided for an Addendum Process in the Municipal Engineer's Association Municipal Class Environmental Assessment document (October 2000, as amended in 2007, 2011, and 2015). The EA Addendum process involved the following steps:

1.) Assess the need and understand changes to the environmental context;
2.) Develop, evaluate alternatives and select preferred design;
3.) Assess environmental impacts and prescribe mitigation measures; and
4.) Prepare Addendum documentation and issue Notice of Filing of Addendum for 30-day stakeholder review.

The Study re-examined the Study Area existing conditions in terms of transportation, land use planning and development, natural environment, etc. The following environmental studies were undertaken:

- Stage I AA (Archaeological Assessment);
- Phase I ESA (Environmental Site Assessment);
- Geotechnical Desktop Review;
- Natural Environment Overview (including Species at Risk Screening);
- AM Radio Site Impact Report; and
- Cultural Heritage Evaluation Report.

The study team consulted with relevant subject matter experts, agencies, landowners, and community stakeholders including those that had been consulted as part of the original study. The following consultation activities were completed:

- Technical Advisory Group working group meetings between December 2020-June 2021;
- Community Working Group meetings between December 2020-June 2021;
- Focused consultation meetings, e.g. with technical advisors on a specific issue (stormwater management, accessibility) or with private abutting landowners;
- Outreach to Indigenous communities;
- Online Public Consultation period (June 28-July 12, 2021).

Nine (9) right-of-way alignment alternatives, eleven (11) cross-section alternatives, and three (3) intersection types were evaluated and considered as part of the Study. These alternatives were a focal point of the consultation working group discussions. The recommended right-of-way (ROW) alignment:

- Minimizes lot fragmentation of adjacent landowners;
- Avoids natural environment features;
- Avoids the area municipal drain;
- Follows the overall direction of the area Secondary Plan;
- Avoids any costly infrastructure removals or modifications on abutting AM Radio Site;
- Impacts a septic system that is decommissioned and does not require rehabilitation; and

- Requires just one intersection (at Dealership Drive).

The recommended cross-section balances the needs of all road users. A roundabout intersection was determined to provide the most consistency to area road users due to existing and planned roundabout intersections northerly of the McKenna Casey Drive/Dealership Drive intersection.

This Study also presents an interim option for implementation of the Recommended Plan. This option would feature the roadbed, surface, curbs and drainage in a permanent state, and with a multi-use pathway on one side of the corridor. Final landscaping and the complete active transportation facilities on both sides of the corridor would be added in the future with the ultimate Recommended Plan.

Key mitigation measures for the environmental impacts of the McKenna Casey Realignment are documented in the Study. Examples of mitigation include perimeter security fencing along the west side of the roadway (to prevent trespassing to AM Radio Site west of the proposed roadway), a study to address decommissioned septic system impacts, and other studies and analyses that would be completed as part of the corridor's detailed design. Climate change mitigation, positive impacts, property requirements, and protocol during the construction period are also considered.

A copy of the Addendum documentation and the original 1991 Environmental Study Report is available for a 30-day review period for stakeholders. Only the items in the Addendum (the change to the original project) are open for review and response including requests for a Section 16 Order (a request to elevate the project to higher level of assessment). Requests for a Section 16 Order are limited to matters relating to existing Aboriginal and Treaty rights. If no objections are received within the 30-day review period, the proponent is free to proceed with implementation and construction.

Due to its technical nature, only the French Executive Summary is available. The City of Ottawa may translate this report or parts thereof upon request. Please forward your requests to:

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RÉSUMÉ

La promenade McKenna Casey est considérée comme une route collectrice principale dans le quartier de Barrhaven, dans la ville d'Ottawa. Cette route a été fermée à la circulation à la hauteur de la ligne de chemin de fer de VIA en octobre 2020, dans le cadre du projet d'élargissement et de modification du tracé de la promenade Strandherd, et le Conseil municipal d'Ottawa a demandé au personnel d'entreprendre les études nécessaires afin de recommander un plan de modification du tracé de cette installation de transport vers le nord jusqu'à la promenade Dealership. Par conséquent, la Ville d'Ottawa a lancé l'étude du nouveau tracé de la promenade McKenna Casey à titre d'addenda à l'étude d'évaluation environnementale (EE) de 1991 sur la promenade Strandherd de l'autoroute 416 jusqu'au chemin Jockvale.

Un processus officiel d'addenda est déclenché lorsque des modifications sont apportées à la description initiale du projet, que le milieu environnemental a changé ou qu'une période (de plus de 10 ans) s'est écoulée depuis la publication de l'avis d'achèvement concernant le rapport d'étude environnementale initiale. Cela est le cas en ce qui concerne la modification du tracé de la promenade McKenna Casey. L'étude a suivi les directives prévoyant un processus d'addenda qui sont énoncées dans l'évaluation environnementale municipale de portée générale de la Municipal Engineers Associations (octobre 2000, modifié en 2007, en 2011 et en 2015). Le processus d'élaboration de l'addenda de l'EE comprenait les étapes suivantes :

5.) Évaluer le besoin et comprendre les changements au contexte environnemental;
6.) Élaborer et évaluer les solutions de rechange et choisir la conception privilégiée;
7.) Évaluer les répercussions environnementales et prescrire des mesures d'atténuation;
8.) Préparer les documents liés à l'addenda et émettre un avis de dépôt d'addenda aux fins d'examen par les intervenants d'une durée de 30 jours.

L'équipe chargée de l'étude a examiné de nouveau les conditions actuelles du secteur à l'étude en ce qui a trait au transport, à la planification et à l'aménagement du territoire, au milieu naturel, etc. Les études environnementales suivantes ont été entreprises :

- Phase I de l'évaluation archéologique (EA);
- Phase I de l'évaluation environnementale de site (EES);
- Examen administratif géotechnique;
- Aperçu du milieu naturel (y compris l'examen de dépistage des espèces en péril);
- Rapport d'impact sur le site de radiodiffusion AM;
- Rapport d'évaluation du patrimoine culturel.

L'équipe chargée de l'étude a consulté des spécialistes du domaine, des organismes, des propriétaires fonciers et des intervenants communautaires, y compris ceux qui avaient été consultés dans le cadre de l'étude initiale. Les activités de consultation suivantes ont été réalisées :

- Réunions du groupe de travail consultatif technique entre décembre 2020 et juin 2021;
- Réunions du groupe de travail communautaire entre décembre 2020 et juin 2021;
- Réunions de consultation ciblées, p. ex., avec des conseillers techniques sur une question spécifique (gestion des eaux pluviales, accessibilité) ou avec des propriétaires de terrains attenants;
- Sensibilisation des communautés autochtones;
- Période de consultation publique en ligne (du 28 juin au 12 juillet 2021).

Neuf (9) options de tracés d'emprise, onze (11) options de coupe transversale et trois (3) types d'intersection ont été évalués et pris en compte dans le cadre de l'étude. Ces options ont été au centre des discussions du groupe de travail consultatif. Le tracé d'emprise recommandé :

- minimise le morcellement des terres des propriétaires de terrains adjacents;
- évite les caractéristiques environnementales naturelles;

- évite le drain municipal du secteur;
- suit l'orientation générale du Plan secondaire du secteur;
- évite tout retrait ou modification coûteux du site attenant de radiodiffusion AM;
- touche une fosse septique qui est hors service et ne nécessite pas de remise en état;
- exige une seule intersection (à la promenade Dealership).

La coupe transversale recommandée permet d'équilibrer les besoins de tous les usagers de la route. Il a été déterminé qu'un carrefour giratoire fournirait une plus grande continuité pour les usagers des routes du secteur, en raison des carrefours giratoires existants et prévus au nord de l'intersection formée des promenades Dealership et McKenna Casey.

Cette étude présente également une option provisoire pour la mise en œuvre du plan recommandé. Dans cette option, l'assiette routière, le revêtement, les bordures et le drainage seraient conservés dans leur état permanent, et un sentier polyvalent serait aménagé d'un côté du couloir. Les travaux d'aménagement paysager final et les installations achevées de transport actif des deux côtés du couloir seront ajoutés plus tard dans le plan recommandé définitif.

Les principales mesures d'atténuation des conséquences environnementales de la modification du tracé de la promenade McKenna Casey sont documentées dans l'étude. Parmi les exemples de mesures d'atténuation, citons l'installation d'une clôture de sécurité le long du côté ouest de la route (pour empêcher les intrusions sur le site de radiodiffusion AM à l'ouest de la route proposée), une étude sur les impacts de la fosse septique hors service et d'autres études et analyses qui seraient réalisées dans le cadre de la conception détaillée du couloir. L'atténuation des changements climatiques, les impacts positifs, les exigences foncières et le protocole pendant la période de construction sont également pris en compte.

Une copie des documents liés à l'addenda et au rapport d'étude environnementale d'origine de 1991 est accessible pour une période de 30 jours afin de permettre aux intervenants de l'examiner. Seuls les éléments de l'addenda (les modifications apportées au projet initial) peuvent être examinés et faire l'objet de réponses, y compris les demandes concernant l'arrêté prévu à l'article 16 (une demande d'évaluation de portée plus précise du projet). Les demandes concernant l'arrêté de l'article 16 se limitent aux questions relatives aux droits ancestraux ou issus de traités. Si aucune objection n'est reçue durant la période d'examen de 30 jours, le promoteur est libre de procéder à la mise en œuvre du projet et aux travaux de construction s'y rattachant.

Compte tenu de la nature de ce rapport, seul un sommaire en français est disponible. La Ville pourra, sur demande, traduire ce document au complet ou en partie. Veuillez envoyer votre demande de traduction à :

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ACRONYMS

AA	Archaeological Assessment
AAQC	Ambient Air Quality Criteria
AWSC	All Way Stop Controlled
BIA	Business Improvement Area
BMP	Best Management Practice(s)
CDP	Community Design Plan
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CHR	Cultural Heritage Resource
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
ENCG	Environmental Noise Control Guidelines
END	Endangered Species
EPNL	Effective Perceived Noise Levels
ESR	Environmental Study Report
ERIS	Ecolog Environmental Risk Information Services
ESA	Environmental Site Assessment
ESC	Erosion and Sediment Control
FA	Fisheries Act
GHG	Greenhouse Gas
HADD	Harmful Alteration, Disruption or Destruction of Fish Habitat
HVAC	Heating, ventilation and air conditioning
IAAC	Impact Assessment Act
LoS	Level of Service
LRFP	Long-Range Financial Plan
LRT	Light Rail Transit
MCEA	Municipal Class Environmental Assessment
MECP	Ministry of the Environment, Conservation and Parks
MNRF	Ministry of Natural Resources and Forestry
MTCS	Ministry of Tourism, Culture and Sport
MTO	Ministry of Transportation
MUP	Multi-Use Pathway

NCC	National Capital Commission
NEF	Noise Exposure Forecast
NEP	Noise Exposure Prediction
NHIC	Natural Heritage Information Centre
OEAA	Ontario Environmental Assessment Act
OESA	Ontario Endangered Species Act
OP	Official Plan
OPA	Official Plan Amendment
OWRA	Ontario Water Resources Act
PFCC	Plan for Canada's Capital
PLA	Public Lands Act
PM	Particulate Matter
ppm	Parts per million
PTTW	Permit to take Water
PSPC	Public Services Procurement Canada
RMA	Roadway Modification Approval
ROW	Right-of-way
RTC	Rapid Transit Corridor
RTTP	Rapid Transit and Transit Priority
RVCA	Rideau Valley Conservation Authority
SAR	Species at Risk
SWH	Significant Wildlife Habitat
SARA	Species at Risk Act
SARO	Species at Risk in Ontario
SC	Species of Special Concern
SWM	Stormwater Management
THR	Threatened Species
TMP	Transportation Master Plan
TSC	Traffic Signal Control
TSP	Transit Signal Priority
UNA	Urban Natural Area
UNAEES	Urban Natural Areas Environmental Evaluation Study
UNF	Urban Natural Feature
ZBL	Zoning By-Law

1.0 INTRODUCTION

This section documents the Study objectives and the Addendum process.

1.1 Project Overview

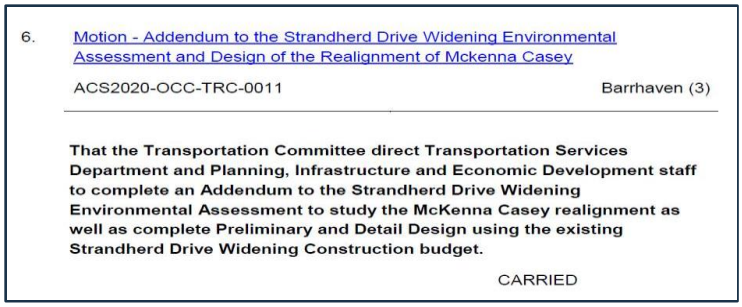
The City of Ottawa initiated the McKenna Casey Drive Realignment Study as an Addendum to the 1991 Strandherd Drive Highway 416 to Jockvale Road Environmental Assessment (EA) Study. McKenna Casey Drive has been closed at the VIA railway line since October 2020 as a planned component of the ongoing Strandherd Widening and Realignment project.

The 1991 Environmental Study Report (ESR) conceptually showed a northerly realignment of McKenna Casey Drive, but the EA did not protect the right-of-way for that extension. The purpose of this Addendum Study is to identify a Recommended Plan for the realignment of McKenna Casey Drive from its existing right-of-way at a location east of Highway 416 northerly to Dealership Drive. This report details the process to complete the Municipal Class EA requirements for an Addendum to the 1991 EA. This report also presents the Recommended Plan, establishing the right-of-way (ROW) requirements and cross-sectional elements having regard for current environmental conditions and having regard for grading and drainage. Of note, the EA and the functional design for the transportation facility does not address the potential municipal servicing infrastructure requirements of abutting lands. However, the identification of the road alignment and corresponding ROW requirements assists developers in their continued development of the area by protecting the corridor within which decisions can be made to plan, design, and implement this infrastructure in the future.

1.2 Ottawa City Council Direction

Ottawa City Council provided the mandate for this Study, giving direction to study the McKenna Casey realignment as well as complete preliminary designs. The City's Transportation Committee passed a motion to initiate the McKenna Casey Realignment Study on October 7, 2020, as per Figure 1.

Figure 1: Council Direction



6. Motion - Addendum to the Strandherd Drive Widening Environmental Assessment and Design of the Realignment of Mckenna Casey

ACS2020-OCC-TRC-0011 Barrhaven (3)

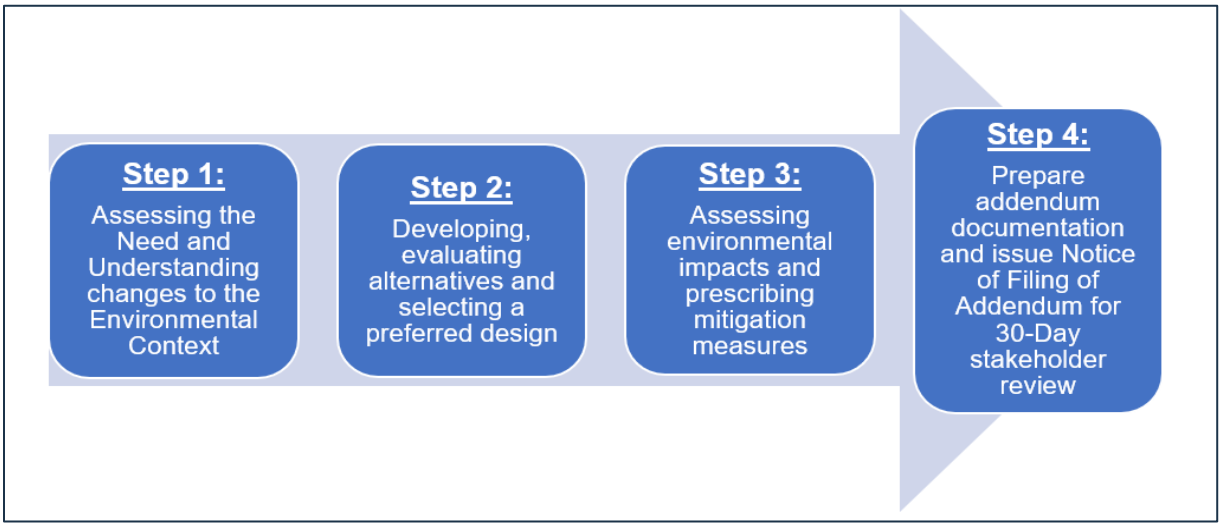
That the Transportation Committee direct Transportation Services Department and Planning, Infrastructure and Economic Development staff to complete an Addendum to the Strandherd Drive Widening Environmental Assessment to study the McKenna Casey realignment as well as complete Preliminary and Detail Design using the existing Strandherd Drive Widening Construction budget.

CARRIED

1.3 EA Addendum Process

The Study is following the guidance provided for an Addendum Process in the Municipal Engineer's Association Municipal Class Environmental Assessment document (October 2000, as amended in 2007, 2011, and 2015). A formal Addendum process is triggered when changes are made to the original project description, when the environmental setting has changed, or there is a lapse in time (over 10 years) since the published Notice of Completion for the original Environmental Study Report. The original EA is still valid because components of the project have already been implemented.

The Addendum process includes the following steps:



To achieve objectives and follow the Addendum process, the Realignment Study process includes:

- re-examining the Study Area existing conditions in terms of transportation, land use planning and development, natural environment, etc.;
- developing and evaluating right-of-way (alignment) and cross-section design alternatives; and
- consulting with relevant subject matter experts, agencies, landowners, and community stakeholders including those that had been consulted as part of the original study.

A copy of the Addendum documentation and the original 1991 Environmental Study Report will be available for a 30-day review period for stakeholders. Only the items in the Addendum (the change to the original project) are open for review and response including requests for a Section 16 Order (a request to elevate the project to higher level of assessment). Requests for a Section 16 Order are limited to matters relating to existing Aboriginal and Treaty rights. If no objections are received within the 30-day review period, the proponent is free to proceed with implementation and construction.

1.4 Consultation Process

The Study provides various opportunities for stakeholder consultation in the form of Working Groups, focused groups and individual meetings with landowners and stakeholders, outreach to Indigenous Groups, and an on-line consultation period. The list of stakeholders was developed based on stakeholders consulted as part of the original EA.

1.4.1 Working Groups

A Community Working Group (CWG) was formed including area landowners and developers and community representatives. A Technical Advisory Group (TAG) was formed that included relevant technical experts such as municipal staff and regulatory agencies from multiple levels of government. CWG and TAG meetings were held virtually using Microsoft Teams on December 15th, 2020; February 24th, 2021; April 1st, 2021; and June 29th, 2021. Meeting minutes and slides are included in **Appendix A: Consultation Record.**

1.4.2 Public Consultation and Transportation Committee

The public on-line consultation period was between June 28th and July 12th, 2021. The EA Addendum was presented to City of Ottawa Transportation Committee and Council on October 6th, 2021 and Council has directed staff to complete the EA Addendum process. A copy of the Addendum documentation and the original 1991 Environmental Study Report will be available for this 30-day review period for stakeholders.

1.5 Study Area

The Study Area for the McKenna Casey Realignment Study is situated in Ottawa's Barrhaven community, within the Citigate Business Park, in the City of Ottawa.

1.5.1 Broad Study Area Base Map

As shown in **Figure 2**, the Study Area features Strandherd Drive and Highway 416 as the major north-south roads. Existing McKenna Casey Drive travels roughly east-west through the Study Area, parallel to and south of Dealership Drive. Dealership Drive is situated on the western extents of Barrhaven, with a more developed, residential neighbourhood pattern seen to the east of Strandherd Drive. The car dealerships along Dealership Drive influence the larger lot size and light industrial character of the Study Area west of Strandherd Drive, as does the Citigate Business Park (around Citigate and Systemhouse streets, west of Strandherd Drive). Further south, the Jock River flows roughly east-west, with the land surrounding the river exhibiting a more natural/rural character near Moodie Drive, the VIA Rail line, and Borrisokane Road. The lands north of the Jock River, east of Highway 416, are designated for future residential intensification.

Figure 2: Study Area (Broad)

1.5.2 Focused Study Area

A focused Study Area (**Figure 3**) has also been identified for this Study as the general area within which roadway alignment alternatives would be considered. The focused Study Area shows in more detail the Study Area key features including the car dealership developments along Dealership Drive, the Rogers AM Radio Site property, vacant development lands, as well as the Gregory-Casey stormwater management facility and the municipal snow management facility south and north of existing McKenna Casey Drive respectively. The O'Keefe Municipal Drain travels roughly north-south through the Study Area and its location is illustrated with greater precision in **Figure 26**.

Figure 3: Study Area (Focused)

2.0 BACKGROUND AND PROJECT NEED

2.1 1991 EA: Strandherd Drive Hwy 416 to Jockvale Road Environmental Assessment Study

Figure 4: Recommended Alignment (1991 ESR)

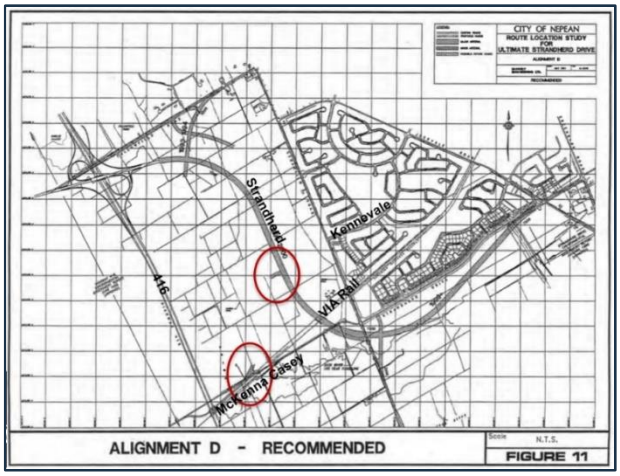
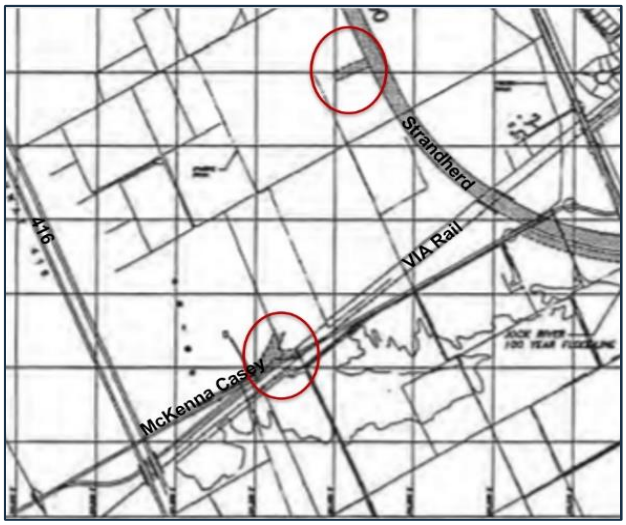


Figure 5: Recommended Alignment, Focused (1991 ESR)

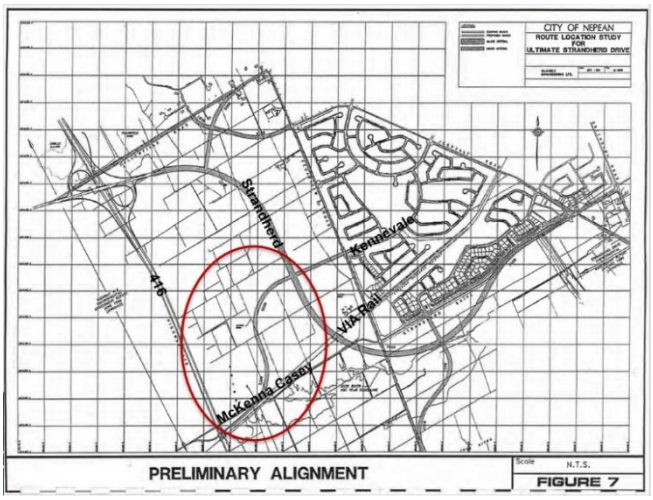


The extension of McKenna Casey Drive was shown conceptually in the Strandherd Drive Highway 416 to Jockvale Road Environmental Assessment Study (1991 Environmental Study Report). The 1991 EA protected connection/terminus points for the extension both at McKenna Casey Drive and at Strandherd Drive as shown in **Figure 4**. That study recommended connecting the future alignment of McKenna Casey at the southern end at McKenna Casey (just before the VIA Rail line crossing) and at the northern end at Strandherd Drive (at present-day Dealership Drive) as shown in **Figure 4**. **Figure 5** shows the two recommended points of connection in greater detail.

However, the 1991 Environmental Study Report (ESR) did not identify or protect the realignment itself. A preliminary road alignment between the existing McKenna Casey and Dealership Drive was illustrated as part of the 1991 Study (**Figure 6**). The preliminary alignment shown in **Figure 6** follows a curvilinear route northerly to what is now Dealership Drive. While fulfilling the basic connectivity requirements of the study at that time, the area has developed since 1991 and land uses, such as the Citigate Business Park, the extension of Dealership Drive, and development along Dealership Drive, now impact the realignment of McKenna Casey Drive and necessitate analysis of the best alignment and cross-section based on present-day conditions.

The present EA Addendum identifies the realignment corridor and presents it as part of the Recommended Plan.

Figure 6: Preliminary Alignment, Early Demonstration (1991 ESR)



2.2 Strandherd Widening and Realignment Project

2.2.1 Summary

The City of Ottawa's 2013 Transportation Master Plan (TMP) identifies the widening of Strandherd Drive from two to four lanes between Fallowfield Road and Jockvale Road as part of the Affordable Network Plan. The section between Fallowfield Road and Maravista Drive has already been completed, while construction of the section between Maravista Drive and Jockvale Road was initiated in July 2020. The design includes cycle tracks and sidewalks on both sides of Strandherd Drive, with a divided four lane cross-section and grade-separated crossing of the VIA railway tracks (see notation C on **Figure 7**). It is expected that construction will be completed in Fall 2023.

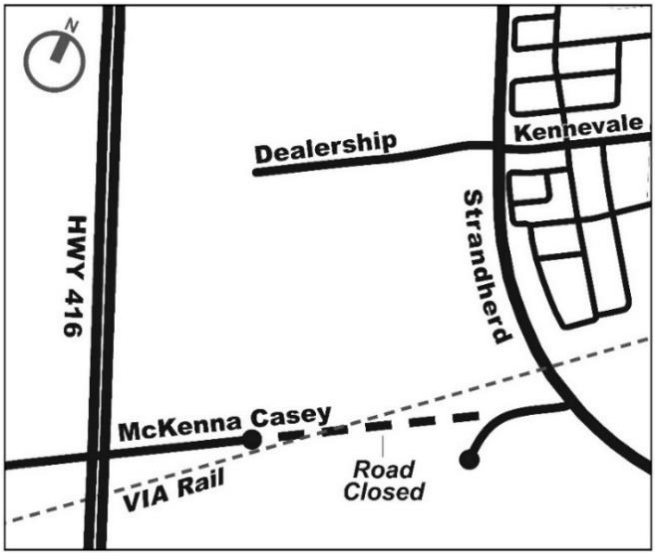
Figure 7: Strandherd Drive Widening and Realignment (Project Overview)

Notation "F" on **Figure 7** indicates the creation of a cul-de-sac on McKenna Casey before the VIA Rail crossing.

2.2.2 Closure of McKenna Casey Drive

Figure 8: Existing McKenna Casey Drive dead-end/cul-de-sac

Figure 9: Key Plan –Area Road Network, Road Closure



The section of McKenna Casey Drive between Strandherd Drive and the VIA railway tracks was permanently closed on October 14th, 2020 to accommodate the construction of the Strandherd Drive detour and ultimately to accommodate the new overpass bridge over the railway on Strandherd Drive. The road currently is a dead-end or cul-de-sac with a paved area that facilitates vehicle turnaround movements as photographed in **Figure 8** in April 2021. The Key Plan in **Figure 9** illustrates the location and extent of the road closure and the resulting missing area network connection between McKenna Casey and Strandherd Drive, while also showing how Dealership Drive is also currently a dead-end without multiple connections to the area road network.

2.3 Area Transportation Need

McKenna Casey Drive is an east-west roadway within the Barrhaven community with a two-lane rural cross section and posted speed of 70 km/h. Prior to its closure at the VIA railway tracks in Fall 2020, the McKenna Casey corridor extended 1.8km between Moodie Drive and Strandherd Drive. Development adjacent to the existing McKenna Casey corridor is considered very limited.

Highway 416 features an overpass at this location, thereby enabling McKenna Casey Drive to provide important east-west connectivity to the adjacent road network (in its original form), serving all travel modes (although with no dedicated active travel facilities):

- With respect to active travel, the combination of the rural context, sparse development, and lack of appropriate facilities contribute to a low demand for pedestrians and cyclists within the McKenna Casey Drive corridor. Notwithstanding the road provides connectivity for active modes between Moodie Drive and Strandherd Drive, including a crossing of Highway 416;
- There is no current role for transit however it would be prudent to plan for the possibility of transit use;
- With respect to auto and truck travel, two-way volumes on McKenna Casey Drive are modest at an estimated AADT of 2,000 vehicles. It provides connectivity for vehicles between Moodie Drive and Strandherd Drive, including a crossing of Highway 416 (no access). The road satisfies an important role for trucking/construction industry on the basis that it forms part of the City's Rural Truck Route (as evidenced by the high percentage of heavy vehicles).

Should the original role of McKenna Casey Drive not be reinstated, the alternative routing to the north includes an approximate 5km to the north via Fallowfield Road or to the south via Barnsdale Road. This represents a travel time implication of about 5-10 minutes by vehicle (longer if congestion is prevalent on Strandherd), 15 min cycling, or 1h walking.

In the fullness of time, the extension of McKenna Casey Drive to Citigate Drive will provide multiple connection points to Strandherd Drive, including Dealership Drive in the near-term (subject of this Addendum), and eventually Systemhouse Drive and Strandherd/Fallowfield to the north.

The provision of the road link is also expected to assist the development in the area insofar as it would provide access.

3.0 UPDATE TO EXISTING CONDITIONS

This section of the report represents the studies and investigations undertaken to provide an update to conditions since the 1991 EA. Existing conditions include all aspects of the environment including:

- the transportation network;
- social and policy environment; and
- the natural and physical environment.

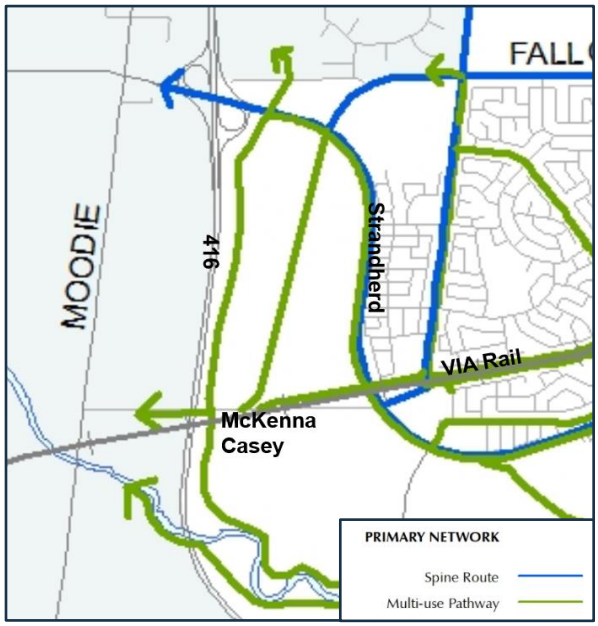
The Study Area is as generally described in **Section 1.5** of the report. Some aspects of the environment may have broader implications as described in this section. The update to existing conditions was prepared by a multi-disciplinary team of transportation engineers and land use planners, biologists, environmental, geotechnical, and municipal engineers. This team of specialists collected, consolidated, reviewed and screened all available information with a view towards establishing a basis for development and evaluation of alternatives. The inventory considered all available background material and where necessary, supplemented with on-site observations or focused studies which are included in **Appendix B: Supporting Specialist Studies**.

3.1 Transportation Network

3.1.1 Active Transportation Network

Currently, no sidewalks exist along McKenna Casey Drive, however the roadway includes a paved shoulder which can be used by pedestrians and cyclists. Sidewalks are currently provided along both sides of Strandherd Drive and Dealership Drive. Portions of a multi-use pathway (MUP) network, following the alignment of the O'Keefe Drain, have been constructed as far south as Dealership Drive.

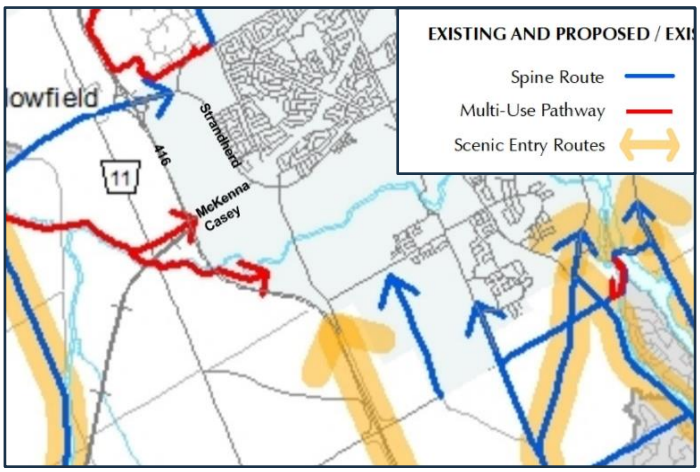
Figure 10: Primary Urban Cycling Network (City of Ottawa Official Plan, Schedule C)



The Schedule C to the City of Ottawa Official Plan - Primary Urban Cycling Network, shown in **Figure 10,** indicates a future multi-use pathway (MUP) roughly along the future McKenna Casey realignment corridor,

Strandherd Drive is identified as a spine cycling route with a major pathway in the City's Cycling Network. There are currently cycle tracks along Strandherd Drive, north of Maravista Drive, with two-stage bike boxes at intersections. A paved shoulder is provided south of Maravista Drive, however cycle tracks will be provided as part of the current widening project.

Figure 11: Cycling, Multi-Use Pathways and Scenic Entry Routes (City of Ottawa Official Plan, Schedule J)

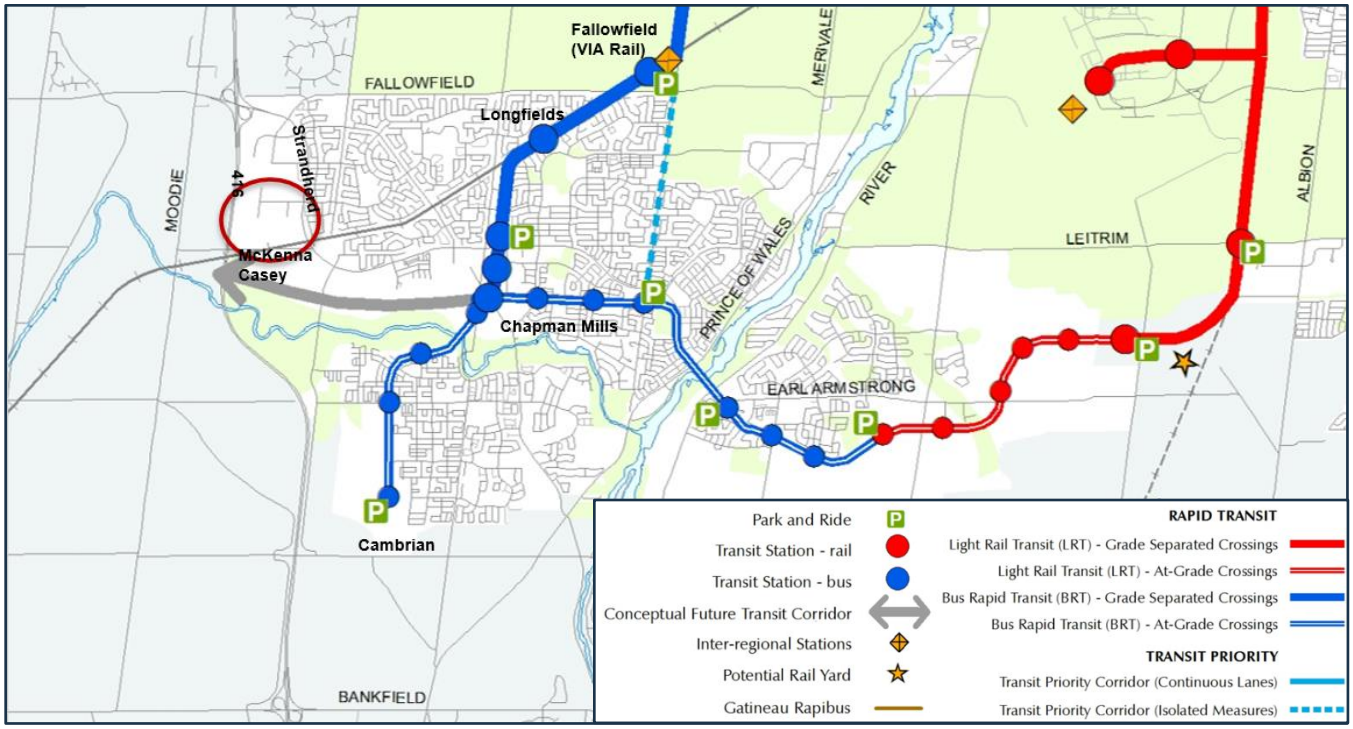


as well as a MUP roughly parallel to Highway 416. The proposed MUP along the McKenna Casey realignment corridor will connect to other multi-use pathways in the area as shown in **Figure 10** and **Figure 11**. During the consultation process for this EA Addendum, input from City staff indicated that the multi-use pathway that runs parallel to Highway 416 in **Figure 10** will not be carried forward in the updated Pedestrian Network.

3.1.2 Transit Network

No transit service currently exists along the existing McKenna Casey Drive. The nearest transit stops to the McKenna Casey Drive east-west corridor are located within the vicinity of Cobble Hill Drive at Maravista Drive.

Figure 12: Rapid Transit and Transit Priority Network (City of Ottawa Official Plan, Schedule D)



However, a review of recent development applications indicates that bus service will be extended into the Citigate lands via CrossKeys Place, Citigate Drive, and Systemhouse Street further north. Schedule D of the Official Plan – Rapid Transit and Transit Priority Network shows that no future transit service is planned in the vicinity of McKenna Casey Drive (**Figure 12**). However, a potential transit corridor south of existing McKenna Casey Drive is contemplated that would connect future BRT (Chapman Mills) to points west (i.e., towards Stittsville/Kanata). This is indicated as a Conceptual Future Transit Corridor in the legend of **Figure 12**.

3.1.3 Vehicle Network

Figure 13: Urban Road Network (City of Ottawa Official Plan, Schedule E)

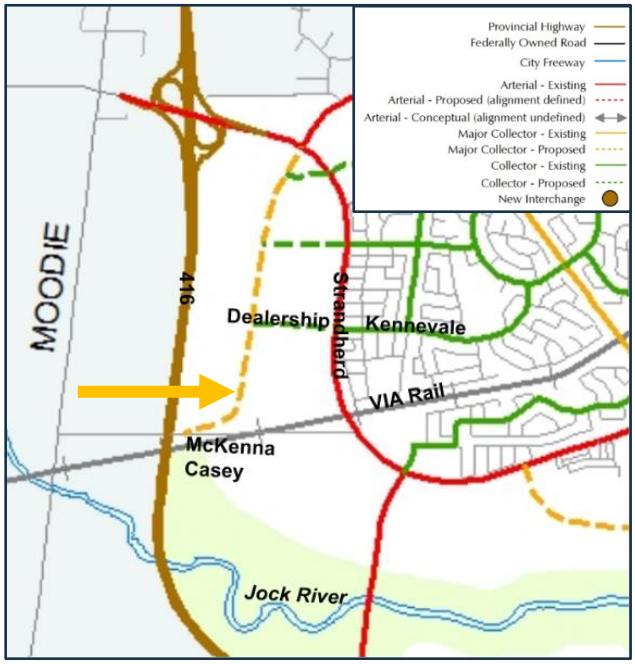
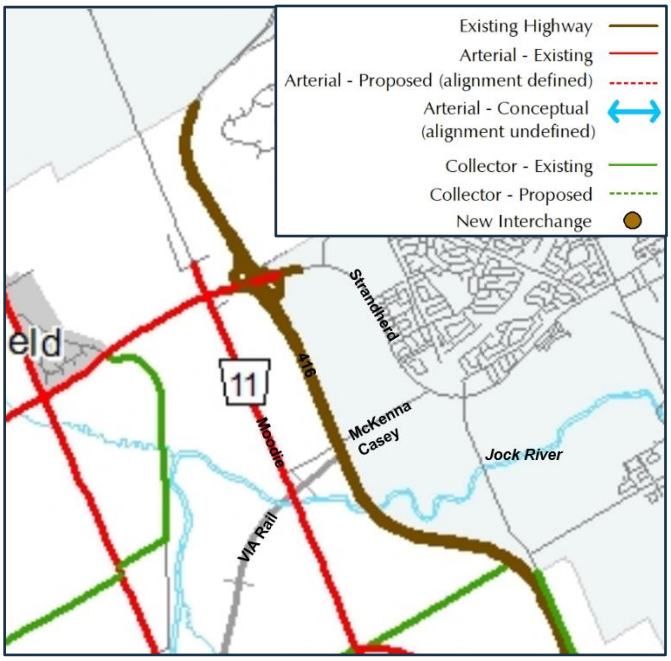


Figure 14: Rural Road Network (City of Ottawa Official Plan, Schedule G)



The Urban Road Network (Schedule E of the Official Plan) and Rural Road Network (Schedule G of the Official Plan) are illustrated in **Figure 13** and **Figure 14**, respectively. Both Strandherd Drive and Moodie Drive are designated as arterial roads, whereas Dealership Drive is designated as a major collector. The future McKenna Casey realignment is designated as a "Major Collector – Proposed" in the City of Ottawa Official Plan, illustrated as a yellow dashed line in **Figure 13** (Urban Road Network, Schedule E).

The 2018 traffic volumes along the corridor indicate that the roadway is lightly used, with weekday peak hour traffic volumes below 120 vehicles/hour. A comparison to 2016 traffic volumes at the intersection of Moodie/McKenna Casey indicates a modest increase in volumes as development advanced along Strandherd Drive in recent years.

3.1.4 Truck Route

Figure 15: Rural Truck Route City of Ottawa, 2020)

McKenna Casey Drive forms part of the Rural Truck Route under seasonal load restrictions. Both Strandherd Drive and Moodie Drive also form part of the designated route (see **Figure 15**).

Information from City staff indicates that McKenna Casey is a notable construction route today, as construction resources are located on the west side of the corridor, while construction sites are located on the east side of the corridor. Based on a review of 2018 traffic counts, the corridor has a significant 18% truck volume in the eastbound direction during the AM peak hour, and 21% truck volume in the westbound direction during the PM peak hour.

3.1.5 Existing Travel Demand

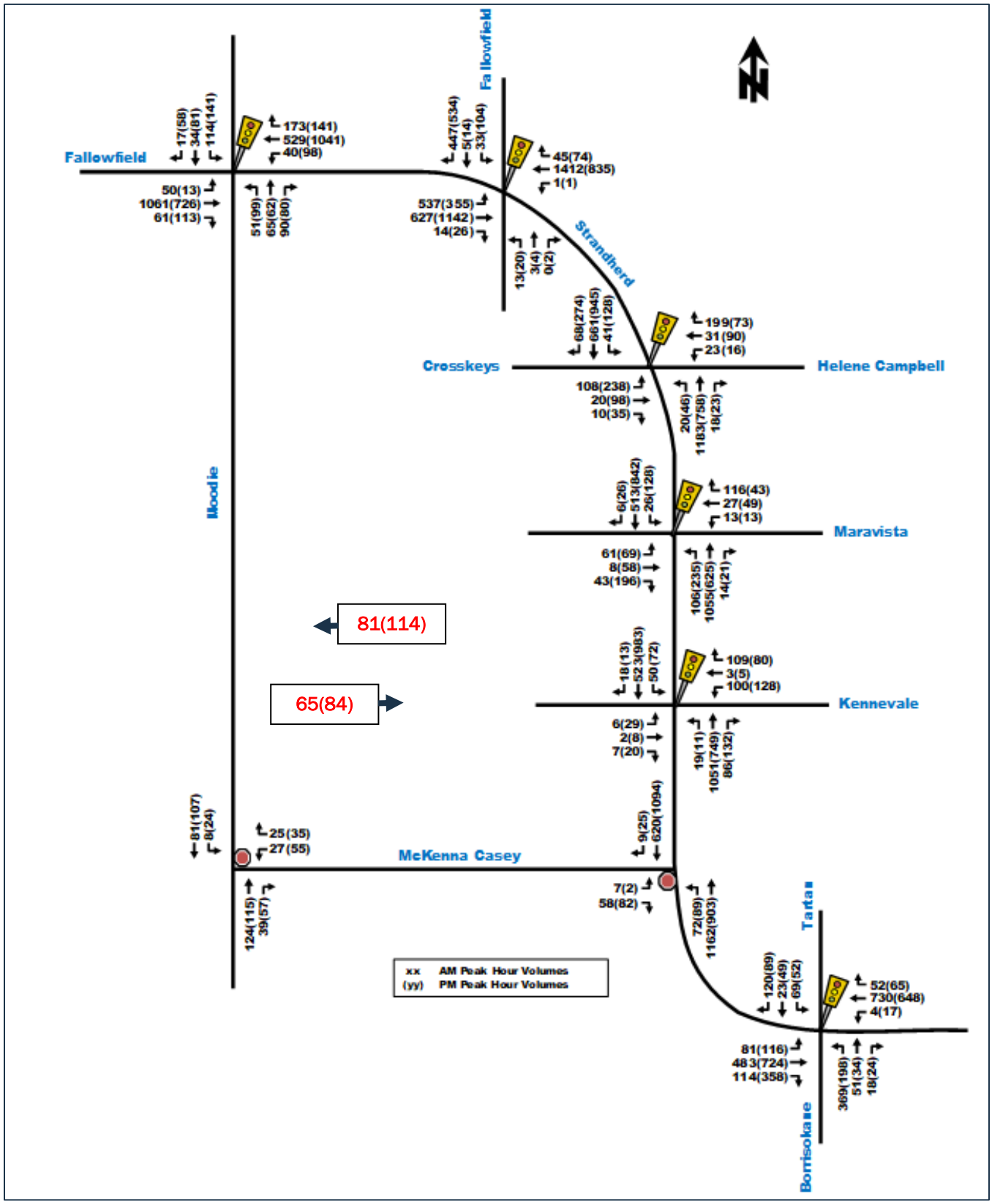
The weekday AM/PM peak hour traffic count data are illustrated in **Figure 16**. The raw turning movement count data are provided in **Appendix C: Supporting Transportation Data**. It should be noted that the traffic data predominantly reflect conditions at the 2018 time horizon.

A summary of recent developments within the vicinity of the study area is provided in
Table 1 below, which indicates that the baseline traffic volumes reflect the impact of the majority of the existing area development since 2016, with the notable exceptions being the Tomlinson Head Office and any recent retail store openings within Citigate.

Table 1: Summary of Area Development Since 2016

Development	Date
CITIGATE/COSTCO OPEN	November, 2016
CAR DEALERSHIPS	
Toyota	April 2016
Honda	February 2018
Hyundai	June 2018
Ford	January 2020
TOMLINSON HEAD OFFICE	Late 2018
AMAZON DISTRIBUTION	Ground-breaking July 10, 2020 (Fall 2021 opening)

Figure 16: Existing AM/(PM) Peak Hour Traffic Volumes (2016-2018) – Source: City of Ottawa intersection turning movement counts



Based on the most recent traffic count available, peak hour traffic volumes on McKenna Casey Drive, before its recent closure, ranged between 65 veh/h and 115 veh/h. Two-way peak hour ranged between 150 veh/h and 200 veh/h, and the estimated AADT 2,000 vehicles. As noted previously, the existing McKenna Casey had a significant heavy vehicle demand of approximately 20%. The following general patterns are noted:

- for eastbound vehicle travel, the majority of traffic originated from northbound on Moodie (+70%), and almost all traffic was destined for southbound on Strandherd (+90%)
- for westbound vehicle travel, the majority of traffic originated from northbound on Strandherd (+80%), and slightly more traffic was destined for southbound on Moodie (60%) versus northbound (40%)

No data were available to estimate current pedestrian or cycling demand within the existing McKenna Casey Drive corridor.

3.2 Social Environment

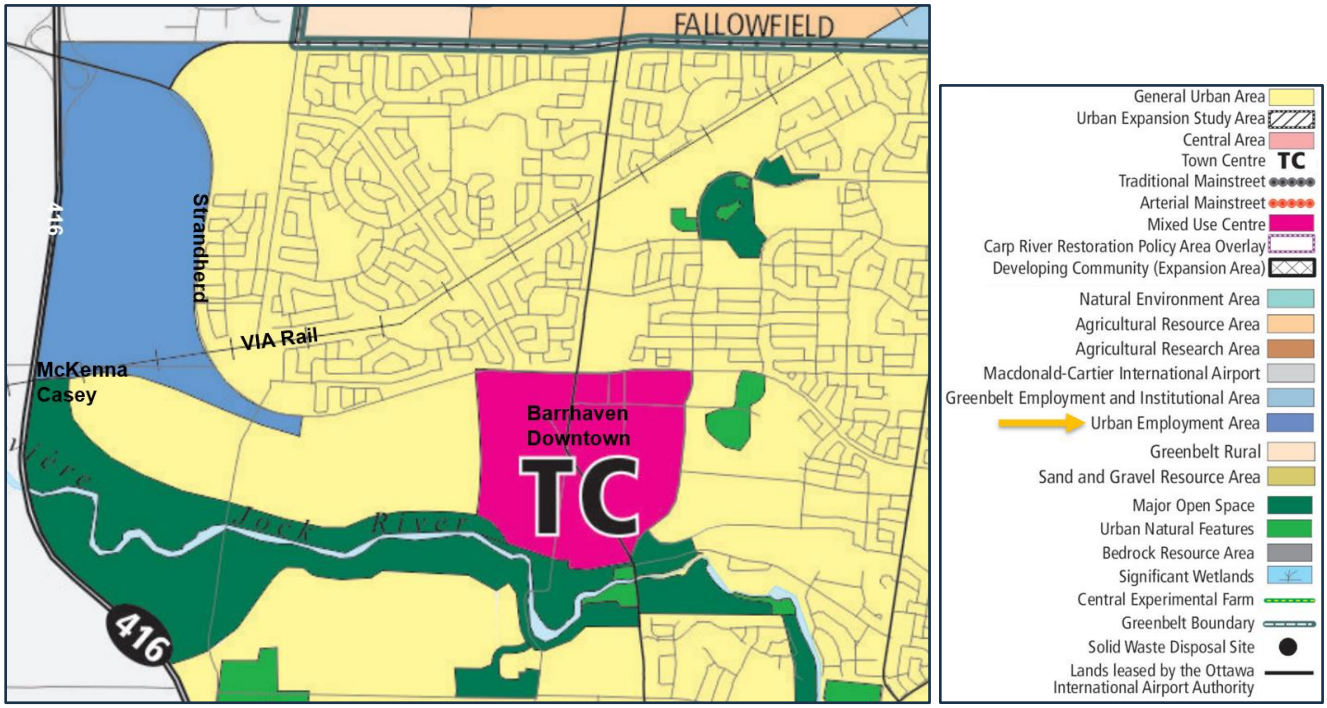
The existing conditions for the social environment within the Study Area are documented here through a review of relevant policy and readily available documents as well as some targeted area stakeholder consultations. The social environment is influenced by the existing planning policy context, area land use plans, area development activity, as well as existing radio infrastructure on the parcel north of existing McKenna Casey.

3.2.1 Policy Context

City of Ottawa Official Plan (By-Law No. 2003-203)

The study area is primarily designated *Urban Employment Area* (between Strandherd Drive and the 416 Highway) as shown in **Figure 17**. Lands to the south and east are designated *Major Open Space* and *General Urban Area*. Barrhaven's Town Centre, (a designated *Mixed Use Centre* and *Town Centre*), is located further east of the Study Area.

Figure 17: Urban Policy Plan (City of Ottawa Official Plan, Schedule B)



Objectives for the *Urban Employment Areas* include:

- Reserving sufficient supply of land for places of business and economic activity to ensure long-term economic health of communities;
- Providing larger parcel sizes to reflect need for warehouses, storage, parking, etc.;
- Providing access to jobs through strategic location close to major roads, highways, and/or transit.

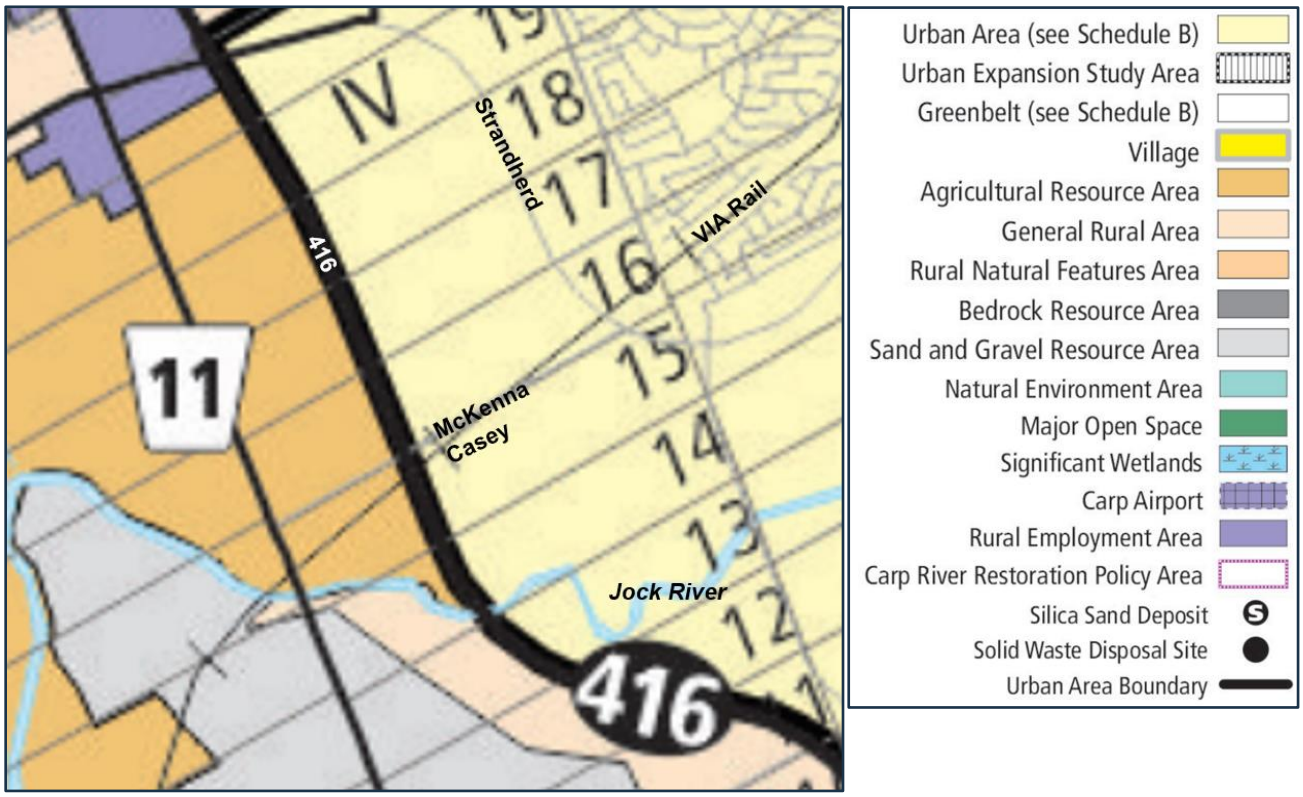
Objectives for the *General Urban Area* include:

- Many types and densities of housing, as well employment, cultural, service, retail, leisure, institutional, and other related uses;
- Intensification where it complements the existing pattern and scale of development.

Features of *Town Centres* such as Barrhaven include:

- Acting as long-standing cores of suburban areas outside the Greenbelt;
- Occupying strategic locations on the Rapid Transit Network;
- Acting as central nodes of activity.

Figure 18: Rural Policy Plan (City of Ottawa Official Plan, Schedule A)



The land west of the Study Area falls within the Rural Policy Plan (Schedule A) of the Ottawa Official Plan. Much of the land west of the 416 Highway is designated *Agricultural Resource Area*, with land designated *Rural Employment Area* further north near the 416/Strandherd interchange and the Citigate Business Park.

Objectives of the *Agricultural Resource Area* are to permit types, sizes, and intensities of agricultural uses. It is noted that removal from this designation to allow for urban expansion will be permitted provided it is demonstrated that the land is required through a comprehensive review.

Objectives for *Rural Employment Areas* include:

- Supporting the majority of non-farming rural employment;
- Encouraging the clustering of industrial and related commercial uses not suitable for the Urban Area or the General Rural Area.

City of Ottawa Comprehensive Zoning By-law (Zoning By-law 2008-250 Consolidation)

Figure 19: Study Area Zoning

The majority of the lots north of existing McKenna Casey and surrounding Dealership Drive are zoned *IP – Business Park Industrial* Zone, subject to various holding zones as well. IP zones permit various uses such as automobile dealership, drive-through facility, hotel, light industrial uses, research and development centre, service and repair shop, technology industry, and warehouse. **Figure 19** also indicates Public Owned Lands with a purple overlay.

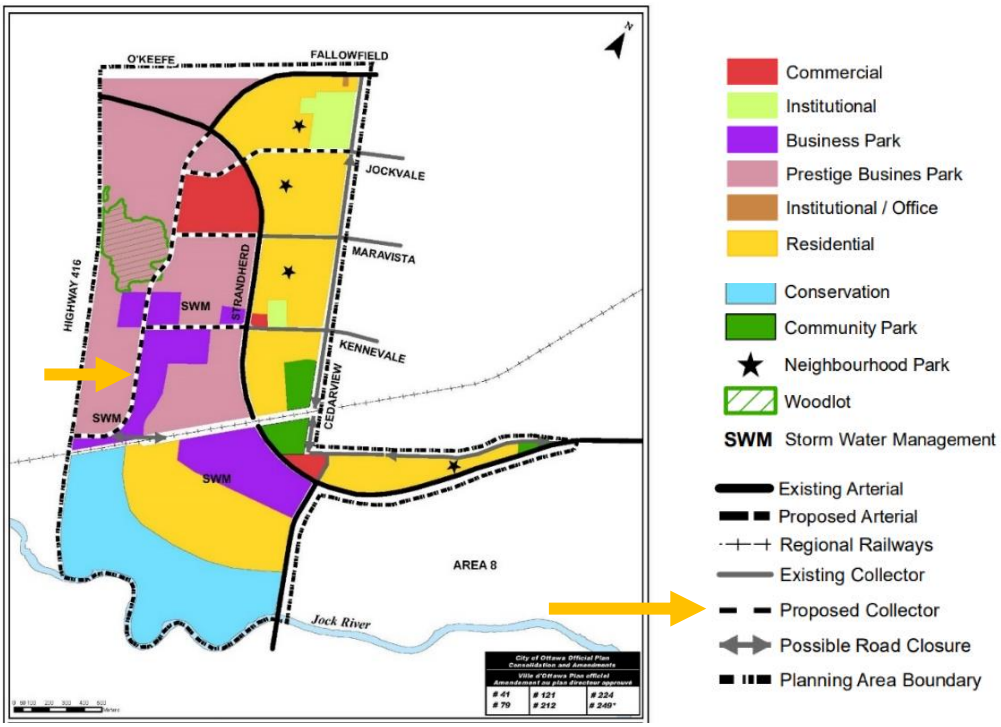
3.2.2 Area Land Use Plans and Development Activity

South Nepean Areas 9 & 10 Secondary Plan

The Study Area is subject to the South Nepean Areas 9 & 10 Secondary Plan. Secondary Plans provide more detailed land use direction at a local/community level. The area Secondary Plan includes a number of objectives relating to transportation and road networks such as:

- To provide a transportation network of roads that blends into the existing network; and
- To provide sufficient employment area building on the economic development opportunity available from the 416/Strandherd interchange.

Figure 20: South Nepean Secondary Plan for Areas 9 & 10 (Schedule A, Land Use)



The Secondary Plan Schedule A (Land Use) shown in **Figure 20** indicates a proposed collector road that roughly follows the potential realignment of McKenna Casey Drive and links to Dealership Drive. As indicated in **Figure 20**, this proposed collector road travels northerly to Dealership Drive, and continues northerly through the Citigate Business Park.

Schedule A (Land Use) of the Secondary Plan designates the lands surrounding the proposed collector road (the potential realignment corridor of McKenna Casey) as Business Park and Prestige Business Park. Lands south of the existing VIA Rail corridor are designated as Conservation, Residential, and Business Park. The current road closure of McKenna Casey is also indicated in the legend of **Figure 20** as a Possible Road Closure.

Development Activity

There are parcels in the Study Area with active development applications that are currently being reviewed or are approved by the City such as:

- The Amazon/Python warehouse project near Citigate;
- Additional/new car dealerships along Dealership Drive; and
- The Conservancy (west) Concept Plan of subdivision south of existing McKenna Casey Drive.

Figure 21: Area Development Activity

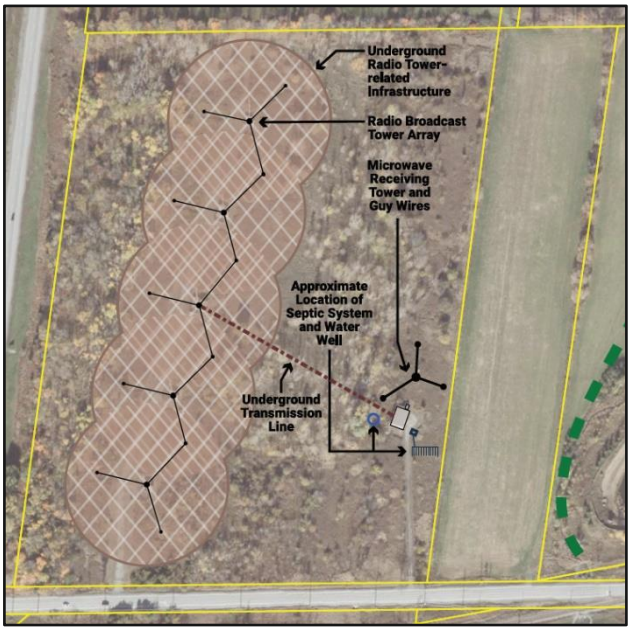
The development activity and direction for the area presents opportunities and constraints. There are opportunities to coordinate the roadway alignment and cross-section with northerly development, in order to plan for a McKenna Casey realignment that lends itself for future northerly extension such as that depicted in the Secondary Plan. This is also an opportunity to provide a coherent and cohesive street network and development pattern for this Business Park area of the western Barrhaven community.

3.2.3 Radio Infrastructure

Radio broadcasting tower infrastructure is located on an Rogers Communications AM Radio Site to the north of existing McKenna Casey Drive, just east of Highway 416. **Figure 22** and **Figure 23** both show that most of the land parcel is occupied by a five-tower array for AM radio broadcasting purposes. The infrastructure on the AM Radio Site includes:

Figure 22: Radio Infrastructure (Aerial Imagery, GeoOttawa)

Figure 23: Radio Infrastructure (Schematic)



- Radio broadcast five-tower array and associated infrastructure;
- Communications building, connected via underground transmission line to five-tower array;
- Decommissioned water well and septic system adjacent to building;
- Private approach leading to building from existing McKenna Casey Drive;
- Perimeter fencing on the south of the property, along existing McKenna Casey Drive; and

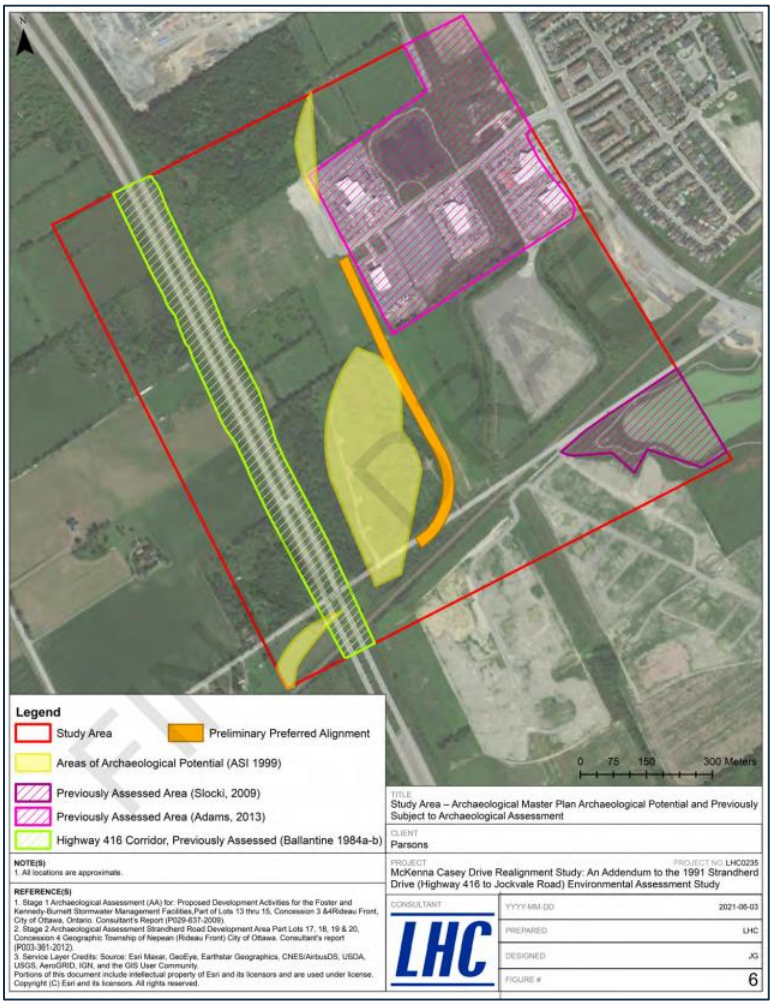
- Microwave receiving tower and associated guy wires on the east of the property, north of the building, along the east lot line.

Consultation with Rogers as part of the CWG (Community Working Group) as well as during focused stakeholder meetings through the consultation process of this Addendum Study allowed for the understanding of the AM Radio Site infrastructure represented schematically in **Figure 23.** Rogers also suggested that consultation with Octave Communications was warranted to analyze potential public health risk associated with the five-tower array frequencies. The Octave report confirms that the five-tower array emits frequencies that emanate from the towers but are strongest it the north-west direction (towards downtown Ottawa and not towards the historically envisoned McKenna Casey Drive alignment to the east) that vary slightly in direction and strength between the night and day. The Safety Code 6 limit, which represents a potential risk to public health, is 39.3 metres from the base of any tower on the AM Radio Site, meaning that this is very far removed from the McKenna Casey Drive alignment. The Safety Code 6 limits were revised by Health Canada in 2015 and made more stringent compared to the previous 1999 iteration. The full report by Octave Communications is provided in **Appendix B: Supporting Specialist Studies**.

3.2.4 Archaeological Resources

The Stage 1 Archaeological Assessment (AA) was prepared to inform the study. The full report is provided in **Appendix B: Supporting Specialist Studies**. The Study Area is located within the Algonquins of Ontario (AOO) Settlement Area, an area of unceded territory covering more than nine million acres, including the City of Ottawa. Archaeological potential was found in the Study Area as shown in **Figure 24**. Areas that contain archaeological potential are recommended to be subject to Stage 2 AA prior to the commencement of onsite construction or activities causing soil disturbances. Areas of previous assessment do not require further assessment.

Figure 24: Archaeological Potential and Areas Previously Subject to Archaeological Assessment



3.2.5 Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment was undertaken for the Study Area to provide an overview of recognized and potential Cultural Heritage Resources (CHR) which includes both built heritage resources (BHR) and cultural heritage landscapes (CHL).

Built heritage resource means a building, structure, monument, installation, or any manufactured remnant that contributes to a property's cultural heritage value or interest as identified by a community, including an Aboriginal community. Built heritage resources are generally located on a property that has been designated under Parts IV or V of the *Ontario Heritage Act*, or included on local, provincial and/or federal registers. A cultural heritage landscape means a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Aboriginal community. Farms and cemeteries are examples of cultural heritage landscapes.

The complete heritage report can be found in **Appendix B: Supporting Specialist Studies**. The heritage report included completion of the Cultural Heritage Screening Checklist, review of previously completed cultural heritage reports, a review of online databases and historical and environmental background research of the Study Area.

Potential CHRs are listed in **Table 2** and shown in **Figure 25**. No properties which are subject to federal, provincial, or municipal heritage protections are located within, or adjacent to the Study Area. These potential CHRs were screened for their potential to meet the criteria outlined in Ontario Regulation 9/06: Criteria for Determining Cultural Heritage Value or Interest under the *Ontario Heritage Act* and it was determined that all properties have the potential to meet one or more of the criteria. Properties identified as having potential as a cultural heritage resource are located west of Highway 416.

Table 2: Summary of Potential Cultural Heritage Resources in the Study Area

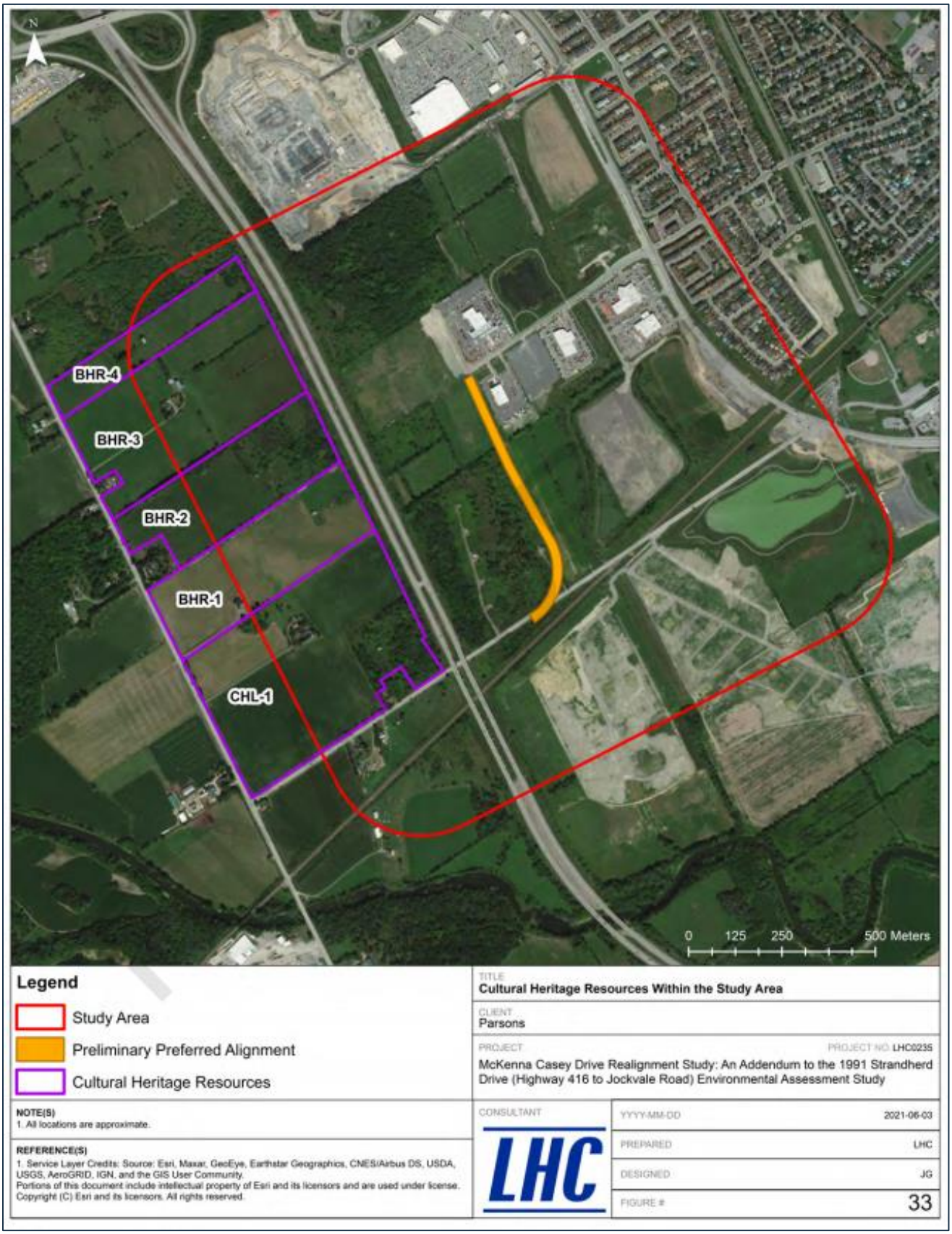
CHR	Address
CHL-1	3087 Moodie Drive
BHR-1	3047 Moodie Drive
BHR-2	2985 Moodie Drive
BHR-3	2949 Moodie Drive
BHR-4	2915 Moodie Drive

3.2.6 Indigenous Land Claims

The Study Area is within the Algonquins of Ontario land claim area. There is no known current use of lands and/or resources for traditional purposes within the Study Area. Known areas used for traditional fishing include the Rideau River which is more than 3 km east of the Study Area (Algonquins of Ontario, 2014). Potential past use of lands for traditional purposes is described in the Stage 1 Archaeological Assessment found in **Appendix B: Supporting Specialist Studies**.

The negotiators for the Algonquins of Ontario and the Canadian and Ontario Government drafted an Agreement-in-Principle in December 2012. The aforementioned parties signed this non-binding Agreement-in-principle, by the signing, negotiations towards a Final Agreement can begin. Within the revised Agreement-in-Principle (2016) there are land parcels within the Ottawa area identified for potential transfer to the Algonquins of Ontario. There are no identified parcels of land for transfer within the Study Area.

Figure 25: Cultural Heritage Resources Adjacent to the Study Area



3.2.7 Noise and Vibration

There are no known sensitive receivers located within the Study Area.

3.3 Natural Environment

The Natural Environment Overview Report (of existing conditions) can be found in in **Appendix B: Supporting Specialist Studies.**

3.3.1 Terrestrial Environment

The Study Area is mostly comprised of crop and pasture, meadows, woodland, hedgerows, commercial and municipal land uses (**Figure 26**). There are no evaluated or unevaluated wetlands located within the Study Area however cattails were observed in large quantities between McKenna Casey Drive and the VIA Rail corridor within the roadside ditch.

The following tree species were identified within the Study Area: trembling aspen (*Populus tremuloides*), American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*), sugar maple (*Acer saccharum*), and American basswood (*Tilia americana*).

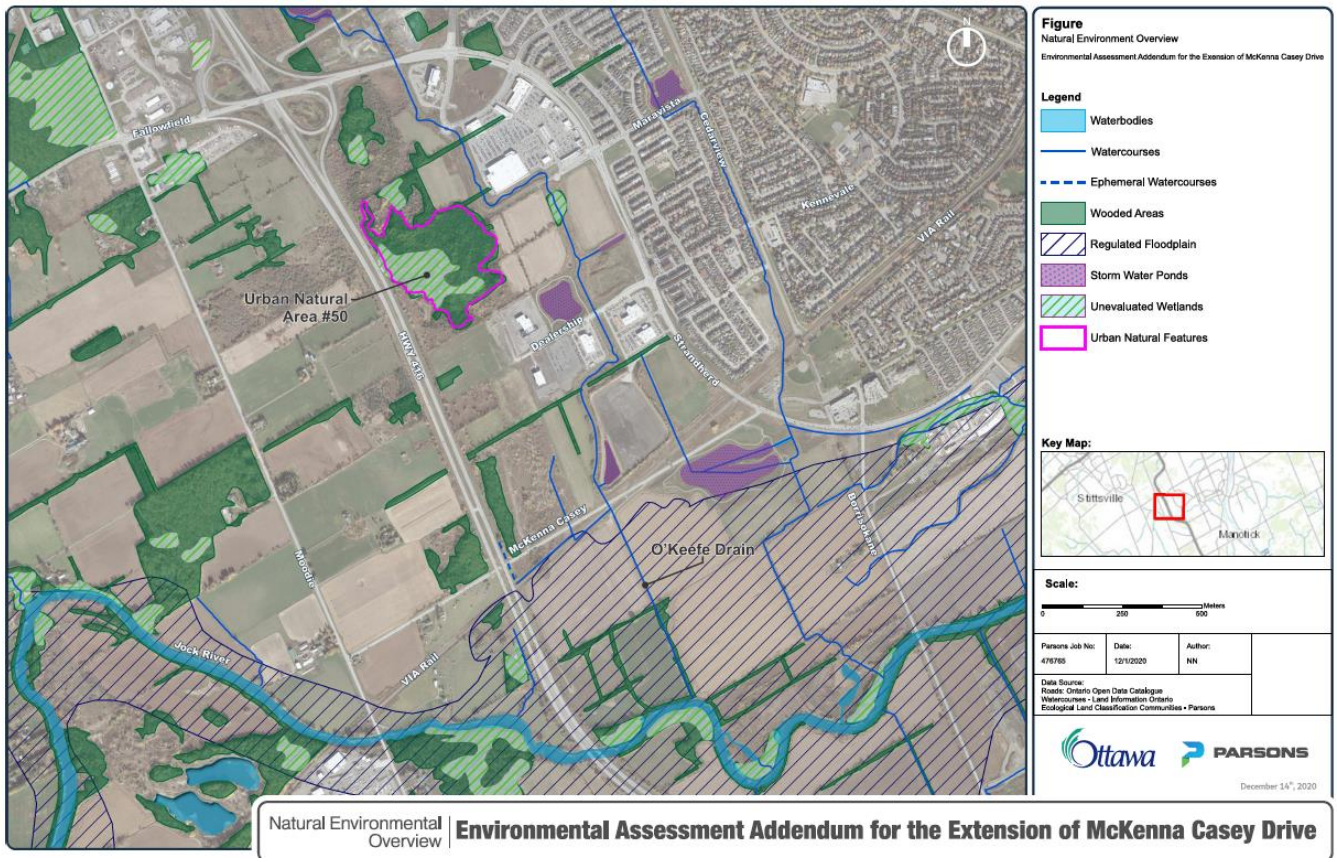
The southwest portion of the Study Area bordering Highway 416 contains a deciduous woodland that is approximately 3.6 ha in size (**Figure 26**). According to the City of Ottawa's *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment*, the City of Ottawa Official Plan, as amended by Official Plan Amendment 179 (under appeal as of October 2018) defines significant woodlands as "in the urban area, any woodland that is at least 60 years old and 0.8 ha in size qualifies as significant". Due to a review of aerial photography, the woodlot does not meet the age criteria.

The City of Ottawa undertook the Urban Natural Areas Environmental Evaluation Study (UNAEES; Muncaster and Brunton 2005; Muncaster and Brunton 2006) in conjunction with the Greenspace Master Plan (City of Ottawa, 2006). The purpose of the UNAEES was to identify woodlands, wetlands and ravines throughout the City of Ottawa urban area and evaluate their environmental significance. Urban Natural Area (UNA) #50 "Highway 416" is located on an adjacent parcel north of the Study Area. The UNA is described as an upland deciduous and coniferous forest and is considered to have an overall "moderate" sensitivity rating.

3.3.2 Aquatic Environment

The Study Area is located in the southwestern portion of the Jock River – Barrhaven catchment, part of the Jock River watershed. The Jock River – Leamy Creek Catchment is located approximately 1 km from the western boundary of the Study Area. The Jock River is approximately 800 meters from the southern boundary of the Study Area flowing from west to east for approximately 3 km to its confluence with the Rideau River (**Figure 26**). The Jock River is classified as a warm/warm-cool water system that is home to a baitfish and recreational fishery of approximately 40 species (RVCA, 2016).

Figure 26: Natural Environment Existing Conditions for the Study Area



Within the Study Area is the O'Keefe Municipal Drain, two unnamed watercourses and an unnamed ephemeral watercourse which all flow towards the Jock River. The O'Keefe Municipal Drain catchment area is approximately 531 ha and has been previously realigned within the Study Area (**Figure 27**; CH2MHILL 2013). During the site visit, water was observed flowing in the O'Keefe Municipal Drain through the culverts under McKenna Casey Drive. The riparian vegetation of the O'Keefe Drain is dominated by graminoids with shrubs including red-osier dogwood (*Cornus stolonifera*) and occasional trees including red maple (*Acer rubrum*) and Willow (Salix spp). Seventeen fish species found during community surveys conducted relevant to the Study Area (**Table 3;** RVCA 2016).

Figure 27: O'Keefe Municipal Drain Catchment Area (CH2MHill 2013)

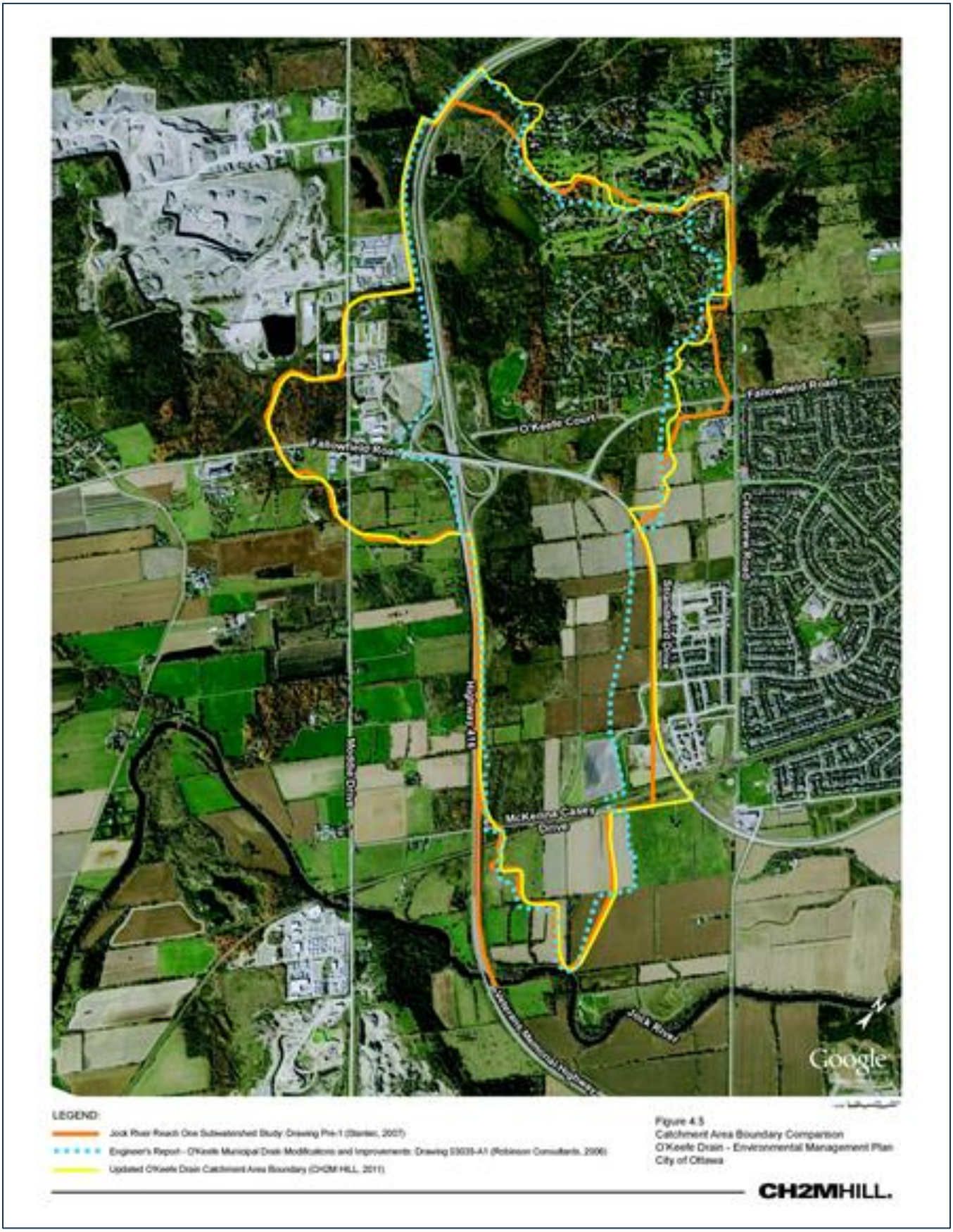


Table 3: Fish Species Captured in the O'Keefe Drain

Common Name	Scientific Name
Banded Killifish	*Fundulus diaphanus*
Blacknose dace	*Rhinichthys atratulus*
Blacknose shiner	*Notropis heterolepis*
Bluntnose minnow	*Pimephales notatus*
Brook stickleback	*Culaea inconstans*
Central mudminnow	*Umbra limi*
Common shiner	*Luxilus cornutus*
Creek chub	*Semotilus atromaculatus*
Darter Species	*Etheostoma sp.*
Fathead minnow	*Pimephales promelas*
Finescale dace	*Phoxinus neogaeus*
Mottled sculpin	*Cottus bairdii*
Northern pearl dace	*Margariscus nachtriebi*
Northern redbelly dace	*Chrosomus eos*
Pumpkinseed	*Lepomis gibbosus*
Rock bass	*Ambloplites rupestris*
White sucker	*Catastomus commersonii*

3.3.3 Species at Risk and Species of Special Concern

A review of online databases identified wildlife species with occurrence records in the vicinity of the Study Area. Of the records, 34 records of SAR and/or Species of Special Concern have the potential to exist either within 1 km (as per MNRF, NHIC) or 10 km (as per wildlife atlas records) of the Study Area. Known locations of butternut trees (*Juglans cinerea*) (listed as Endangered provincially and federally) are known to occur on adjacent properties located near the Study Area (CH2MHILL 2013).

Common Name and *Scientific Name*	ESA Status[1]	SARA Status[2]	Record Source	Record Year	Habitat Requirements[3]	Reasonable Likelihood of Presence in Study Area[4]	Reasonable Likelihood of Presence in Study Area Discussion	Potential Critical Habitat Present in the Study Area (Yes/No)
Western Chorus Frog *Pseudacris maculata pop. 1*	-	THR	ORAA, ECCC	2017, 2020	Prefers terrestrial lowlands of marshes or wet woodlands and requires both terrestrial and aquatic habitats in proximity to each other. Relies on seasonal/temporary ponds and rarely in permanent water bodies (COSEWIC 2020). This species is not protected under the provincial ESA and is only protected on federal lands.	Moderate	There is moderate potential for this species to occur within the Study Area due to the presence of wet meadows and woodland habitat with potential for ephemeral pooling. Further studies would be required in order to determine whether this species is present, and whether breeding habitat is present within the Study Area.	No. Not applicable
Blanding's Turtle *Emydoidea blandingii*	THR	END	ORAA	2019	Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed (MECP 2020).	Moderate	There is moderate potential for Blanding's Turtle to occur within the Study Area due to the presence of suitable aquatic habitat in the form of the O'Keefe Drain. The O'Keefe Drain may serve as a travel corridor between wetland habitats, and provides connectivity to the Jock River, where this species has been observed. This species may enter the Study Area while travelling between habitats, or in search of suitable nesting habitat which may occur within the ROW of McKenna Casey Drive. Further studies should be undertaken to inform the development of site-specific mitigation measures to protect this species.	No
Eastern Musk Turtle *Sternotherus odoratus*	SC	SC	ECCC	2015	Found in slow moving waters of ponds, lakes, marshes and rivers, preferring areas with emergent vegetation. They burrow into muddy bottoms to hibernate overwinter (MECP 2020).	Moderate	There is moderate potential for Eastern Musk Turtle to occur within the Study Area due to the presence of suitable aquatic habitat in the form of the O'Keefe Drain. The O'Keefe Drain may serve as a travel corridor between wetland habitats, and provides connectivity to the Jock River, where this species has been observed. This species may enter the Study Area while travelling between habitats, or in search of suitable nesting habitat which may occur within the ROW of McKenna Casey Drive. Further studies should be undertaken to inform the development of site-specific mitigation measures to protect this species.	No. Not applicable.

Common Name and *Scientific Name*	ESA Status[1]	SARA Status[2]	Record Source	Record Year	Habitat Requirements[3]	Reasonable Likelihood of Presence in Study Area[4]	Reasonable Likelihood of Presence in Study Area Discussion	Potential Critical Habitat Present in the Study Area (Yes/No)
Eastern Milksnake *Lampropeltis triangulum*	NAR	SC	ORAA	2020	Generally found in open habitats including rock outcrops, and meadows, and are commonly found in agricultural areas in association with barns and sheds. May also be associated with woodlands bordering these habitats (ECCC 2020). Rock piles and areas of exposed bedrock or old foundations may provide appropriate microhabitats for hibernacula.	Moderate	There is moderate potential for Eastern Milksnake to occur in agricultural and meadow communities throughout the Study Area, especially along fencerows and woodlots. Further studies would be required in order to determine whether potential hibernacula are present within the Study Area. These sites are rare, though may occur in a range of habitat types and are protected under the PPS as SWH.	No. Not applicable.
Snapping Turtle *Chelydra serpentina*	SC	SC	OMNRF, ORAA	2020	Permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water (MECP 2020) they prefer shallow waters with dense vegetation, so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. They nest from early to mid-summer in gravelly or sandy areas along streams.	Low	There is moderate potential for Snapping Turtle to occur within the Study Area due to the presence of suitable aquatic habitat in the form of the O'Keefe Drain and in Storm Water Management Ponds within the Study Area. The O'Keefe Drain may serve as a travel corridor between wetland habitats, and provides connectivity to the Jock River, where this species has been observed. This species may enter the Study Area while travelling between habitats, or in search of suitable nesting habitat which may occur within the ROW of McKenna Casey Drive. Further studies should be undertaken to inform the development of site-specific mitigation measures to protect this species.	No. Not applicable.
Bald Eagle *Haliaeetus leucocephalus*	SC	-	Ebird, OBBA	2020	Inhabits a variety of habitats and forest types, usually near a major waterbody, which provides hunting habitat. Generally, nest in large trees in forested areas (MECP 2020).	Low	There is low potential for Bald Eagle to occur in the Study Area as there is no suitable foraging or nesting habitat within the Study Area. Occasional habitat may be present in the form of perches and flyover area for birds travelling between forest communities and the Jock River occurring just outside of the Study Area.	No. Not applicable.
Bank Swallow *Riparia riparia*	THR	THR	OBBA	2020	Nests in burrows constructed in vertical banks with sand or silt-based substrate. Often nests are located in riverbanks, but they may also be found in disturbed areas including active sand and gravel pits. These birds breed colonially in groups ranging from several birds to a few thousand (MECP 2020).	Low	There is low potential for Bank Swallow to occur within the Study Area due to the absence of riverbanks or of sand and gravel pits, however there is potential for suitable nesting habitat to be created in the form of exposed soils and material stockpiles associated with construction activities. There is a known nesting colony located 7km south of the Study Area.	No
Barn Swallow *Hirundo rustica*	THR	THR	OMNRF, Ebird	2005, 2020	Prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in Drive culverts; on rock faces and in caves etc. (MECP 2020).	Moderate	There is moderate potential for Barn Swallow to occur in the Study Area due to the presence of suitable nesting habitat in the form of the Highway 416 overpass, which occurs in an agricultural landscape near wetlands and stormwater features. No nests were observed during the site visit, however there is potential for nests to occur in the future. Further investigations are warranted to determined presence/absence of suitable nesting habitat.	Yes
Black Tern *Chlidonias niger*	SC	-	Ebird	2006	Inhabits shallow marshes in association with large waterbodies where they build floating nests colonially. They forage over waterbodies where they catch insect prey by hovering just over the surface (MECP 2012).	None	Not anticipated to interact with the proposed construction activities as suitable habitat, including occasional habitat, is absent from the Study Area, as limited areas of shallow marsh are not associated with large waterbodies or open water.	No. Not applicable.
Bobolink *Dolichonyx oryzivorus*	THR	THR	OBBA, CH2MHIII	2013, 2020	Generally, prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands (MECP 2020).	High	Bobolink has been observed in adjacent pasture / meadows from a previous study conducted within and around the Study Area. Meadow and agricultural land uses may provide suitable nesting habitat within the Study Area. Further investigations are warranted to determined presence/absence of suitable nesting habitat.	Yes
Canada Warbler *Cardellina canadensis*	SC	THR	OBBA	2020	Prefers wet/riparian forests with a dense shrub and understory layer and either deciduous, coniferous or mixed canopy. Generally nests on or near the ground on hummocks, mossy logs, or roots (MECP 2020).	Moderate	There is moderate potential for Canada Warbler to occur in the Study Area due to the presence of suitable nesting habitat in the form of wet wooded areas within the Study Area. Further investigations are warranted to determined presence/absence of suitable nesting habitat.	No. Not applicable.
Cerulean Warbler *Setophaga cerulea*	THR	THR	OBBA	2020	Primarily associated with forested landscapes characterized by mature deciduous stands with large, tall trees and a closed or semi-opened canopy (COSEWIC 2020).	Low	There is low potential for Cerulean Warbler to occur within wooded areas within the Study Area. The wooded areas within the Study Area are expected to offer occasional habitat to migrating individuals, however are not expected to provide sufficient area or maturity for breeding.	No
Chimney Swift *Chaetura pelagica*	THR	THR	OBBA	2020	Historically found in deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer; now most are found in urban areas in large uncapped chimneys (MECP 2020).	Low	There is low potential for Chimney Swift to occur within the Study Area as structures with chimneys are absent from the Study Area. Occasional habitat for foraging individuals may be present, due to the proximity of the Study Area to residential land uses.	No
Common Nighthawk *Chordeiles minor*	SC	THR	OBBA	2020	Prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and riverbanks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops; MECP 2020).	Moderate	There is moderate potential for Common Nighthawk to occur within the Study Area. Breeding habitat may be available within the Study Area in the form of open ground including gravel access Drives, cleared land, and graminoid meadows within the Study Area. As this species is a habitat generalist, it may also attempt to nest in areas cleared for construction. Further investigations are warranted to determined presence/absence of suitable nesting habitat, and mitigation measures will be recommended to prevent nesting within construction areas.	No. Not applicable

Common Name and *Scientific Name*	ESA Status[1]	SARA Status[2]	Record Source	Record Year	Habitat Requirements[3]	Reasonable Likelihood of Presence in Study Area[4]	Reasonable Likelihood of Presence in Study Area Discussion	Potential Critical Habitat Present in the Study Area (Yes/No)
Eastern Meadowlark *Sturnella magna*	THR	THR	OBBA, Ebird, CH2mHill	2013 2018, 2020	Generally, prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps (MECP 2020).	High	Eastern Meadowlark has been observed in adjacent pasture / meadows from a previous study conducted within and around the Study Area. Meadow and agricultural land uses may provide suitable nesting habitat within the Study Area. Further investigations are warranted to determined presence/absence of suitable nesting habitat.	Yes
Eastern Whip-poor-will *Antrostomus vociferous*	THR	THR	OBBA	2020	Eastern Whip-poor-will are nocturnal ground nesters that are found in a mix of open and forested areas, such as savannahs, open woodlands or openings in more mature, deciduous, coniferous and mixed forests. Nesting occurs directly on the ground in treed areas, while foraging occurs in adjacent open landscapes (MECP 2020).	Moderate	There is moderate potential for Eastern Wood-pewee to occur in the Study Area due to the presence of suitable nesting habitat in the form of wooded areas adjacent to open habitat within the Study Area.	Yes
Eastern Wood-pewee *Contopus virens*	SC	SC	OBBA	2020	Associated with deciduous and mixed forests. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges (MNR 2000).	Moderate	There is moderate potential for Eastern Wood-pewee to occur in the Study Area due to the presence of suitable nesting habitat in the form of wooded areas within the Study Area.	No. Not applicable.
Golden-winged Warbler *Vermivora chrysoptera*	SC	THR	OBBA	2020	Nests in shrubs and young trees near mature forests e.g. Forest edges, hydro corridors, and logged areas. Breeding adults nest in small colonies, and are known to return to the same breeding site in consecutive years (MECP 2020).	Moderate	There is moderate potential for Canada Warbler to occur in the Study Area due to the presence of suitable nesting habitat in the form of wet wooded areas within the Study Area. Further investigations are warranted to determined presence/absence of suitable nesting habitat.	No. Not applicable.
Grasshopper Sparrow *Ammodramus savannarum*	SC	SC	OBBA	2020	Grasshopper Sparrow breeds in open grasslands with well-drained to dry soils including, hayfields, pastures, alvars, prairies, and occasionally grain crops. Nests are well-hidden within grassy breeding habitat and are located near the ground. Larger grasslands are preferred habitat, however fragmented grasslands may be used when preferred habitat is unavailable (MECP 2020).	Moderate	Meadow and agricultural land uses may provide suitable nesting habitat within the Study Area. Further investigations are warranted to determined presence/absence of suitable nesting habitat.	No. Not applicable.
Least Bittern *Ixobrychus exilis*	THR	THR	OBBA	2020	Found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels (MECP 2020).	Moderate	There is moderate potential for Least Bittern to occur due to the presence of cattail dominated shallow marsh within the Study Area. Further investigations are warranted to determined presence/absence of suitable nesting habitat.	Yes
Loggerhead Shrike *Lanius ludovicianus*	END	-	OBBA	2020	Prefers grasslands with scattered trees and shrubs including pastures and alvars. Loggerhead Shrikes impale prey before eating and require habitats that include spiny shrubs such as hawthorn, commonly found in agricultural fencerows. Breeding populations are concentrated in two areas: the Carden Plain and the Napanee Limestone Plain, however, there have been observations reported outside of these core areas (MECP 2020).	Low	There is low potential for Loggerhead Shrike to occur within the Study Area due to the distance from the two core breeding habitats within the province. Occasional habitat including foraging habitat may be found in woodland edges throughout the Study Area, especially in areas where hawthorn is found, or barbed wire occurs.	No
Olive-sided Flycatcher *Contopus cooperi*	SC	THR	OBBA	2020	Prefers coniferous and mixed forests near rivers or wetlands. Usually found along forest edges, perching on tall trees or snags (MECP 2012)	Moderate	Suitable nesting habitat is present in the woodlands adjacent to McKenna Casey Drive, where dead trees were observed along the woodland edge adjacent to cattail marsh. Further investigations are warranted to determined presence/absence of suitable nesting habitat.	No. Not applicable.
Peregrine Falcon *Falco peregrinus*	SC	SC	OBBA	2020	Nests on tall, steep ledges, usually near large bodies of water. Peregrine Falcons have adapted to urban life and often use tall buildings for nesting (MECP 2020).	None	This species is unlikely to occur given that suitable nesting habitat of tall buildings and cliffs do not occur within the Study Area and are also absent from the surrounding area. This species is likely only to occur incidentally as a flyover.	No. Not applicable
Red-headed Woodpecker *Melanerpes erythrocephalus*	SC	THR	OBBA	2020	The Red-headed Woodpecker lives in open woodland and woodland edges, and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching (MECP 2020).	Moderate	Suitable nesting habitat is present in the woodlands adjacent to McKenna Casey Drive, where dead trees were observed along the woodland edge adjacent to cattail marsh.	No. Not applicable.
Red-shouldered Hawk *Buteo lineatus*	-	SC	OBBA	2020	Found in mature deciduous and mixed-wood forests, typically with areas of 10-100 ha. This species has similar breeding habitat to the larger Red-tailed Hawk, which nests earlier and will often out-compete Red-shouldered Hawk for breeding sites (COSEWIC 2020).	Low	There is low potential for Red-shouldered Hawk to occur within the Study Area due to the limited size of deciduous woodland available at 3.6 ha. There are also numerous Red-tailed Hawk observations within the area, indicating that there may be little opportunity for this species to compete.	No. Not applicable.
Short-eared Owl *Asio flammeus*	SC	SC	OBBA	2020	Found in open areas such as grasslands and marshes. Its preferred nesting habitat is on the ground in native grasslands, however pastures and meadows may also provide habitat (MECP 2020).	Moderate	Suitable nesting habitat may be found within unmowed grasslands and marshes throughout the Study Area. Further investigations are warranted to determined presence/absence of suitable nesting habitat.	No. Not applicable.
Wood Thrush *Hylocichla mustelina*	SC	THR	OBBA	2020	Nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics but may also nest in small forest fragments (MECP 2020).	Moderate	There is moderate potential for Wood Thrush to occur in the Study Area due to the presence of suitable nesting habitat in the form of wooded areas within the Study Area. Further investigations are warranted to determined presence/absence of suitable nesting habitat.	No. Not applicable.
Yellow Rail *Coturnicops noveboracensis*	SC	SC	OBBA	2020	Live deep in the reeds, sedges, and marshes of shallow wetlands, where they nest on the ground (MECP 2020).	Moderate	There is moderate potential for Yellow Rail to occur due to the presence of cattail dominated shallow marsh within the Study Area.	No. Not applicable.

Common Name and *Scientific Name*	ESA Status[1]	SARA Status[2]	Record Source	Record Year	Habitat Requirements[3]	Reasonable Likelihood of Presence in Study Area[4]	Reasonable Likelihood of Presence in Study Area Discussion	Potential Critical Habitat Present in the Study Area (Yes/No)
Eastern Small-footed Bat *Myotis leibii*	END	-	AMO	1994	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark (MECP 2020).	Moderate	Suitable maternity roosting habitat for SAR bats may be found within forest communities throughout the Study Area. Snags and trees with peeling bark were observed. Further investigations are warranted to determined presence/absence of suitable maternal roosting habitat.	Yes
Little Brown Bat *Myotis lucifugus*	END	END	AMO	1994	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in forests with trees [25-44 cm diameter at breast height (DBH)] (MECP 2020).	Moderate	Suitable maternity roosting habitat for SAR bats may be found within forest communities throughout the Study Area. Snags and trees with peeling bark were observed. Further investigations are warranted to determined presence/absence of suitable maternal roosting habitat.	Yes
Northern Long-eared *Bat Myotis septentrionalis*	END	END	AMO	1994	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm DBH) in forested communities. Occasionally found in structures (attics, barns etc.) (MECP 2020).	Moderate	Suitable maternity roosting habitat for SAR bats may be found within forest communities throughout the Study Area. Snags and trees with peeling bark were observed. Further investigations are warranted to determined presence/absence of suitable maternal roosting habitat.	Yes
Tri-coloured Bat *Perimyotis subflavus*	END	END	AMO	1994	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Manmade structures or tree cavities. Foraging over still water, rivers, or in forest gaps (MECP 2020).	Moderate	Suitable maternity roosting habitat for SAR bats may be found within forest communities throughout the Study Area. Snags and trees with peeling bark were observed. Further investigations are warranted to determined presence/absence of suitable maternal roosting habitat.	Yes
Monarch *Danaus plexippus*	SC	SC	OBA	2019	Can be found in diverse habitats where nectaring flowers are present, however forb and mixed meadows provide important breeding and foraging habitat. Eggs are laid on Milkweed plants and caterpillars exclusively feed on them. During late summer, Monarchs from Ontario migrate to Central Mexico to overwinter (MECP 2020).	Moderate	Suitable habitat is present within the Study Area in the form of mixed meadow and cultural plant communities.	No. Not applicable.
Transverse Lady Beetle *Coccinella transversoguttata*	END	SC	COSSARO	1985	Historically common throughout most of Canada but has declined severly in parts of its former range.	None	This species is unlikely to occur given the lack of observations since 1985.	No. Not applicable.
Butternut *Juglans cinerea*	END	END	Observed by Previous Consultant on adjacent property CH2MHill	2013	Grows alone or in groupings in deciduous forests. Prefers moist, well-drained soil and found along streams/watercourses (MECP 2020).	High	Butternut trees were observed on adjacent properties from previous studies, therefore there is high potential for species to occur within the Study Area. Further investigations are warranted to determined presence/absence of Butternut within the Study Area and proximity to construction activities.	Yes

3.3.4 Climate Change

On April 24, 2019, Ottawa City Council declared a climate emergency with the intention to demonstrate how climate change is being put at the forefront of decision-making for the City of Ottawa. In response, the City developed and approved a *Climate Change Master Plan* (CCMP) in 2019 that provides a framework for how Ottawa will mitigate and adapt to climate change over the next three decades. The CCMP supersedes the 2014 *Air Quality and Climate Change Management Plan* and sets guiding principles, greenhouse gas (GHG) emission targets and short-term priority actions to be undertaken in the next five years.

The City, in partnership with the NCC, has undertaken an extensive exercise to examine the future climate for the National Capital Region (NCR). The outcome of this study, *Climate Change Projections for the National Capital Region (2020)* identified the key climate change effects for the NCR to 2100. Some of the ways in which changes in climate are predicted to change vary by region. At the local level, residents of Ottawa may need to consider the impacts of warmer, wetter days, and the stress of extreme events.

Precipitation

The Ontario Climate Change Data Portal (Ontario CCDP) indicates that annual precipitation in the Ottawa region has and will continue to increase by approximately 50mm from the period 1960-1990, to the current period, 2015-2045. In the winter months, this increase is approximately 15mm from the period 1960-1990, to the current period, 2015-2045.

Wind

Ontario has been experiencing increased windstorms and is projected to experience more frequent and severe wind gust events in the future as a result of the changing climate. Studies have found that all regions across Canada are expected to see the frequency of localized windstorms, particularly in summer season, increase due to warmer temperatures under a future changing climate.

Extreme Weather Events

Extreme weather events are increasing in both frequency and intensity, resulting in larger, torrential style precipitation events, punctuated with droughts and dry conditions. There have been increases in the extreme minimum temperatures in Ottawa since 1919 to present day. As a result, it is expected that snowmelt amounts will increase as well as winter rainfall, possibly leading to an increase in flood events. Recent flood events have caused significant stress on private and public property, and indications are that these conditions will continue to occur.

3.4 Physical Environment

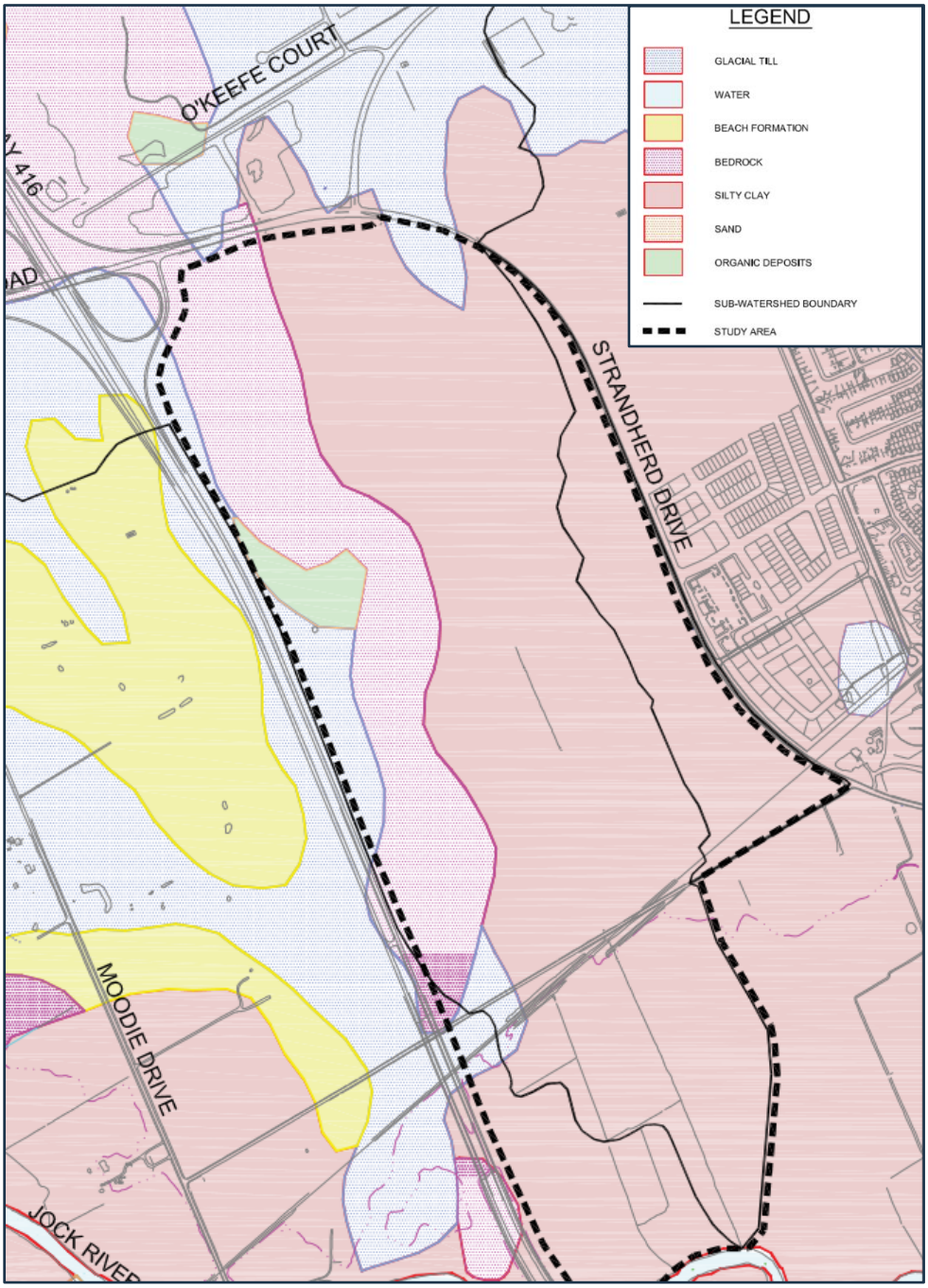
3.4.1 Subsurface Conditions

A geotechnical report was undertaken to characterize the subsurface conditions for the Study Area. The full report is included in **Appendix B: Supporting Specialist Studies**.

Subsurface soils and groundwater information were reviewed based on available mapping information. Generally, the soil profile at the test hole locations consists of topsoil/agricultural soil and/or silty sand overlying a stiff to firm silty clay deposit (**Figure 28**). Groundwater flow rates are anticipated to be low to moderate through the overburden.

Based on available geological mapping, the bedrock in the area is part of the Gull River formation, which consists of limestone and dolomite. With an approximate overburden thickness between 10 to 15 m.

Figure 28: Surficial Geology for the Study Area (O'Keefe Drain Environmental Management Plan, CH2MHill 2013)



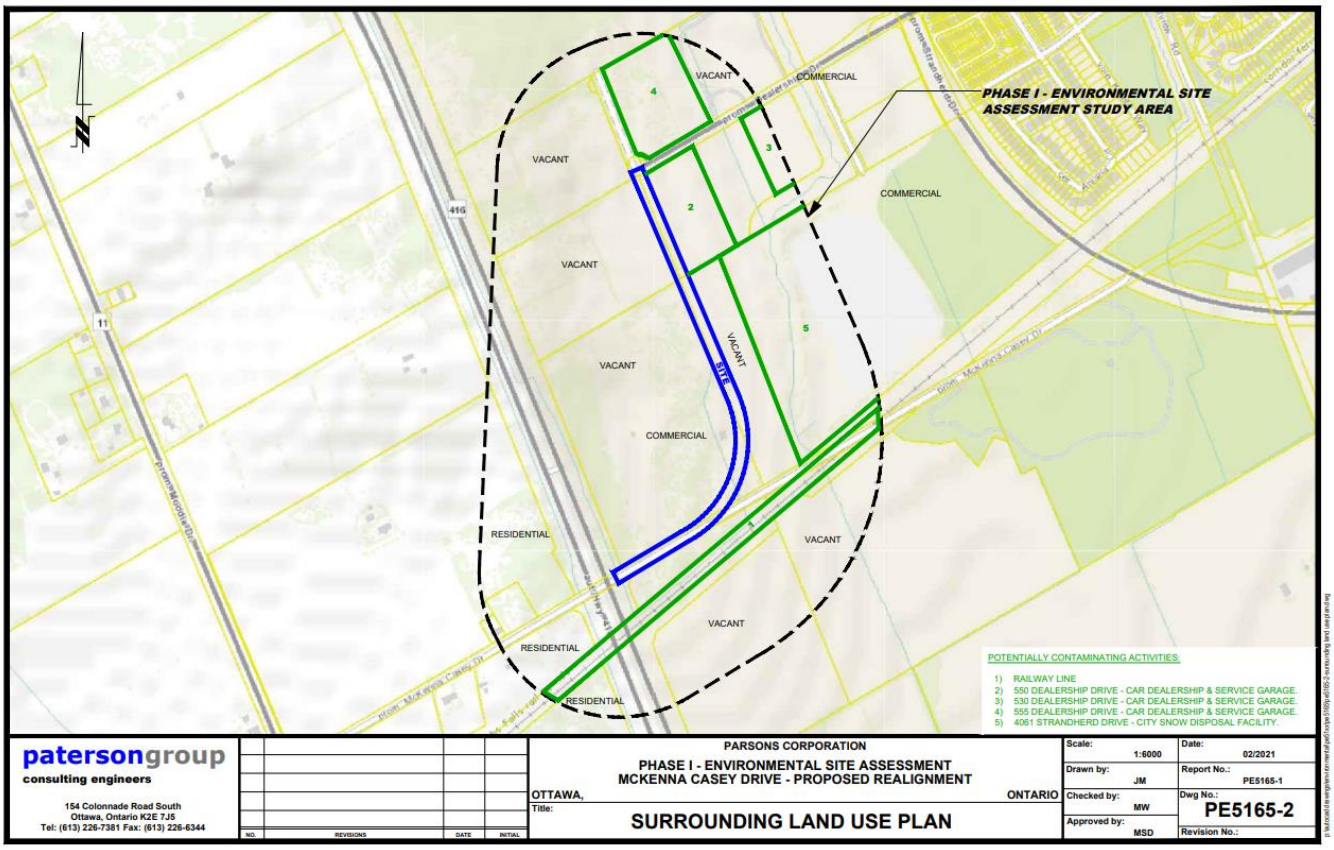
3.4.2 Contamination

A Phase I Environmental Site Assessment (ESA) was completed for the proposed realignment of McKenna Casey Drive. The purpose of this Phase I ESA was to research the past and current use of the Phase I Property and Phase I Study Area and to identify any environmental concerns with the potential to have impacted the Study Area. The full Phase I ESA can be found in **Appendix B: Supporting Specialist Studies**.

Three (3) car dealerships with associated service garages located to the north, a railway line located to the south and a snow disposal facility to the east of the subject site, were identified as potentially contaminating activities (PCAs) as shown in **Figure 29**. However, based on the relatively new development of these dealerships and separation distances and/or downgradient of the railway and disposal facility, these PCAs are not considered to represent areas of potential

environmental concern (APECs) for the Study Area. Based on the results of the assessment, a Phase II - Environmental Site Assessment is not required at this time.

Figure 29: Phase I ESA Potentially Contaminating Activities



3.4.3 Stormwater Management

A Servicing Study and Stormwater Management Report (Novatech Engineering Consultants Ltd., 2012) was completed for the Citigate Highway 416 Employment Lands and includes a Concept Plan for most of the present Study Area, the lands north of existing McKenna Casey Drive and between Strandherd Drive and Highway 416 (**Figure 30**). The 2012 includes a comprehensive street network and stormwater management ponds – this development has not been constructed nor have development applications been submitted to the City. The ponds were planned to accommodate the storm events flows up to a 100-years for all stages of the development. Where possible, Citigate Employment Lands would implement lot-level and conveyance BMP to maximize the potential for water quality treatment.

The 2012 Concept Plan shown in **Figure 30** was referenced by technical and community stakeholders during the consultation process for this Study, with a view to inform the realigned McKenna Casey alignment and roadway drainage and stormwater management pond location. Certainly, aspects of the 2012 Concept Plan are similar to this Study's Recommended Plan, reflecting the constraints present within the Study Area. The Concept Plan shows a stormwater management pond just north of existing McKenna Casey Drive within the Study Area (which has not been constructed) in a similar location to the proposed SWM Pond in this Study's Recommended Plan. The Concept Plan also shows a north-south road through the Citigate lands that follows a similar alignment to the Recommended Plan.

Currently, the Gregory-Casey Stormwater Management pond is south of existing McKenna Casey. The O'Keefe Municipal Drain travels roughly north-south through the Study Area. The O'Keefe Municipal Drain alignment is shown in **Figure 26** and the O'Keefe Municipal Drain catchment area is shown in **Figure 27**.

Figure 30: Citigate Employment Lands Concept Plan (Novatech, 2012)

4.0 FUTURE TRAVEL DEMAND

Two approaches were considered in assessing the future travel demand on McKenna Casey Drive which are discussed in the following sections:

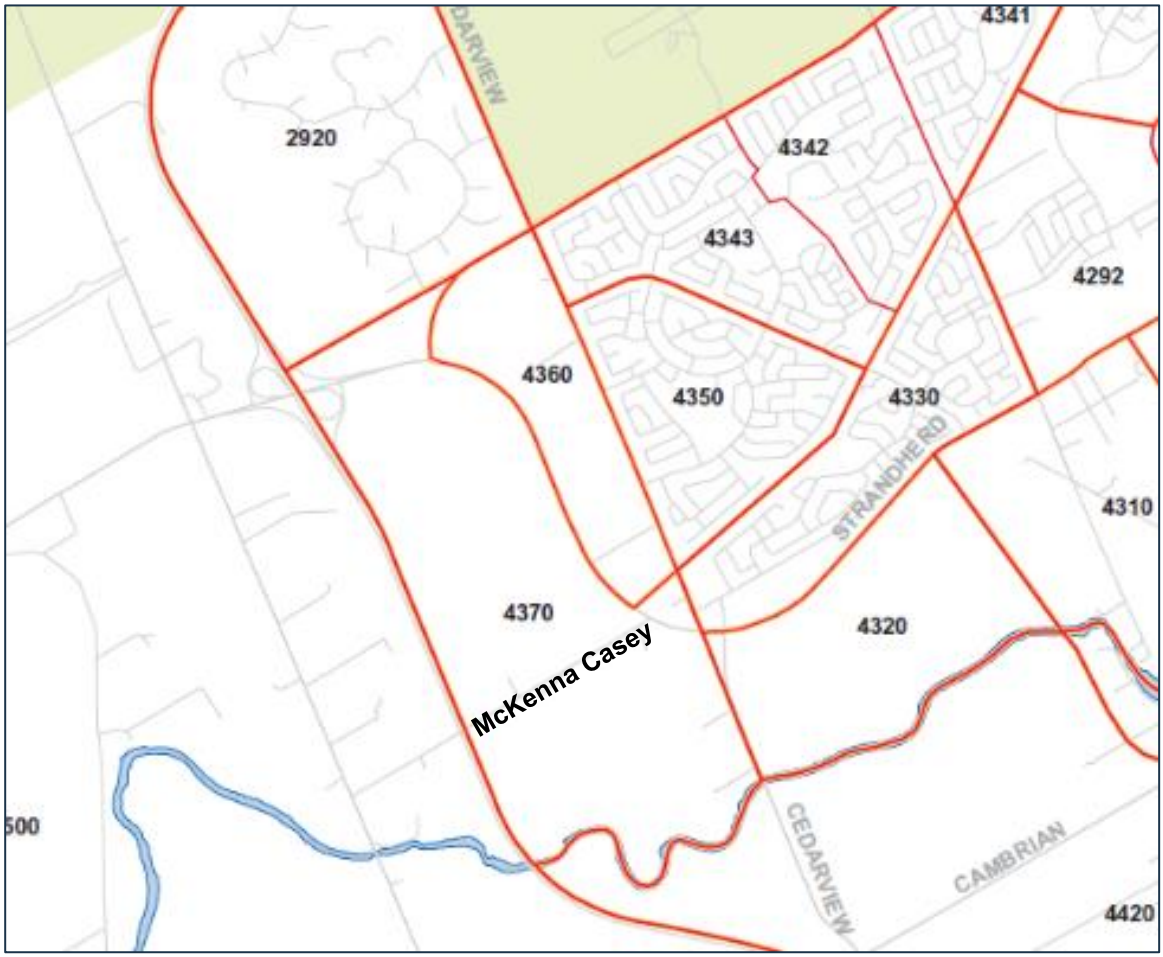
- preliminary review based on the findings of the TRANS regional model; and
- more detailed first principles assessment reflecting planned development in the area.

4.1 TRANS Travel Demand

The findings of the TRANS regional travel demand model were used to help inform the preliminary analysis of future travel demand for a realignment of McKenna Casey Drive. The notable assumptions and findings are as follows:

- Land use assumptions for TAZ 4370 (see **Figure 31**);
- for year 2011 (baseline), the model assumes zero population and employment;
- for year 2031, the model reflects zero population and 3,600 jobs (estimated 50% of full build-out); and
- for year 2046, the model is understood to reflect zero population and approximately 7,000 (City's Planning Infrastructure and Economic Development Department has indicated that updated land use statistics are not currently available).

Figure 31: TRANS Model: Study Area Traffic Zones (City of Ottawa, 2021)



- Road network assumptions:
- for year 2011 (baseline), the model reflects the former McKenna Casey Drive;
- for year 2031, three networks involving Citigate Drive and the realigned McKenna Casey Drive were represented; assume capacity link capacity of 800 veh/h per direction and posted speed 60 km/h;
- A. Citigate 1 – model only the section between Fallowfield Road and Systemhouse Street (in place 2020);

- B. McKenna Casey Realignment – model the segment above, as well as of the realignment of McKenna Casey Drive to Dealership Drive (near-term); and
- C. Citigate 2– model both segments above, as well as the extension of Citigate Drive southerly to Dealership Drive, thereby linking to the McKenna Casey Realignment (ultimate).

- TRANS model forecasts (AM peak hour):
- for year 2011, the model forecasts **100 veh/h** two-way on existing McKenna Casey Drive;
- for year 2031, the following forecasts are provided for the road networks outlined previously:
- A. Citigate 1 -approximately 250 veh/h two-way;
- B. McKenna Casey Realignment – approximately 50 veh/h two-way;
- C. Citigate 2– approximately 350 veh/h two-way and 50 veh/h two-way on McKenna Casey Realignment; and
- for year 2046, the model forecasts **100 to 150 veh/h** two -way volumes of McKenna Casey Realignment on the basis of an approximate doubling of the jobs forecast compared to 2031.

As identified in the review of existing travel demand, observed AM peak hour volumes on McKenna Casey Drive (145 veh/h) are roughly 50% greater than simulated within the baseline TRANS model (100 veh/h). Furthermore, traffic volumes on McKenna Casey Drive are 35% greater in the PM peak hour compared to the AM peak hour. Factoring in the volumes increases related to observation and critical time periods, the forecasted two-way volume on the McKenna Casey Realignment are expected to in the order of 200 to 250 veh/h two-way at the 2046 planning horizon. Assuming a 65/35 directional split, the peak directional volume is expected to be **less than 200 veh/h** in the peak hours, which is well below the assumed capacity of the roadway.

TRANS data are provided in **Appendix C: Supporting Transportation Data**.

4.2 Area Development

4.2.1 Citigate / Amazon Distribution Centre

The Transportation Impact Assessment (TIA) for the proposed **Amazon Distribution Centre** located at 222 Citigate Drive (Novatech, 2020) represents one of the most recent transportation planning analyses impacting the McKenna Casey Extension. The assessment is understood to account for all existing/recent development and the following future developments at two planning horizons:

2026 Volume Forecast

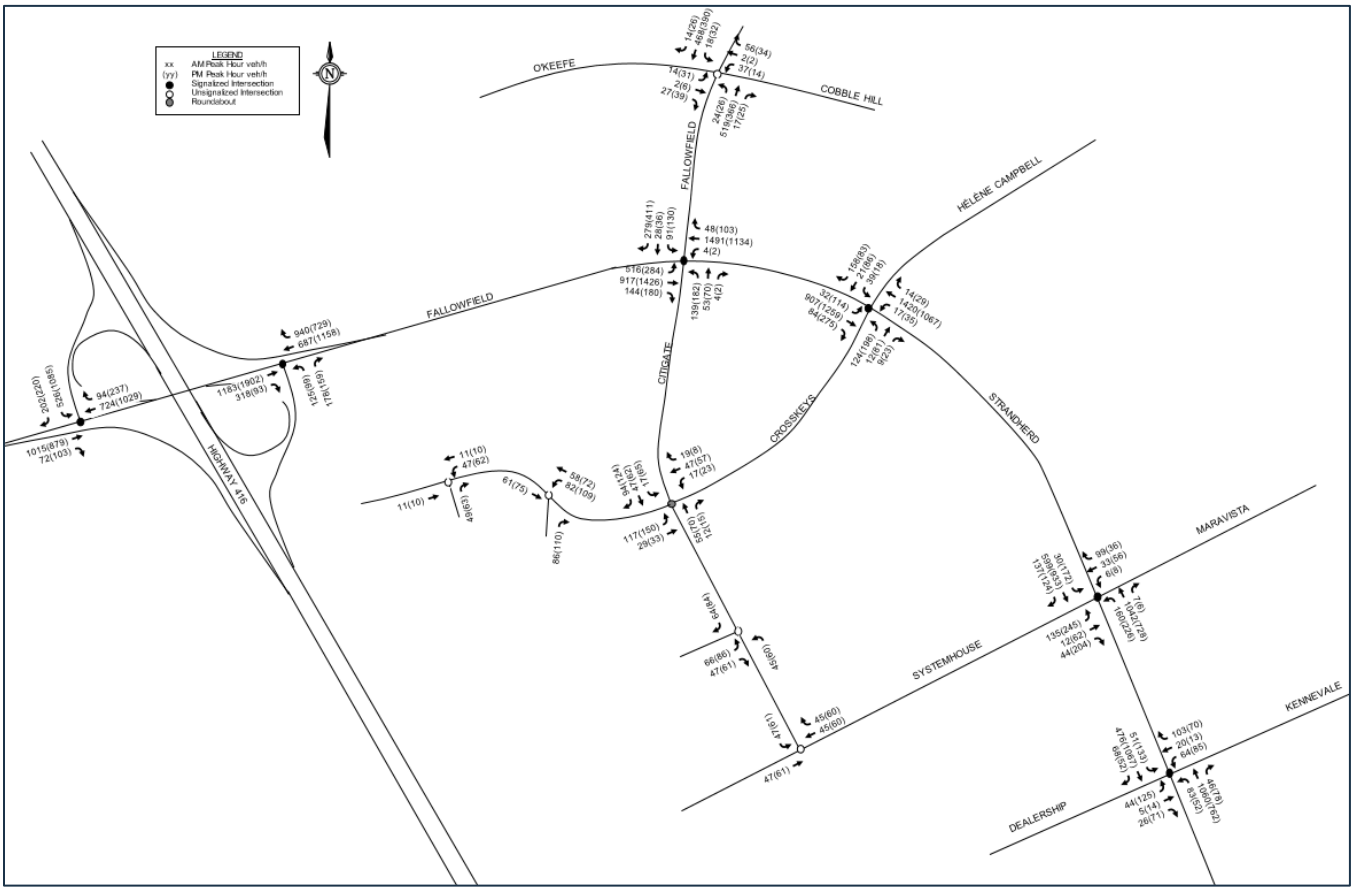
- Caivan Communities (Phase 1) at 3285 Borrisokane Road
- Glenview Homes at 3387 Borrisokane Road
- Minto Harmony at 4025 Strandherd Drive
- Half Moon Bay at 3345 Borrisokane Road
- Hotel at 4401 Fallowfield Road
- Interim development of Citigate Campus
- Proposed 99-room hotel at 101 Citigate Drive
- Ford Dealership at 555 Dealership Drive
- Lands west of Strandherd Drive between Systemhouse Street and Dealership Drive (Block 3 and Block 4)

2031 Volume Forecast

- future build-out of Citigate Campus

The last bullet, which indicates that the analyses within the Amazon TIA includes the full build-out of the Citigate Campus at year 2031 horizon, is of particular interest. This final phase of development would add an additional 1M ft² of Prestige Business Park and 0.7M ft² of Business Park to the interim phase. These lands represent the balance of the Citigate Concept Plan located to the south between Systemhouse Street and the existing McKenna Casey Drive. However, it was confirmed that the year 2026 forecast, as shown in **Figure 32**, do not include the full build-out of Citigate Campus and that an additional 1,660 to 1,860 veh/h two-way need to be assigned to the area road network to reflect ultimate conditions.

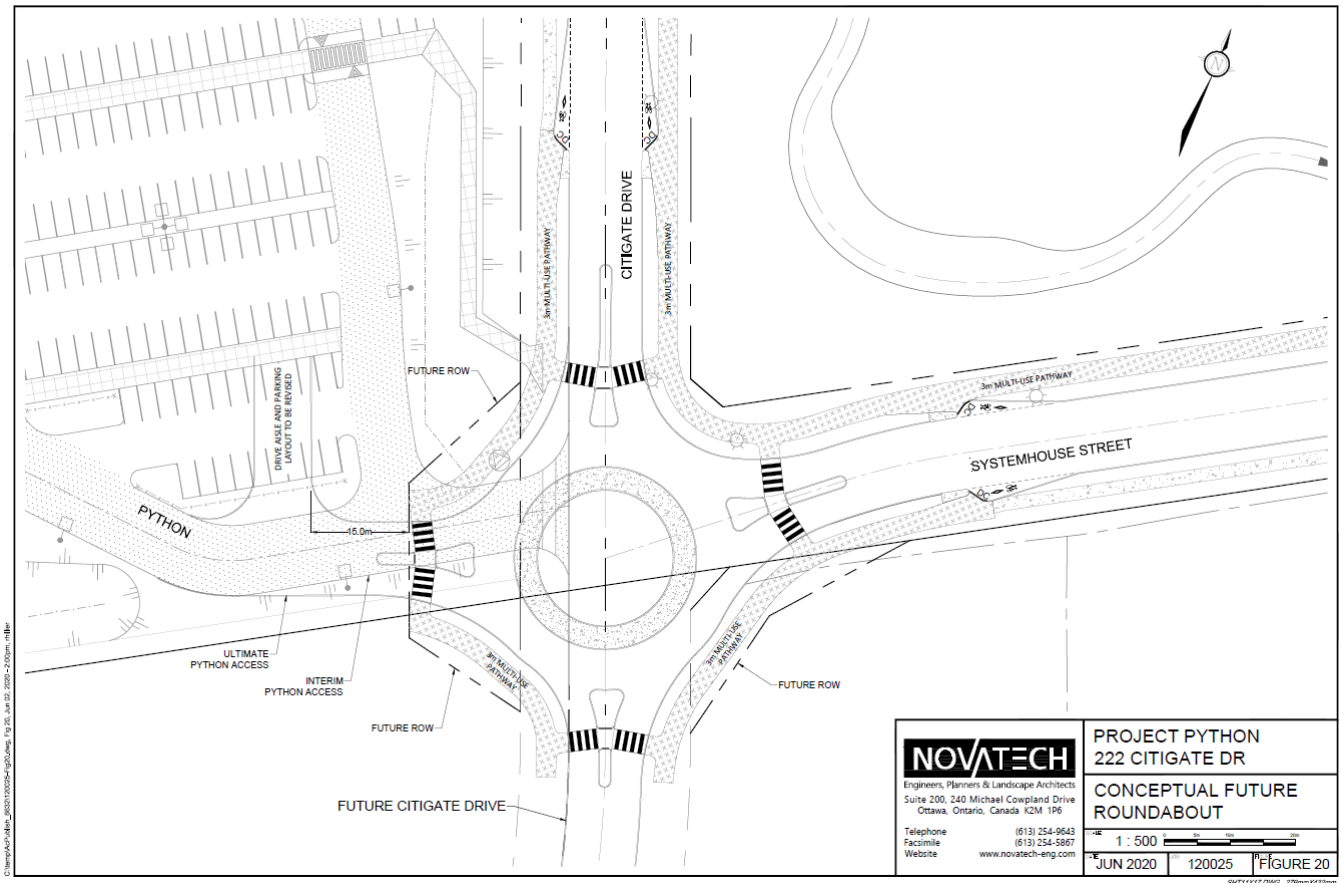
Figure 32: Year 2026 Traffic Projections (222 Citigate Drive TIA, Novatech, 2020)



The assumed road network within the TIA analyses includes the extension of Citigate Drive southerly to Systemhouse Street, but not the McKenna Casey Realignment nor the segment Citigate Drive between Systemhouse Street and Dealership Drive.

It is noted that the distribution of traffic employed within the Amazon study, based on TRANS O-D Survey Districts, assumed 10% of traffic to/from the west via Fallowfield Road with the cast majority to/from areas north, south and east of the development. Although not part of the TIA study's road network, only a portion of this traffic to/from the west, an estimated 5%, would make use of the future McKenna Casey Realignment leading to Moodie Drive and areas south. Furthermore, the TIA recommends that when Citigate Drive is extended further south, roundabout control be provided at the Citigate Drive/Systemhouse Street intersection. The conceptual future roundabout is shown in **Figure 33**.

Figure 33: Roundabout Concept Citigate/Systemhouse Intersection (222 Citigate Drive TIA, Novatech, 2020)

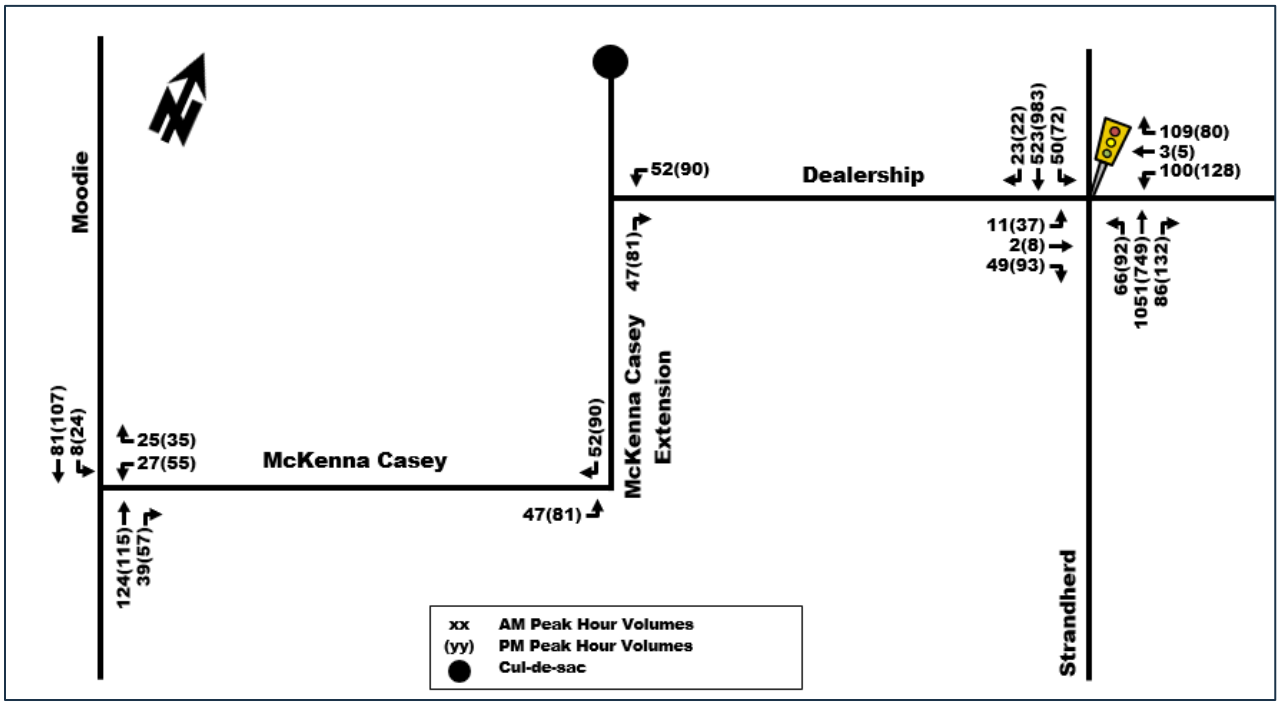


4.3 Future Traffic Projections

4.3.1 Re-assignment of Existing Traffic Volumes

Figure 34 represents forecasted traffic volumes assuming no additional development in the area. The existing traffic volumes (provided in Section 3.1.5) have been re-assigned to a network reflecting the realignment of McKenna Casey Drive to Dealership Drive.

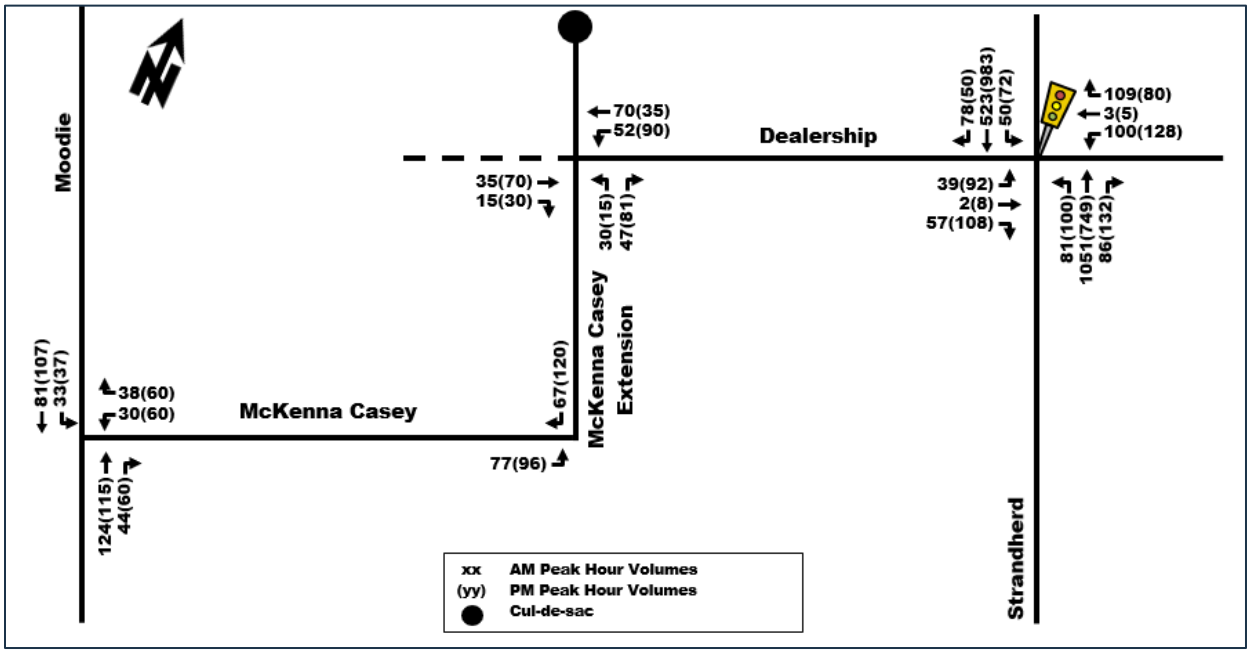
Figure 34: Re-assigned Existing Peak Hour Traffic Volumes (2016-2018)



4.3.2 Near-Term 2026

Figure 35 represents forecasted traffic volumes assuming partial build-out of Citigate that includes the Amazon Distribution Centre. McKenna Casey Drive Realignment would terminate at Dealership Drive, although there is currently a short cul-de-sac segment on the north leg (along west frontage of the Ford Dealership). It has been assumed that the west leg at the future Citigate Drive/McKenna Casey Realignment/Dealership Drive intersection has been constructed to provide access to the private properties situated south of Dealership Drive and west of a realignment of McKenna Casey Drive. Should the properties to the west of the intersection not be developed (which would result in reduced total vehicle trips and may improve intersection performance), the intersection will likely be constructed as a T-intersection composed of north, south and east legs.

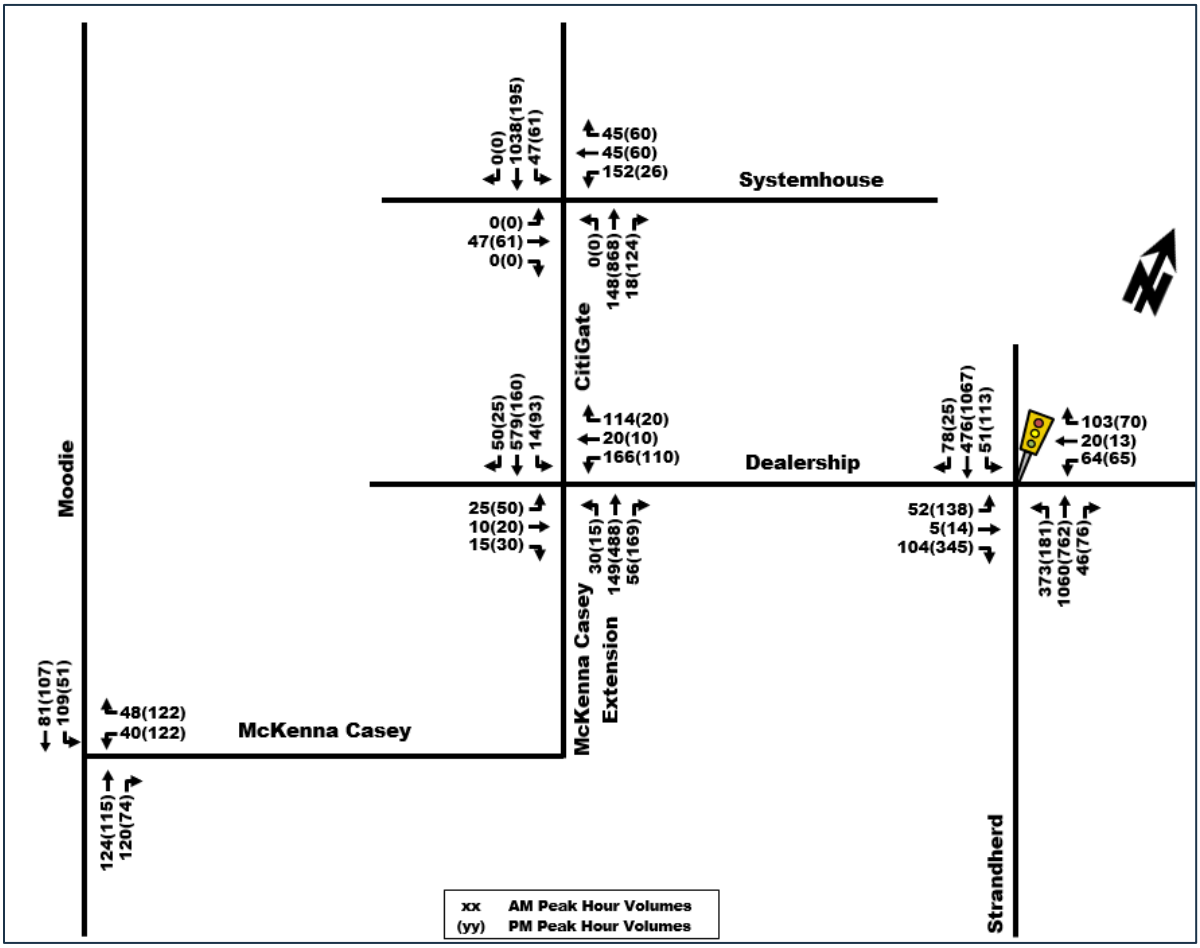
Figure 35: Projected Peak Hour Traffic Volumes (2026)



4.3.3 Ultimate

Figure 36 represents forecasted traffic volumes assuming full build-out of Citigate and McKenna Casey Drive is realigned to meet Citigate Drive.

Figure 36: Projected Peak Hour Traffic Volumes (2031)



4.4 Analysis of Projected Conditions

4.4.1 Confirm Number Travel Lanes

Based on the foregoing analysis, which reflects full build-out of the Citigate lands bounded by Highway 416 to the west, McKenna Casey Drive south and Strandherd Drive to the east/north, the projected peak direction volume of traffic on the proposed McKenna Casey Realignment is expected to be approximately 250 veh/h during peak hours. This projected demand is well below the assumed capacity of 800 veh/h per lane, thereby confirming that a 2-lane facility is appropriate.

Additional demand on the McKenna Casey Realignment could be realized long-term should extensive development occur in the rural lands located west of Highway 416 corridor (and east of Moodie), or road connectivity were to be provided across the VIA rail tracks to those lands located to the south (i.e., Caivan).

4.4.2 Control Type at McKenna Casey/Dealership

At near term year 2026, analyses indicate that the warrant for AWSC (all-way stop control) is satisfied assuming the volumes reflected in Figure 35. A stop-controlled intersection is expected to operate at LoS A (see below). On this basis, an all-way STOP is considered the most appropriate form of control in the interim.

At full build-out, analyses indicate that the warrant for TSC (traffic signal control) is satisfied assuming the volumes reflected in Figure 36. Furthermore, the screening suggests that roundabout control is a viable consideration, which would be consistent with the existing/planned control type at the Citigate Drive/Crosskeys Place and Citigate

Drive/Systemhouse Street intersections located to the north. A roundabout intersection at McKenna Casey Drive Realignment/Dealership Drive is expected to operate at LoS A (see **Table 4** and **Table 5**). On this basis, a roundabout is considered the most appropriate form of control long-term.

4.4.3 Projected Intersection Performance

The following **Table 4** provides a summary of the forecasted traffic operations during 2026 at the study area intersection based on the Synchro (V10) traffic analysis software. The volumes from **Figure 35** were used. The subject intersections were assessed in terms of the volume-to-capacity (v/c) ratio and the corresponding Level of Service (LoS) for the critical movement(s).

Table 4: 2026 Projected Intersection Performance

		Weekday AM Peak (PM Peak)				
		Critical Movement		Intersection		
Intersection	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
SIGNALIZED INTERSECTIONS						
Strandherd/Dealership/Kennevale	B(B)	0.62(0.69)	WBL(WBL)	10.3(12.4)	A(A)	0.47(0.42)
UNSIGNALIZED INTERSECTIONS						
Dealership/McKenna Casey/CitiGate	A(A)	8(8.2)	WB(WB)	7.7(7.8)	A(A)	-
Moodie/McKenna Casey	B(B)	10.1(10.9)	WB(WB)	2.7(3.6)	A(A)	-

Note: Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.

As shown in **Table 4**, projected performance at the study area intersections in the near term 2026 horizon is considered very good at LOS A during the morning and afternoon peak hours. Also, critical movements are noted to be operating at LOS 'C' or better during the morning and afternoon peak hours.

Table 5: 2031 Projected Intersection Performance

		Weekday AM Peak (PM Peak)				
		Critical Movement		Intersection		
Intersection	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
SIGNALIZED INTERSECTIONS						
Strandherd/Dealership/Kennevale	A(D)	0.54(0.85)	WBT(EBR)	9.1(20.6)	A(A)	0.44(0.59)
UNSIGNALIZED INTERSECTIONS						
All-way Stop Control Dealership/McKenna Casey/CitiGate	F(F)	72.5(59.4)	SB(NB)	45.4(39.4)	E(E)	-
Roundabout Control Dealership/McKenna Casey/CitiGate	B(A)	11.1(9.4)	EB(WB)	4.3(4.4)	A(A)	-
Moodie/Mckenna Casey	B(B)	11.8(13.4)	WB(WB)	3.7(6.2)	A(A)	-

Note: Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.

As shown in **Table 5**, projected performance at the study area intersections in the ultimate horizon continue to operate at a very good LoS A, similar to 2026 horizon, with exception to the intersection of Dealership Drive/McKenna Casey Drive Realignment/Citigate Drive under AWSC (all-way stop control). The STOP-controlled intersection is projected to operate poorly at LoS 'E' during the morning and afternoon peak hours, and critical movements projected to operate at LoS 'F'.

Introduction of single lane roundabout control at the Dealership Drive/McKenna Casey Drive Realignment/Citigate Drive intersection results in a very good LoS A performance during the morning and afternoon peak hours. The critical movements are projected to operate at LoS 'B' or better during the morning and afternoon peak hours.

4.4.4 Moodie/Rail Crossing

The McKenna Casey Drive Realignment, although replacing an existing facility, does provide improved connectivity to the Citigate Development. On this basis, it is considered prudent to evaluate the potential impact of the McKenna Casey Realignment on the existing at-grade VIA rail crossing at Moodie Drive. The crossing is located just south of the Moodie Drive/McKenna Casey Drive intersection, as shown in **Figure 37**.

Figure 37: Moodie - VIA Rail Crossing (Google Streetview, 2021)

The Crossing Exposure Index (CEI) is the measure typically used to assess the merit of grade separating a road and rail. The index is obtained by multiplying the number of roadway vehicles by the number of trains that use a crossing during an average day. It is also, known as "Cross Product". Note that the ensuing assessment is considered preliminary nature based on readily available information from previous, more in-depth study, namely the *Barrhaven Rail Crossing Grade Separation Study* (Parsons, 2017). A CEI of 200,000 is understood to be the accepted benchmark in Canada in order for a new grade separation project to be considered. Below are the key assumptions in completing this analysis:

- Existing AADT Moodie Drive at VIA Rail Crossing (July 2016 data) is approximately 3,700 vehicles;
- Existing number of trains (2014 data) is 18;
- Forecasted AADT Moodie Drive at VIA Rail Crossing is approximately 5,000 vehicles assuming 2% growth rate through year 2031;
- Additional AADT Moodie Drive at VIA Rail Crossing resulting from McKenna Casey Realignment is approximately 1,000 vehicles (projected peak hour increase of approximately 100 veh/h; multiply by 10 factor);
- Total AADT Moodie Drive at VIA Rail Crossing is estimated at 6,000 vehicles;
- Forecasted number of trains is 30 at year 2031
- CEI = 6,000 AADT x 30 trains = 180,000

Based on the foregoing, the projected CEI of 180,000 at the Moodie Drive Crossing is less than the threshold warrant of 200,000, and therefore consideration for rail-road grade separation is not triggered by the McKenna Casey Realignment.

5.0 EVALUATION OF ALTERNATIVE DESIGNS

This section provides a summary of the overall principles and design and evaluation criteria that guide the roadway design alternatives and evaluation for the realignment of McKenna Casey Drive. These criteria are sensitive to the site-specific conditions within the Study Area, drawing on the findings of existing conditions documented in **Section 3**.

5.1 Road Design Criteria

The realignment of McKenna Casey Drive as a Major Collector Road will serve as a new roughly north-south route in the western extents of the Barrhaven community. Design Criteria were developed to respond to the requirements of policy and site-specific conditions, as well as to study priorities and needs of varying road users.

5.1.1 Design Criteria

- Major Collector Road;
- Truck Route;
- 26m right-of-way (based on current policy requirement);
- Two travel lanes (one in each direction);
- Additional grading strips in addition to the 26m, where required;
- Trees with sufficient setback from the road;
- Snow storage along curb line;
- Overhead utilities;
- Clear corridors for potential below-grade municipal services;
- Design speed of 70km/h (posted 60km/h);
- 200m minimum centreline radius at 4% superelevation;
- Not divided;
- No on-street parking;
- Sufficient width for disabled vehicle; and
- Left turn lanes where needed.

5.1.2 Rural versus Urban Cross Section

The road edge design of urban roads is influenced by adjacent land uses, buildings, pedestrian activity, and public space functions, whereas in the rural area the road edge design is more influenced by its integration with the drainage patterns, landscapes, and natural processes. An urban cross-section is favoured for the location due to the Urban Policy Plan planning context, the Business Park designation of Citigate and the corresponding urban cross section design of Citigate Drive to the north (a northerly extension of this same Major Collector road), and zoning of the Study Area. Rural cross-sections and partial/half rural cross-sections were nevertheless also considered and evaluated as cross-section alternatives.

5.1.3 Right-of-Way (ROW) Targets

The majority of alternative cross-sections use a 26-metre right-of-way (ROW) based on current municipal policy. Larger ROWs to accommodate a rural or partial rural cross-section were also evaluated as required.

5.1.4 Design Speeds and Posted Speed Limit

A design speed of 70 km/h and a posted speed of 60 km/h were selected for the realignment of McKenna Casey Drive following dialogue with the City's transportation planning and traffic staff. A posted speed of 60km/h was selected to suit the designated Urban Area (Official Plan) context of a lower density employment area with occasional private accesses. The design speed was selected to be 10 km/h higher than the posted speed as a balance between two competing considerations. The road to the west of Hwy 416 is within the City's Rural Area is posted 80km/h. This Urban Area road segment will feature active transportation facilities and lower vehicular operating speeds are desirable to improve safety for these users. Lower design speeds result in narrower lane widths and tighter curves, which are known to result in lower operating speeds.

5.1.5 Intersection Considerations

The intersection type options to be evaluated all would include accessibility measures and include:

- STOP;
- Roundabout; and
- Traffic Signal.

The design considerations for intersection type analysis and evaluation are:

- Route consistency;
- ROW requirements;
- Pedestrian and bicycle crossings; and
- Traffic volumes, traffic flow balance.

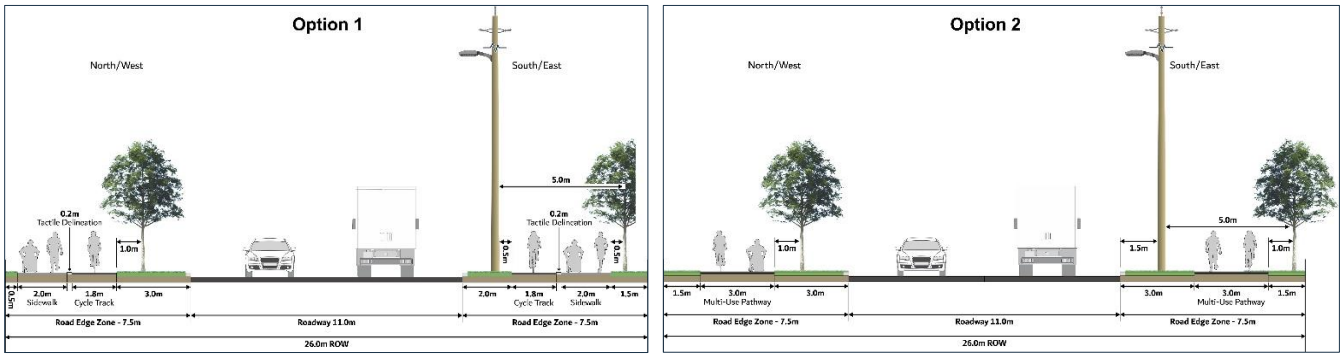
5.2 Evaluation of Alternative Cross-Sections

5.2.1 Cross-Section Options

The eleven (11) cross-sections produced, analyzed, and evaluated as part of the study. Options 1-8 and Option 11 use a 26m right-of-way (ROW). Options 9-10 use a 27m and 34m ROW to accommodate a rural or partial rural cross-section. Most cross-section options feature a 9-metre roadway. The cross-section alternatives offer varying alternatives in terms of roadway median, tree boulevard/snow storage configuration, and active transportation mode delineation, with some options opting for multi-use pathways rather than delineation.

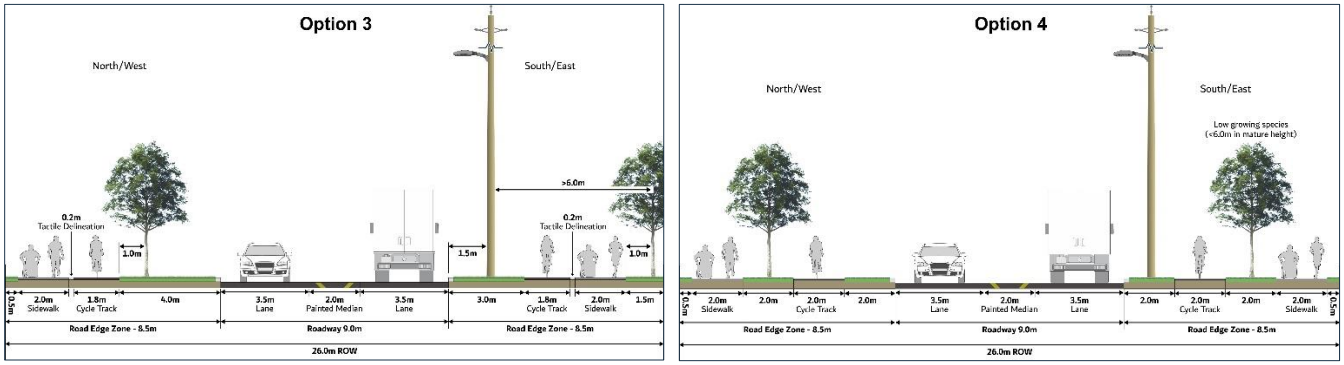
The eleven (11) cross-sections are presented from **Figure 38** to **Figure 43**.

Figure 38: Cross-Section Alternatives 1 and 2



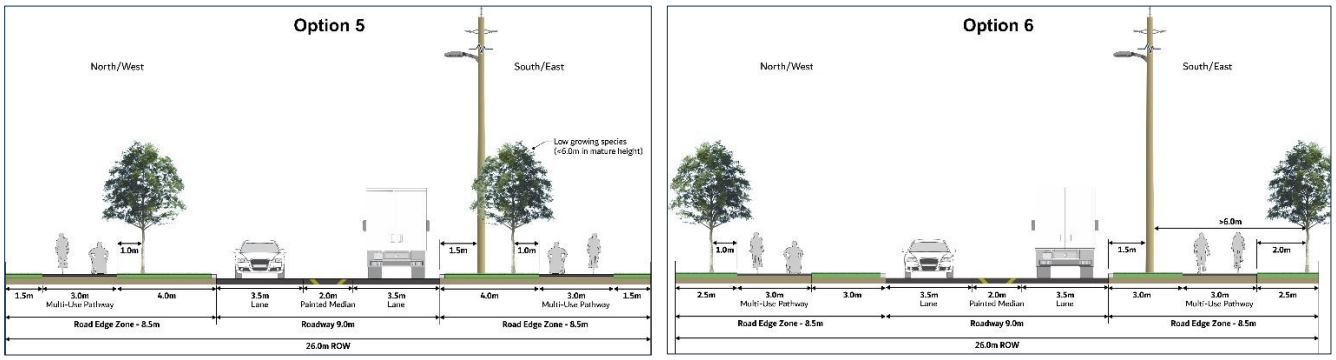
Options 1 and 2 feature an 11m roadway with Option 1 featuring tactile delineation of active transportation modes and Option 2 using a multi-use pathway (MUP) on both sides.

Figure 39: Cross-Section Alternatives 3 and 4



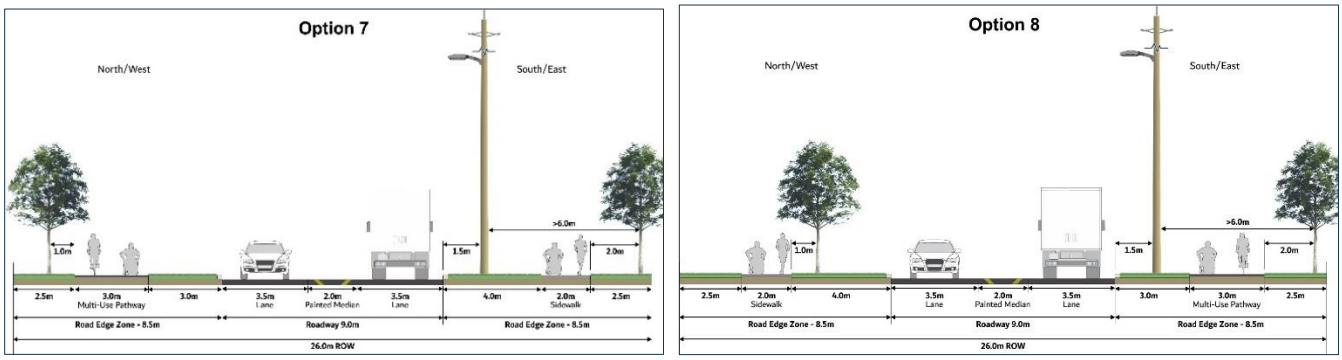
Options 3-4 feature a 9m roadway with a painted median. Option 4 features active transportation modes delineated by tree boulevards while Option 3 uses tactile delineation.

Figure 40: Cross-Section Alternatives 5 and 6



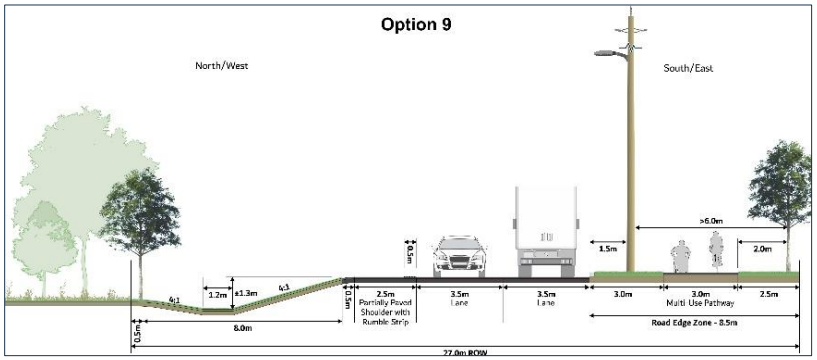
Options 5-6 offer alternative configurations where active transportation modes use a MUP instead of delineation, with varying tree and snow storage/boulevard placements.

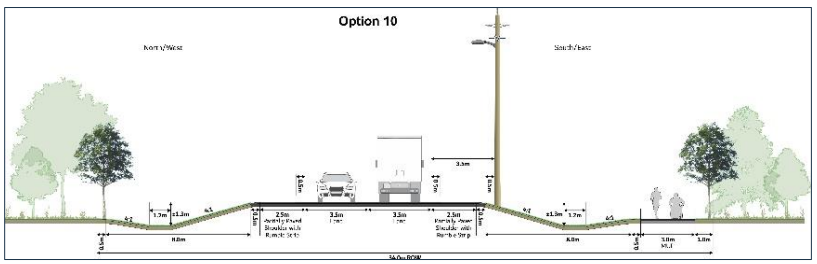
Figure 41: Cross-Section Alternatives 7 and 8



Options 7-8 offer further alternative cross-sections with varying configurations of tree boulevards and snow storage locations.

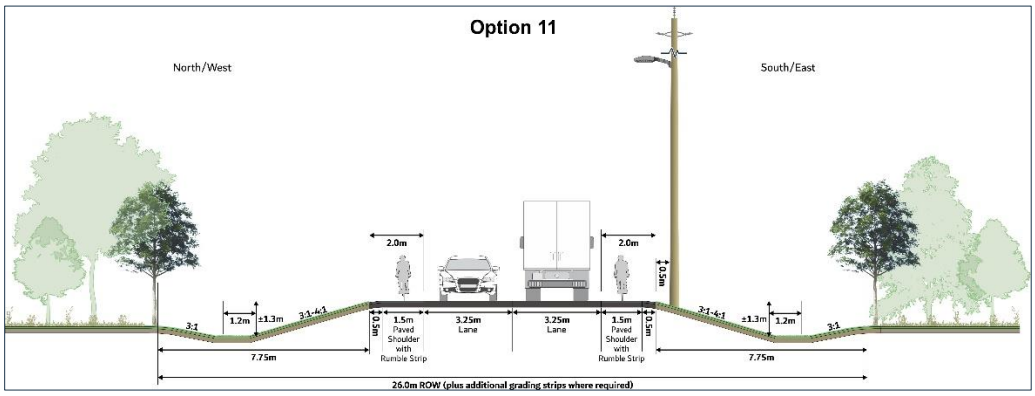
Figure 42: Cross-Section Alternatives 9 and 10





Option 8 uses a rural cross-section on the north/west side (27m ROW) and Option 10 uses a rural cross-section on both sides (34m ROW). Both options feature a MUP on one side only.

Figure 43: Cross-Section Alternative 11



Option 11 offers a modified rural cross-section with cycle paths but no sidewalks/MUPs that fits in a 26m ROW.

5.2.2 Preferred Cross-Section

The preferred cross-section is Option 4 which was chosen through consultation with the Study's Technical Advisory Group (TAG) and Community Working Group (CWG), as well as through analysis of the environmental, planning, and engineering context for the roadway. Stakeholder feedback during the TAG and CWG consultations indicated a preference for separated or delineated active transportation facilities, with fully separated facilities preferred over delineation for safety and accessibility reasons. An acceptable minimum width of the tree boulevard between the pedestrian and cycling facilities for tree and infrastructure health was also a priority during these consultations. The option to redistribute width from the roadside boulevard to the green treed median can be further addressed as a design detail during detailed design. As such, Option 4 was chosen as the preferred cross-section. Option 4 was designed based on municipal standards for arterial roads, approved by City Council, and slightly modified to suit the proposed collector road designation of the McKenna Casey realignment.

5.3 Evaluation of Alternative Alignments

The preferred cross-sectional width of 26m was used to create a number of alternative alignments that were evaluated to determine the best alternative to realign Mckenna Casey Drive. A total of nine (9) alternatives were developed in consideration of the current existing conditions in the Study Area. The nine (9) alignments are described and visualized here in **Figure 45** to **Figure 53**.

Figure 44: Historical (1991 EA) Recommended Alignment

The historical alignment from the 1991 EA (Strandherd Drive Highway 416 to Jockvale Road Environmental Assessment Study) achieved the primary mandate of the present EA Addendum by recommending a route to connect existing McKenna Casey northerly to Strandherd via Dealership Drive. However, due to development along Dealership Drive (e.g. car dealerships, stormwater management ponds), the historical alignment does not align with these existing development parcels and is no longer parallel to present-day Dealership Drive. The alignment also fragments the privately-owned narrow 8-acre lot (east of the AM Radio Site) as it extends northerly. The historical alternative uses a curvilinear alignment that avoids stop intersections at both turn points.

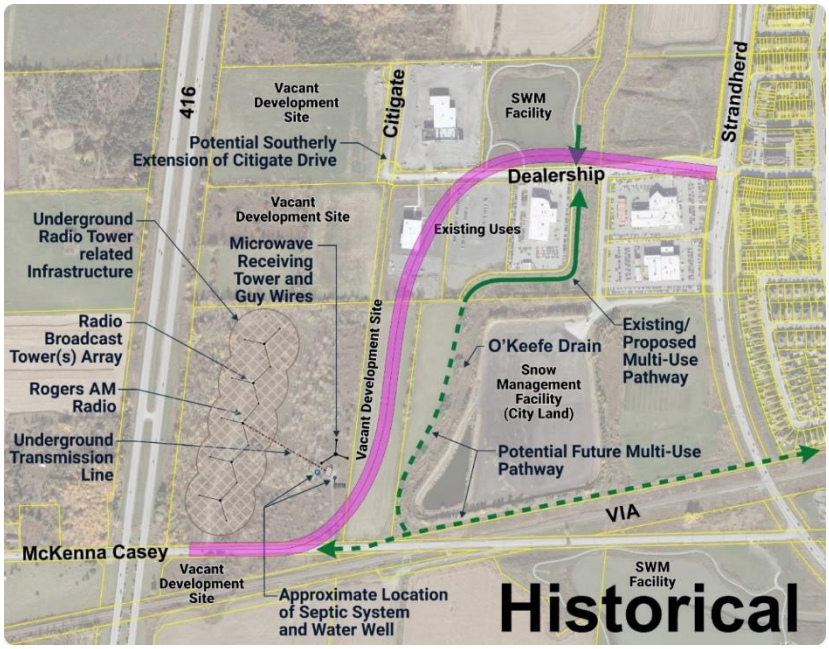
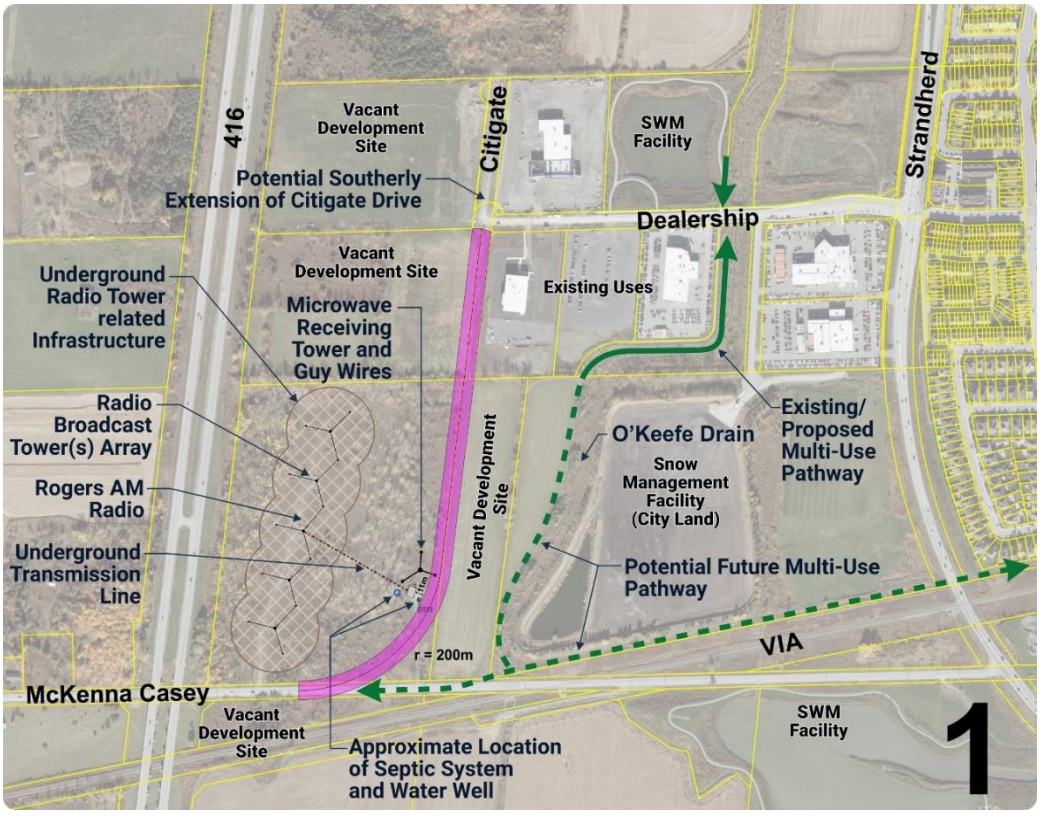
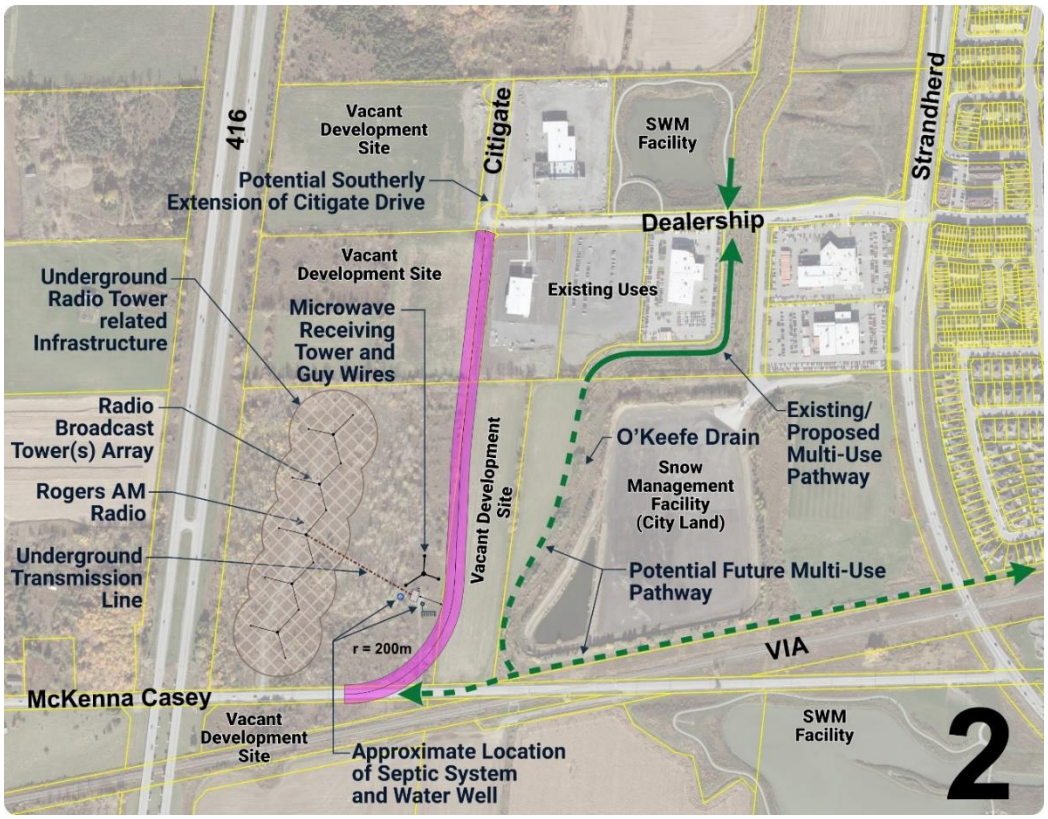


Figure 45: Alternative Alignment 1



Alternatives 1-2 curve from existing McKenna Casey Drive and require no southern intersection. Alternative 1 extends northerly at the midpoint between the two property lines, while Alternative 2 curves eastward to avoid radio infrastructure.

Figure 46: Alternative Alignment 2



Alternatives 3-4 offer varying ways to avoid the radio infrastructure on the eastern portion of the Rogers lot by swinging far to the east, and each would create irregular development parcels south of Dealership Drive.

Figure 47: Alternative Alignment 3

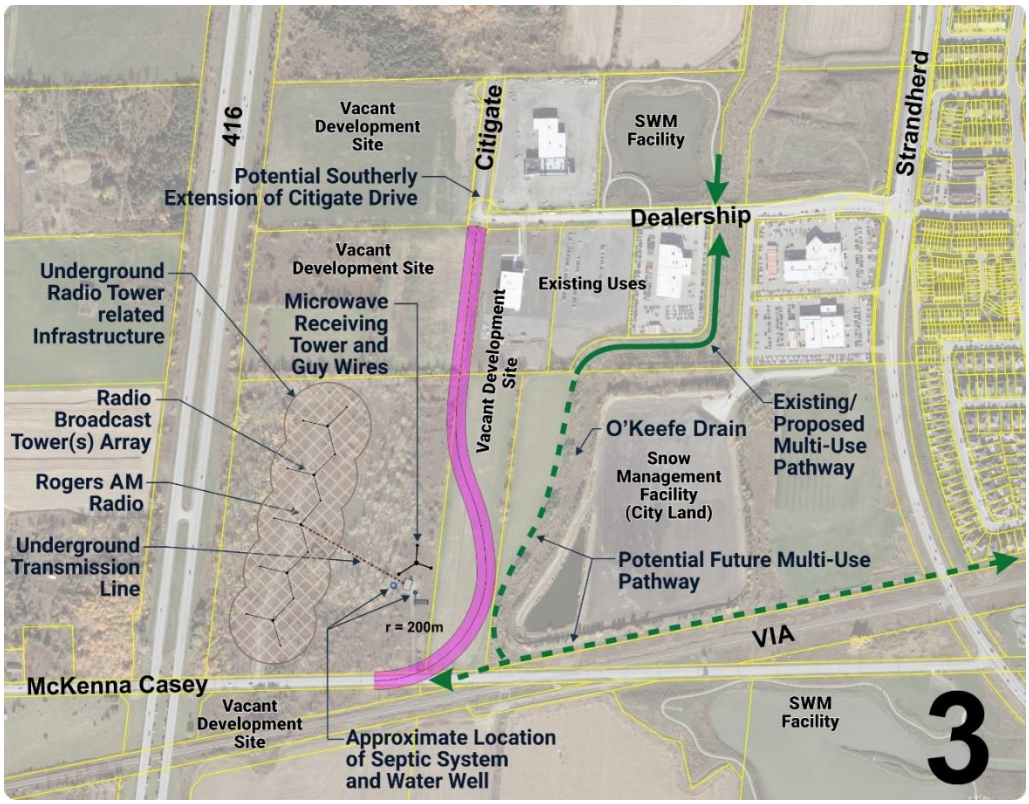
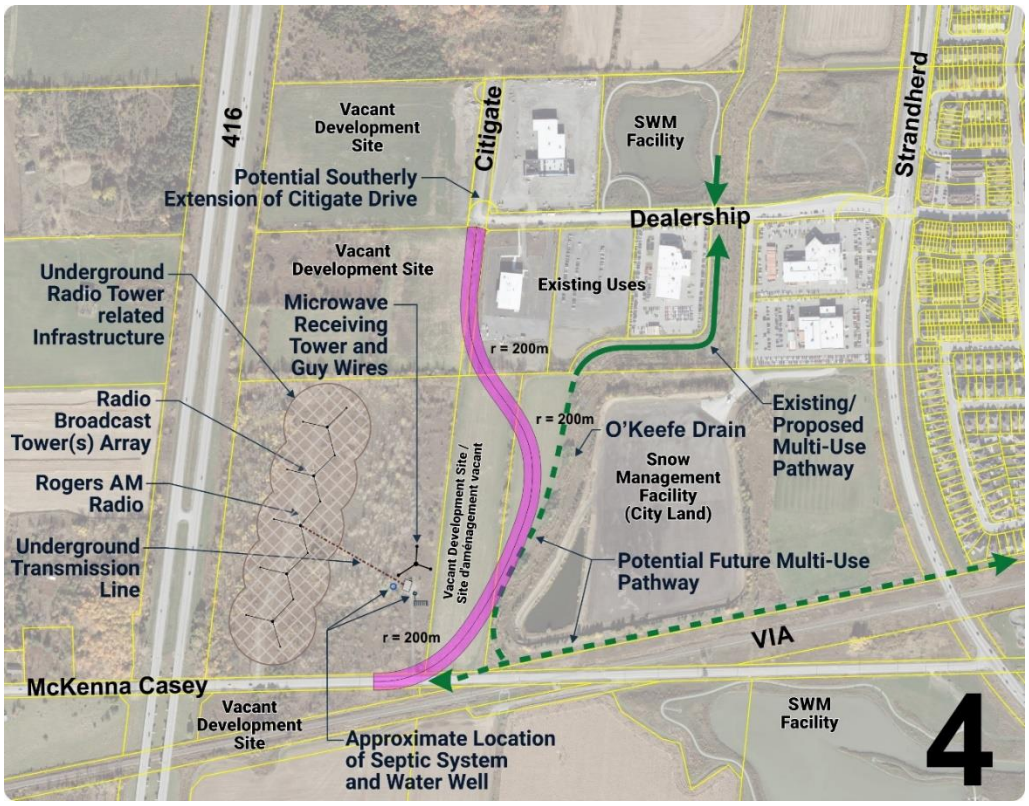


Figure 48: Alternative Alignment 4



Alternative 5 avoids the radio infrastructure to the west of the microwave tower and offers a direct route to Dealership Drive, but fragments the radio lot. Alternative 6 uses a stop intersection at existing McKenna Casey Drive. Alternative 6 follows the property line much like Alternative 1.

Figure 49: Alternative Alignment 5

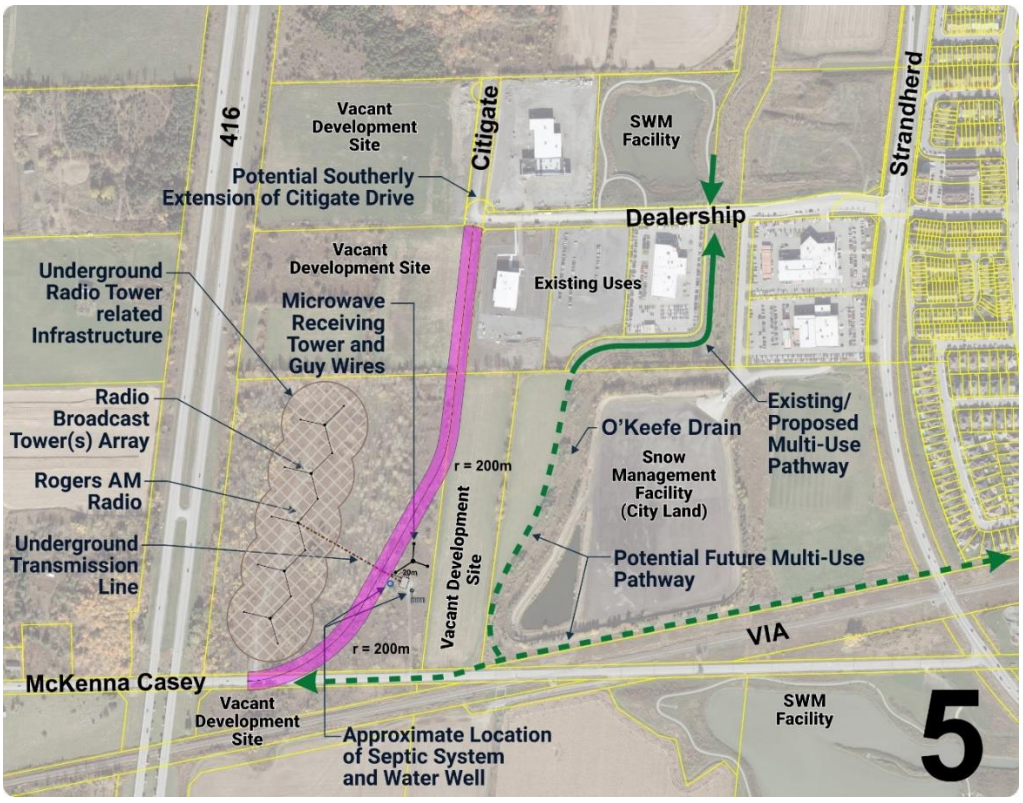
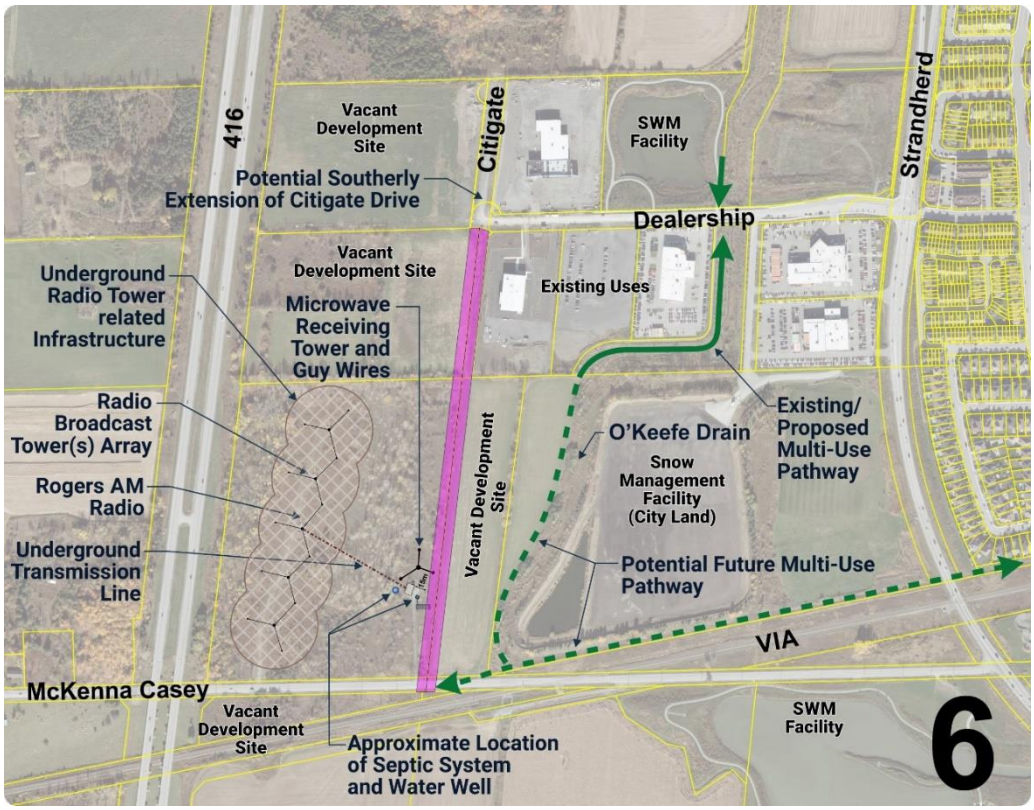


Figure 50: Alternative Alignment 6



Alternative 7 differs from Alternative 6 in that it curves eastward to avoid radio infrastructure. Alternatives 8-9 deviate most from the historical preferred alignment and from the Secondary Plan proposed collector road plan. Alternatives 8-9 offer alternate routes to avoid radio microwave infrastructure and extend northerly at a more westward point along existing McKenna Casey, running parallel to Highway 416 and would extend Dealership Drive westerly by connecting to Dealership from the west.

Figure 51: Alternative Alignment 7

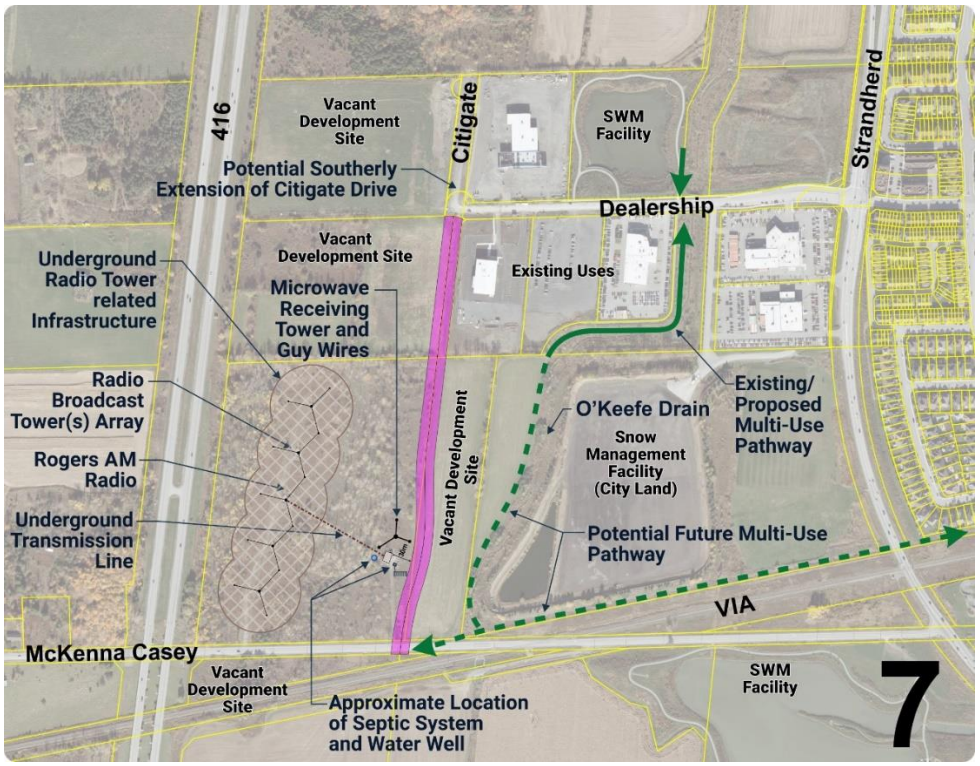


Figure 52: Alternative Alignment 8

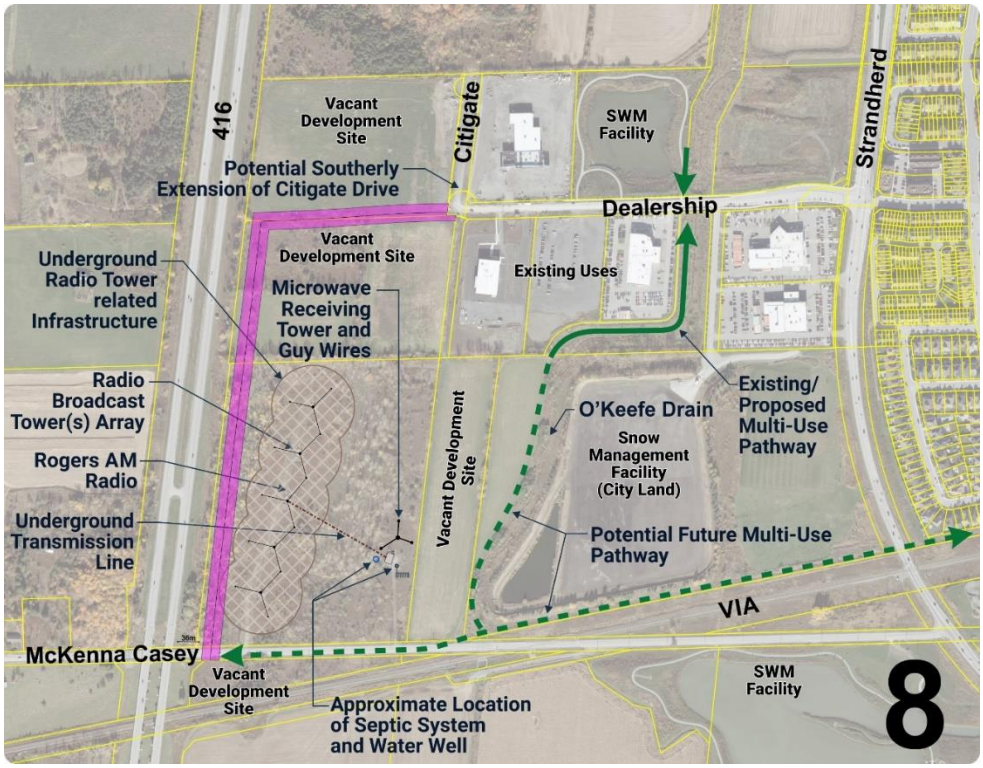
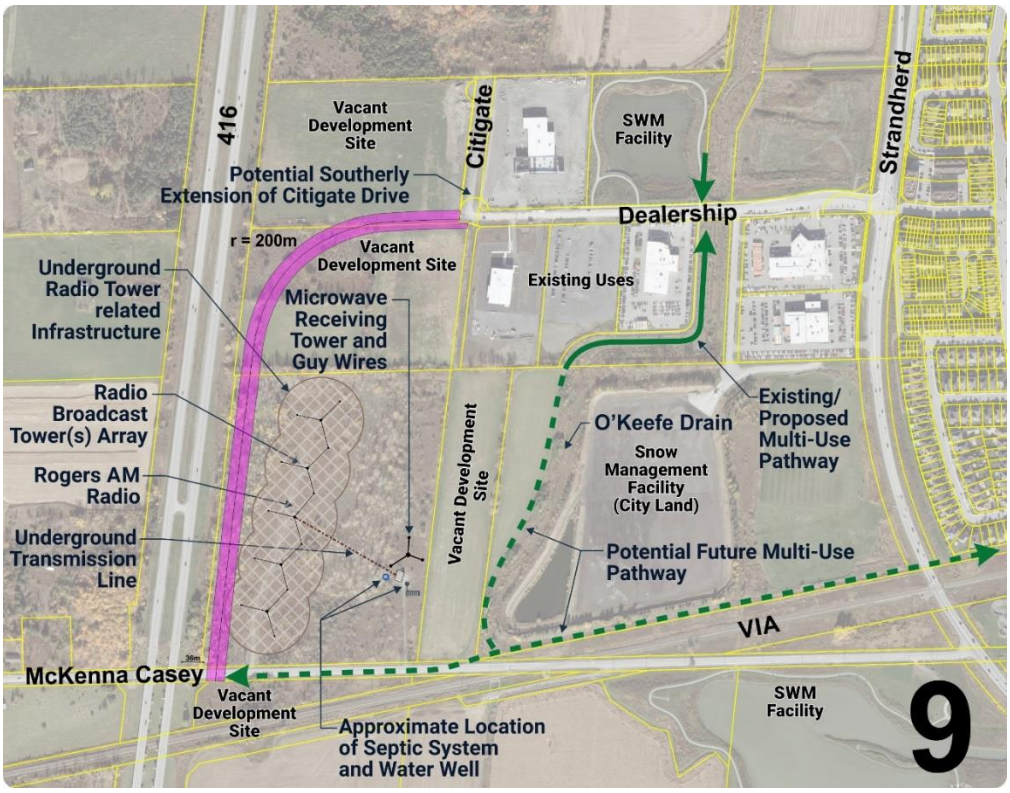


Figure 53: Alternative Alignment 9



5.3.1 Intersection Type

The intersection type and number of intersections required is in large part a function of the alignment. The majority of alignments require an intersection upon connection with Dealership Drive, as highlighted in **Figure 54**. Some alignments also require an intersection upon connection with existing McKenna Casey Drive, as highlighted in **Figure 55**, while others avoid the need for an intersection by using a curve radius. The number of intersections required influences the evaluation of each alignment as presented in the next section, particularly in the Economic Sustainability, Transportation System Sustainability, and Climate Change Mitigation and Adaptation categories. More intersections increases cost.

Figure 54: Intersection Point at Dealership Drive

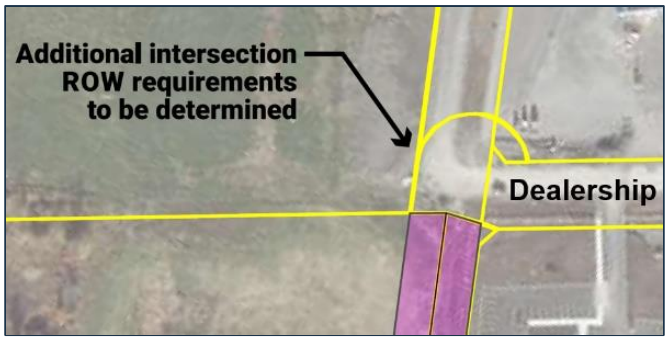


Figure 55: Potential Intersection Point at existing McKenna Casey Drive

5.3.2 Evaluation Criteria and Methodology

Evaluation Criteria were developed in order to evaluate road alignment (corridor) alternatives for the McKenna Casey realignment according to study objectives, policy, and site-specific requirements. The Evaluation Criteria are categorized as follows:

- Transportation System Sustainability;
- Ecological and Physical Sustainability;
- Land Use and Community Sustainability;

- Climate Change Mitigation and Adaptation; and
- Economic Sustainability.

5.3.3 Transportation System Sustainability

These Transportation criteria focus on transportation safety for all road users (all modes and all abilities); direct and efficient routes through the study area; as well as continuity, familiarity, and future ridership potential. Different intersection types, number of intersections, and alignment routes will influence the rankings in this category.

Table 6: Transportation System Sustainability Evaluation Criteria

Transportation System Sustainability			
Criteria		Indicators	
1)	Accessibility and Inclusion	a) b)	Consistent with Federal, Provincial and Municipal laws, standards and best practices. Provides accessible routes for persons of all abilities along the corridor, and at crossings.
2)	Active Transportation	a) b)	Provides the opportunity to connect to existing or proposed pedestrian and cycling facilities within the Study Area Provides a direct and efficient pedestrian and cycling travel route through the Study Area
3)	Transit Network	a) b)	Maximizes opportunity potential for a possible future bus route that captures new ridership Maximizes opportunity potential for a possible future bus route that minimizes travel time and maximizes reliability
4)	Arterial and Collector Road Network	a) b) c) d) e)	Provides an efficient travel route between existing McKenna Casey right-of-way to Strandherd Drive via Dealership Drive Results in a continuous north-south Collector Road network through the Citigate Area that connects to Moodie Drive Provides connectivity between the urban and rural truck route network Enables choice and design of familiar intersection types that will operate safely Provides choices for the location of vehicular accesses to adjacent development lands

5.3.4 Ecological and Physical Sustainability

These criteria focus on area vegetation; wildlife/aquatic habitat; and watercourses and stormwater management implications. Proximity to wooded areas internal to the Rogers parcel and adjacent to Highway 416 as well as proximity to the O'Keefe Creek/Drain will influence the rankings in this category.

Table 7: Ecological and Physical Sustainability Evaluation Criteria

Ecological and Physical Sustainability			
Criteria		Indicators	
1)	Protection of Existing Vegetation	a)	Optimizes the incorporation of existing valued natural/vegetated areas
2)	Surface Water and Aquatic Habitat	a)	Minimizes impact to watercourses in the Study Area Minimizes impact on or loss of existing aquatic habitat
3)	Stormwater Management	a) b)	Minimizes or Avoids changes/impacts on the O'Keefe Municipal Drain Minimizes the need for additional SWM facilities
4)	Wildlife	a)	Minimizes disruption to wildlife connection and movements
5)	Floodplains	a)	Minimizes impacts to the Jock River floodplain within the Study Area
6)	Physical Environment	a)	Minimizes risk to human health on areas of known contaminated soils and/or groundwater

5.3.5 Land Use and Community Sustainability

These criteria focus on consistency with area land use plans; lot fragmentation; and general community benefit such as street network connectivity/coherence, infrastructure impacts, and future development potential. Degree of lot fragmentation and degree of adherence to South Nepean Areas 9 & 10 Secondary Plan will influence the rankings in this category.

Table 8: Land Use and Community Sustainability Evaluation Criteria

Land Use and Community Sustainability	
Criteria	**Indicators**
1) Community Planning & Design	a) Consistent with area plans for South Nepean Areas 9 & 10 Secondary Plan b) Supports the efficient development of land and diminishes lot fragmentation a) Minimizes impacts on existing buildings and associated infrastructure b) Minimizes impacts on existing and planned built infrastructure c) Minimizes impacts to future development plans d) Maximizes community benefit and street network connectivity through opportunities for potential future northerly extension
2) Cultural Heritage Resources	a) Avoids or minimizes impact on existing archaeological resources or areas with potential b) Avoids or minimizes impact on designated or potential built heritage resources c) Avoids or minimizes impact on designated or potential cultural heritage landscapes
3) Noise & Vibration	a) Maximizes separation between the roadway (a potential noise and vibration source) and sensitive receivers b) Minimizes the need for noise mitigation
4) Air Quality	a) Maximizes fuel efficient driving behavior b) Minimizes travel distance and associated infrastructure

5.3.6 Climate Change Mitigation and Adaptation

These criteria focus on minimizing risk of extreme weather event impacts as well as on promoting driving behaviour that minimizes vehicle kilometres travelled and emissions. Length of facility, intersection type, and related construction implications will influence the rankings in this category.

Table 9: Climate Change Mitigation and Adaptation Evaluation Criteria

Climate Change Mitigation and Adaptation	
Criteria	**Indicators**
1) Climate Change Mitigation (Effect of Project on Climate Change)	a) Promotes a reduction in vehicle kilometres travelled and modal shift towards active modes b) Potential for protecting and/or enhancing carbon sinks c) Minimizes effects on climate change from the amount of materials used in construction d) Minimizes the life cycle maintenance and operation requirements e) Minimizes the propensity for creation of heat island effect
2) Climate Change Adaption (Effect of Climate Change on Project)	a) Minimizes risk of extreme cold temperatures on the project b) Minimizes risk of extreme hot temperatures on the project c) Minimizes risk of extreme precipitation events on the project d) Minimizes risk of flooding on the project e) Minimizes the risk of freezing rain events on the project f) Minimizes risk of extreme wind on the project g) Minimizes risk of wildfire on the project h) Maximizes the safety and comfort of corridor users exposed to the environment

5.3.7 Economic Sustainability

These criteria focus on project phasing, project coordination, and lifecycle costing as well as capital infrastructure costs. Number of intersection designs will influence the rankings in this category.

Table 10: Economic Sustainability Evaluation Criteria

Economic Sustainability	
Criteria	**Indicators**
1) Phasing and Implementation	a) Maximizes the ability to phase the project b) Maximizes the ability to coordinate with the Strandherd Widening and Realignment Project c) Minimizes the propensity for traffic diversion during construction
2) Life Cycle Cost	a) Minimizes the capital infrastructure cost including minimizing the need to alter or abandon existing road infrastructure b) Minimizes infrastructure design and construction costs c) Minimizes maintenance and operation costs d) Minimizes property acquisition cost

An Evaluation Matrix was selected as the methodology for this study as it provides a method of objectivity evaluating several alternatives against several criteria that can be tailored to the varying Study Area contexts. The evaluation methodology included the following tasks:

Task 1: Identifying Alternative Alignments

Task 2: Criteria Development

Task 3: Performing a criteria-based Evaluation of Alternatives

Task 5: Synthesizing the findings and recommending a Preliminary Preferred Alignment/Design

5.3.8 Evaluation Results

Each of the nine (9) alignment were evaluated according to the evaluation criteria and indicators, with "●" representing complete fulfillment. The evaluation results are presented in **Table 11**.

Table 11: Evaluation of Alternative Alignments Results

				Roadway Alignment Alternative									Comments
	Criteria		Indicator	1	2	3	4	5	6	7	8	9	
TRANSPORTATION SYSTEM SUSTAINABILITY													
1	Accessibility and Inclusion	a)	Consistent with Federal, Provincial and Municipal laws, standards and best practices.	●	●	●	●	●	●	●	●	●	All alternatives would be designed to federal, provincial and municipal standards and best practices.
		b)	Provides accessible routes for persons of all abilities along the corridor, and at crossings.	●	●	●	●	●	●	●	●	●	All alternatives are accessible and all feature the same preferred cross-section.
2	Active Transportation	a)	Provides the opportunity to connect to existing or proposed pedestrian and cycling facilities within the Study Area	◐	◐	◐	◐	◐	●	●	◐	◐	North/South pedestrian/cycling connection is poor for Alternatives 1-5. Safer connection in Alternatives 8-9 but wrong location.
		b)	Provides a direct and efficient pedestrian and cycling travel route through the Study Area	●	●	◕	◕	●	◕	◕	◔	◔	Alternatives 8-9 are not efficient in connecting to some development parcels.
3	Transit Network	a)	Maximizes opportunity potential for a possible future bus route that captures new ridership	●	●	●	●	●	●	●	○	○	Alternatives 8-9 do not capture new ridership due to not aligning through land with development potential.
		b)	Maximizes opportunity potential for a possible future bus route that minimizes travel time and maximizes reliability	●	●	●	●	●	◕	◕	◔	◔	Alternatives 6-9 require getting through at least one additional intersection compared to 1-5.
4	Arterial and Collector Road Network	a)	Provides an efficient travel route between existing McKenna Casey right-of-way to Strandherd Drive via Dealership Drive	●	●	●	●	●	◕	◕	◔	◕	Alternative 8 has two extra intersections. Alternatives 6, 7, and 9 have one extra intersection. Travel time would be increased by the need to travel through additional intersections.

Criteria		Indicator	Roadway Alignment Alternative 1	2	3	4	5	6	7	8	9	Comments
	b)	Results in a continuous north-south Collector Road network through the Citigate Area that connects to Moodie Drive	●	◕	◐	◐	◕	◔	◔	○	○	This indicator encompasses number of intersections, spine, network, wayfinding, etc. Alternatives 8 and 9 fail because their alignment is not "through" Citigate. Alternatives 2 and 6 are less "continuous" than Alternative 1. 6 and 7 have intersections on existing McKenna Casey. 3 and 4 are also not continuous/direct compared to others.
	c)	Provides connectivity between the urban and rural truck route network	●	●	◐	◐	●	◕	◕	◐	◕	All alternatives fulfill this indicator. The extra intersections are not highly favourable for trucks; they will be slow/generally less desirable to navigate once the necessary measures are layered on for general safety of the intersection.
	d)	Enables choice and design of familiar intersection types that will operate safely	●	●	◕	◐	●	○	○	○	○	Alternatives 6-9, with intersections at existing McKenna Casey, are not familiar/intuitive for drivers. The resulting intersection designs would fall short of best practices, with respect to both familiarity and safety.
	e)	Provides choices for the location of vehicular accesses to adjacent development lands	◕	◕	◕	◐	◕	●	●	○	○	This indicator implies without the need for additional street construction. Access at a curve not desirable. Alternatives 8 and 9 are far from development lands.
SUBTOTAL TRANSPORTATION SYSTEM SUSTAINABILITY			●	●	◐	◐	●	◐	◐	○	○	Alternatives 1, 2, and 5 score best.
ECOLOGICAL AND PHYSICAL SUSTAINABILITY												
6	Protection of Existing Vegetation	a)	Optimizes the incorporation of existing valued natural/vegetated areas	●	●	●	●	◐	●	●	◐	◐	Wooded areas are generally located internal to the AM Radio property (Alternative 5) and along Highway 416 (Alternatives 8 and 9).
7	Surface Water and Aquatic Habitat	a)	Minimizes impact to watercourses in the Study Area Minimizes impact on or loss of existing aquatic habitat	●	●	◔	◔	◕	●	●	◐	◐	Alternatives 1 and 2 require a culvert to cross an intermittent stream. Alternatives 8 and 9 will require stream relocation.
8	Stormwater Management	a)	Minimizes or Avoids changes/impacts on the O'Keefe Municipal Drain	●	●	◐	◐	●	●	●	●	●	There are no anticipated impacts to the O'Keefe Municipal Drain with any of the alternatives.

	Criteria		Indicator	Roadway Alignment Alternative 1	2	3	4	5	6	7	8	9	Comments
		b)	Minimizes the need for additional SWM facilities	●	●	●	◕	●	◕	◕	◔	◔	Alternatives 1-3 provide space for planned SWM facility at the south end of the AM Radio Site area. Alternatives 8 and 9 may require the need for additional SWM Facility. Alternatives 6 and 7 may require additional lands on the McKenna property to construct planned SWM facility.
9	Wildlife	a)	Minimizes disruption to wildlife connection and movements	●	●	●	●	◐	●	●	◐	◐	Alternatives that fragment wooded areas (5, 8, 9) score lower here.
10	Floodplains	a)	Minimizes impacts to the Jock River floodplain within the Study Area	●	●	●	●	●	●	●	●	●	None of the alternatives are located with the Jock River Floodplain.
11	Physical Environment	a)	Minimizes risk to human health on areas of known contaminated soils and/or groundwater	●	●	●	●	●	●	●	●	●	None of the alignments are known areas of contamination (as confirmed by Phase 1 ESA).
	SUBTOTAL ECOLOGICAL AND PHYSICAL SUSTAINABILITY			●	●	◕	◕	◕	●	●	◔	◔	Alternatives 1-2 and 6-7 score best.
LAND USE AND COMMUNITY SUSTAINABILITY													
12	Community Planning & Design	a)	Consistent with area plans for South Nepean Areas 9 & 10 Secondary Plan	●	●	◕	◐	●	◕	◕	◔	◔	Alternatives 1, 2 and 3 match the anticipated road network and parcel layout in the area Secondary Plan.
		b)	Supports the efficient development of land and diminishes lot fragmentation	◕	◕	○	○	◐	●	◕	◔	○	Alternatives 3-5 and 8-9 result in the most land fragmentation. Alternatives 1 and 2 create a small fragmented piece in the southeast corner of the AM Radio Site Property. Alternatives 6 and 7 create the least fragmentation.
		c)	Minimizes impacts on existing buildings and associated infrastructure	◔	◕	●	◕	◐	◐	●	◕	◕	Alternatives 1 and 3 will require relocation of existing hydro service to the AM Radio Site building along existing access road. 1 and 5 disrupt Radio site septic bed. Wells should remain untouched with all options.

				Roadway Alignment Alternative									Comments
	Criteria		Indicator	1	2	3	4	5	6	7	8	9	
		d)	Minimizes impacts on existing and planned built infrastructure	◔	◕	●	◐	◐	◕	●	◔	◔	Existing and planned built infrastructure includes microwave towers, underground tower-related infrastructure, storm ponds. Alternatives 8 and 9 have potential to alter locations for SWM ponds or additional ponds and may disrupt underground tower infrastructure. 5 may disrupt underground infrastructure. 1 disrupts microwave tower guy wire anchor, which consultation revealed would be costly.
		e)	Minimizes impacts to future development plans	●	◕	◐	◔	◔	●	◕	◐	◔	Alternative 5 cuts cross-country on the AM Radio Site impacting available lands at the north end of the property. Alternative 9 most impacts potential development plans on the privately owned vacant development land parcel north of the AM Radio site.
		f)	Maximizes community benefit and street network connectivity through opportunities for potential future northerly extension	●	●	◕	◐	●	●	●	◐	◐	Alternatives 8 and 9 make additional 90 degree turns before extending north.
13	Cultural Heritage Resources	a)	Avoids or minimizes impact on existing archaeological resources or areas with potential	●	●	●	●	◕	●	●	●	●	Alternative 5 is located within an area with Archaeological Potential (as confirmed by Stage 1 AA).
		b)	Avoids or minimizes impact on designated or potential built heritage resources	●	●	●	●	●	●	●	●	●	There are no known built heritage resources within the Study Area (as per CHER).
		c)	Avoids or minimizes impact on designated or potential cultural heritage landscapes	●	●	●	●	●	●	●	●	●	There are no designated cultural heritage landscapes with the study area (as per CHER).
14	Noise & Vibration	a)	Maximizes separation between the roadway (a potential noise and vibration source) and sensitive receivers	●	●	●	●	●	●	●	●	●	There are no sensitive receivers (e.g. residential areas, daycares, churches) adjacent.
		b)	Minimizes the need for noise mitigation.	●	●	●	●	●	◕	◕	◔	◐	There are no sensitive receivers (e.g. residential areas, daycares, churches) adjacent. Noise mitigation is not anticipated.

	Criteria		Indicator	Roadway Alignment Alternative 1	2	3	4	5	6	7	8	9	Comments
15	Air Quality	a)	Maximizes fuel efficient driving behavior	●	●	◕	◕	●	◕	◕	◔	◐	Alignments with more intersections score lower here.
		b)	Minimizes travel distance and associated infrastructure	●	●	●	◐	●	◕	◕	◐	◕	Alternatives with a curved alignment minimize travel distance.
	SUBTOTAL LAND USE AND COMMUNITY SUSTAINABILITY			◕	●	◐	◔	◐	◕	◕	◔	◔	Alternative 2 scores best here, with 1 and 6-7 also high.
CLIMATE CHANGE MITIGATION AND ADAPTATION													
16	Climate Change Mitigation (Effect of Project on Climate Change)	a)	Promotes a reduction in vehicle kilometres travelled and modal shift towards active modes	●	●	●	◕	●	◕	◕	◐	◐	All alignments will include parallel active transportation facilities. Shorter alignment alternatives will score better.
		b)	Potential for protecting and/or enhancing carbon sinks	●	●	●	●	◐	●	●	◐	◐	Alternatives that pass through wooded areas (5, 8, 9) score lower here.
		c)	Minimizes effects on climate change from the amount of materials used in construction	●	●	◕	◕	●	◕	◕	◔	◐	Longer alignments and those with the most intersections require more construction materials.
		d)	Minimizes the life cycle maintenance and operation requirements	●	●	●	◕	●	◕	◕	◔	◐	Alternatives with increased amount of infrastructure will be most costly.
		e)	Minimizes the propensity for creation of heat island effect	●	●	◕	◕	●	◕	◕	◔	◐	Heat island effect is impacted by the amount of pavement used overall.
17	Climate Change Adaption (Effect of Climate Change on Project)	a)	Minimizes risk of extreme cold temperatures on the project	●	●	●	◕	●	◕	◕	◔	◐	This indicator relates to the length of the facility to be affected by extreme cold events including pavement durability and propensity for ice on the roads.
		b)	Minimizes risk of extreme hot temperatures on the project	●	●	◕	◕	●	◕	◕	◔	◐	This indicator relates to length of the facility to be affected by extreme heat events including pavement durability and propensity for asphalt buckling and pitting.

Criteria		Indicator	Roadway Alignment Alternative 1	2	3	4	5	6	7	8	9	Comments
	c)	Minimizes risk of extreme precipitation events on the project	●	●	●	●	●	●	●	●	●	This indicator relates to the design for stormwater management and ability to effectively drain the road and parallel active transportation facilities. All alignments can be designed to account for effective road drainage.
	d)	Minimizes risk of flooding on the project	●	●	●	●	●	●	●	●	●	This indicator relates to the elevation of the roadway in proximity to waterbodies and their floodplains and the design of the road. All alternatives are outside significant floodplains.
	e)	Minimizes the risk of freezing rain events on the project	●	●	◕	◕	●	◕	◕	◔	◐	This indicator relates to length of the facility to be affected by freezing rain and effective stormwater management.
	f)	Minimizes risk of extreme wind on the project	◕	◕	◕	◕	●	◕	◕	●	●	This indicator relates to the openness of the roadway. Alternatives adjacent to the elevated 416 facility may provide some additional protection from winds originating in the west. Alternative 5 that could maintain some adjacent vegetation for some length.
	g)	Minimizes risk of wildfire on the project	●	●	●	●	◐	●	●	◐	◐	Alternatives that pass through wooded areas (5, 8, 9) score lower here.
	h)	Maximizes the safety and comfort of corridor users exposed to the environment	◕	◕	◕	◐	●	◐	◐	◕	●	Shorter alternatives and those adjacent to 416 that offer some protection from wind events would score best for this indicator.
SUBTOTAL CLIMATE CHANGE MITIGATION AND ADAPTATION			●	●	◕	◐	◕	◐	◐	○	◔	Alternatives 1 and 2 score best.
ECONOMIC SUSTAINABILITY												
18	Phasing and Implementation	a) Maximizes the ability to phase the project	●	●	●	●	●	●	●	●	●	The project includes connecting existing McKenna Casey to Strandherd which would be completed in one phase.
		b) Maximizes the ability to coordinate with the Strandherd Widening and Realignment Project	●	●	●	●	●	●	●	●	●	All alternatives could be coordinated with the Strandherd Widening and Realignment Project.
		c) Minimizes the propensity for traffic diversion during construction	●	●	●	●	●	●	●	●	●	The project is a new roadway and no road closures would be required to construct. No traffic diversion is anticipated.

Criteria		Indicator	Roadway Alignment Alternative 1	2	3	4	5	6	7	8	9	Comments
19	Life Cycle Cost	a) Minimizes the capital infrastructure cost including minimizing the need to alter or abandon existing road infrastructure	●	●	●	◕	◕	◕	◕	◔	◐	Shorter routes with fewer intersection designs will score better for this indicator. Alternatives 6-9 include additional intersections.
		b) Minimizes infrastructure design and construction costs	●	●	◕	◕	◕	◕	◕	◔	◐	Shorter routes with fewer intersection designs will score better for this indicator. Alternatives 6-9 include additional intersections.
		c) Minimizes maintenance and operation costs	●	●	◕	◐	◕	◕	◕	◔	◐	Shorter routes with less intersection designs will score better for this indicator. Alternatives 6-9 include additional intersections.
		d) Minimizes property acquisition cost	◕	◐	◔	◔	◐	●	●	◔	◐	Alternatives with the least property requirements and number of property owners implicated will score best for this indicator.
SUBTOTAL ECONOMIC SUSTAINABILITY			◕	●	◔	◔	◔	◐	◐	○	◔	Alternative 2 scores best here, with Alternative 1 very close and 6-7 also high.
Total Score (All Criteria)			◕	●	◐	◐	◐	◐	◐	◔	◔	Alternative 2 scores best overall, with Alternative 1 very close.

5.3.9 Preferred Alignment

Following a multi-disciplinary evaluation, Alternative 2 is preferred and forms the basis of the Draft Recommended Plan. Alternative 2 is the preferred alignment primarily because it:

- Forms a relatively direct connection;
- Avoids impacts on the AM radio infrastructure (including the microwave tower and guy anchors);
- Avoids area with archaeological potential;
- Minimizes displacement of trees;
- Generally conforms to the overall historically anticipated pattern of land development; and
- Minimizes property fragmentation.

6.0 CONSULTATION

6.1 Consultation Overview

The consultation process involved many stakeholders, including regulatory agencies, conservation authorities, local community associations, property owners, City planners, business owners and associations, Indigenous communities, and members of the public. Stakeholders had multiple opportunities to participate in the EA Addendum Study.

Key consultation events included:

- Technical Advisory Group (TAG) meetings: December 2020 – June 2021;
- Community Working Group (CWG) meetings: December 2020 – June 2021;
- Focused stakeholder meetings e.g. area landowners, Accessibility Committee: December 2020 – June 2021.
- On-line Public Consultation: June 28th 2021 – July 12th 2021;

Three (3) Technical Advisory Group meetings and three (3) Community Working Group meetings were held in:

- December 2020;
- February 2021;
- April 2021; and
- June 2021.

6.2 TAG (Technical Advisory Group)

TAG Meetings were held via Microsoft Teams on:

- December 15th, 2020;
- February 24th, 2021; and
- June 29th, 2021.

Key technical advisors included area development planners who understand prior development direction and area concept planning, members of regulatory agencies and conservation authorities. Feedback centered around the desire for sufficient boulevard width for trees in the cross-section, as well as preferences for separated active transportation modes for accessibility and safety reasons. The Recommended Plan has balanced these requirements within the 26 metre right-of-way. Other issues expressed included underground servicing, and where and how the realigned McKenna Casey Drive would drain. Meeting notes and slides from these meetings are included in **Appendix A: Consultation Record.**

6.3 CWG (Community Working Group)

CWG Meetings were held via Microsoft Teams on:

- December 15th, 2020;
- April 1st, 2021; and
- June 29th, 2020.

Key community stakeholders included area landowners and area developers. Discussions centered around the timing and funding of construction. It was explained that the EA Addendum project presents a recommended plan but that the method of funding the project has not been determined, nor the time frame for construction.

Area landowners generally preferred a timely construction process and a roadway that included servicing to foster land development. It was noted that these aspects are outside the scope of this EA Addendum, which focuses on the roadway right-of-way, alignment, profile and cross-section. It was communicated to landowners that the preparation and approval of this Recommended Plan assists in enabling them to advance their own land use planning, site engineering and land development approval processes Meeting notes and slides from these meetings are included in **Appendix A: Consultation Record.**

6.4 On-line Public Consultation

On-line public consultation was held between June 28th and July 12th, 2021. Advertisements in newspapers and social media notified the public of this consultation opportunity according to the following schedule:

- Ottawa Citizen (English language) ads on June 26th and July 3rd
- Ottawa Le Droit (French language) ads on June 26th and July 3rd
- Twitter and Facebook ads (English and French language) starting Monday June 28th and running for 2 weeks.

Accessible Display Boards were available in French and English on the City of Ottawa project website between June 28th and July 12th. A survey was open during this time window and received 59 English responses (0 French responses). The majority of respondents were interested to see improvements in the area's transportation network and to restore its connectivity. Comments included support for removing the VIA Rail level-crossing as a safety improvement, and support for the realignment to be implemented to reduce lengthy detours associated with the October 2020 closure of McKenna Casey Drive. Comments were also received from one area developer that would have preferred that the project included the engineering design of below-grade municipal services and area-wide stormwater management facilities, and that the corresponding facility be financed by the City of Ottawa. Overall, there is general public support for the Recommended Plan. The Display Boards as well as the complete survey responses are included in **Appendix A: Consultation Record.**

6.5 Consultation: Summary of Key Issues and Responses

The following table summarizes the key issues raised during the consultation process of this Addendum Study. Many of these issues are also addressed in **Table 14: Impact Assessment Table.**

Table 12: Key Issues and Responses (Consultation Process)

Issues Raised	Response
The Addendum does not include plans for underground municipal services and utilities. One of the owners of an abutting property has requested the City include sanitary and water services and the oversizing of stormwater facilities as part of the road design and construction to facilitate land development.	At this time there are no active land development applications, development concept plans or comprehensive engineering studies for the vacant lands. The Addendum establishes the functional design and right-of-way requirements for the extension of McKenna Casey Drive and thereby assists in enabling the landowner to carry out land use planning and municipal engineering and servicing studies that will guide the development of their lands. Depending on timelines, servicing requirements that would fall within/under the right-of-way can possibly be identified and bundled with the road construction project, with the developer responsible for such costs. As is the normal course, it is the responsibility of landowner/developers to initiate and fund the design and implementation of the underground municipal services and utilities.
Rogers AM Radio suggested that the potential implications on users of the new transportation facility within the vicinity of the broadcasting towers be studied.	The study team commissioned a specialist to evaluate the impacts of radio waves on human health and other potential safety risks. The specialist's report is based on existing regulations and practices and concludes that for this transportation facility project the risk is low to non-existent. Corridor users are anticipated to be passing through and not lingering in the corridor for an extended period of time on a regular basis. The report concludes that with appropriate mitigation (such as security fencing), no direct public health hazard will be experienced in the proposed construction or operation of the transportation facility, and that no additional action is required.

Issues Raised	Response
The project's recommended alignment has the potential to cross part of an existing septic system (septic tank and tile field) on the Rogers AM Radio site. The extent of the impact will be identified via a survey at the detailed design stage.	Rogers is aware of this situation and has confirmed that the septic system is abandoned and that they have no requirements for it. The EA Addendum identifies the studies and requirements necessary to identify the extent of the impact of the proposed transportation corridor alignment on this abandoned septic system, and to guide, as required, the safe and proper mitigation of the impact.
Some stakeholders have asked when the roadway is to be constructed and requested that the timing be as soon as possible given that McKenna Casey Drive has been closed since October 2020.	Request is noted. Responsibility for the implementation of this project requires resolution. Major collector roads are typically constructed by land developers as a condition of land development approvals.

7.0 RECOMMENDED PLAN AND ASSESSMENT

In this section, the Recommended Plan is described and its environmental impacts are assessed. Mitigation measures of the environmental impacts are put forward.

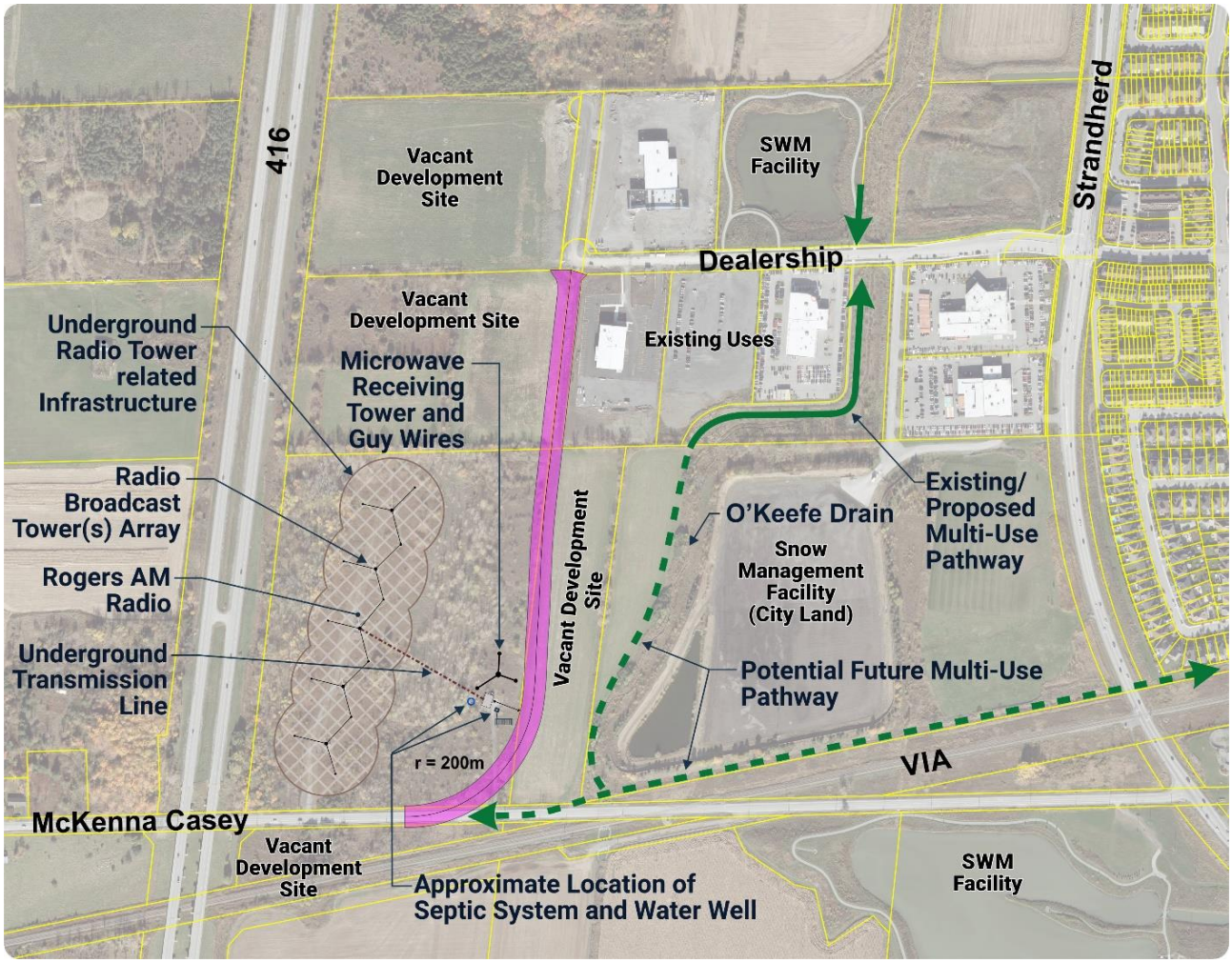
7.1 Description of the Recommended Plan

The alignment, cross-section, and intersection of the Recommended Plan are described here. Two of the three components of the Recommended Plan (cross-section and intersection) include a potential interim phase that could be preferred during detailed design if initial project funding is limited. The alignment right-of-way (ROW) would be protected regardless of whether the interim cross-section or intersection design is chosen. The potential interim designs allow for phased construction and flexibility to coordinate with adjacent developments as they occur in the future.

7.1.1 Recommended Plan: Alignment (ROW)

The Recommended Alignment was drawn based on the preferred Alignment Alternative 2. The Recommended Plan was slightly modified compared to Alternative 2 in order to include equal property requirements on either side wherever possible. As such, the alignment curves eastward to a lesser degree, thereby balancing the property requirements more equally between the AM Radio site and the vacant development side to the east of the Radio site. Crucially, this alignment still avoids the microwave tower infrastructure on the east of the Radio site, with around 10 metres between the western extent of the ROW and the guy anchors of the microwave tower. However, the alignment does impact the decommissioned septic system south of the microwave tower infrastructure. Mitigation measures to this impact is detailed in **Section 7.2.**

Figure 56: Recommended Plan - Alignment



The Recommended Alignment reflects stakeholder meetings with area landowners, especially those landowners impacted by property requirements, as part of the consultation process for this Study. The overall environmental benefits of the Recommended Alignment include:

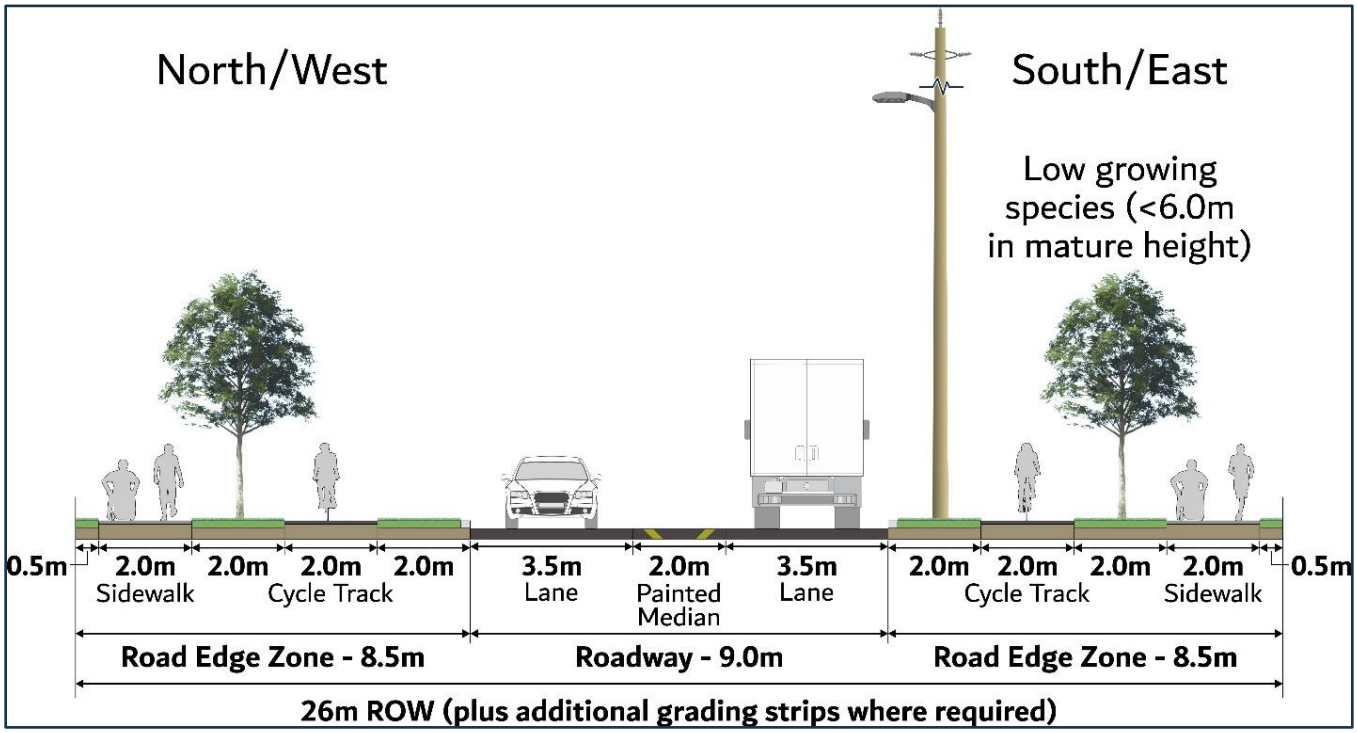
- Minimizing lot fragmentation of adjacent landowners;
- Avoiding natural environment features such as woodland;
- Avoiding O'Keefe Municipal Drain;
- Following the overall direction of the area Secondary Plan (South Nepean Areas 9 & 10 Land Use Plan);
- Avoiding any costly microwave tower infrastructure removals or modifications;
- Impacting a septic system that is decommissioned and does not require rehabilitation; and
- Requiring just one intersection (at Dealership Drive).

7.1.2 Recommended Plan: Cross-Section

The Recommended Plan: Cross-Section is presented in **Figure 57**. The Recommended Cross-Section is based on Cross-Section Option 4, reflecting stakeholder preferences during the consultation process of this Study. As shown, the Recommended Cross-Section includes:

- Active transportation facilities: sidewalk and uni-directional cycle track on both sides (2m each);
- Tree boulevards on both sides of the street (separating the active transportation facilities);
- Two vehicle lanes (3.5m each with a 2m painted median); and
- Snow storage boulevards (2m each) next to vehicle lanes with space for utilities.

Figure 57: Recommended Plan: Cross-Section (Ultimate Design)



The ultimate design of the Recommended Cross-Section (**Figure 57**) envisions a realigned McKenna Casey with active transportation facilities fully constructed. Tree boulevards separate the active transportation facilities for shading, accessibility, safety, and snow storage.

This Recommended Cross-Section is most suitable for all road users as it features an urban cross-section with sidewalks and uni-directional cycle tracks and a 9 metre wide roadway to accommodate a centre-line safety buffer for traffic to pass a disabled vehicle.

7.1.3 Recommended Plan: Cross-Section – Potential Interim Phase

The potential interim plan for the Recommended Cross-Section provides a multi-use pathway on the eastern side of the street for active transportation and allows the possibility to separate the facilities in future add-ons (**Figure 58**). Full active transportation facilities (separate cycling and sidewalk facilities on both sides of the road) would be built as development expands in the area. To avoid additional costs in the future, the design will allow for future underground services to be located outside the roadway surface. The decision to provide street lighting (and overhead hydro if needed) as part of the interim design would be made during the detailed design.

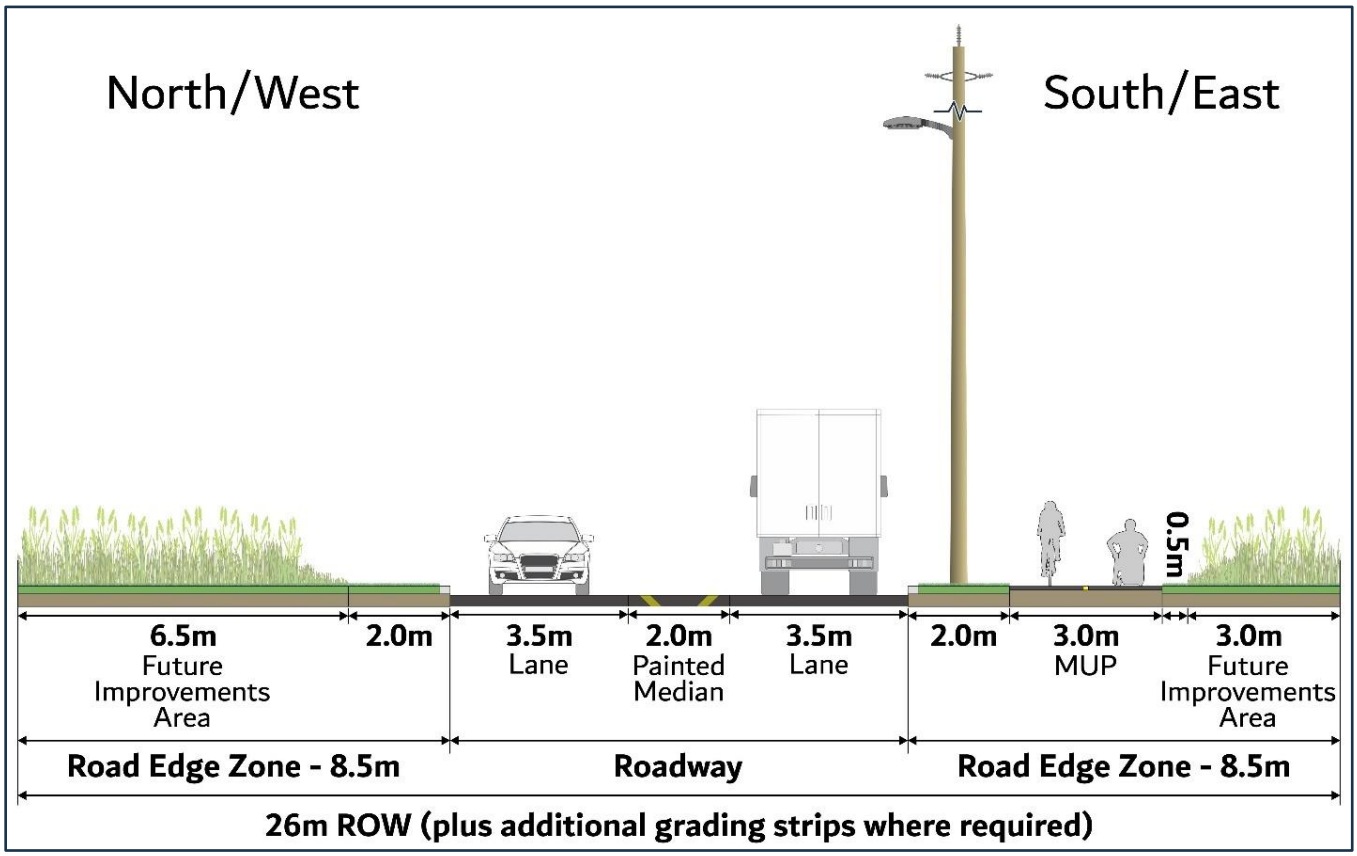
The potential interim phase includes:

- Road bed, surface, curbs, and drainage in permanent state; and
- Multi-use pathway on east side for interim condition.

Future condition add-ons would include:

- Separated pedestrian and cycling facilities;
- Final landscaping;
- Utilities in the boulevard area as appropriate;
- Trees where appropriate; and
- Servicing under roadway to be determined, pending the timing of developer-initiated servicing studies and requirements (there are no developer servicing plans at this time but clear corridors are available given that this is a greenfield setting).

Figure 58: Recommended Plan: Cross-Section (Potential Interim Phase)



7.1.4 Recommended Plan: Intersection

The Recommended Intersection type is a roundabout at Dealership Drive as depicted in **Figure 59**. The roundabout intersection will:

- Offer protected movements for all users;
- Provide sufficient capacity for all users;
- Accommodate the movement of all road users including trucks, cyclists, and pedestrians;
- Require additional ROW at corners; and
- Allow for a potential future western leg.

A roundabout at the intersection of McKenna Casey and Dealership Drive will allow for continuity in the area transportation network. As illustrated in **Figure 60**, there is an existing roundabout intersection at Crosskeys and Citigate Drive, north of the proposed McKenna Casey/Dealership intersection. There is also a planned roundabout intersection at Systemhouse and Citigate Drive. The continuity of having three roundabout intersections as road users travel through the area improves transportation intuition and facilitates a consistent north-south collector road, as proposed in the Secondary Plan Land Use Plan.

Figure 59: Recommended Plan: Intersection

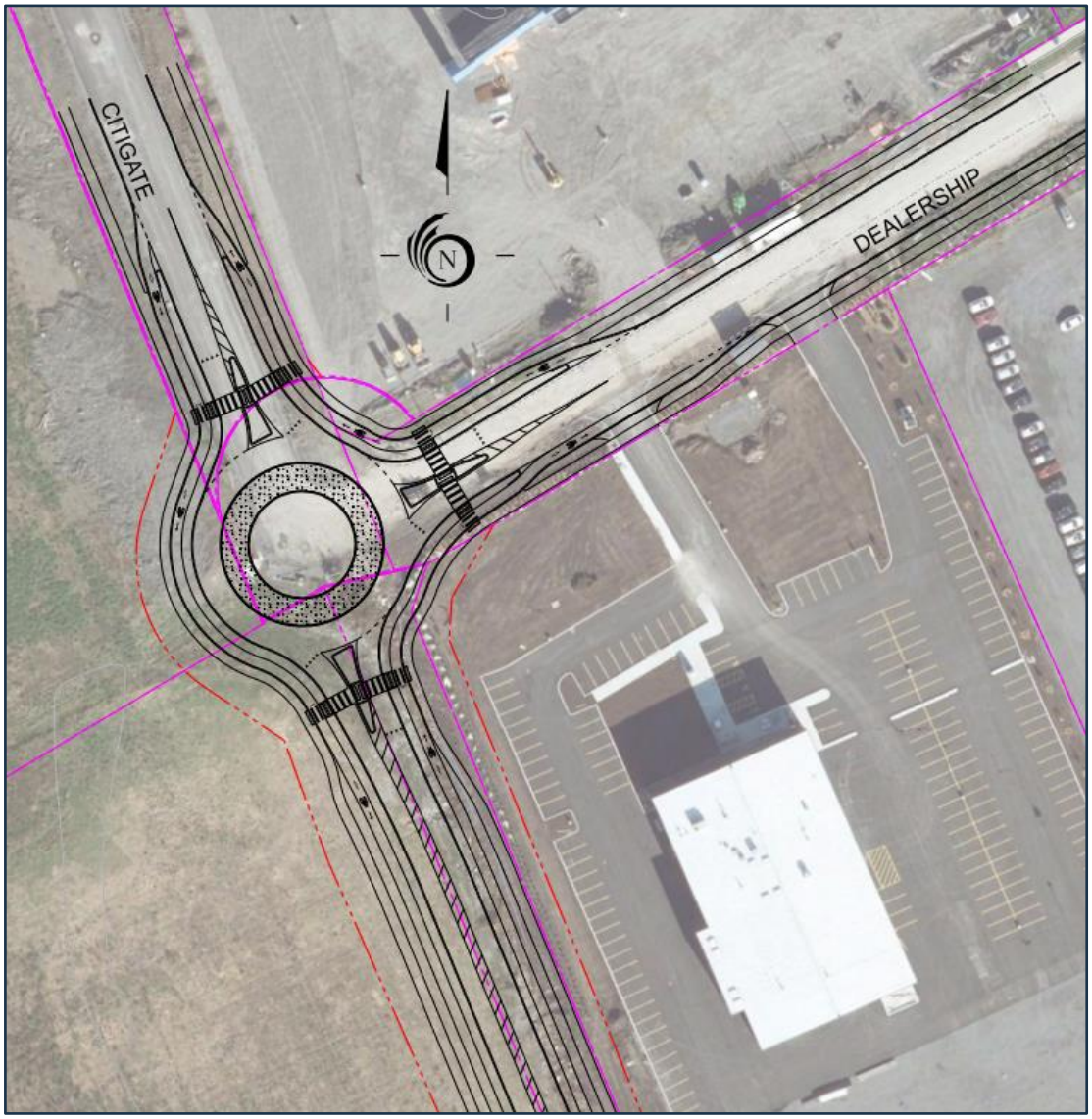
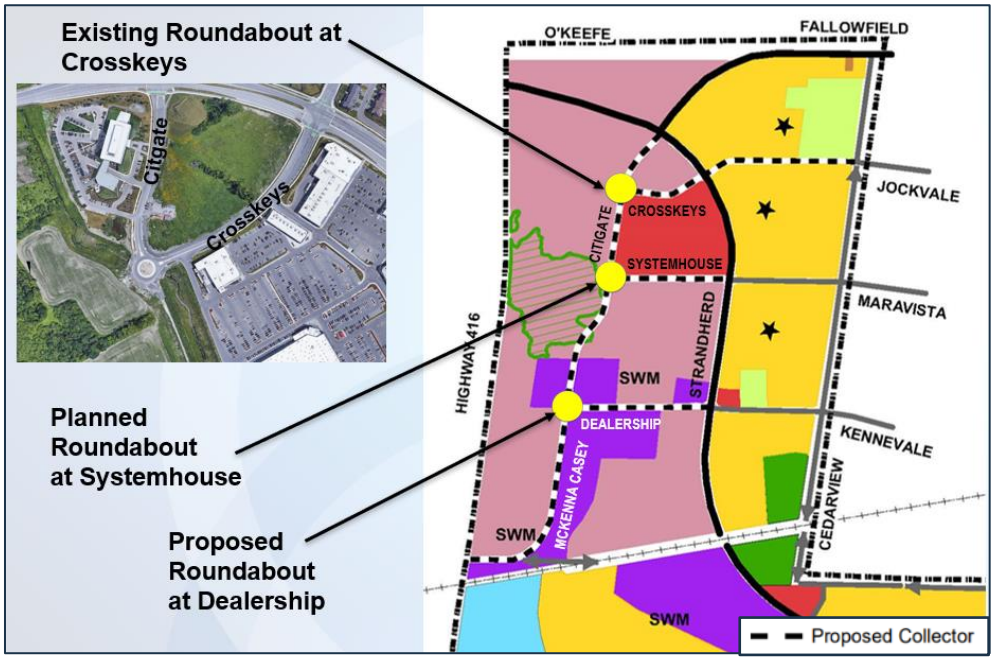
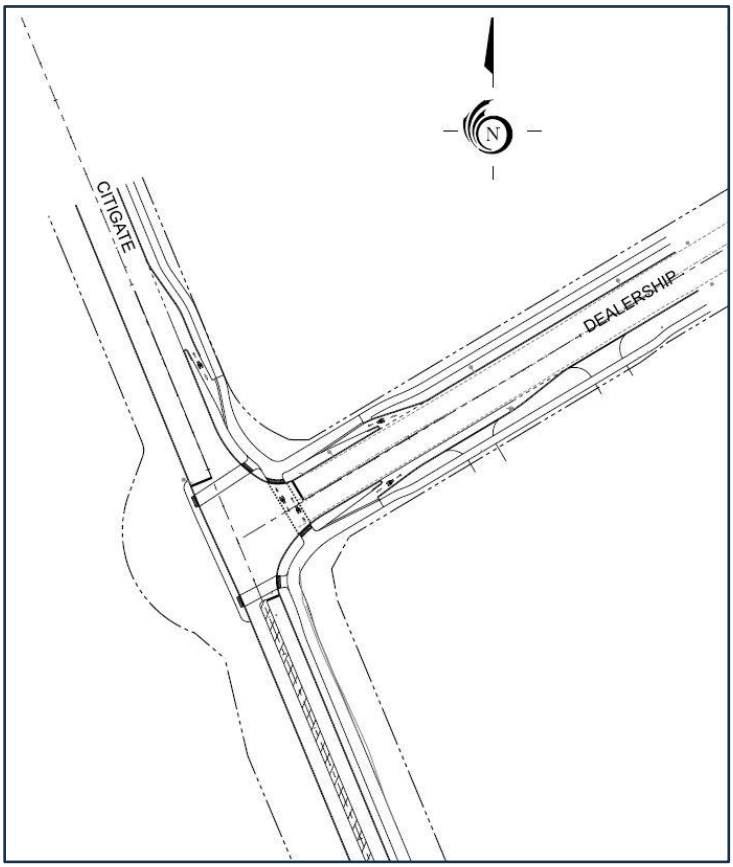


Figure 60: Intersection Types (Existing and Future) in the Secondary Plan Area



7.1.5 Recommended Plan: Intersection – Potential Interim Phase

Figure 61: Recommended Plan: Intersection (Potential Interim)



If the potential interim phase alignment and cross-section are chosen for detailed design and construction, the intersection can feature a three-legged STOP-controlled intersection as shown in **Figure 61**.

7.1.6 Recommended Plan: Summary

Figure 62: Recommended Plan: Alignment (Ultimate Design)

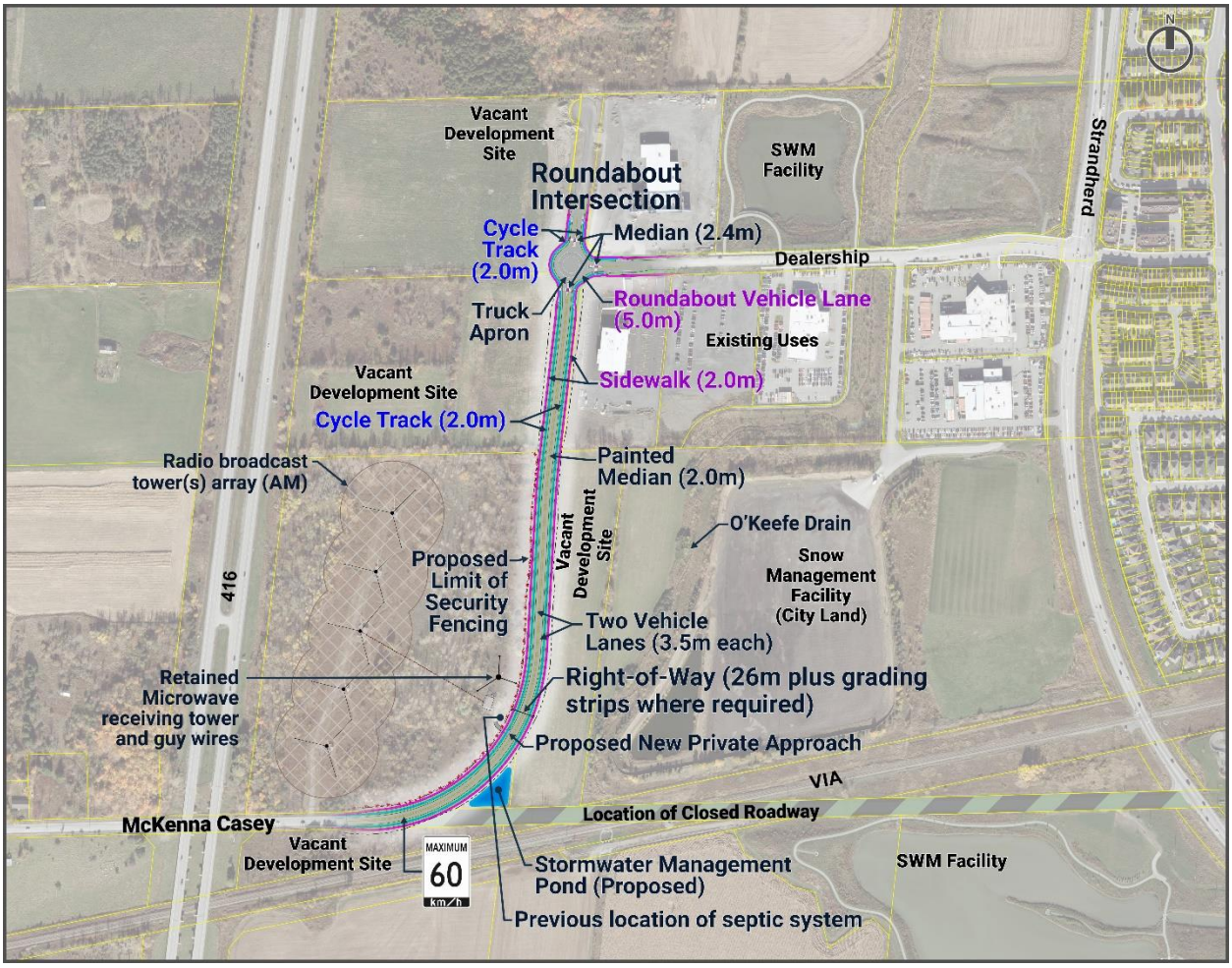


Figure 62: Recommended Plan: Alignment (Ultimate Design) illustrates the Recommended Plan alignment and cross-section and intersection features. It also notes the location of the:

- Proposed new private approach to the AM Radio Site;
- Proposed limit of security fencing along the western side of the ROW;
- Previous location of septic system; and
- Proposed Stormwater Management Pond to only manage surface water drainage from the realigned road corridor.

The extent of the impact on the septic system and the requirements for mitigation will be ascertained via survey during the detailed design phase.

The connection of McKenna Casey Drive to Strandherd Drive is expected to stimulate development in the area as adjacent lands will be better connected to the system of major roads than the current conditions, and road frontage will be provided to abutting properties.

Figure 63: Recommended Plan: Alignment (Potential Interim Phase)

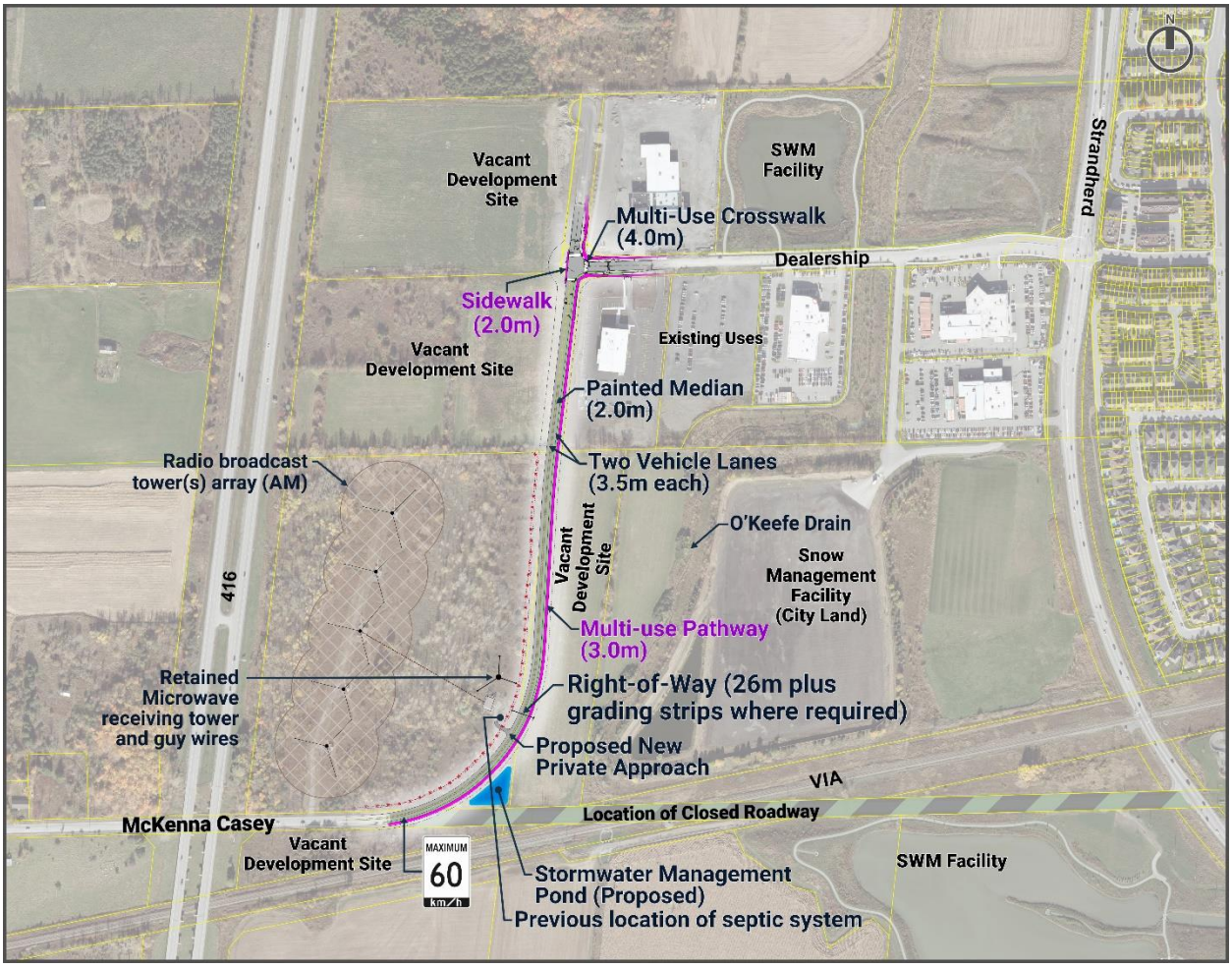


Figure 63 illustrates the pared-down interim option of the Recommended Plan, with a multi-use pathway on the eastern side of the ROW. The potential interim phase does include the security fencing along the western side of the ROW, as well as the SWM pond, new private approach, and previous septic system.

7.1.7 Recommended Plan: Landscaping Approach

Boulevard street tree planting in the ultimate design will provide shade and create a more pleasant environment for active transportation users and create a visually narrower corridor. Grass strips will assist in reducing the amount of corridor runoff and will serve as snow storage areas. A landscaping plan will be prepared as part of the detailed design.

7.1.8 Recommended Plan: Stormwater Management Approach

The proposed stormwater management controls and any mitigation measures will be included within the proposed McKenna Casey Drive ROW and include a general location for a stormwater management facility that serves the facility. The recommended plan includes catch basins and storm sewers draining to a southerly stormwater management pond that would provide quantity and quality control measures for the proposed roadway. The SWM pond will be located along the southeast side of the curve along the edge of the closed portion of McKenna Casey. The proposed wet pond will discharge to the existing drainage system prior to reaching the O'Keefe Municipal Drain. The pond and sewers shall be able to accommodate the 100-year peak flows from the City ROW and pre-development flows for the remaining bordering lands (5-year event, C=0.5). The details of the facility would be addressed as part of the detailed design.

7.1.9 Built in Mitigation Measures

For this project, "built-in mitigation" is defined as actions and design features incorporated in the pre-construction, construction, and operational phases, which have the specific objective of lessening the significance or severity of environmental effects which may be caused by the project. They include standard construction practices and Best Management Practices (BMPs). These measures can be considered "built into" the preferred design for the roadway. They will be updated and refined during the pre-construction, construction, and operation phases of the project.

7.1.9.1 Erosion and Sediment Control Plan

A detailed plan will be prepared by the Contractor to manage the flow of sediment into storm sewers and watercourses. The plan will be based on best management practices.

7.1.9.2 Environmental Protection Plan

It will be the responsibility of the contractor to ensure that no contamination, waste or other substances, which may be detrimental to aquatic life or water quality, will enter a watercourse as either a direct or indirect result of construction. In this regard, any floating debris resulting from construction which accumulates on watercourse beds and watercourse banks is to be immediately cleaned up and disposed of. Any spills or contamination, waste or other substances which may be detrimental to aquatic life or water quality will also be immediately cleaned up.

Any work which will cause or be the cause of discharge to watercourses is to be prohibited. At all times, construction activities are to be controlled in a manner that will prevent entry of deleterious materials to watercourses. In particular, construction material, excess material, construction debris and empty containers are to be stored away from watercourses and the banks of watercourses.

7.1.9.3 Unexpected Discovery of Archeological Resources

A Stage II Archaeological Study is recommended as part of the detailed design. Notwithstanding the study findings, if during the course of construction archaeological resources are discovered, the site should be protected from further disturbance until a licensed archaeologist has completed the assessment and any necessary mitigation has been completed.

7.1.9.4 Emergency Response Plan

The preparation of an *Emergency Response Plan* to be used by the contractor is included to allow full emergency service access during the construction period, such that anytime there is a method to access all residential, commercial and other land uses in the event of an emergency. Additionally, the *Emergency Response Plan* should include provisions for providing temporary services to end users in the event of a construction related service outage or other service disruption.

7.1.9.5 Spills Response and Reporting Plan

A Spills Response and Reporting Plan will be prepared and adhered to by the contractor. Spills or discharge of pollutants or contaminants will be reported immediately. Clean up shall be initiated quickly to ensure protection of the environment.

7.1.9.6 Lighting Treatment Plan

A *Lighting Plan* in accordance with City of Ottawa standards will be prepared as part of the detailed design. The Lighting Plan will include lighting fixtures and illumination along the various sections of the corridor. Designs on whether or not lighting is required during an interim phase of facility will be made, understanding that the intersection at Dealership will require illumination but that the alignment south of that travels through an essentially rural, undeveloped landscape at this time.

7.1.9.7 Construction Waste Management Plan

During construction there will be some excess materials that will require disposal off the project site. These could include concrete rubble, asphalt, waste steel/metal structural components, earth, and road right-of-way appurtenances such as signs, lighting and utility poles. During the detailed design stage, a *Construction Waste Management Plan* will be developed to ensure that surplus material is recycled wherever practical and to describe the methods to be used by the

Contractor for disposal of all other surplus material in accordance with provincial or local municipal practices and guidelines.

7.1.9.8 Public Communications Plan

The requirement for a Public Communications Plan stems from the need to keep the public informed about the work in progress and the end result of the construction activities. Businesses, institutions, residents and other stakeholders including emergency service vehicle providers must be aware of scheduled road closings and other disruptions to normal service ahead of time in order that their activities can be planned with minimum disruption. The Public Communications Plan will follow the standard set by the City including detail on how to communicate the information to the public, what information should be disseminated, and at what project stage the communication should take place.

7.1.9.9 Construction and Traffic Management Plan

A *Construction and Traffic Management Plan* will be developed to manage the transportation function for all travel modes including equipment and material deliveries at various times during the construction period. The objective will be to maintain clear walking routes and to maintain as much functionality for traffic as possible. The plan will also outline the road signage program.

7.1.10 Site Specific Mitigation Measures

Additional Site Specific Mitigation Measures are described below and are in addition to Built-In Mitigation Measures outlined above.

7.1.10.1 Stage II Archeological Assessment

Areas within the new right-of-way and identified as having archeological potential will require a Stage II Archaeological Assessment prior to construction. The requirements of the Stage II Archeological Assessment are as outlined in the Stage 1 Archeological Assessment prepared for the project.

7.1.10.2 Stormwater Management Plan

The purpose of developing and implementing stormwater management (SWM) strategies is to provide adequate systems for the development in place and planned for the area. The purpose of the stormwater management plan is twofold; it identifies the rate and volume of anticipated stormwater runoff and the means to accommodate it, and also identifies the means of achieving Ministry guidelines for water quality of stormwater runoff. The design and approval of the proposed stormwater management facility will be an important part of this plan.

7.1.10.3 Geotechnical and Impacted Materials Investigations

Geotechnical investigations have been completed to advise on groundwater and subsurface conditions and potential impacts that will need to be considered in the detailed design of the project. Additional investigations will be completed as required during the detailed design phase. Given that the alignment passes through an abandoned septic system, an assessment of the requirements for management of impacted materials will be required, having regard for current Ontario regulations.

7.1.10.4 Landscape Plan

A detailed *Landscape Plan* will be prepared to guide the species selection, location and planting details for all proposed plantings and other streetscape elements within the corridor.

7.1.10.5 Ecological Site Assessment

Given that land owner access was not pursued for private land investigations along the alignment, an Ecological Site Assessment should be carried out to more thoroughly determine the presence and extent of natural heritage features, Significant Wildlife Habitat, SAR (such as Butternut trees), and SAR habitat located along the preferred alignment. Protection afforded to any identified species shall be in accordance with appropriate provincial and federal jurisdiction.

Various potential Natural Heritage Features and potential Species at Risk habitat were identified in the general study area.

The Ontario *Endangered Species Act* (*ESA, 2007*) is updated twice yearly. Prior to construction, the *ESA, 2007* should be reviewed and an update of the potential species present and their associated habitat should be completed. A SAR determination should be included in an Ecological Site Assessment for any affected areas. If a SAR is observed during the works within the construction zone, the MECP is to be immediately contacted and operations modified to avoid any negative impacts to the species or their habitat until further direction is provided by the MECP. If necessary, permits will be obtained under the *ESA*.

The *Species at Risk Act* (*SARA*) is a federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. The Act establishes Schedule 1, as the official list of wildlife SAR. If the works include an activity involving species listed under the federal *SARA* on federal NCC lands, a permit may be required.

The Ecological Site Assessment will also inform or provide guidance on the location, type and size of engineered wildlife crossings as well as the location of associated exclusionary fencing.

7.1.10.6 Tree Conservation Report

The purpose of the Tree Conservation Report is to retain as much natural vegetation as possible, including mature trees, stands of trees, and hedgerows, understanding however that the proposed ROW and works within it will more or less displace all vegetation. The Tree Conservation Report will identify and describe the vegetative cover on the site prior to construction, and will provide a professional opinion as to the priority that should be given to the conservation of the treed areas that are beyond the grading limit but that may be affected by construction activities. This report will also provide an assessment of trees identified for removal.

Together with the Landscape Plan, the Tree Conservation Report will help ensure that trees will be retained where feasible, and that new trees will be planted to contribute to the City's forest cover target and to address net tree loss of a project site. The Tree Conservation Report will be prepared in accordance with the City of Ottawa Guidelines.

A Wildland Fire Risk Assessment as per Wildland Fire Risk Assessment and Mitigation Reference Manual (MNRF, 2017) should be conducted to determine potential risk of wildland fire particularly in areas of the Study Area that have been identified to contain coniferous forest types. The Tree Conservation Report will also assist with the completion of this report.

7.1.11 Construction Timing Considerations

7.1.12 Impact Assessment Table

The preliminary impact analysis of alternatives went only so far as to be able to determine which alternative was preferred for the Study Area; if the resulting effects for a particular criterion were the same for each alternative, or no residual effects were predicted, the results were not used to compare alternatives. This section describes the comprehensive analysis/assessment of all the identified impacts of implementing the preferred solution.

The values and conditions identified in the documentation of existing conditions were used as the basis for assessing the effects of the preferred alternative on the transportation, social, physical and biological environments. The impact analysis involved applying the steps, as presented in **Table 13**.

Table 13: Impact Assessment Methodology

STEP 1	Identify and analyze activities where the project, as detailed in **Section** Error! Reference source not found., interacts w ith existing environmental conditions as detailed in **Section** Error! Reference source not found.-**5**.
STEP 2	Acknowledge predetermined project activities that act as *built-in mitigation* measures as well as *site specific mitigation measures*.
STEP 3	Identify the *residual* environmental effects, if any.
STEP 4	Identify opportunities for further *mitigation of residual* effects, if possible/practical including monitoring.
STEP 5	Determine the *significance of the residual* environmental effects, after further mitigation.

As described in the methodology, an environmental effect assessment requires consideration of the interaction of the project (i.e. project activities) with the environment. Pre-construction, construction and operational activities as described above were all assessed.

Professional judgement and experience formed the basis for identifying environmental effects and mitigation measures. The analysis was based primarily on comparing the existing environment with the anticipated future environment, during and after construction. Consideration was given to:

- the magnitude, spatial extent, and duration of effects;
- the proportion of a species population or the number of people affected;
- direct or indirect effects; and
- the degree to which the effect responds to mitigation.

In this assessment, "residual" environmental effects are defined as changes to the environment caused by the project, and vice versa, when compared to existing conditions and taking into account all mitigation measures. Potential residual environmental effects are assessed as to their significance, including spatial and temporal considerations, and are categorized according to the following definitions:

"Positive" means an effect that exhibits a beneficial outcome.

"Negligible" means an effect that may exhibit one or more of the following characteristics:

- nearly-zero or hardly discernible effect; or
- affecting a population or a specific group of individuals at a localized area and/or over a short period.

"Insignificant" means an effect that may exhibit one or more of the following characteristics:

- not widespread;
- temporary or short-term duration (i.e., only during construction phase);
- recurring effect lasting for short periods of time during or after project implementation;
- affecting a specific group of individuals in a population or community at a localized area or over a short period; or
- not permanent, so that after the stimulus (i.e., project activity) is removed, the integrity of the environmental component would be resumed.

"Significant" means an effect that may exhibit one or more of the following characteristics:

Widespread:

- permanent transcendence or contravention of legislation, standards, or environmental guidelines or objectives;
- permanent reduction in species diversity or population of a species;
- permanent alteration to groundwater flow direction or available groundwater quantity and quality;
- permanent loss of critical/productive habitat;
- permanent loss of important community archaeological/heritage resources; or
- permanent alteration to community characteristics or services, or established land use patterns, which is severe and undesirable to the community as a whole.

Study boundaries serve to focus the scope of the assessment such that a meaningful analysis of potential impacts arising from the proposed project can be made. Project boundaries are defined by the spatial and temporal limits of the proposed project activities, and their zones of influence.

Once the potential effects were predicted, additional mitigation measures were identified. Often these mitigation measures were sufficient to reduce negative effects to an insignificant or negligible status.

Monitoring is important to verify the accuracy of effects predictions. Monitoring measures were recommended to determine what effects actually occurred with project implementation and may result in the modification of mitigation measures to improve their effectiveness.

7.1.13 Assessment Results

The Impact Assessment Table describes the potential effects, mitigation, residual effects and their significance, and monitoring recommendations for the Recommended Plan. Project phases are as follows: P – Pre-construction, C – Construction, O – Operation.

Table 14: Impact Assessment Table

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
SOCIAL ENVIRONMENT										
Land Development	Road Realignment	•		•	Project study area.	Realigned road will support area development by creating new street frontages along privately owned lots as well as by leading northerly towards Citigate Business Park.	Positive effect, no mitigation needed.	Improved area economic development.	Positive	Area City development planners will monitor development as applications are received.
Land Development	Property acquisition for new road	•			Within new road right-of-way limits: 4378 Mckenna Casey Drive, vacant development site east of AM Radio Site, 550 and 560 Dealership Way,.	New road right of way will require land from area landowners that will result in some loss in potential development lands.	Adherence to fair market value and acquisition process set out by the City of Ottawa.	Reduced development land area.	Insignificant	As per Public Communications Plan.
Area Road Connectivity	Re-established roadway connection.	•		•	Project study area.	Realigned road will improve area connectivity by removing dead-ends at Dealership Drive and present-day east-west McKenna Casey Drive, and by thereby adding an additional route to connect to Strandherd Drive.	Public Communications Plan to provide notice of new roadway connection to area residents and visitors.	Improved connectivity, convenience for area road users, traffic flow.	Positive	None
Site Security	Road Realignment	•	•	•	Adjacent to Rogers lot (western length of McKenna Casey ROW)	Realignment of McKenna Casey approximately north-south, along the length of the Rogers property, creates new road frontage along their lot and opens the area along the length of their lot to road users. As a result, there is increased potential for site trespassing and associated damage to site and persons.	Installation of security fencing along the western side of the McKenna Casey right-of-way (ROW), as well as associated signage indicating private property and warning do not trespass. Design to be coordinated with Rogers.	Improved Rogers site security.	Positive	None

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
Displacement of Septic Field	Road Realignment	•	•		Southeast corner of AM Radio Site (western side of McKenna Casey ROW). Extent of ROW impact on septic field to be determined during survey during detailed design.	Recommended realignment of McKenna Casey will displace an existing out-of-use septic field on AM Radio Site property.	Specialist environmental engineering report required during detailed design to guide the removal and remediation of septic field remnants and management of materials according to Ontario regulations, prior to or during construction of the road.	Managed soil condition and contamination level.	Insignificant	None
AM Radio Tower interference and Potential exposure to Electromagnetic radiation	Construction		•		McKenna Casey right-of-way.	Low to moderate risk of electromagnetic radiation during roadway construction, with special caution if high equipment such as cranes are used to the north and east of the AM Radio tower array.	Specialists report for construction mitigation is recommended to inform design. Construction crane usage must be assessed adequately before road construction. Kevlar swing to be considered. Construction workers should wear isolated gloves and boots. On-site Health and Safety Plan to advise construction works of potential risk.	Mitigated risk to human health.	Negligible	As per Health and Safety Plan
AM Radio Tower Interference and Potential exposure to Electromagnetic radiation	Location of road alignment			•	New McKenna Casey right-of-way.	Frequencies are emitted in a north-west direction towards downtown and impact any connection to Dealership Drive. Low to non-existent risk to human health caused by positioning the realigned McKenna Casey roadway closer to the directional frequencies emitting from the tower array on the AM Radio Site property.	To be informed by specialists report, including consideration of public notices during or after roadway construction. Recommendation for McKenna Casey roadway to not include street furniture for the length of the right-of-way so as not to encourage unnecessary prolonged exposure, to err on the side of caution.	Mitigated risk to human health.	Negligible	The Safety Code 6 protection zone extends no further than about 39.3m from the base of the five-tower array. No monitoring is required unless Safety Code 6 rules change.

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
Planning Policy	New Roadway Alignment	•		•	Secondary Plan area.	Realigned McKenna Casey fulfills planning goals put forward in the South Nepean Areas 9 & 10 Secondary Plan, which shows a north-south major collector road	Need to redesignate the realigned McKenna Casey as a collector road in the current Official Plan Schedules, Secondary Plan, Transportation Master Plan, as well as any future updated Plans that apply to the area.	New roadway connection.	Positive	None.
Active Transportation	Operation of new Active Transportation Facilities in the Corridor.			•	McKenna Casey right-of-way	Realigned McKenna Casey provides new pedestrian, cycling, accessible facilities along the right-of-way and connectivity to the Barrhaven area's proposed multi-use pathway system.	None required.	Improved area active transportation facilities and connectivity.	Positive	None
Safety concerns of at-grade VIA Rail crossing	At-grade crossing of VIA Rail line			•	Existing at-grade crossing of VIA Rail tracks	Realigned McKenna Casey permanently removes crossing for vehicles but remains available to active transportation users.	Implement best-practice signal arm system for active mode users.	Conflicts for pedestrians and cyclists at at-grade crossing.	Negligible	Standard policies continue.
Road User Safety	Design and Construction of the realignment of McKenna Casey Drive to curve northwards from existing McKenna Casey Drive			•	Realigned McKenna Casey where it curves northward from existing McKenna Casey	Potential danger to drivers where drivers arriving from the west may be visually encouraged to continue straight rather than turn/curve left due to sight lines.	Visual barrier (e.g. earth berm, coniferous tree plantings) to interrupt driver sight lines to the closed portion of Mckenna Casey	Improved driver safety and intuitiveness	Negligible	Standard policies continue.

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
Air Quality	Construction of roadway, grading and excavation for all associated infrastructure		•		McKenna Casey right-of-way	Dust and equipment exhausts will diminish air quality during the construction period.	Air Quality, Noise and Vibration best management practices. Contractor to implement air quality BMPs and will be responsible for implementing a mitigation strategy with the intent on satisfying the requirements for Ontario Regulation 419. • Dust suppressants will be applied as warranted. • Streets will be cleaned as per existing municipal standards. • Minimize site storage of granular material in height and context. • Locate storage piles in sheltered areas if feasible. • Provide moveable windbreaks if feasible. Equipment to be kept in good working order and will not unnecessarily idle.	Dust may be an irritant to adjacent residents and pedestrians.	Insignificant	None required
Climate Change: Extreme weather and storm events	Roadway interaction with future weather conditions.			•	McKenna Casey right-of-way	Increasing variability in winter/summer temperatures. Increasing frequency of high-intensity and duration of wet weather, heat waves, and wind storm events may result in road closures or detours for localized events.	Actions as detailed in the City of Ottawa's Climate Change Action Plan. Stormwater Management Plan to consider accommodation of flash storm events and best practises at the time of construction. Landscape plan to consider possible mitigating use of trees for moderating temperatures in the summer. Public Notifications of known extreme weather events.	Disruptions to corridor for additional maintenance, as required.	Insignificant	As noted in Master Plans and Management plans.

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
Climate Change: Use of de-icing agents	Road maintenance during winter storm events			•	McKenna Casey right-of-way	Increase in frequency and duration of extreme snow and ice events may increase risk to facility users including pedestrian and cyclists and requirement for more use of de-icing agents.	City to consider pre-application techniques to prevent ice build-up and requirement for further applications as per City operating policies and processes and best practices at time of operation.	Iced surfaces may result in accidents to uses of the facility.	Insignificant	As per City policies and procedures.
Climate Change (Air Quality): Multi Modal Transportation System	Operation of new roadway link			•	McKenna Casey right-of-way	Normalized street network and provision of efficiencies for all road users including pedestrians, cyclists, and motorists. Plan facilitates more efficient/direct transit connections to adjacent developments	Regular maintenance to encourage on-going use of pedestrian and cycling infrastructure and use of transit over private vehicles. Efficiencies in vehicle traffic will reduce vehicle emissions the contributions to climate change.	Reduced contributions to climate change.	Positive	None required
Geotechnical Conditions: Surficial Geology	Construction of roadway, new infrastructure installation and some existing services decommissioned.				McKenna Casey right-of-way	Due to the presence of a sensitive firm silty clay deposit, the proposed roadway alignment will be subject to grade raise restrictions.	Detailed Geotechnical Investigations to be completed during detailed design which will identify subgrade specifications, pavement structure, and road bed construction. Topsoil and fill, containing deleterious or organic materials, should be stripped from under any paved areas, pipe bedding and other settlement sensitive structures. Care should be provided to not disturb adequate bearing soils at subgrade level during site preparation activities.	None Anticipated.	Negligible	As per detailed Geotechnical Investigations.

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
Geotechnical Conditions: Groundwater	Construction of roadway, new infrastructure installation and some existing services decommissioned.		•		Groundwater table (1-3m below ground surface) throughout Study Area.	The groundwater flow rate into the excavation through the overburden should be low to moderate for expected founding levels of potential structures.	Contractor to direct water away from all bearing surfaces and subgrades, regardless of the source, to prevent disturbance to the founding medium. An EASR, or a temporary MOE permit to take water (PTTW) may be required for this project if more than 50,000 L/day are to be pumped during the construction phase.	Minor groundwater inflow is not anticipated to adversely affect adjacent sites and will be manageable.	Insignificant	As per PTTW or EASR (if required)
Archaeological Resources	Construction of roadway, grading and excavation for all associated infrastructure	•			The areas of potential archaeological potential noted in the Stage 1 AA.	Construction in undisturbed areas identified as having archaeological potential may disturb archaeological resources.	Conduct a Stage 2 AA as recommended in the Stage 1 AA. If archaeological resources are accidentally uncovered during construction activities, the site should be protected from further disturbances until a licensed archaeologist has completed an assessment.	Unexpected archaeological resources may be disturbed.	Insignificant.	Additional work as needed as per the findings of the Stage 2 Archaeological Assessment. As per recommendations of a licensed archaeologist, if required.
BIOLOGICAL ENVIRONMENT - TERRESTRIAL										
Vegetation	Pre-construction planning and design; construction of roadway and SWM pond, grading and excavation for all associated infrastructure, construction.	•	•		Throughout corridor including McKenna Casey Drive Realignment AM Radio Site Property City of Ottawa Property (O'Keefe Drain), SWM pond and snow management facility)	Clearing and grubbing activities will remove/alter vegetation. Loss and/or impact to terrestrial/ fragmented wetland environments and habitats due to construction activities may cause fragmentation of habitats and corridors.	*Ecological Site Assessment should be undertaking during detailed design* to identify existing wildlife corridors and habitats. Protection of identified features and individual specimens with exclusion fencing. *Tree Conservation Report, Forest Edge Management Plan and Landscape Plan.* Minimize vegetation clearing to the extent possible. Replacements to be native varieties and/or salt tolerant species as	Localized loss of terrestrial/fragmentated wetland vegetation. Localized loss of meadow habitat.	Insignificant Negligible	F*urther studies will be captured during the "Ecological Site Assessment" which will warrant monitoring recommendations if necessary, in addition to the Tree Conservation Report, Landscape Plan* and *Erosion* and

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
					Barrhaven Conservancy property VIA Rail corridor	Removal of Woodlands, previous studies Identified butternut trees (*Juglans cinerea*) are known to occur on adjacent properties located near the Study Area (CH2MHILL 2013). Accidental spills to the terrestrial environment. Loss of meadow habitat that has the potential to be SAR breeding habitat. Previous studies Identified bobolink (*Dolichonyx oryzivorus*), chimney swift (*Chaetura pelagica*) and Barn swallow (*Hirundo rustica*) are known to occur on adjacent properties located near the Study Area (CH2MHILL 2013).	appropriate. *Spills Response and Reporting Plan.* *Erosion and Sediment Control Plan* to be implemented prior to vegetation removal. *Grassland SAR surveys* to confirm presence/absence of SAR Species. If SAR species are present and meadow habitat is present consult with MECP to determine course of action.			*Sediment Control Plan.*
Woodlands	Pre-construction surveys and investigations. Construction of roadway, SWM pond, grading and excavation for all associated infrastructure.	●	●		Potential for Significant Woodlands to be present on the AM Radio Site property.	The extension of Mckenna Casey Drive roadway will result in a disturbance and loss of some woodlands.	*Forest Edge Management Plan and Ecological Site Assessment* to confirm areas of significant woodlands based on the evaluation criteria at the time of detailed design. *Tree Conservation Report* to determine replacement of trees identified for removal based on municipal policy that would apply. Additional surveys to mark trees >30 cm DBH may be required. Consultation with MNRF and the City of Ottawa to confirm buffer width and any other additional requirements.	Loss of woodland	Insignificant	As per consultation with MNRF and/or ECCC, *Ecological Site Assessment, Tree Conservation Report* and *Environmental Protection Plan.* Buffers identified in the Natural Heritage Reference Manual (MNR, 2010) should be consulted to determine these buffer widths.

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
							The southwest portion of the Study Area bordering Highway 416 contains a deciduous woodland that is approximately 3.6 ha in size. According to the Official Plan's definition of "Significant Woodland" for urban areas any "area 0.8 ha in size or larger, supporting woodland 40 years of age or older" may qualify. The woodland meets this definition, and therefore has the potential to be "Significant" upon completion of further study and consultation with City of Ottawa's natural systems staff. Minimize disturbance to significant woodlands during construction. Contractor to complete an *Environmental Protection Plan* and follow direction provided in the *Forest Edge Management Plan* to minimize disturbance.			

Wildlife	Pre-construction surveys and investigations. Construction of roadway, crossings, grading and excavation for all associated infrastructure.	•	•	Throughout corridor including McKenna Casey Drive Realignment AM Radio Site property City of Ottawa Property (O'Keefe Drain), SWM pond and snow management facility) Barrhaven Conservancy property VIA Rail corridor	Impact to wildlife movement due to construction activities. Temporary localized disruption of wildlife habitat. General construction activities may disturb migratory birds and turtles or their habitat. Removal of Woodlands Temporary localized disruption of wildlife corridor.	*Ecological Site Assessment* including targeted surveys to be conducted prior to detailed design as part of a Species at Risk Overview. Delineation of limits of construction to minimize disturbance per the City's *Protocol for Wildlife Protection during Construction Guide* (2015). To reduce the possibility of contravention of the Migratory Birds Convention Act (MBCA), vegetation removal should be scheduled to occur outside of the overall bird nesting season of April 1 to August 31. If a nest of a migratory bird is found within the construction area outside of this nesting period, vegetation removal and construction activities must cease until the young have fledged from the nest and the area is cleared by a qualified Biologist. If vegetation must be removed during the overall bird nesting season, nest sweeps must be completed prior to works and cleared by a qualified Biologist. Please refer to the City of Ottawa Wildlife Protection During Construction document for specific mitigation measures proposed to reduce/eliminate potential effects to wildlife and wildlife habitat.	Minor short-term localized avoidance of the area by migratory birds and transient wildlife.	Insignificant	As per City's *Protocol for Wildlife Protection during Construction* Guide, and *Ecological Site Assessment*. Daily sweeps of the construction areas prior to commencement of activities.

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
Wildlife	Road extension operation.			•	Throughout corridor including McKenna Casey Drive Realignment AM Radio Site property City of Ottawa Property (O'Keefe Drain), SWM pond and snow management facility) Barrhaven Conservancy property VIA Rail corridor	New illumination throughout the corridor may influence wildlife circadian rhythms.	*Ecological Site Assessment* work to understand wildlife populations and specific mitigation to reduce illumination effects. *Lighting Treatment Plan* based on contemporary BMPs and research. Best practices through design to ensure a balance of maintaining road safety (from wildlife collisions) while not over-illuminating adjacent natural areas. Please refer to the City of Ottawa Wildlife Protection During Construction document for specific mitigation measures proposed to reduce/eliminate potential effects to wildlife and wildlife habitat.	Change to wildlife behavior.	Insignificant	As per detailed design recommendations.
Species at Risk	Pre-construction surveys and investigations. Construction of roadway, SWM pond, grading and excavation for all associated infrastructure.	•	•		Throughout corridor including McKenna Casey Drive Realignment AM Radio Site property City of Ottawa Property (O'Keefe Drain), SWM pond and snow management facility)	Several SAR have potential or have been confirmed adjacent to Study Area. Habitat suitable for SAR may be affected during construction. Potential bat maternity colony and SAR bird habitat exist within the Study Area, an Ecological Site Assessment will assist with determining presence or absence.	Conduct an *Ecological Site Assessment* to confirm presence of SAR or habitat suitable for SAR in the Study Area prior to detailed design. Targeted surveys may be required. Protection afforded to any identified SAR shall be in accordance with appropriate federal/provincial jurisdiction. Mitigation measures outlining timing window restrictions on construction	Potential for short-term localized disturbance to SAR. Potential for loss of bat and/ or Bird SAR habitat. Potential for short-term disturbance to bird and bat SAR.	Insignificant	*Ecological Site Assessment* and in consultation with agencies.

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
					Barrhaven Conservancy property VIA Rail corridor		will also help protect Species at Risk. Preventative measures should be employed to deter opportunistic species such as Bank Swallow from nesting on stockpiled materials within construction areas (e.g., covering excavated soils). All on-site staff should undergo environmental awareness training to be able to identify SAR that could be encountered during const. If SAR are observed during construction, the MECP is to be immediately contacted and operations modified to avoid any negative impacts to the species or their habitat until further direction is provided by the MECP. Consultation with MECP, CWS and ECCC, to identify any permits/approvals required. If necessary, permits to be obtained under ESA and SARA. Cavity tree density surveys should be completed as part of Ecological Site Assessment to determine the requirement of subsequent acoustic monitoring during the appropriate field season (November to April). If candidate habitat is present, acoustic monitoring should also be completed in June to determine			

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
							presence/absence of bats in the road right-of-way and within 120m. Consultation with MECP to identify any permits/approvals required. If necessary, permits to be obtained under the ESA. Mitigation measures outlining timing window restrictions on construction will also help protect Species at Risk. Preventative measures should be employed to deter opportunistic species such as Bank Swallow from nesting on stockpiled materials within construction areas (e.g., covering excavated soils).			
Biological Environment - Aquatic										
Aquatic Habitat	Pre-construction surveys and investigations. Construction of roadway, SWM pond, grading and excavation for all associated infrastructure.	●	●		O'Keefe Drain Unnamed watercourse located on the AM Radio Site property. Unnamed ephemeral watercourse located on the Barrhaven Conservancy property. Roadside ditch's that may convey flow to the	Increased sedimentation during construction could impact fish and fish habitat. Input of deleterious substances and water quality: via spills/leaks during construction and operational phase Realignment and/or culvert alteration of unnamed watercourse located on the AM Radio Site property which may result in harmful alteration, disruption or destruction (HADD) to fish or fish habitat.	Please refer to the City of Ottawa Wildlife Protection During Construction document for specific mitigation measures proposed to reduce/eliminate potential effects to surface water resources, will also help reduce/eliminate potential effects to aquatic habitat. Contractor to complete an *Erosion and Sediment Control Plan*, *Emergency Response Plan* and *Environmental Protection Plan*. During detailed design phase	Potential localized and temporary reduction in water quality and aquatic environment.	Insignificant	As per *Erosion and Sediment Control Plan, Emergency Response Plan, Environmental Protection Plan* and results of *Ecological Site Assessment.*

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
					various watercourses and municipal drain Identified.		of the project consultation with DFO should be completed in the form of a request for review, if required. Follow current in-water construction timing restrictions provided by MNRF March 15 to July 15. Avoid in-water work to the extent possible. Headwater drainage features should be further assessed through *Ecological Site Assessment* during the planning phases of detailed design. Any interference with a headwater drainage feature may require a permit from RVCA and restrictions may apply.			
Species at Risk	Pre-construction surveys and investigations. Construction of roadway, SWM pond, grading and excavation for all associated infrastructure.	•	•		Throughout corridor including McKenna Casey Drive Extension AM Radio Site property City of Ottawa Property (O'Keefe Drain), SWM pond and snow management facility) Barrhaven Conservancy property	Several SAR have potential or have been confirmed adjacent to Study Area. Habitat suitable for SAR may be affected during construction. Potential for turtle habitat to exist within the Study Area, an Ecological Site Assessment will assist with determining presence or absence.	Conduct an *Ecological Site Assessment* to confirm presence of SAR or habitat suitable for SAR in the Study Area prior to detailed design. Targeted surveys may be required. Protection afforded to any identified SAR shall be in accordance with appropriate federal/provincial jurisdiction. Modifying the timing of the activity to avoid critical periods in a species' life processes. Altering the methodology of an activity to avoid adverse effects. Relocating the activity to an	Potential for short-term localized disturbance to SAR. Potential for loss of turtle habitat. Potential for short-term disturbance to turtles	Insignificant	*Ecological Site Assessment* and in consultation with agencies.

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
					VIA Rail corridor		area where the members of a protected species do not occur. Wildlife exclusion fencing installed along the perimeter of where construction works will occur. Caution should be taken during the turtle nesting season in June and early July as turtles use embankments and other terrestrial sites for nesting. During the active season (April 1 – October 30), MNRF recommends a thorough sweep of the area before works begin to encourage any turtles using the site to move away and the use of exclusion fencing as a best management practice. All on-site staff should undergo environmental awareness training to be able to identify SAR that could be encountered during const. If SAR are observed during construction, the MECP is to be immediately contacted and operations modified to avoid any negative impacts to the species or their habitat until further direction is provided by the MECP. Consultation with MECP, CWS and ECCC, to identify any permits/approvals required. If necessary, permits to be obtained under ESA and SARA.			

Environmental Value	Project Activity	Project Phase P	C	O	Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
Aquatic Environment – Water Quality	Pre-construction surveys and investigations. Construction of roadway, SWM pond, grading and excavation for all associated infrastructure.		●	●	O'Keefe Drain Unnamed watercourse located on the AM Radio Site property. Unnamed Ephemeral Watercourse located on the Barrhaven Conservancy property. Roadside ditches that may convey flow to the various watercourses Identified.	Salt, spray and drainage	The implementation of Low Impact Design stormwater management techniques will be determined during detailed design. These techniques will assist with the management of water quality and quantity prior to infiltration to the surrounding environment. Water quality and quantity treatment as per *Corridor Drainage and Stormwater Management Plan* to implement best practices to protect the surface water features near the road extension.	Potential localized and temporary reduction in water quality and aquatic habitat.	Insignificant	None required.
Surface Water Features	Pre-construction surveys and investigations. Construction of roadway, SWM pond, grading and excavation for all associated infrastructure.	●	●		O'Keefe Drain Unnamed watercourse located on the AM Radio Site property. Unnamed Ephemeral Watercourse Located on the Barrhaven Conservancy property. Roadside ditches that may convey flow to the various watercourses Identified.	The realignment of the roadway may cause potential impacts to surface water features in the Study Area. Realignment and/or culvert alteration of unnamed watercourse located on the AM Radio Site property.	*Erosion and Sediment Control Plan.* Consultation with designer through detailed design of the project. Permit requirement under Section 28 of the *Conservation Authorities Act* known as Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 174/06).	Potential impacts to surface water features.	Insignificant	As per Permit requirement, *Erosion and Sediment Control Plan.*

7.2 Functional Designs and Subsequent Design Phases

The drawings on the following pages establish the functional design for the Recommended Plan. Designs are provided for both the ultimate and the interim designs. These will be the basis of the preliminary and detailed design by the City. Given that there is no current identified source of funding or proponent for the construction of the facility, the City will be in a position to make a decision during the start of the preliminary design process as to whether this subsequent design work addresses the ultimate arrangement, the interim arrangement, or both.

It is important to note that the specific ROW requirements, including the grading strips identified on a functional basis on the functional designs, can only be identified during detailed design. Given that the City will want to keep the option open of the construction of the interim design, and given that there is a general City practice to "only take land once" whenever possible, there may be a necessity of the City of completing a detailed design for both interim and ultimate arrangements.

Figure 64: Functional Design – Alignment, Stormwater Management Pond, Roundabout Intersection

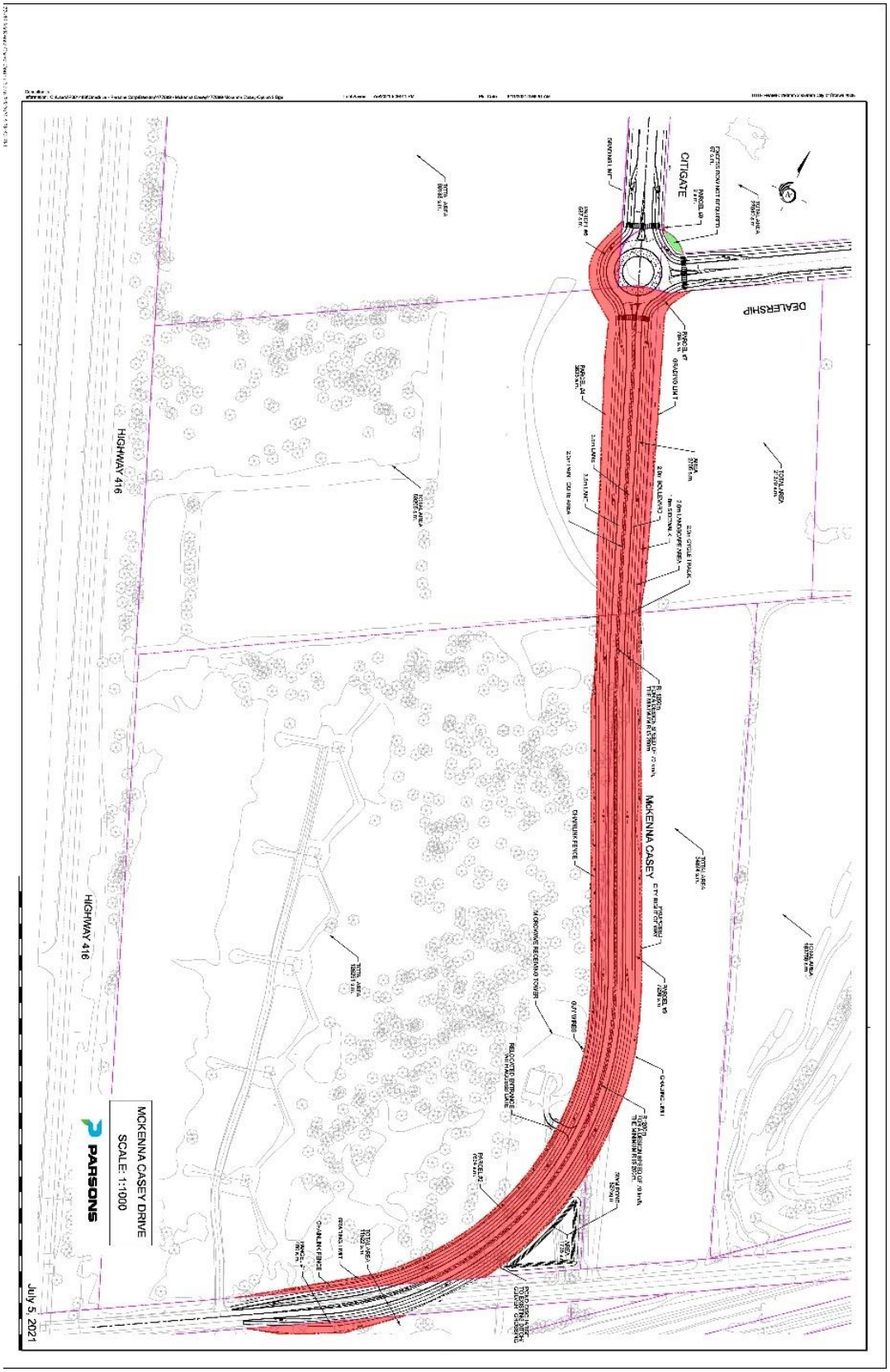


Figure 65: Functional Design - Intersection - Roundabout

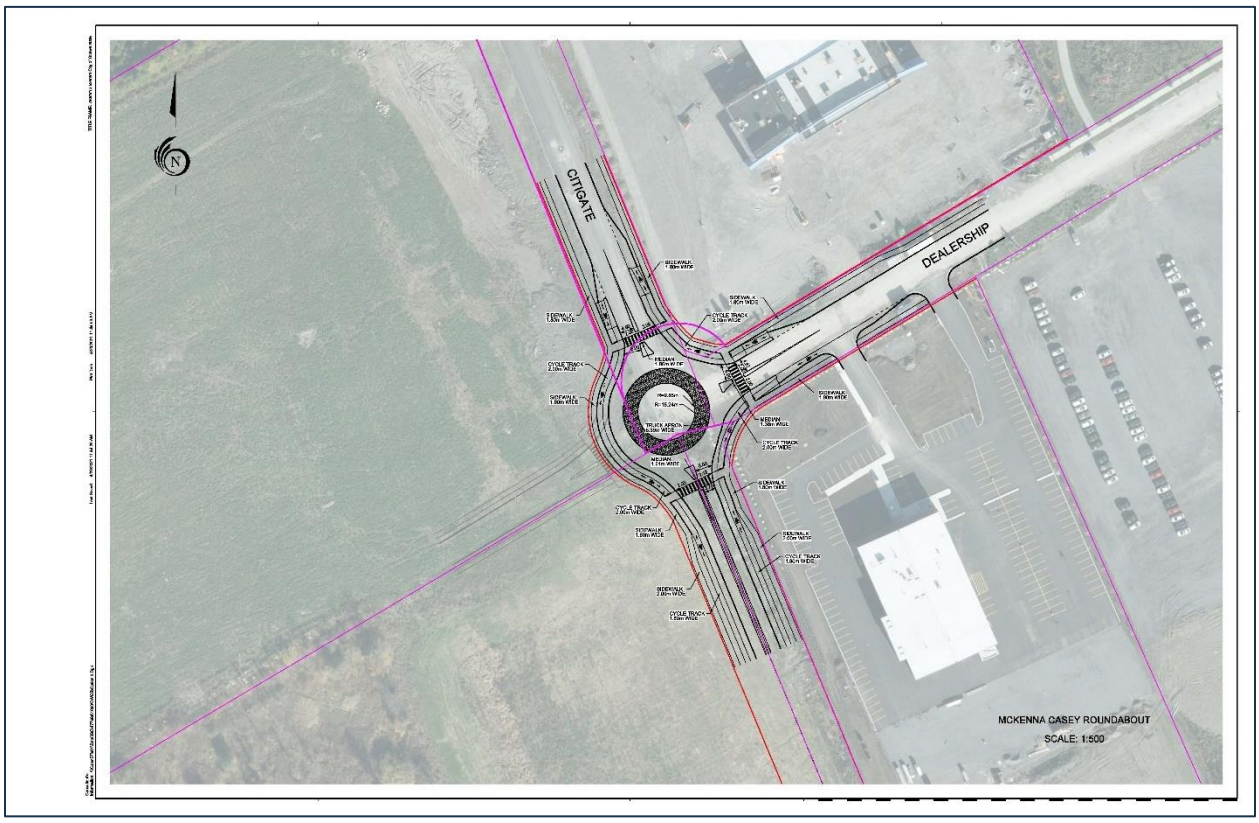


Figure 66: Functional Design - Intersection - Potential Interim Phase (STOP-controlled)

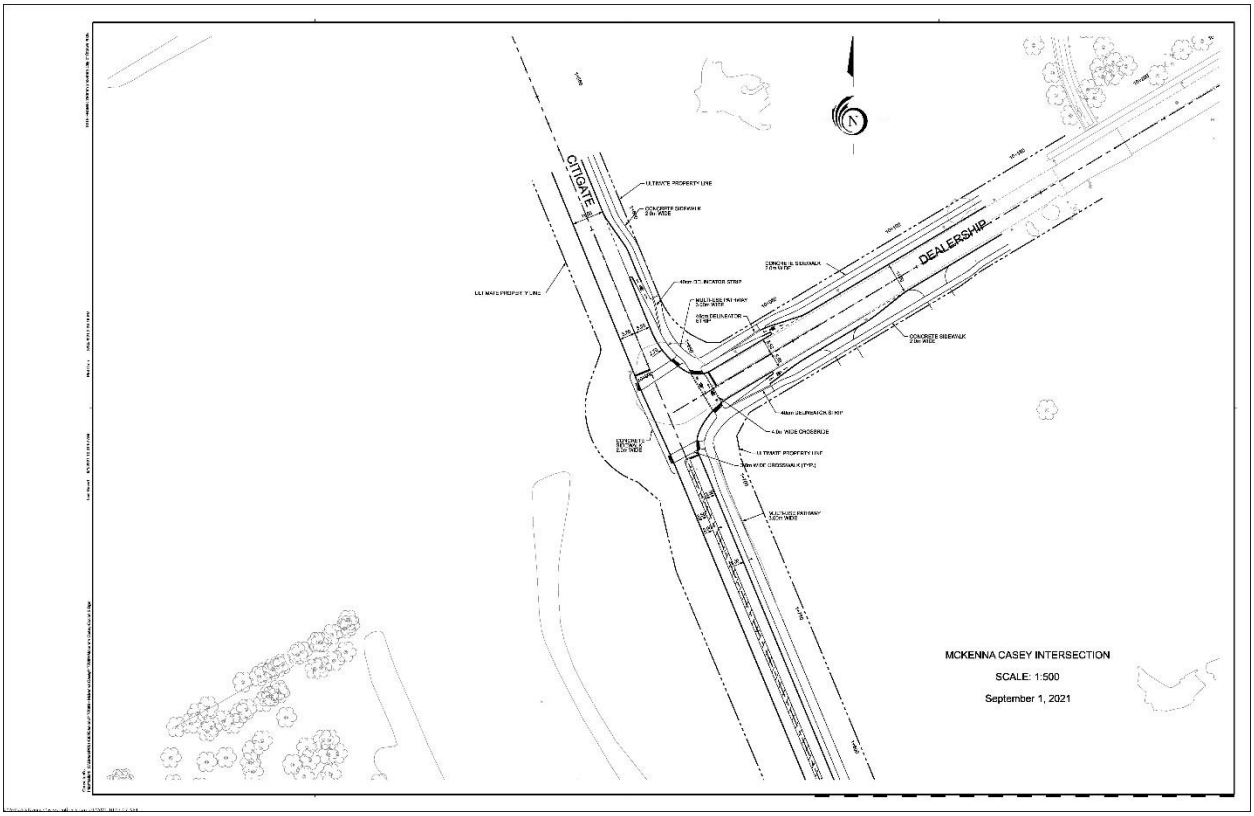


Figure 67: Functional Design – Roundabout Intersection, Right-Turn Movements

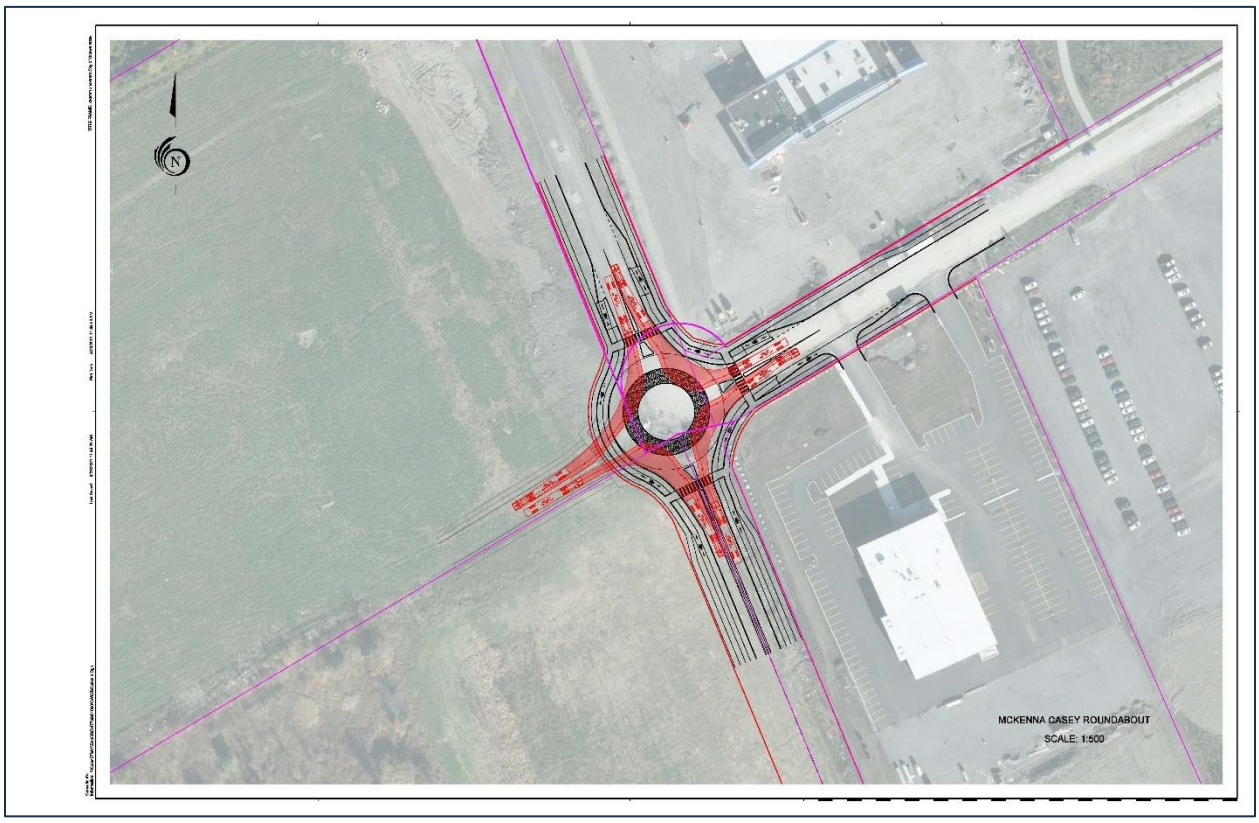


Figure 68: Functional Design – Roundabout Intersection, Left-Turn Movements

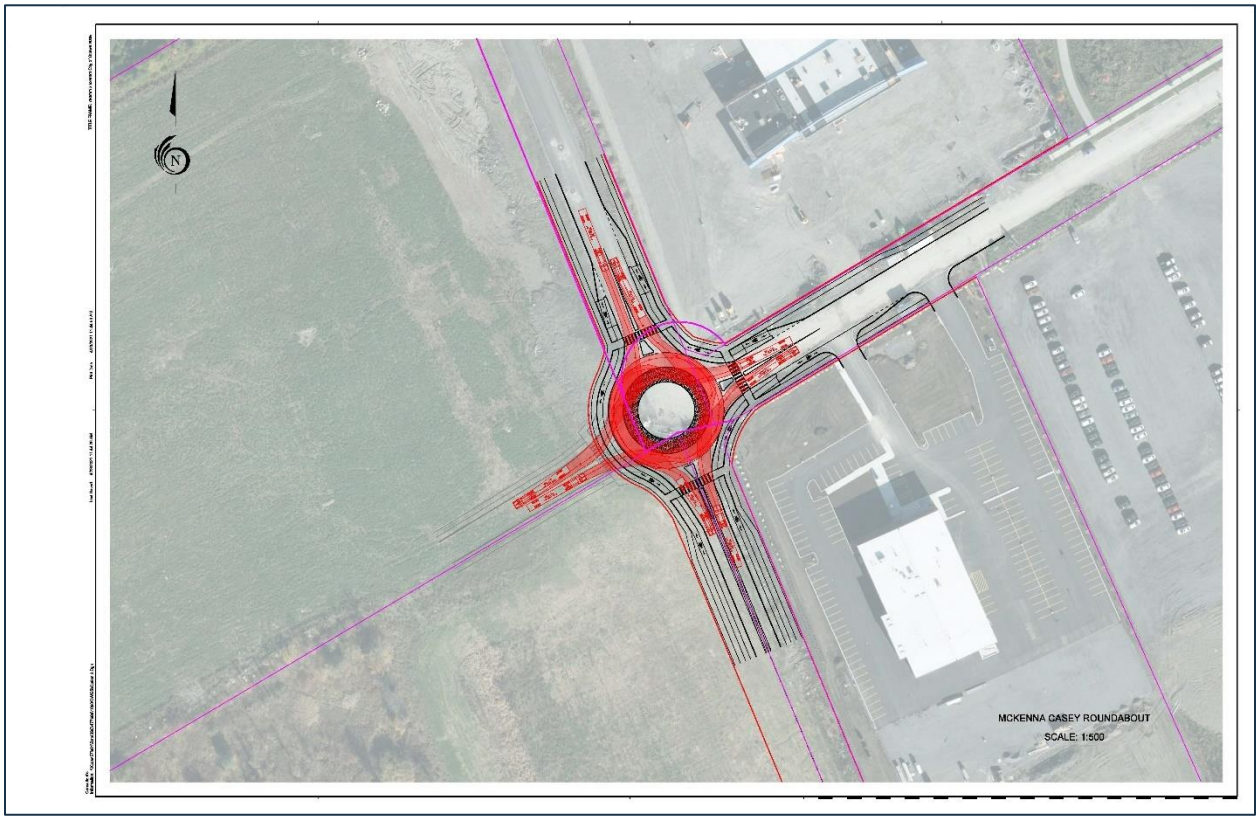


Figure 69: Functional Design – Roundabout Intersection, Truck Turn Movements

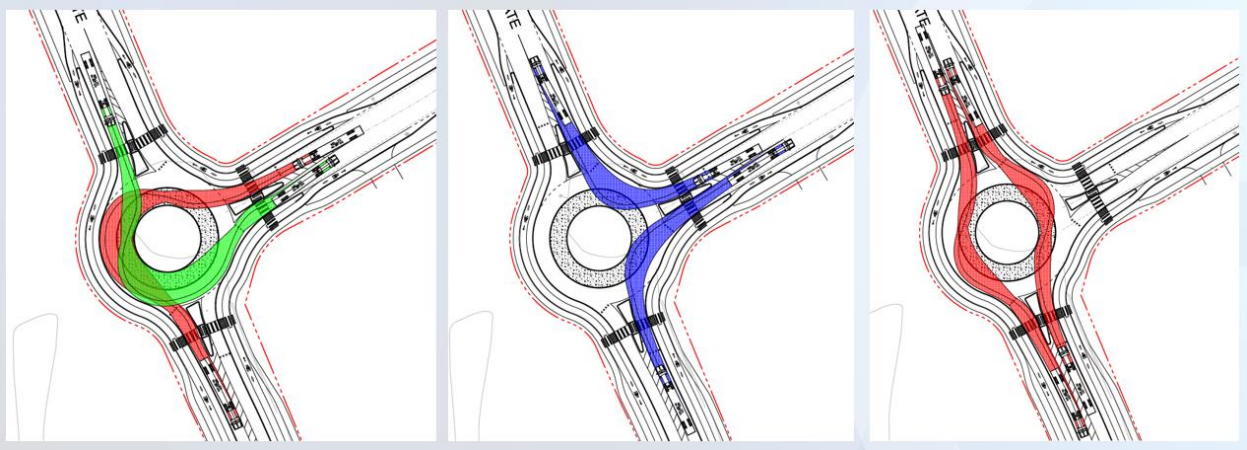


Figure 70: Functional Design - Road Profile

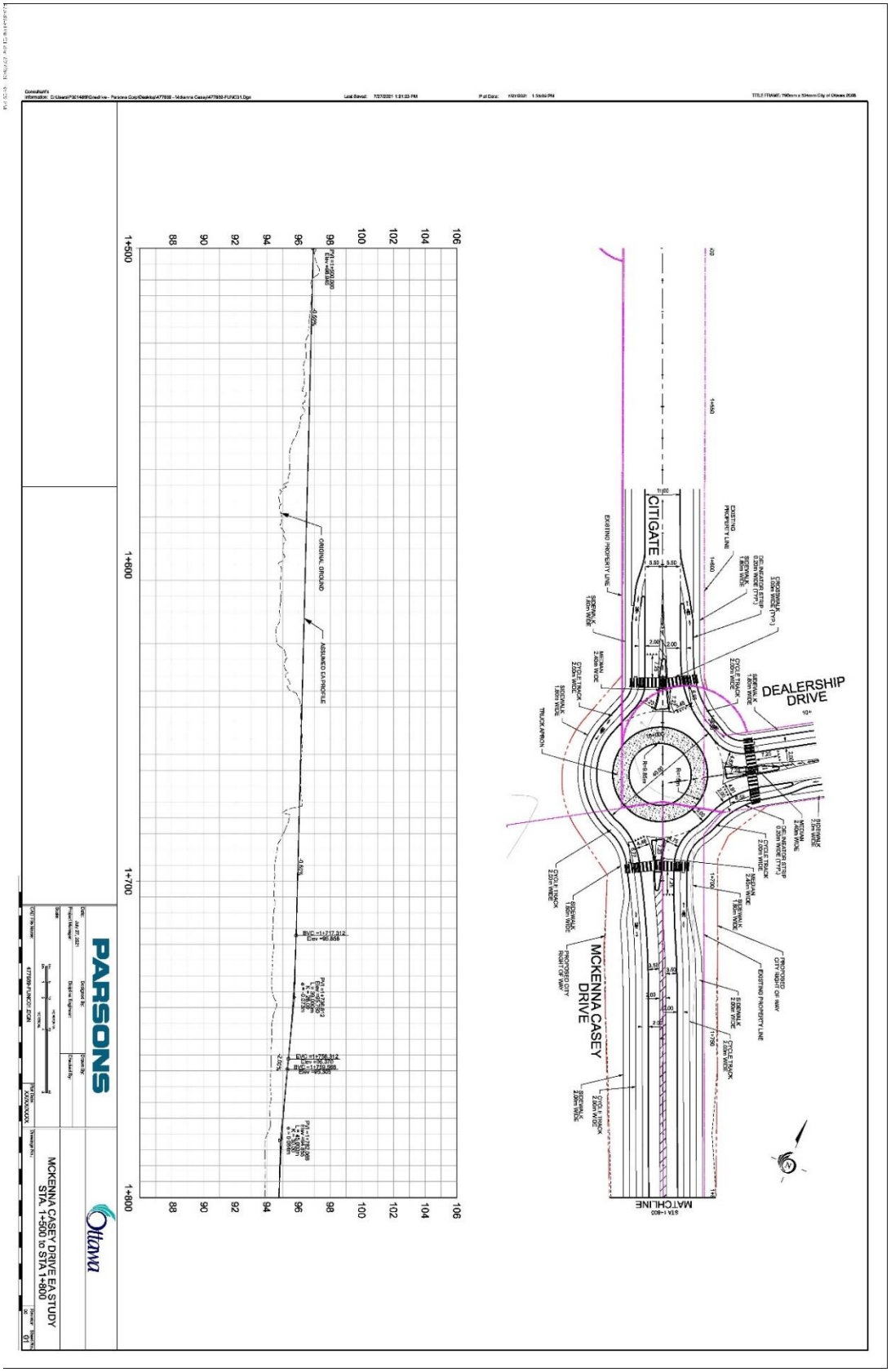


Figure 71: Functional Design - Road Profile

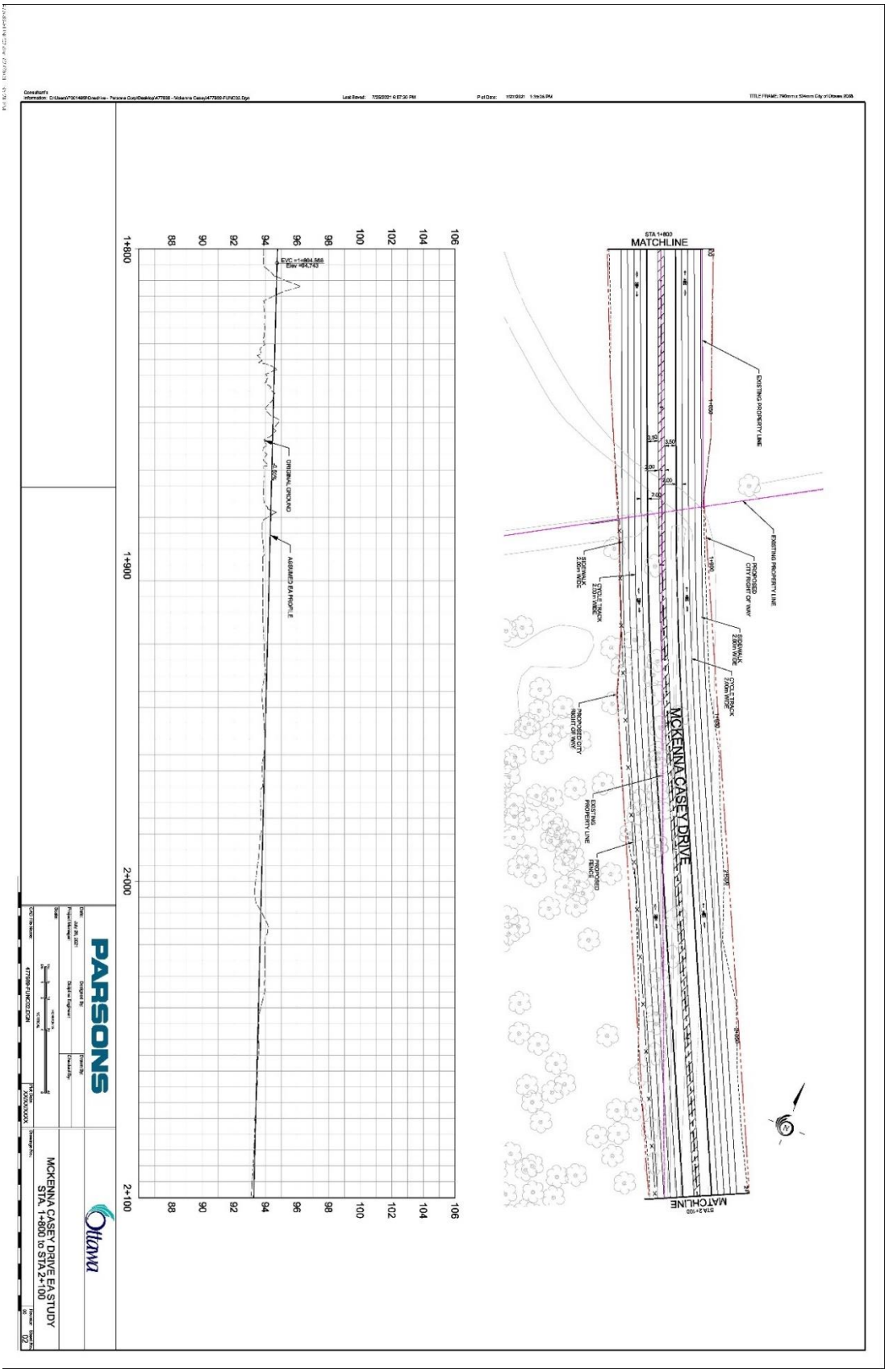


Figure 72: Functional Design - Road Profile

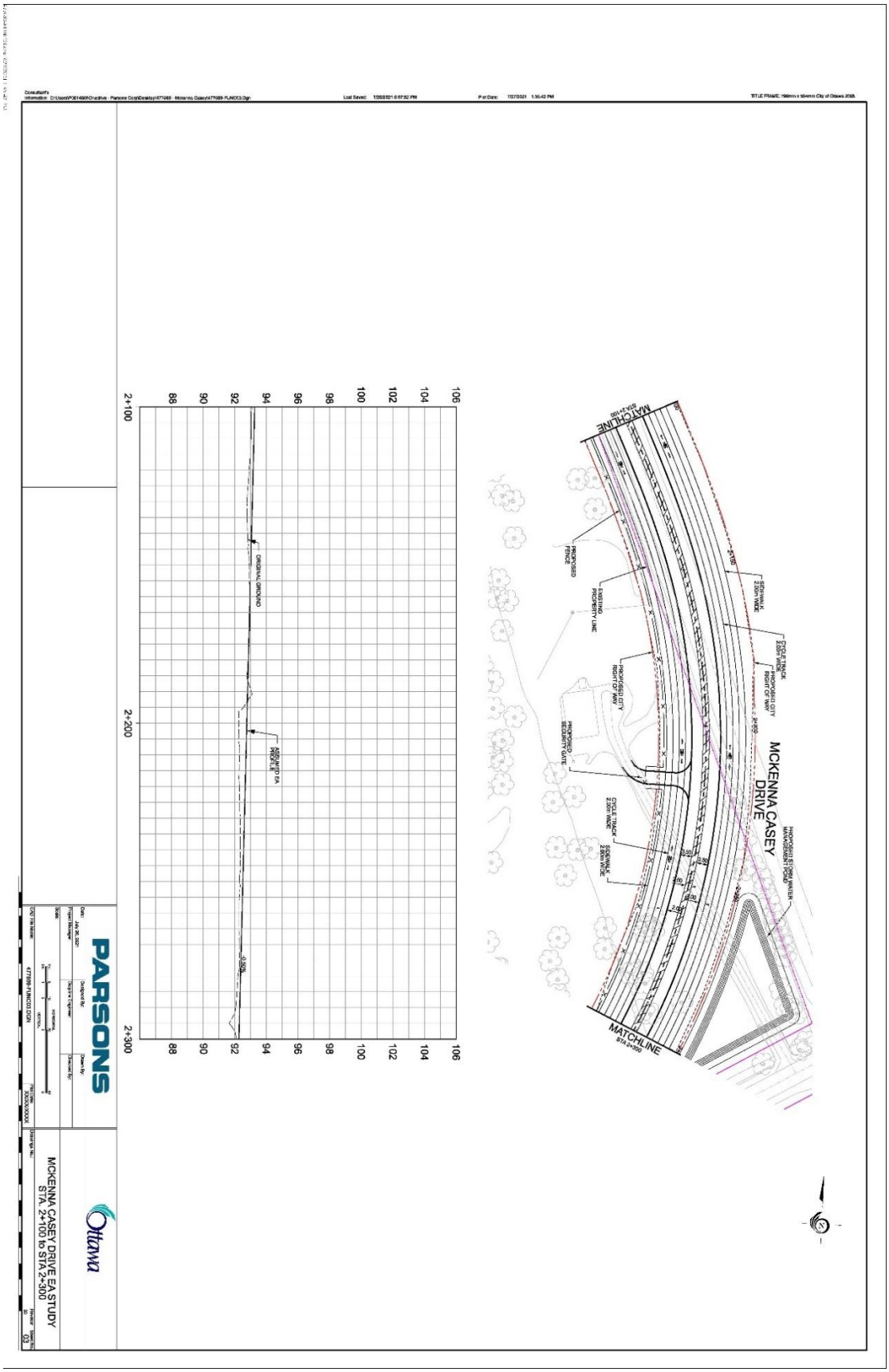


Figure 73: Functional Design - Road Profile

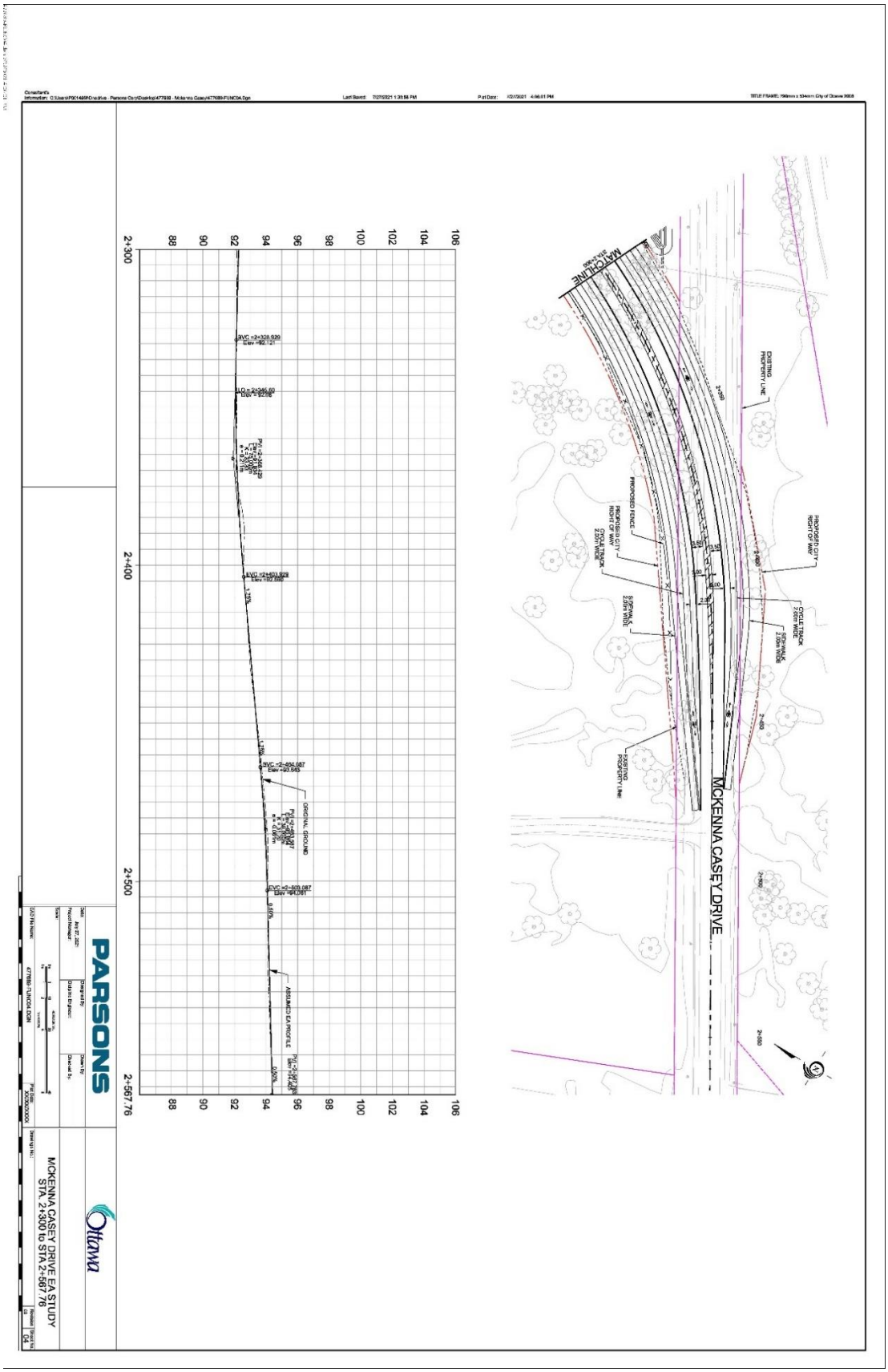
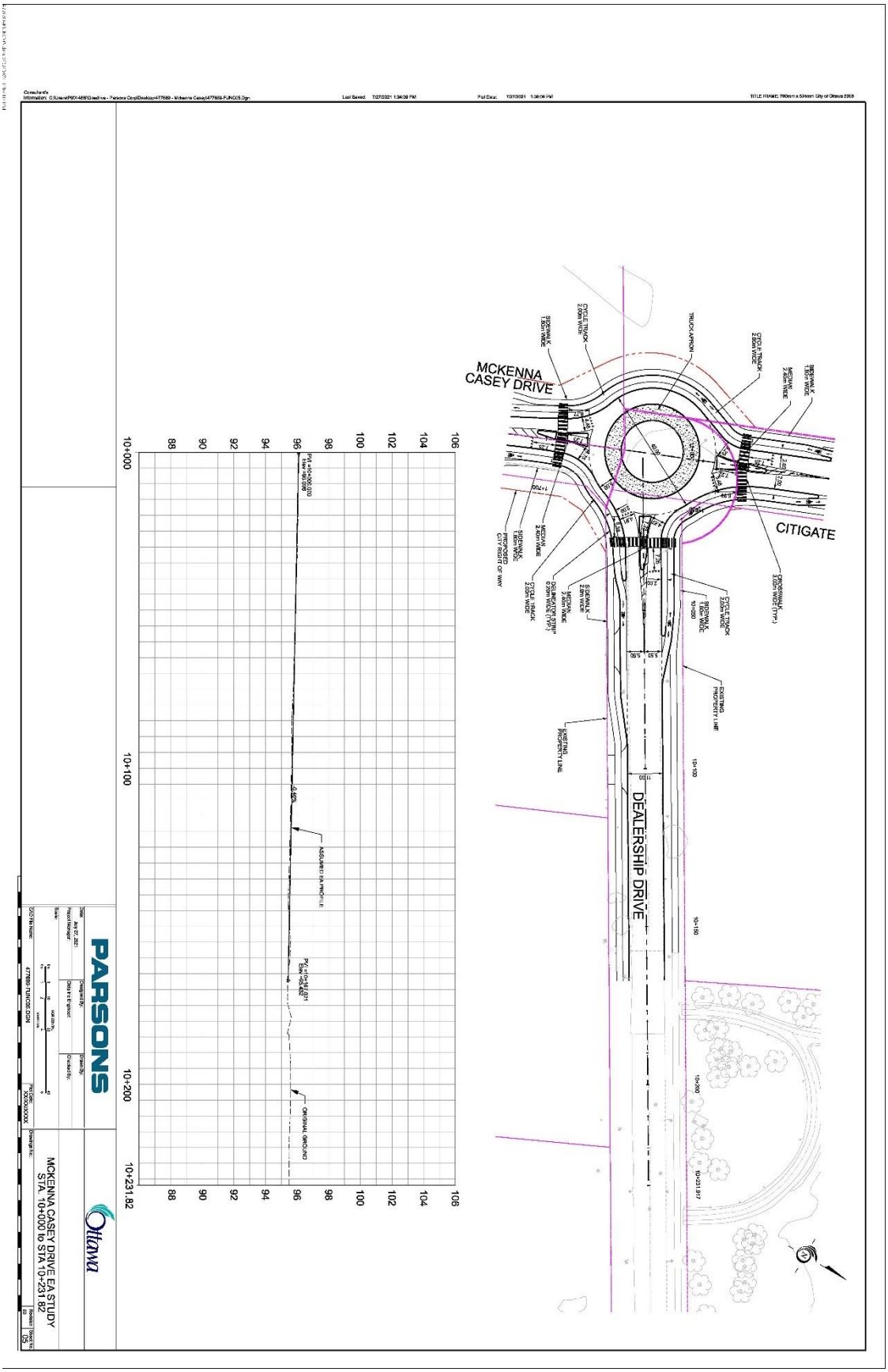


Figure 74: Functional Design - Road Profile



8.0 FUTURE COMMITMENTS AND CONCLUSION

The potential impacts, mitigation measures and the associated residual effects of the new roadway link have been identified, evaluated and assessed as documented in the previous sections. The design and construction will need to be implemented in accordance with the conditions of this Environmental Assessment Addendum Report. There is additional work that will be undertaken during both the preliminary and detailed design. The following sections outline the future commitments for the design and construction of this project.

8.1 Property Requirements

The land requirements of the Recommended Plan represent the minimum footprint needed to provide the new roadway facility. There may be opportunities during the detailed design to further minimize land acquisition and impact on property, however it is also possible that the footprint may also be larger in specific areas, pending detailed grading and drainage analyses.

The City of Ottawa will confirm property requirements and limits during the detailed design phase. In the normal course, Major Collector Roads are constructed by developers as part of the Plan of Subdivision process, and the construction of the facility and the City's eventual acceptance of the ROW and the infrastructure within it would occur as part of that process. Should City council direct staff such that the City itself would be implementing this as a municipal capital project, the City will proceed with the acquisition of temporary and permanent property needs, including temporary construction easements, as the design work proceeds and definitive property plans are developed.

8.2 Design Details

The detailed design will evaluate and assess construction methods and staging requirements necessary to undertake the project. The end result will be a tender package that includes:

Drawings:

- Implementation / Staging and Detours;
- Alignment;
- Removals;
- Grading and Drainage;
- Geometry and General Layout;
- Pavement Elevations;
- Services/Utility Relocations;
- Pavement Markings;
- Typical Sections;
- Non-Standard Details;
- Landscaping Plan; and
- Electrical (Illumination / Street Lighting).

Specifications:

- Tender;
- Form of Agreement;
- Modified OPS General Conditions;
- Quantity Sheets;
- Special Provisions; and
- Standard Drawings and Specification.

In support of the preparation of the detailed design additional investigations have been recommended:

- Topographic Survey
- Detailed Geotechnical Report including Specialists Report on Managing Impacted Materials

- Stage II Archaeological Assessment
- Supplemental AM Radio Tower Implications Report
- Ecological Site Assessment to confirm the absence or presence of Species at Risk

8.3 Subsequent Approval Requirements

Completion of the Environmental Assessment Addendum under the *Ontario Environmental Assessment Act* does not constitute approval other legislation required to implement the project. The following list of customary approvals and permits that may be required during detailed design and construction of the project that will be the responsibility of the proponent.

- Fisheries Act – Project related activities completed near a waterbody should undergo a self-assessment process to determine whether the project will result in serious harm to fish. If serious harm to fish, or work is not included in criteria excluding if from review by DFO, a Request for Review should be submitted as soon as possible in the design process to avoid potential delays
- Species at Risk Act (SARA) and Ontario Endangered Species Act (ESA) - SARA harmonizes with established legal protection for migratory birds covered by the *Migratory Bird Convention Act, 1994,* and aquatic species as defined in *SARA* not restricted to federally owned lands. The Ontario *Endangered Species Act*, 2007 addresses the protection and recovery of SAR in Ontario. If a species is listed on the Species at Risk in Ontario list as an extirpated, endangered or threatened species, the Act protects the species and their habitat. The ESA 2007 includes flexibility tools that encourage good stewardship and benefit to species at risk. The Act also includes a permit process to authorize people to engage in an activity that may not otherwise be allowed under the ESA 2007. If it is determined that species at risk or their residences are found within project limits, a permit may be required.
- Environmental Compliance Approval - Activities regulated under the *Environmental Protection Act* (EPA)*, R.S.O. 1990* and the *Ontario Water Resources Act, R.S.O. 1990* must be carried out in accordance with those Acts.
- Permit-to-Take Water. Water takings in Ontario are governed by the OWRA and the Water Taking Regulation (O. Reg. 387/04). The appropriate permit/process (EASR or PTTW) should be confirmed during the next phases of the project.
- Road Cut Permit - The 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 allowance meets City standards. The by-law imposes the requirement to obtain a permit prior to undertaking any cut into a City road allowance: road surface; sidewalks; and *boulevards*. In order to obtain a permit a contractor must be bonded and insured and, where the work may impact traffic or pedestrian movement, must submit for the approval of a Construction and 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.
- Management of Excess Materials – In accordance with Ontario regulations pertaining to the impacted materials associated with the septic field that will be displaced.
- Temporary Encroachment Permits: Temporary Encroachment Permits are required for activities, which temporarily encroach onto City of Ottawa rights-of-way. These permits ensure that all safety measures are taken, that the construction meets the City of Ottawa standards and, in turn, ensures that all area residents and passers-by are kept safe. Construction activities require temporary construction encroachment permits for construction related activities on City rights-of-way. Such encroachments include placement of containers, stockpiling materials, and vehicles used in the construction process including aerial, subsurface and surface types.
- 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 environmental assessment study may not require an RMA.

- 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. Contract documents will also require compliance with MOECC NPC-115 and NPC-118.

8.4 Monitoring

Compliance with the mitigation measures will be monitored by the proponent and include monitoring to verify the effectiveness of the prescribed mitigation measures and of complaints during construction.

8.5 Modifying the Recommended Plan

Due to unforeseen circumstances, it may not be feasible to implement the project as described in this Environmental Assessment Addendum. Any significant modification to the project or change to the environmental setting for the project which occurs after filing the addendum shall be further reviewed including the need for further addendums. Minor design changes are those that do not appreciably change the anticipated impacts and may be required as a result of municipal design review and will not require further addendums but would remain the responsibility of the facility designer and the facility constructor to ensure that all relevant issues are addressed.

8.6 Summary and Conclusions

The 1991 Environmental Study Report (ESR) conceptually showed this northerly realignment of McKenna Casey Drive, but the EA did not protect right-of-way for that extension. The purpose of the Addendum Study was to identify a Recommended Plan for the realignment of McKenna Casey Drive from its existing right-of-way at a location east of Highway 416 northerly to Dealership Drive. The Addendum has described the circumstances necessitating the change (the need for change), has described the change in the environmental setting, the potential impacts the change would cause, and identifies the mitigation and monitoring requirements to mitigate any potential impacts.

In accordance with the provisions of the Class EA Addendum Process, the study results have been documented in this study report and is available for a 30-day public review period. Only the realignment of McKenna Casey Drive is open for review. During this period, there will be an opportunity to request a Section 16 Order which is a request for additional consideration and study under the *Ontario Environmental Assessment Act.*

One all approvals are in place, the realignment of McKenna Casey Drive will proceed to detailed design as part of the Strandherd Widening Project. The detailed project mitigation measures and plans will be created during this phase. Through incorporating mitigation measures, no significant adverse environmental effects are expected to prevail after mitigation.

8.7 Accessibility and Availability of Documents

This report is available in accessible format on the City of Ottawa's website. This report also includes three (3) supplemental appendix documents that are available upon request, and available in accessible format upon request.

A request for the appendices can be made by emailing [Frank.McKinney@Ottawa.ca]. A request for accessible format of the appendices can be made via the City of Ottawa's "Accessible Formats and Communication Supports Request Form" at [https://forms.ottawa.ca/en/form/occ/legislative/accessible-formats-document-request].

All City staff shall, upon request, and in consultation with the person making the request, provide or make arrangements to provide accessible formats and communication supports for persons with disabilities. Accessible formats and communication supports shall be provided:

- in a timely manner;
- taking into account the person's accessibility needs; and,
- at a cost that is no more than the regular cost charged to other persons.

Once the appropriate format or support is determined with the requestor, staff shall provide or arrange for the provision of the accessible formats and/or communication supports for persons with disabilities.

9.0 REFERENCES

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Wildland Fire Risk Assessment and Mitigation Reference Manual (MNRF, 2017).

10.0 APPENDICES

This report includes the following three (3) supplemental appendices, available upon request and available in accessible format upon request:

10.1 Appendix A: Consultation Record
10.2 Appendix B: Supporting Specialist Studies
10.3 Appendix C: Supporting Transportation Data