Environmental Study Report

Environmental Assessment (EA) Study for the Huntmar Drive Widening and Stittsville Main Street Extension

PARSONS

Huntmar Drive Widening and Stittsville Main Street Extension Environmental Assessment (EA) Study

Environmental Study Report

FINAL DRAFT

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ACRONYMS

AA	Archaeological Assessment
AAQC	Ambient Air Quality Criteria
ACG	Agency Consultation Group
APEC	Area of Potential Environmental Concern
AT	Active Transportation
BCG	Business Consultation Group
BHR	Built Heritage Resource
BIA	Business Improvement Area
BLoS	Bicycle Level of Service
BMP	Best Management Practice(s)
BRT	Bus Rapid Transit
CCMP	Climate Change Master Plan
CEAA	Canadian Environmental Assessment Act
CHL	Cultural Heritage Landscape
CH4	Methane
CO	Carbon Monoxide
CO2	Carbon Dioxide
CONC	Concrete
CHR	Cultural Heritage Resource
CHAR	Cultural Heritage Report
CTC	Canadian Tire Centre
dBA	Decibel Units
DD	Species Data Deficient
DFO	Department of Fisheries and Oceans
EA	Environmental Assessment
ELC	Ecological Land Classification
ENCG	Environmental Noise Control Guidelines
END	Endangered Species

EPA	Environmental Protection Act
ESA	Environmental Site Assessment
ESC	Erosion and Sediment Control
ESR	Environmental Study Report
EXT	Extirpated Species
GHG	Greenhouse Gas
HC	Hydrocarbon
IMP	Infrastructure Master Plan
IPZ	Intake Protection Zone
ITE	Institute of Transportation Engineers
KWDA	Kanata West Development Area
KWCP	Kanata West Concept Plan
KWMSS	Kanata West Master Servicing Study
KWTMP	Kanata West Transportation Master Plan
LoS	Level of Service
LMSF	Light Maintenance and Storage Facility
LRT	Light Rail Transit
MCM	Ministry of Citizenship and Multiculturalism
MECP	Ministry of the Environment, Conservation and Parks
MMLOS	Multi-Modal Level of Service
MNRF	Ministry of Natural Resources and Forestry
MTO	Ministry of Transportation
MUP	Multi-Use Pathway
MVCA	Mississippi Valley Conservation Authority
NCC	National Capital Commission
NAR	Species Not at Risk
NCR	National Capital Region
NHIC	Natural Heritage Information Centre
NOx	Nitrogen oxides

OCDSB	Ottawa Carleton District School Board
OCSB	Ottawa Catholic School Board
OCP	Ottawa Cycling Plan
OEAA	Ontario Environmental Assessment Act
OESA	Ontario Endangered Species Act
OHA	Ontario Heritage Act
OLA	Outdoor Living Areas
OP	Official Plan
OPA	Official Plan Amendment
OPP	Ottawa Pedestrian Plan
OWRA	Ontario Water Resources Act
PCA	Potentially Contaminating Activity
PCE	Public Consultation Event
PCG	Public Consultation Group
PLoS	Pedestrian Level of Service
PM	Particulate Matter
PMTSA	Protected Major Transit Station Area
PPS	Provincial Policy Statement
PTTW	Permit to take Water
PVC	Polyvinyl chloride
PXO	Pedestrian Crossing
RMA	Roadway Modification Approval
RNIP	Road Network Implementation Plan
ROW	Right-of-way
RTC	Rapid Transit Corridor
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
SWH	Significant Wildlife Habitat
SWM	Stormwater Management
SWMP	Stormwater Management Pond
THR	Threatened Species
TIA	Transportation Impact Assessment
TkLoS	Truck Level of Service
TLoS	Transit Level of Service
TMP	Transportation Master Plan
TOD	Transit Oriented Development
TSC	Traffic Signal Controlled
UNA	Urban Natural Area
UNAEES	Urban Natural Areas Environmental Evaluation Study
VOC	Volatile Organic Compounds
WPHA	Wellhead Protection Area
WWIS	Water Well Information System
ZBL	Zoning By-Law

EXECUTIVE SUMMARY

Assumption and Analysis

The 2013 City of Ottawa Transportation Master Plan (TMP) identified the need for the widening of Huntmar Drive from Campeau Drive to Maple Grove Road (1.7 kilometres) to support the pace of development in the Kanata West area, and the extension of Stittsville Main Street from Maple Grove Road to Robert Grant Avenue (1.0 kilometre) as a new road required to provide connectivity and capacity for development in Stittsville. As outlined in this report, the Environmental Assessment (EA) Study resulted in the Recommended Plan and functional design for road widening of Huntmar Drive and the extension of Stittsville Main Street as complete streets.

The EA study informs the planning and development of surrounding lands and identified the right-of-way (ROW) requirements that need to be protected from encroaching development for future project implementation. The Recommended Plan can accommodate four travel lanes on Huntmar Drive and two travel lanes on Stittsville Main Street extension to meet the forecasted travel demand associated with the full build-out of Kanata West and Stittsville communities. When constructed, the widened Huntmar Drive and extended Stittsville Main Street will be continuous and efficient multimodal corridors that will offer mobility choices and reinforce the area’s transportation network.

The Recommended Plan results in a context-sensitive, complete street functional design for both corridors that is compatible with surrounding land uses and developing communities. It includes the following key benefits:

- Connects communities and addresses forecasted travel demand to year 2046
- Supports new bus routes and services, improves bus stop locations and amenities
- Improves multi-modal connectivity to the future Palladium LRT Station as well as to adjacent existing and planned residential developments, employment centres and commercial uses
- Delivers new active transportation facilities such as segregated cycle tracks, wide sidewalks and multi-use pathways
- Implements protected intersection design features
- Provides new signalized intersections and roundabouts where appropriate
- Provides barrier-free access for all users and implements accessibility design standards
- Improves road safety for all users
- Provides accesses to connect to existing and proposed land uses

- Expands public realm and placemaking opportunities that include tree planting, shade and landscaping
- Encourages transit-oriented development and regeneration
- Incorporates climate change mitigation and adaptation strategies
- Minimizes property impacts, with further refinements possible at detailed design.

Implementation of the project will require approximately 1.60 hectares of private property for the street cross sections that include new active transportation facilities, transit facilities, protected intersections, a roundabout, general road widening and associated infrastructure.

Due to the existing need for a safe pedestrian and cycling crossing of Highway 417, the EA study includes an optional stand-alone active transportation bridge which could be built in advance of the Huntmar Drive widening and associated new complete street bridge crossing of Highway 417. However, this optional active transportation bridge has significant capital and operating budget impacts and would result in a duplication of active transportation infrastructure in the same vicinity when Huntmar Drive is widened between Campeau Drive and Maple Grove Road. The EA study defines what can be built, the project's footprint, and its environmental impact. The matter of if and when a component of a project is implemented are considerations that the EA does not govern. Rather, the prioritization of projects, timing, and affordability will be determined through the on-going work of the City of Ottawa TMP Update (Part 2).

The study also identifies the need and opportunity for a new major collector road that would extend from the intersection of Stittsville Main Street and Derreen Avenue to the intersection of Carp Road and Westbrook Road. A proposed alignment of this future transportation link was developed as part of the EA study. The new major collector will improve the overall network connectivity and support the urban boundary expansion approved in the Official Plan. The exact road alignment and the associated environmental effects will be determined as part of a future study.

Financial Implications

Project costs were prepared in accordance with the Council-approved Project Delivery Review and Cost Estimating process for implementing capital projects. The total estimated cost in 2023 dollars is $110 million for Huntmar Drive widening (including a new complete street bridge with cycle tracks and sidewalks), $20.5 million for Stittsville Main Street extension, and $24 million for the optional, stand-alone active transportation bridge.

Public Consultation/Input

Consultation efforts included three rounds of Consultation Group meetings, two virtual public open houses and individual stakeholder meetings throughout the study. Meetings were held with the Agency Consultation Group (regulatory agencies, Ontario Ministry of Transportation, Hydro Ottawa, Hydro One and other utility companies, various City contacts including from Road Safety, Traffic Services, Active Transportation Planning and OC Transpo), and the Business and

Public Consultation Groups (landowners, businesses, organizations, school boards, community associations and interest groups). Feedback was also received from the City's Accessibility Advisory Committee representative through a focused stakeholder meeting. Consultation materials were made available on the project website, and consultation events were advertised through newspapers, emails, buckslips (mailouts) and social media.

Overall, there is strong public support for this project. Comments and questions that were raised during consultation have been addressed and are described in this report.

RÉSUMÉ

Hypothèse et analyse

Le Plan directeur des transports de 2013 mettait en relief la nécessité d'élargir la promenade Huntmar depuis la promenade Campeau jusqu'au chemin Maple Grove (1,7 kilomètre) afin de soutenir le rythme de développement de Kanata Ouest, et de prolonger la rue Stittsville Main depuis le chemin Maple Grove jusqu'à l'avenue Robert-Grant (1 kilomètre) en tant que nouvelle route nécessaire pour assurer la connectivité et la capacité de développement de Stittsville. Comme il est indiqué dans le présent rapport, l'Étude d'évaluation environnementale (EE) a donné lieu au plan et à la conception fonctionnelle recommandés pour l'élargissement de la promenade Huntmar et le prolongement de la rue Stittsville Main en tant que rues complètes.

L'étude d'EE a orienté la planification et le développement des terrains environnants et a défini les emprises municipales à protéger contre l'empiétement des aménagements pour la mise en oeuvre éventuelle du projet. Le plan recommandé prévoit quatre voies de circulation sur la promenade Huntmar et deux voies de circulation sur le prolongement de la rue Stittsville Main afin de répondre à la demande prévue en déplacements suivant l'aménagement au maximum de leur capacité des communautés de Kanata Ouest et de Stittsville. Une fois construites, la promenade Huntmar élargie et la rue Stittsville Main prolongée seront des couloirs multimodaux continus et efficaces qui offriront diverses options de mobilité et renforceront le réseau de transport du secteur.

Le plan recommandé se traduit dans une conception fonctionnelle de rue complète sensible au contexte et compatible avec la vocation des terrains environnants et les communautés en expansion. Il compte les avantages principaux suivants:

- Il relie entre elles les communautés et répond à la demande prévue en déplacements jusqu'en 2046
- Il soutient de nouveaux circuits et services d'autobus, il améliore l'emplacement des arrêts d'autobus et les autres aménagements
- Il améliore la connectivité intermodale à la future station de TRL Palladium ainsi qu'aux projets domiciliaires adjacents actuels et planifiés, aux centres d'emplois et aux utilisations commerciales
- Il prévoit la construction de nouvelles installations de transport actif, comme des bandes cyclables séparées, des trottoirs larges et des sentiers polyvalents
- Il met en oeuvre des caractéristiques pour la conception des intersections protégées.
- Il prévoit l'aménagement, le cas échéant, d'intersections et de carrefours giratoires avec signalisation
- Il prévoit l'accès sans obstacle pour tous les utilisateurs et il met en oeuvre les normes de conception de l'accessibilité

- Il améliore la sécurité routière pour tous les usagers
- Il prévoit des accès pour relier des utilisations de terrains actuelles et proposées
- Il agrandit le domaine public et accroît les possibilités d'aménagement de l'espace, incluant la plantation d'arbres, l'aménagement d'espaces ombragés et l'aménagement paysager
- Il encourage l'aménagement axé sur le transport en commun et la régénération
- Il intègre des stratégies d'atténuation et d'adaptation aux effets du changement climatique
- Il minimise les incidences sur la propriété, ouvrant la voie à d'autres améliorations possibles dans la phase de conception détaillée

La mise en oeuvre du projet exigera environ 1,6 hectare de biens-fonds privés pour l'aménagement des nouvelles installations de transport actif, les intersections prévues, le carrefour giratoire et l'élargissement en général de la voie

Compte tenu du besoin d'assurer un passage sécuritaire pour piétons et cyclistes à la hauteur de l'autoroute 417, l'étude d'EE a pris en compte l'option de construire, avant l'élargissement de la promenade Huntmar et l'aménagement du nouveau passage enjambant l'autoroute 417, une passerelle de transport actif indépendante. Cependant, cette passerelle facultative a d'importantes répercussions sur le budget d'immobilisations et de fonctionnement et elle deviendra une deuxième infrastructure de transport actif dans le même secteur une fois la promenade Huntmar élargie entre la promenade Campeau et le chemin Maple Grove. L'étude d'EE définit ce qui peut être construit, l'empreinte du projet et son impact environnemental. Mais la mise en oeuvre ou non d'une composante d'un projet et le moment de sa mise en oeuvre sont des aspects qui ne sont pas reliés à l'évaluation environnementale. La priorisation des projets, leur calendrier et leur abordabilité seront déterminés dans le cadre des travaux entourant la mise à jour du PDT (2e partie).

L'étude souligne aussi le besoin et la possibilité de construire une nouvelle route collectrice principale qui s'étendrait depuis l'intersection de la rue Stittsville Main et de l'avenue Derreen à l'intersection des chemins Carp et Westbrook. Le tracé proposé de cette future liaison de transport a été conçu dans le cadre de l'étude d'EE. La nouvelle route collectrice principale améliorera la connectivité globale du réseau et appuiera l'expansion de la limite du secteur urbain approuvée dans le Plan officiel. Le tracé précis de la route et les effets associés sur l'environnement seront examinés dans une étude subséquente.

Répercussions financières

Les coûts du projet ont été calculés conformément au processus approuvé par le Conseil municipal pour l'examen de la réalisation des projets et l'estimation des coûts liés à la mise en oeuvre de projets d'infrastructures. Le coût total estimé en dollars de 2023 est de 110 millions de dollars pour l'élargissement de la promenade Huntmar (incluant un nouveau pont de rue complète avec bandes cyclables et trottoirs), 20,5 millions de dollars pour le prolongement de la rue Stittsville Main et 24 millions de dollars pour la passerelle de transport actif indépendante facultative.

Consultations publiques et commentaires

Les activités de consultation se sont articulées autour de trois rondes de rencontres avec les groupes de consultation, deux séances portes ouvertes en mode virtuel et des rencontres individuelles avec des intervenants tout au long de l'étude. Des réunions ont eu lieu avec le Groupe de consultation des organismes (organismes de réglementation, le ministère des Transports de l'Ontario, Hydro Ottawa, Hydro One et d'autres entreprises de services publics, diverses personnes-ressources au sein de la Ville, incluant des Services de la circulation, de la sécurité routière, de la planification des modes de transport actifs et d'OC Transpo), ainsi qu'avec le groupe de consultation publique et celui du milieu des affaires (propriétaires fonciers, entreprises, organismes, conseils scolaires, organismes communautaires et groupes d'intérêts). Des commentaires ont également été reçus des représentants du Comité consultatif sur l'accessibilité de la Ville dans le cadre d'une rencontre ciblée. Des documents de consultation ont été publiés sur le site Web du projet et les activités de consultation ont été annoncées dans les journaux, par voie de courriel et envois postaux et dans les médias sociaux.

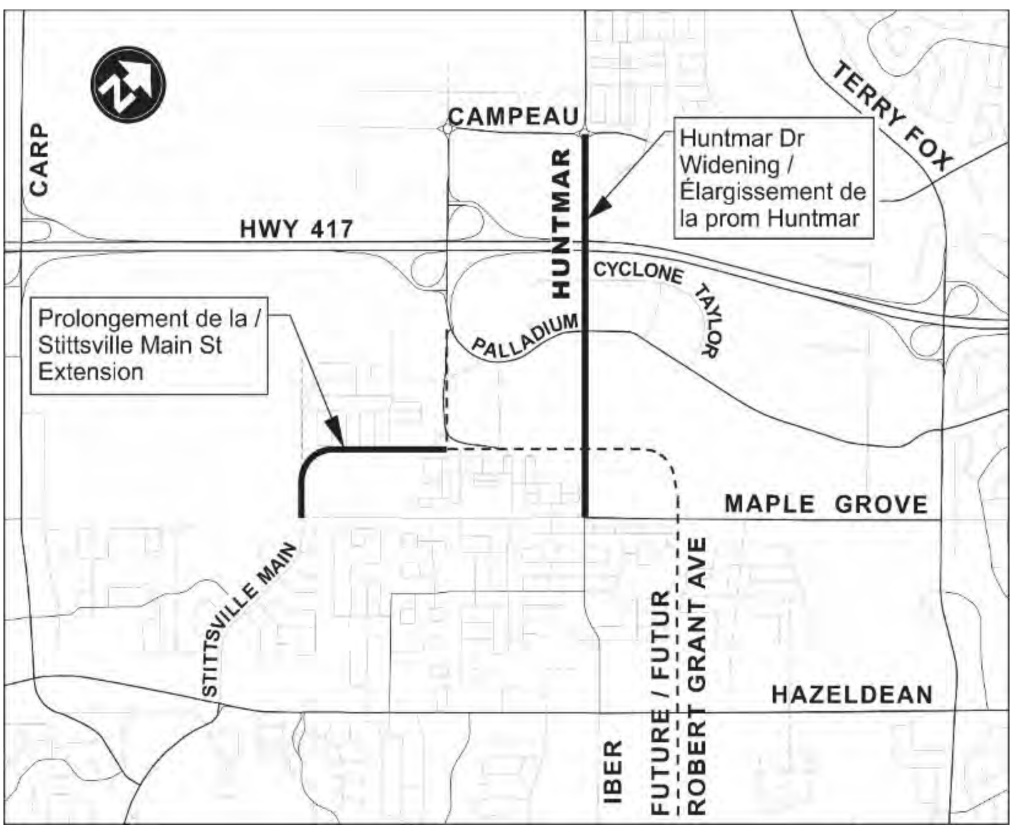
Dans l'ensemble, le public est très favorable à ce projet. Les commentaires reçus et les questions soulevées dans le cadre des consultations ont été traités et sont décrits dans le présent rapport.

1.0 INTRODUCTION

The City of Ottawa is the proponent of the Huntmar Drive Widening (Campeau Drive to Maple Grove Road) and Stittsville Main Street Extension (Maple Grove Road to Robert Grant Avenue) Environmental Assessment (EA) Study in accordance with the Ontario *Environmental Assessment Act*. This EA study has developed a Recommended Plan and functional design.

The project limits for the Study are defined as the existing road right-of-way (ROW) and adjacent lands along Huntmar Drive (between Campeau Drive and Maple Grove Road), and existing and new ROW along Stittsville Main Street (between Maple Grove Road to the future Robert Grant Avenue). The Study Area (shown generally in **Figure 1-1**) includes Terry Fox Drive to the east, Carp Road to the west, Campeau Drive to the north, and Hazeldean Road to the south. Study Area limits may change depending on the environmental element under review. Some potential environmental impacts, such as noise, may be more localized, whereas others, such as environmental impacts and traffic operational issues, may have broader impacts beyond the stated project limits.

Figure 1-1: Study Area



The City's Transportation Master Plan (2013 TMP) identifies the widening of Huntmar Drive and the extension of Stittsville Main Street as part of the future transportation network in the area. The provision of an active transportation connection across Provincial Highway 417 in the vicinity of Huntmar Drive/Kanata Light Rail Transit (LRT) corridor has also been identified by the City as an important part of the network.

The EA will result in a cost effective, complete street design for both corridors suited to the existing and planned land uses in this area, together with an active transportation connection across Highway 417. Both complete street corridors will accommodate all travel modes including accessible features for walking, cycling, transit, autos and trucks that are compatible with surrounding land uses and developing communities. Impacts to the surrounding environment (social, natural/physical and economic) will be minimized. The designs will be coordinated with the existing functional design of the Kanata LRT and will include modifications required to the Huntmar Drive bridge structure over Highway 417, and will be informed by consultation with the Ontario Ministry of Transportation (MTO) in this regard.

1.1 Environmental Assessment Process

The study was developed and planned in accordance with the requirements of the Ontario Municipal Class Environmental Assessment process for a “Schedule C” project, an approved process under the Ontario *Environmental Assessment Act*.

The Study has addressed Phases 1 to 4 of the Municipal Engineers Association’s Class EA Process (**Figure 1-2**).

Figure 1-2: MCEA Process

Phases 1 and 2 were originally completed as part of the 2013 Transportation Master Plan. As part of this Study, these two phases were reviewed and re-confirmed. Following completion of Phases 1 through 4, the Recommended Plan was presented and approved by the City’s Transportation Committee and Council. The Environmental Study Report (ESR) was available for a 30-day public review period.

Following the review period and addressing comments received, the project will then be considered to have EA approval. It will be able to proceed to Phase 5 (implementation), once funding is in place.

1.2 Consultation

1.2.1 Consultation Groups

The study proceeded under the direction of the City of Ottawa and benefitted from the direct involvement and guidance of three invited Study Consultation Groups. These included an Agency Consultation Group (ACG) consisting of City staff, and representatives from government agencies and approval bodies that may have an interest in the project; a Business Consultation Group (BCG) including business associations, institutions, landowners and commercial establishments/developers; and a Public Consultation Group (PCG) consisting of representatives from Community Associations and interested community groups relevant to the Study Area.

1.2.1.1 Agency Consultation Group

The ACG was formed to address the full range of technical issues and to comment on special studies as well as applicable procedures, legislation, and policies. ACG members included agencies and government department representatives from Municipal and Provincial levels, Indigenous Communities and utility companies. The following were invited to participate either by attending ACG meetings or providing comments during the EA process:

Internal ACG (City of Ottawa)

- Transportation Services Department
  - Transportation Planning
    - Transportation Environmental Assessments
    - Transportation Policy and Networks
    - Active Transportation Planning
  - Traffic Services
  - Traffic Operations
  - Road Safety and Traffic Investigations
  - OC Transpo
- Planning, Infrastructure and Economic Development Department
  - Planning Services
- Corporate Real Estate Office
  - Realty Initiatives and Development
    - Environmental Remediation Unit
  - Realty Services
- Emergency and Protective Services Department
- Public Works and Environmental Services Department
- Recreation, Cultural and Facility Services Department
- Legal Services
- Ottawa Public Health

        - Development Review
    - Infrastructure Services
        - Asset management
    - Economic Development Services
    - Resiliency, Planning and Policy
        - Natural Systems and Rural Affairs
- Right of Way, Heritage and Urban Design Services

External ACG Representation

Provincial

- Ministry of the Environment, Conservation and Parks (MECP)
- Ministry of Citizenship and Multiculturalism (MCM)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Transportation (MTO)

Regional

- Mississippi Valley Conservation Authority (MVCA)
- Hydro Ottawa Limited
- Transport Action Canada
- Rogers
- Hydro One Networks Inc. ”Hydro One”
- Bell Canada
- Enbridge

Meeting agendas and notes are contained in **Appendix A**. **Table 1-1** outlines the meeting dates and main agenda topics.

Table 1-1: Agency Consultation Group Meetings

Meeting #	Date	Main Agenda Topics
1	September 29, 2021	Introduction to Study and Study Team, Overview of Study Objectives, Presentation of the Study, Area Context, Identification of Preliminary Solutions and Early Concepts, Round Table Discussion, Next Steps.
2	February 23, 2022	Confirmation of the recommended preferred widening solution, Review of evaluation criteria, Review of alternative designs for each corridor, Preliminary preferred designs for each corridor, Demonstration drawings for each corridor, Preliminary preferred alignment of the Hwy 417 crossing.
3	December 6, 2022	Review Of Existing Conditions And Preferred Designs, Draft Recommended Plan, Impacts And Mitigation Measures, Phasing And Implementation, Next Steps.

1.2.1.2 Business Consultation Group

The BCG was formed to review work completed to-date and to provide comments on study activities, issues and concerns that reflect each group's interests and values. Throughout the study, BCG membership was updated to capture changes to those with business interest in the Study Area. The BCG consisted of representatives from:

- Capital Sports Properties
- Ottawa Catholic School Board
- Ottawa Carleton District School Board
- Kanata Academy Private School
- Conseil des écoles publiques de l'Est de l'Ontario
- Ottawa Transportation Student Authority
- Kanata Central BIA
- Kanata North BIA
- Stittsville Business Association
- IBI Group
- Kavanagh-Shenkman
- Urbandale
- Claridge
- Fotenn
- Heritage Homes
- North American Development Group
- Riocan Holdings
- Broccolini
- Capital Two Investments
- Subhkin Canada Inc.

Meeting agendas and notes are contained in **Appendix B**. **Table 1-2** outlines the meeting dates and main agenda topics.

Table 1-2: Business Consultation Group Meetings

Meeting #	Date	Main Agenda Topics
1	October 4, 2021	Introduction to Study and Study Team, Overview of Study Objectives, Presentation of the Study, Area Context, Identification of Preliminary Solutions and Early Concepts, Next Steps.
2	June 7, 2022	Review of Study Objectives, Planning Framework, Preliminary Recommended Plan: Huntmar Drive Widening, Huntmar/Highway 417 Crossing and Stittsville Main Street Extension, Basis for the Plan and Next Steps.
3	January 19, 2023	Review Of Existing Conditions And Preferred Designs, Draft Recommended Plan, Impacts And Mitigation Measures, Phasing And Implementation, Next Steps.

1.2.1.3 Public Consultation Group

The PCG was formed to enable community and interest groups to provide direct input to the study and to comment on technical and local opportunities and concerns. PCG members included representatives from City wards adjacent to the corridor, interest groups and City of Ottawa advisory committees. Representation included, but was not limited to:

- Ward 4 Kanata North Councillor Cathy Curry
- Ward 6 Stittsville Councillor Glen Gower
- Arts, Culture, Heritage and Recreation Advisory Committee
- Kanata Lakes Community Association
- Bike Ottawa
- Beaverbrook Community Association
- Citizens for Safe Cycling
- Ecology Ottawa
- Village Green Community Association
- Stittsville Village Association
- Fairwinds Community Association
- Kanata North Transportation Committee
- Greenspace Alliance of Canada's Capital
- Healthy Transportation Ottawa
- Transport Action Canada
- Briarbrook Brookside Morgan’s Grant Community Association
- Accessibility Advisory Committee

Meeting agendas and notes are contained in **Appendix A**. **Table 1-3** outlines the meeting dates and main agenda topics.

Table 1-3: Public Consultation Group Meetings

Meeting #	Date	Main Agenda Topics
1	October 4, 2021	Introduction to Study and Study Team, Overview of Study Objectives, Presentation of the Study, Area Context, Identification of Preliminary Solutions and Early Concepts, Next Steps.
2	June 7, 2022	Review of Study Objectives, Planning Framework, Preliminary Recommended Plan: Huntmar Drive Widening, Huntmar/Highway 417 Crossing and Stittsville Main Street Extension, Basis for the Plan and Next Steps.
3	January 19, 2023	Review Of Existing Conditions And Preferred Designs, Draft Recommended Plan, Impacts And Mitigation Measures, Phasing And Implementation, Next Steps.

1.2.2 Public Consultation Event

Two public consultation events were held at key stages during the study to obtain feedback from the general public on the project information being provided. These events presented work on confirming the problem or opportunity (needs assessment) and evaluation of alternative solutions, evaluation of alternative designs, and the Preliminary Recommended Plan for each of the corridors. Both public consultation events were organized as an online presentation followed by a question period. In addition, presentation boards, roll plans and an online survey was provided to obtain feedback on the City of Ottawa's study's website. Accessible consultation materials were provided in both English and French, content and summaries are contained in **Appendix A**. **Table 1-4** outlines event dates and main presentation topics.

Table 1-4: Public Consultation Events

Meeting #	Date	Main Agenda Topics
1	June 15, 2022 - July 6, 2022	Introduction and Study Objectives, Background, Need and Opportunity, Existing Conditions and Planning Framework, Preferred Solutions and Preliminary Preferred Designs and Next Steps.
2	January 31, 2023 – February 23, 2023	Summary of Work Completed To-date, Presentation of Draft Recommended Plan and Functional Design, Impacts And Mitigation Measures, Phasing And Implementation and Next Steps.

1.2.3 Individual Stakeholder Meetings

During the study, the Study Team met with individual stakeholders and landowners to discuss specific elements of the study and proposed design.

These individual stakeholder meetings focused on topics such as the impact on adjacent properties, how the project relates to specific policies or mandates of agencies, connections to employment and residential land uses and future development opportunities.

Given the proximity to Highway 417, liaison with the MTO was an important aspect of the study. Three meetings were held with the MTO. Information of meetings with all stakeholders is provided in **Table 1-5** and can also be found in Annex 4 of **Appendix A**.

Table 1-5: Stakeholder Meetings

Meeting #	Date	Stakeholder	Main Agenda Topics
1	September 2, 2021	Various Development Representatives	Study Introduction, EA process, coordination and information gathering regarding area developments.
2	July 10, 2022	MTO	Discussion with MTO regarding EA process, study findings, design discussion and next steps.
3	May 7, 2022	Canadian Tire Centre	Review draft concept designs and preliminary expectations regarding property impacts, especially related to proposed changes to the Cyclone Taylor intersection.
4	May 27, 2022	Canadian Tire Centre Landowners	Review of the Recommended Plan for the Huntmar Drive widening and expected impacts on the Canadian Tire Centre property, particularly the expected grade change to the Huntmar/Palladium intersections.
5	May 27, 2022	2090 Carp Landowner	Review of Recommended Plan for the Stittsville Main Street extension, impacts on the 2090 Carp property, how the proposed roadway alignment will align with the draft plan of subdivision for the property.
6	June 10, 2022	MTO	Study Introduction, EA process, coordination and information gathering regarding MTO jurisdiction.
7	July 25, 2022	MECP Staff	Air Quality Assessment methodology

Meeting #	Date	Stakeholder	Main Agenda Topics
8	October 5, 2022	230 Huntmar Representatives	Review of Draft Functional Design for the Huntmar Drive widening, as it related to the 230 Huntmar development
9	October 13, 2022	Cavanagh, DSEL	Review of Draft Functional Design for the Huntmar Drive widening as it related to the 195 Huntmar development
10	November 28, 2022	MTO	Reviewing Draft Functional Design of the Huntmar Drive Crossing and the Active Transportation Connection over Highway 417
11	December 20, 2022	2090 Carp Landowner	Review of the Draft Functional Design for the Stittsville Main Street extension, and discussion regarding the potential future westerly extension of a collector road to Carp, through the 2090 Carp property.

1.2.4 Indigenous Consultation

The Communities consulted as part of the study were identified through consultation with MECP. Communities consulted include: Algonquins of Ontario, Alderville First Nation, Curve Lake First Nation, Hiawatha First Nation and Mississaugas of Scugog Island First Nation.

Initial contact was made to inform each group of the project and identify opportunities for involvement. Official notices were also sent throughout the study process. The draft Stage 1 Archaeological Assessment report and the Cultural Heritage Report: Existing Conditions and Preliminary Impact were also made available for review and comment. The ESR was made available for review by all the identified Communities. Consultation was achieved through email with representatives of the Communities identified for this study. Correspondence that was sent/received is contained in **Appendix A**.

1.2.5 City of Ottawa Website

The City of Ottawa developed and maintained a project website with consultation materials for the study, key milestones, and the overall EA process. Information posted on the website was also formatted in a manner compatible with the City's accessibility guidelines for on-line graphics, videos, and printed materials.

English: Ottawa.ca/huntmardrivestittsvillemain

French: Ottawa.ca/promenadehuntsmarstittsvillemain

1.3 Report Organization

The purpose of this ESR is to document the study rationale, the planning, design, and consultation processes of the project, and make that documentation available for review by the public and review agencies. The report consists of the following sections:

- Executive Summary
- Introduction
- Project Need and Opportunities
- Existing Environmental Conditions
- Evaluation of Alternative Solutions
- Existing Conditions Update
- Evaluation of Alternative Designs
- Recommended Plan and Assessment
- Recommended Plan - Functional Design Drawings
- Implementation and Approvals
- Conclusion
- References

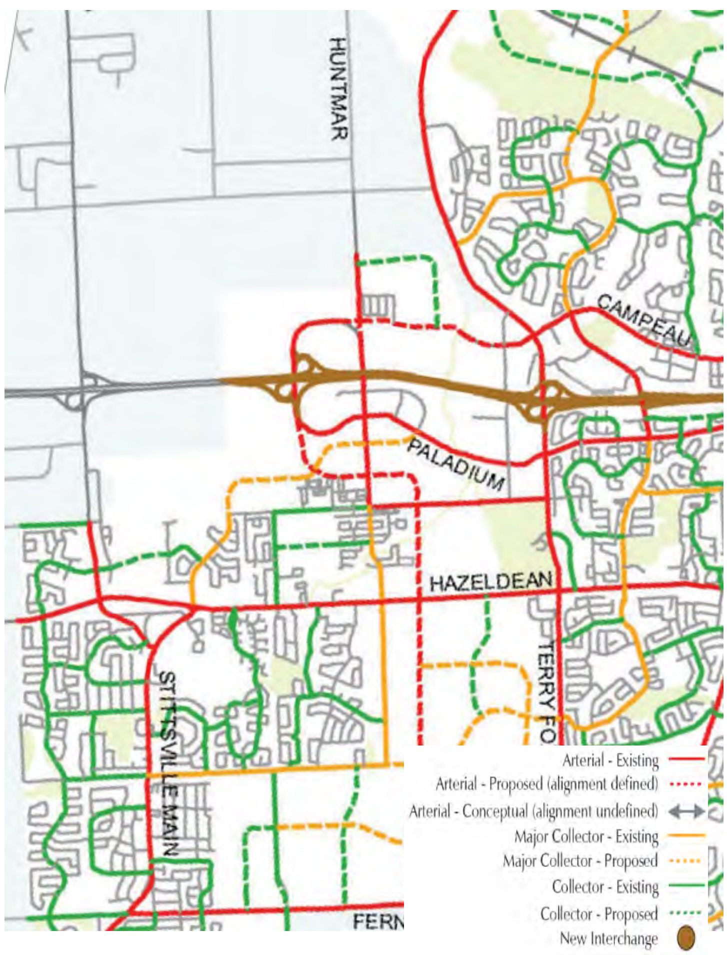
The Appendices contain the technical reports and technical documentation prepared throughout the course of the study. These reports and documentation contributed to the decision-making process and the development of recommendations that led to the selection of the preferred design (Recommended Plan).

2.0 PROJECT NEED AND OPPORTUNITIES

Within the context of the Huntmar Drive Widening and Stittsville Main Street Extension Environmental Assessment (EA), this analysis is intended to provide existing and projected transportation conditions for the widening of Huntmar Drive (1.7 km) from Campeau Drive to Maple Grove Road and for the extension of Stittsville Main Street (1 km) from Maple Grove Road to Robert Grant Avenue. The information contained herein will evaluate the need for each distinct project, where one is a widening of an Arterial Road (including a replacement of the existing Huntmar Drive bridge over Highway 417 and an active transportation crossing solution) and the other an extension of a Major Collector Road, as identified in the City's 2013 Transportation Master Plan (TMP). The analysis will inform the alternative assessment and a preferred solution for the study.

Figure 2-1 illustrates the City's existing and planned Urban Road Network in the vicinity of the study area, while **Figure 2-2** illustrates the study area extending from Campeau Drive in the north, to Maple Grove in the south and west to Hazeldean Road.

Figure 2-1: Existing and Planned Urban Road Network

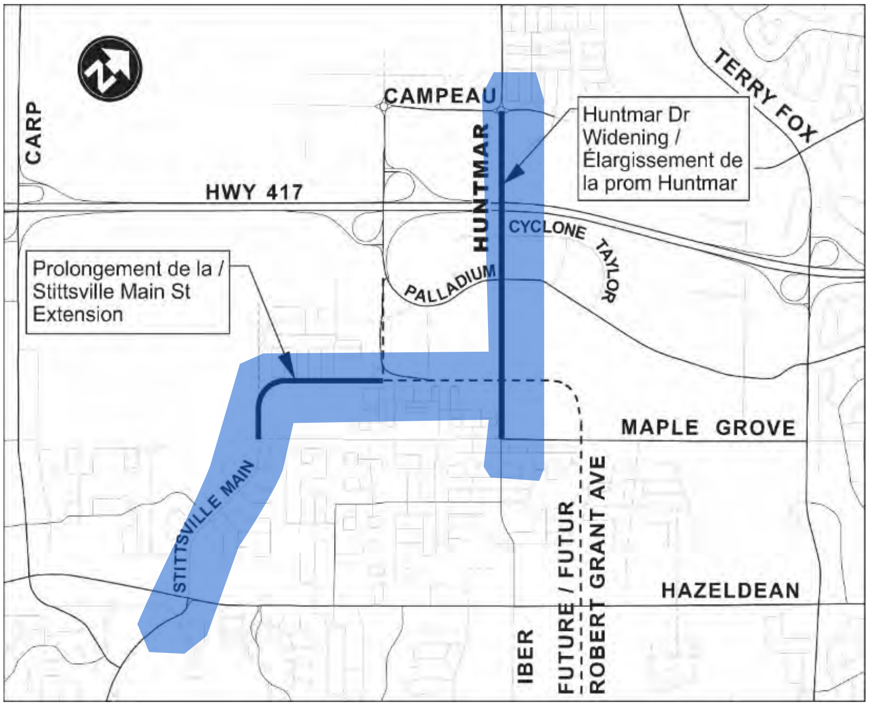


Source: City of Ottawa Transportation Master Plan (2013)

From a transportation perspective, the widening of Huntmar Drive within the study is ultimately intended to achieve the objective of developing a contiguous, cohesive corridor that balances the needs of competing multi-modal travel demands across the Highway 417 corridor. In addition, the provision of a grade-separated active transportation across Highway 417 in a manner that could be implemented in advance of the new Huntmar Drive complete street bridge would provide pedestrian and cycling mobility which is lacking in this corridor. The extension of Stittsville Main Street has the potential to both serve and influence north-south travel patterns for the communities surrounding the corridor. In the Stittsville-Kanata-West area, the Huntmar Drive-Palladium Drive corridor and the Carp Road corridor serve to connect the surrounding communities to the Highway 417 corridor. The Stittsville Main Extension would provide an alternative connection for local communities while complimenting the future extension of Robert Grant Avenue to the east.

The areas that will be serviced by the Kanata LRT are anticipated to grow substantially over the planning horizon. The City’s population is forecasted to grow 23% from 2011 to 2031 with 79% of that growth predicted to occur in urban areas outside the Greenbelt. The number of jobs is projected to grow about 24% from 2011 to 2031, with 72% occurring in the inner area and suburbs. This points to a need to move an increased number of people efficiently, reliably, and safely from outer areas into the Central Area, and vice-versa. As such, the number of transit trips taken into the inner suburbs and areas is expected to rise substantially. The areas targeted for transit-oriented development (TOD) and intensification will see an increased demand for people wanting to live, shop, and work both in their neighbourhood and downtown. Higher rapid transit technology such as LRT supports these forecasted trends by fueling growth and redevelopment.

Figure 2-2: Study Area Overall Context



2.1 Existing Transportation Conditions

2.1.1 Pedestrian and Bicycle Traffic

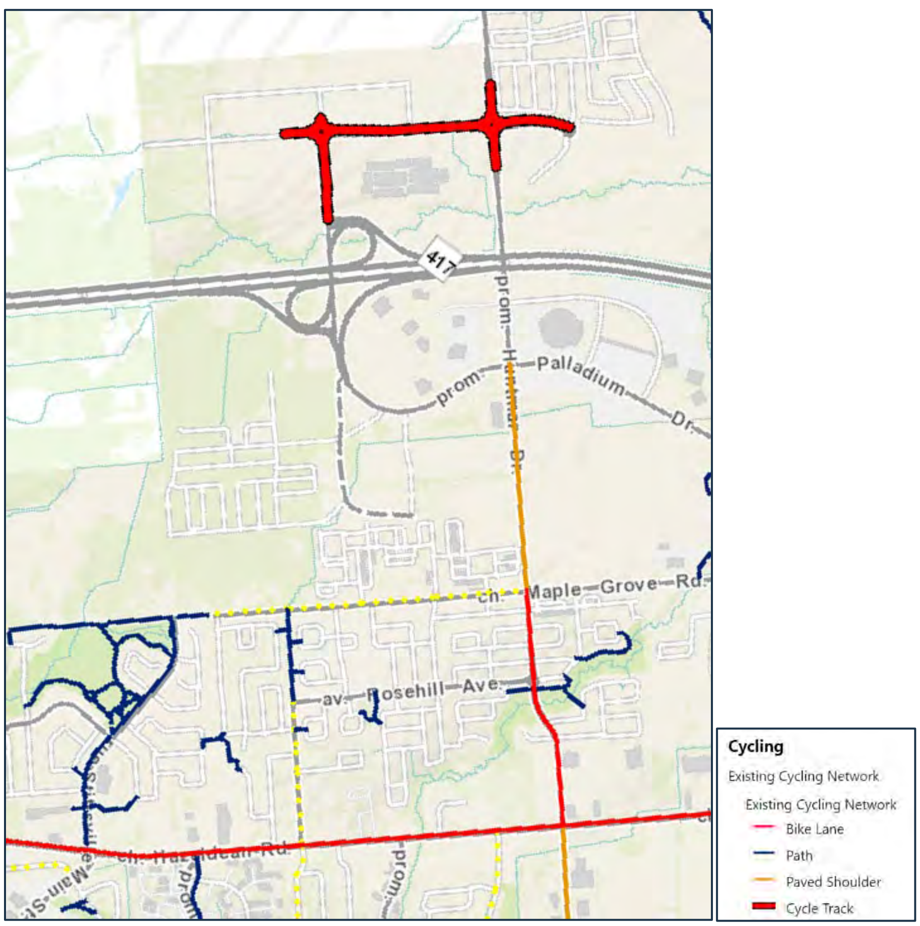
Weekday pedestrian and bicycle traffic along most of the Huntmar Drive corridor is typically minor under existing conditions. This likely due in large part to the existing land use context and the lack of active transportation infrastructure, particularly crossing the Highway 417 corridor on the Huntmar Bridge. However, there is significant pedestrian activity in the vicinity of Maple Grove Road related to the adjacent residential communities. As well, the presence of the Canadian Tire Centre east of Huntmar Drive – which hosts regular, high-attendance sporting and entertainment events - drives significant north-south pedestrian demand during off-peak periods from October-through-June. Typical weekday pedestrian and cyclist volumes are anticipated to increase as the urban communities build out in tandem with appropriate active transportation infrastructure linking to the employment, commercial and transit opportunities north of the study area.

Figure 2-3 illustrates the Study Area cycling infrastructure. Huntmar Drive in the broader Study Area accommodates a variety of cross sections which include cycle tracks, paved shoulders with physical separators, sidewalks and bike lanes. Cycle tracks and sidewalks are provided south of Campeau Drive which end north of the Highway 417 bridge crossing. Near the Highway 417 bridge, no pedestrian or cyclist infrastructure is provided. Between Cyclone Taylor Blvd and Maple Grove Road, pedestrians are primarily accommodated by a combination of concrete sidewalk, asphalt sidewalk and separated paved shoulders along the east side of the Huntmar Drive corridor. The paved shoulder arrangement south of Maple Grove Road transitions into bike lanes and a sidewalk.

North of Hazeldean Road, Stittsville Main Street accommodates pedestrians through a sidewalk and boulevard arrangement along the east side of the corridor. Opposite the sidewalk, a multi-use pathway (MUP) and boulevard provides for mixed cyclist and pedestrian traffic. Pedestrian traffic along Stittsville Main Street is significant with likely significant demand to and from the existing St. Stephen Catholic School located along the east side of the corridor.

West of Huntmar Drive, Palladium Drive provides for a paved shoulder that transitions into concrete sidewalks and mixed auto-cycling traffic in each direction. There are sidewalks along the majority of Maple Grove Road west of Huntmar that transition into a rural cross section with paved shoulders in the east of the study area.

Figure 2-3: Existing Cycling Network



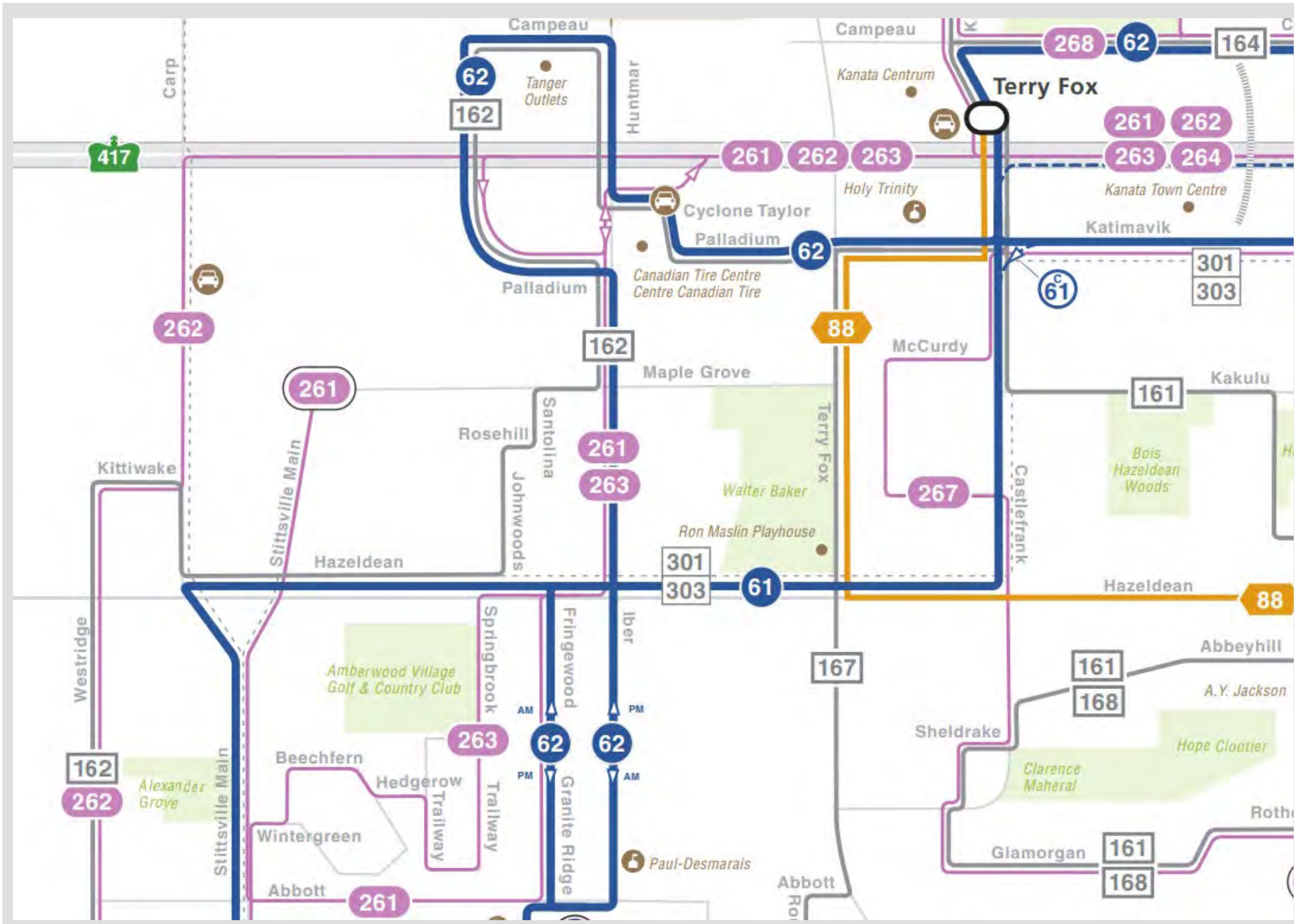
Source: City of Ottawa (geoottawa)

2.1.2 Transit Operations

Figure 2-4 illustrates the Study Area OC Transpo transit routes. Huntmar Drive provides access to a Park & Ride facility located in the Canadian Tire Centre parking lot 9. The Canadian Tire Centre station services OC Transpo Routes #62, #162, #261 and #263. OC Transpo Route #62 is a peak-period Rapid Route which utilizes Huntmar Drive to service the Canadian Tire Centre station and connect riders with Line 1 at the Tunney's Pasture Station. Route #162 is the 'local' version of this route, serving regular stops between Stittsville and Tunney's Pasture Station. OC Transpo Routes #261 and #263 each connect the Stittsville Ward with Line 1 at Tunney's Pasture station with regular weekday service along Huntmar Drive and Stittsville Main Street. Route #261 commences or completes its route at the existing cul-de-sac termination of Stittsville Main Street which provides future opportunity following the Stitsville Main Street connection to Maple Grove Road.

The City has approved the Kanata LRT EA Study (2018) to advance the extension of Line 1 to service the Kanata and Stittsville areas. The chosen Stage 3 alignment would see the Palladium Station located west of the Canadian Tire Centre with service running parallel to the Huntmar Drive corridor, with additional stations at Maple Grove Road and Hazeldean Road. The timing of the westerly extension of the LRT is unknown at this time.

Figure 2-4: OC Transpo Route Map (June, 2021)



Source: OC Transpo

2.1.3 Vehicle Traffic

The City of Ottawa provided their most recent weekday vehicle turning movement counts for the following immediate Study Area intersections:

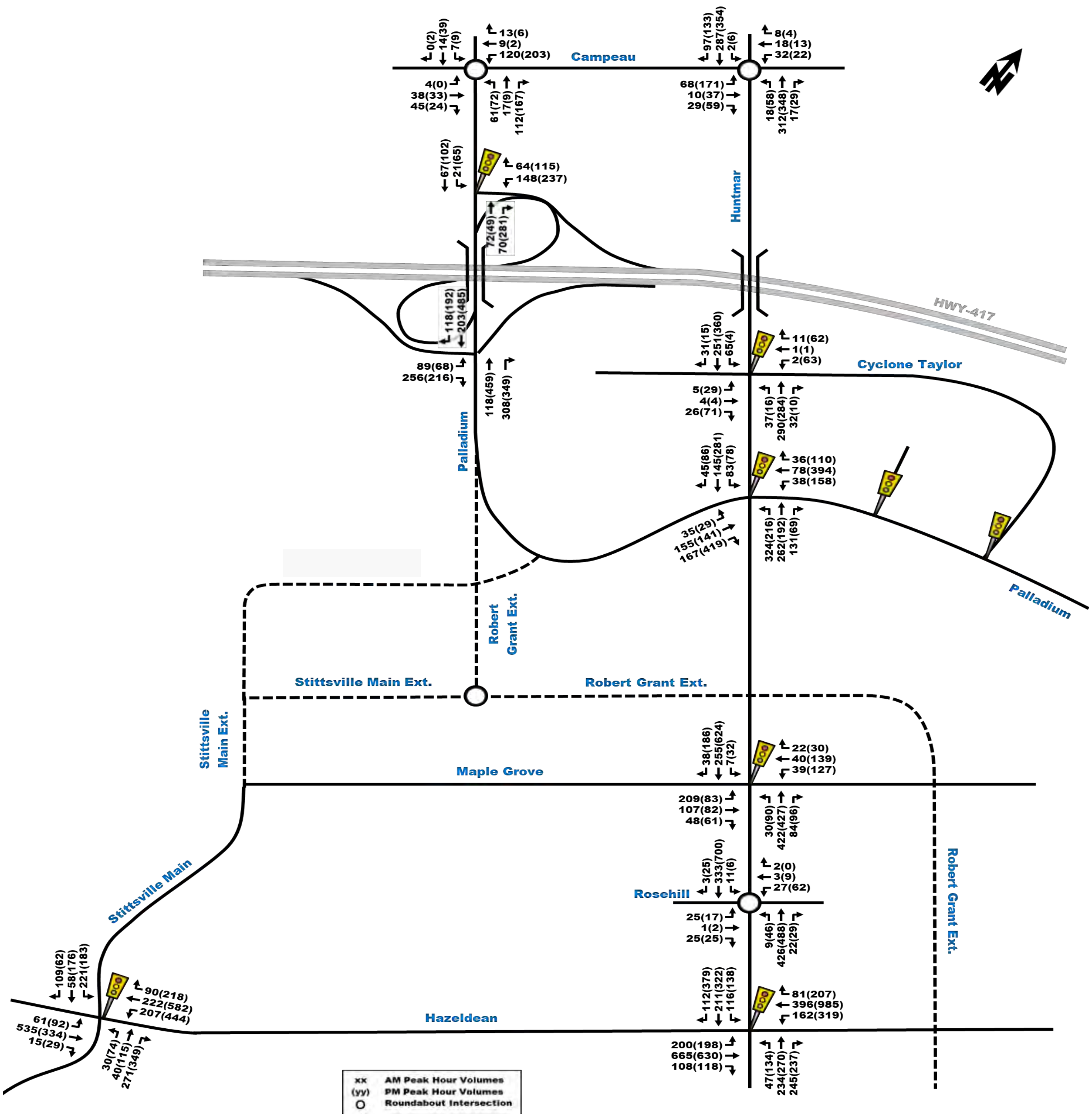
- Huntmar/Richardson Side Road (roundabout) (April, 2019)
- Huntmar/Campeau (Roundabout) (May, 2019)
- Huntmar/Cyclone Taylor (TSC) (Jan. 2020)
- Huntmar/Palladium (TSC), (April, 2019)
- Huntmar/Maple Grove (TSC) (Nov. 2017)
- Huntmar/Hazeldean (TSC) (July, 2019)
- Stittsville Main/Hazeldean (TSC) (March 2016)
- Highway 417/Palladium (TCS) (March, 2015)
- Palladium/Cyclone Taylor (TSC) (Jan. 2020)
- Carp/Hazeldean (TSC) (Nov. 2017)

Additional classification and occupancy count information was obtained beyond the immediate study area for Screenline 52 (Terry Fox Drive and Huntmar Drive) and Screenline 44 (Highway Station, Palladium Drive, Maple Grove, Hazeldean Road and Richardson Side Road), to help understand overall travel patterns through a broader area. Traffic information regarding pre-event and post-event traffic was also obtained for Ottawa Senators hockey game events in the immediate vicinity of the Canadian Tire Centre.

Current peak hour traffic volumes near the Study Area are illustrated in **Figure 2-5** and source data are included. Data is the most recent available from years 2016-2020 and differs for each intersection. Peak directional volumes are as follows:

- **Huntmar Drive** – approximately **450 veh/h** (Campeau-Palladium) and **900 veh/h** (Palladium-Maple Grove)
- **Stittsville Main Street** – approximately **450 veh/h** (north of Hazeldean Road) and **650 veh/h** (south of Hazeldean Road)
- **Campeau Drive -** approximately **300 veh/h** (near Journeyman Street)
- **Maple Grove Road** – approximately **450 veh/h** (west of Huntmar Drive) and 300 veh/h (East of Huntmar Drive)
- **Palladium Drive** – approximately **1,300 veh/h** (Highway 417-Huntmar) and 950 veh/ (Huntmar-Cyclone Taylor)

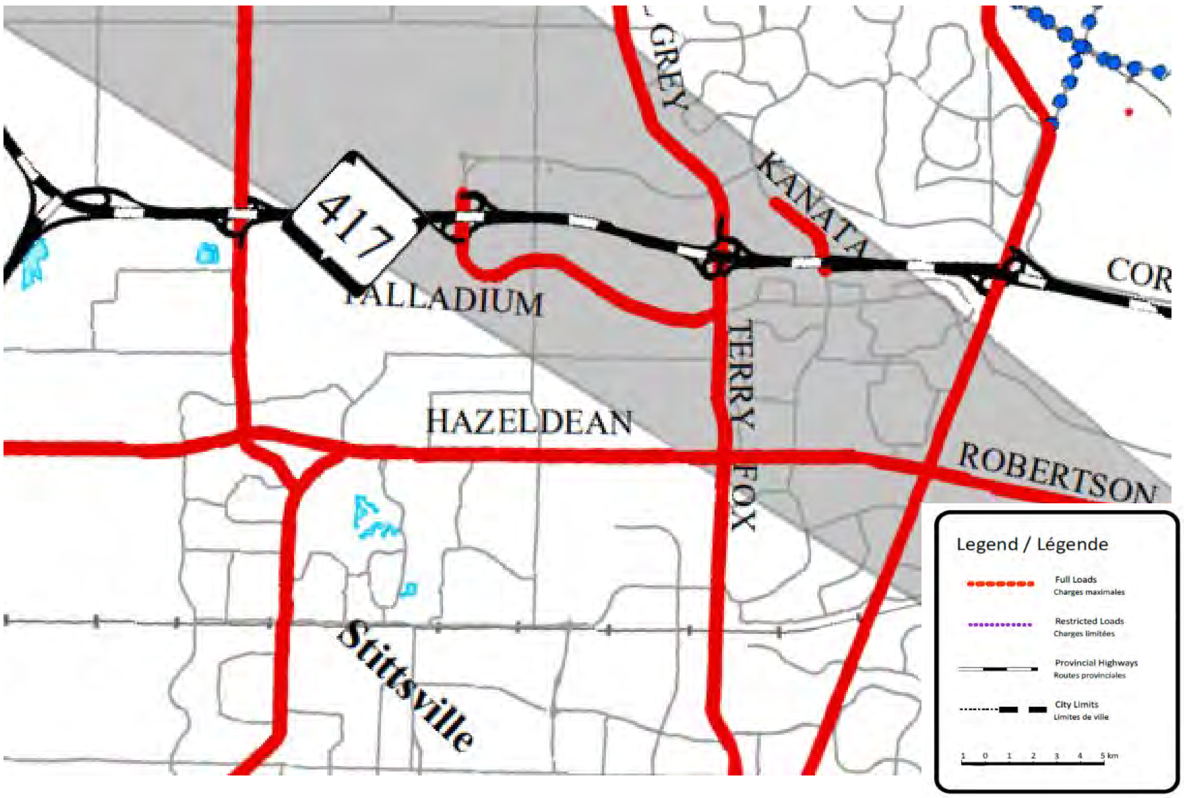
Figure 2-5: Existing (2020) Weekday Morning and Afternoon Peak Hour Traffic Volumes



2.1.4 Truck Traffic

Figure 2-6 is an excerpt from the City's Rural Truck Route Map. The figure illustrates that the existing Huntmar Drive corridor and the Stittsville Main Street corridor north of Hazeldean Road are not included within the City's Rural Truck Network. There are numerous additional parallel north-south designated truck corridors in the vicinity of the study area, including Palladium Drive, Carp Road and Terry Fox Drive that connect the Highway 417 corridor to Hazeldean Drive and areas south of the study area.

Figure 2-6: Urban Truck Network



2.1.5 Traffic Composition

Classification data gathered at several truck route locations indicate that cars, light trucks and vans account for more than 98% of the vehicle activity in the area, whereas heavy trucks and buses account for less than 2% of the vehicle activity. This data, as provided by the City of Ottawa, are summarized in **Table 2-1** below.

Table 2-1: Summary of Vehicle Classification (Daily)

Location	Date	% Cars, Light Trucks and Vans	% Heavy Vehicles, Buses
Huntmar Drive (North of Palladium Drive)	May 2007	98.9%	1.1%
Palladium Drive (West of Terry Fox Drive)	October 2017	99.3%	0.7%
Terry Fox Drive (North of Highway 417)	October 2017	99.3%	0.7%
Hazeldean Road (between Terry Fox and Huntmar)	October 2019	98.7%	1.3%

Source: City of Ottawa

2.1.6 Screenline Operations

The existing TRANS Screenline System does not adequately capture north-south travel demand within the Study Area. There is no existing screenline that crosses the existing Huntmar Drive corridor that would help inform the study of the potential need to provide additional road capacity between the growing communities and the Highway 417 corridor.

The two corridors considered within this assessment contribute to north-south capacity in the following:

- Huntmar Drive widening would increase auto capacity from Stittsville and Kanata south of the study area to the Highway 417 corridor while improving local access to existing commercial opportunities north of Highway 417; and
- The extension of Stittsville Main Street north to the future Robert Grant Avenue (North-South Arterial) would increase vehicle access from the Stittsville community to the Highway 417 corridor by providing a direct northerly connection.

Ultimately, auto traffic to the Highway 417 corridor would be funneled through the Palladium Drive/Robert Grant Avenue roundabout in some fashion. The considerations for a screenline analysis within the study area needs to scrutinize the available downstream capacity to ensure compatibility with the growth forecasts presented along Huntmar Drive and Stittsville Main Street

As shown in **Figure 2-7**, the nearby existing standard screenlines within the TRANS model environment include:

- SL 44 – Across Terry Fox Drive/Carp River which measures east-west travel east of the Study Area, with nearby stations at Richardson Side Road, Highway 417, Palladium Drive, and Maple Grove, Hazeldean Road and Fernbank Road; and
- SL 53 – which measures north-south travel north of the Highway 417 corridor, with nearby stations at Huntmar Drive, Terry Fox Drive, Kanata Road, Pedestrian Bridge, Campeau Drive, Bicycle Path and March Road.

The figure also illustrates two *Project Screenlines* that have been developed with the intention to capture north-south travel between Stittsville and Kanata through a series of existing arterial stations at Carp Road and Huntmar Drive. These project screenlines are comparable to those prepared for the Kanata West Concept Plan for ease of comparison.

Table 2-2 summarizes the existing vehicle trips crossing the *Project Screenlines* estimated from two sources, namely observed ground counts from the peak hour intersection turning movement counts and simulated values from the TRANS regional model (AM peak only).

A comparison between the two data sets indicates results that are diametrically opposed. The ground counts during the morning and afternoon peak hour suggest that both Huntmar Drive and Carp Road well exceed the established capacity of the respective facilities, while the regional model suggests there is significant capacity to spare. Through observations, knowledge of the study corridor and a review of the existing intersection capacity analysis, it is evident that both the Huntmar and Carp Road corridors operate with congested conditions. This observation alone could be sufficient to justify increasing auto capacity across the Project Screenline No.1, whether through the widening of Carp Road, widening of Huntmar Drive, or the extension of Robert Grant to the north.

Table 2-2: Existing Project Screenline Performance

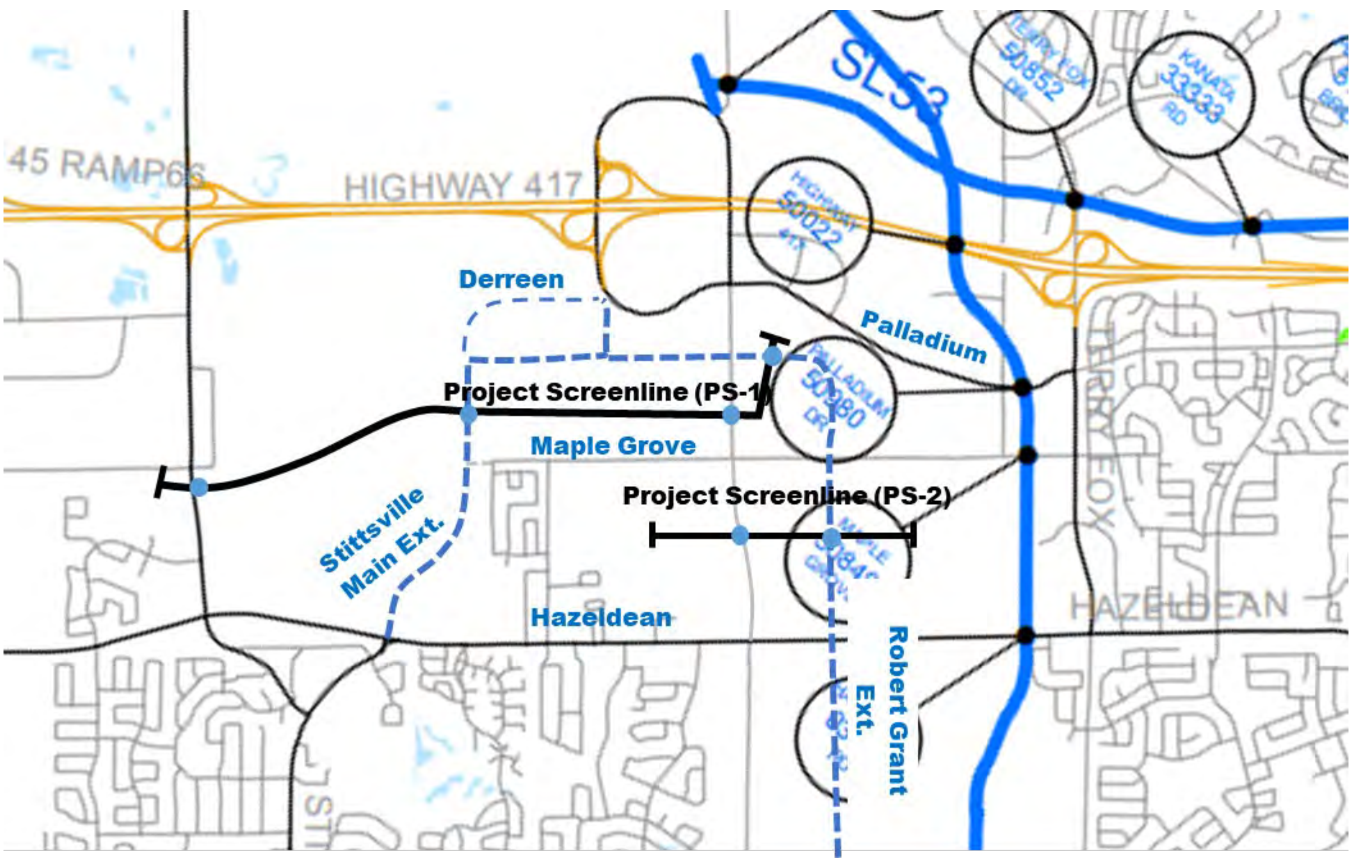
Screenline	Peak Directional Demand (veh/h) AM(PM)		Directional Capacity2 (veh/h) AM(PM)		v/c AM(PM)	
	PS-1	PS-2	PS-1	PS-2	PS-1	PS-2
Project (Observed) 1	1,863 (2,000)	620 (810)	1,600	800	1.16 (1.25)	0.77 (1.02)
Project (TRANS-2011)	600 (n/a)	300 (n/a)	1,600	800	0.38 (n/a)	0.38 (n/a)

Notes:

1. Observed volumes obtained from the Intersection Turning Movement Counts (City of Ottawa)

Directional capacities were obtained from the TRANS model; Huntmar and Carp: 800 veh/h;

Figure 2-7: Study Area Screenline



2.1.7 Travel Speeds

Speed survey data was gathered by the City of Ottawa for Huntmar Drive between Palladium Drive and Maple Grove Road, a 2-lane section of the corridor characterized by a rural cross-section and limited driveway accesses. The posted speed limit along this section of the corridor is 50 km/h.

The automatic speed survey was undertaken in September, 2018 on two separate days for both directions of traffic. A review of the study by speed range indicated:

- An average speed of 59.8 km/h (Sept. 10th) and 64.8 km/h (Sept. 11th);
- An 85th percentile travel speed of 70.6 km/h (Sept. 10th) and 73.2 km/h (Sept. 11th); and
- A 95th percentile travel speed of 75.6 km/h (Sept. 10th) and 78.2 km/h (Sept. 11th).

Based on the available data, there does appear to be a significant disconnect between the posted speed limit, the 85th percentile speeds and the average speeds within the surveyed segment of the corridor. This issue is likely attributed to the straightness of the corridor, the lack of access friction and the general lack of built up areas for the majority of Huntmar Drive.

2.1.8 Collision History

Collision history for Huntmar Drive, from Campeau Drive to Maple Grove Road, and for Stittsville Main Street from Hazeldean Road to Tony George Place (years 2015 to 2019, inclusive) was obtained from the City of Ottawa.

A total of 120 collisions were reported along Huntmar Drive. Most collisions (84%) involved property damage only, indicating low impact speeds with the remainder reported as “non-fatal”. The most common collision was found to be rear ends (43%), turning movements (17%) and angle (17%) collisions.

Three intersections were reviewed along Huntmar Drive:

- Huntmar/Campeau: 20 collisions were recorded at this intersection, which included 9 sideswipe collisions and 8 angle collisions. Since the Huntmar/Campeau roundabout was opened to traffic in late 2014, collisions of this nature are expected to be encountered in the first few years due to the unfamiliarity of drivers with the intersection configuration. As such, the number of collisions is not necessarily indicative of future trends at this intersection. The collision rate was found to be 0.88 collisions/million-vehicles-entering.
- Huntmar/Palladium: 47 collisions were recorded at this intersection, which were predominantly composed of rear-ends (18, 38%), turning movements (17, 34%) and sideswipes (7, 15%) collision types. The collision rate was found to be 1.26 collisions/million-vehicles-entering.

- Huntmar/Maple Grove: 22 collisions were recorded at this intersection, resulting in a collision rated of 0.88 collisions/million-vehicles-entering. The prevailing collision type was found to be rear-end collisions (13, 59%) of which half of these collisions occurred in the southbound lanes.

Stittsville Main Street had a total of 59 collisions reported over the 5-year period. The majority of which were found to occur at the Stittsville Main Street/Hazeldean Road intersection (51, 86%) while the remainder (14%) occurred north of the intersection. Of the 59 collisions reported, 47 (80%) of collisions were reported as property damage only, and no fatalities were reported. A single pedestrian collision was found to occur at the Stittsville Main Street/Hazeldean Road intersection. The most common collision types were found to be rear-ends (30, 59%) and turning movement related (14, 27%). Almost half of the rear-end collisions (13) were found to occur between a vehicle conducting a northbound right turn and a second vehicle following too close behind. The collision rate for the Stittsville Main/Hazeldean intersection was found to be 1.00 collisions/million-vehicles-entering.

2.1.9 Huntmar Drive Multi-Modal Level of Service

The multi-modal level of service was computed for the length of the existing Huntmar Drive corridor. The existing roadway's geometry consists of the following features:

- 2-to-4 vehicle travel lanes in each direction;
- More than 3,000 vehicles per day;
- Posted speed limit of 50 km/h, assumed operating speed of 50 to 60 km/h;
- 3.5 m wide centre lanes and 3.7 m wide curb lanes;
- No dedicated transit facilities; and
- No on-street parking.

The multi-modal level of service analysis for the road segment along Huntmar Drive adjacent to the site is summarized in **Table 2-3**. The following MMLOS targets for Huntmar Drive were adopted by segment location:

- North of the Highway 417 corridor, MMLOS targets are consistent with a mixed-use centre area designation;
- Between the Highway 417 and Palladium Drive, "Within 600m of a rapid transit station" was believed best to apply, given the long-term planning implications of the future LRT station at the Canadian Tire Centre; and
- South of Palladium Drive the presence of a school block at 300 Aquila and the Kanata West Academy result in a "within 300m of a school" MMLOS target.

Huntmar Drive is designated a spine bicycle route and an arterial roadway, resulting in target levels of service for pedestrians and cyclists of ‘C’. There are no transit priority plans for Huntmar Drive and as such there is no transit level of service target. Huntmar Drive does not form part of the truck route, and as such has a truck level of service target of TkLoS‘E’.

Table 2-3: MMLOS – Existing and Projected Huntmar Drive Segment (East Side of Roadway)

		Level of Service							
	Segment	Pedestrian (PLoS)		Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)	
		PLoS	Target	BLoS	Target	TLoS	Target	TkLoS	Target
EXISTING HUNTMAR DRIVE	N. of Hwy 417	**F**	C	**E**	C	D	No target	A	E
	S. of Hwy 417	**E**	A	**F**	C	D	No target	A	E
	S. of Palladium	**E**	A	A	C	D	No target	C	E

Inspection of **Table 2-3** indicated:

- Unsatisfactory PLOS across the entire segment, primarily due to the lack of boulevard, lack of sidewalk in some sections, and high operating speeds (60 km/h and over). To achieve the target PLOS “A” in the segments south of the Highway 417, a design intended to maintain operating speeds below 60 km/h would be prudent;
- Unsatisfactory BLOS across the majority of the segment, with exception of the segment south of Palladium Drive which provides a form of protected shoulder which could be seen as a protected pathway from the analysis perspective. However, cycling infrastructure would be required for the entirety of the corridor to afford improved travel in either direction; and,
- Satisfactory TLos and TkLos throughout the entirety of the corridor due to the ample lane width and the lack of transit LOS target.

2.1.10 Auto Intersection Capacity Operations

2.1.10.1 Capacity Analysis

Table 2-4 summarizes the existing traffic operations analysis at the study area intersections, assuming the morning and afternoon peak hours of travel demand. The table indicates the critical movement for each intersection, based on the volume-to-capacity ratio (signal-controlled) and delay (roundabouts). The intersections were also assessed ‘as a whole’ based on a weighted v/c ratio. The analysis of STOP-controlled and signal controlled intersection was undertaken using SYNCHRO (V10) traffic analysis software while roundabout intersections were analyzed using SIDRA™ Software.

Table 2-4: Existing (2020) Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
SIGNALIZED						
Huntmar/Cyclone Taylor	C(D)	0.72(0.89)	EBT(WBT)	21.8(26.8)	B(B)	0.67(0.66)
Huntmar/Palladium	A(A)	0.44(0.36)	NBT(SBT)	6.0(7.7)	A(A)	0.42(0.35)
Huntmar/Maple Grove	E(F)	0.92(1.02)	NBT(SBT)	36.0(46.4)	D(D)	0.86(0.89)
Stittsville Main/Hazeldean	C(E)	0.74(0.91)	EBT(WBL)	29.1(34.5)	B(B)	0.65(0.68)
ROUNDABOUT						
Huntmar/Campeau	B(B)	10.9(11.5)	SBL(WBL)	6.1(7.2)	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 2-4**, the majority of the intersections within the subject area are, ‘as a whole’, currently operating at an acceptable LoS ‘D’ or better during both peak hours.

Similarly, the majority of the ‘critical movements’ at study area intersections are currently operating at an acceptable LoS ‘D’ or better during both peak hours. However, the exceptions are the north and southbound through movements at the Huntmar/Maple Grove intersection which operate at an LoS ‘E’ and ‘F’ during the morning and afternoon peak hours, respectively. This intersection is anticipated to receive improvements to the auxiliary lane arrangement in the short term (as a separate project by the City of Ottawa) which will be reflected in future analysis scenarios.

2.2 Transportation Policies and Guidelines

The Official Plan (2022) as related to the project is described in **Section 3.1.2**.

2.2.1 Transportation Master Plan (2013)

Whereas the City is in the process of preparing a new Transportation Master Plan (TMP), the current 2013 TMP remains in effect. It supports the development goals and strategies outlined in the OP by identifying "…*transportation facilities and services that will meet the needs of residents and businesses".* The 2013 TMP is accompanied by corresponding Pedestrian and Cycling plans.

2.2.1.1 Walking and Cycling

Whereas the City is in the process of preparing a new active transportation plan, the current Ottawa Pedestrian Plan (OPP 2013) remains in effect. It recognizes the environmental, health, and social benefits of walking, identifying key implementation steps to meeting the goals set out in the TMP (2013). Although there is no specific mention of either Huntmar Drive or Stittsville Main Street in the OPP, it states that even outside of the urban core, "…*walking can be a convenient modal choice for internal community trips, such as traveling to transit stations, journeys to schools, and travel to shopping and community destinations".* As the Huntmar Drive corridor is directly adjacent to a planned major employment hub (see: Kanata West Concept Plan [2002]) and a planned rapid transit station (see: Kanata LRT EA Study [2018]), the Plan's recommendations for direct walking routes and comfortable walking facilities may be especially relevant.

The OPP specifically recommends that as part of road construction and reconstruction projects, pedestrian facilities be provided on both sides of arterial and collector roads in the Urban Area. A multi-use pathway in the ROW may be built in lieu of a sidewalk where appropriate.

Whereas the City is in the process of preparing a new active transportation plan, the Ottawa Cycling Plan (OCP 2013) remains in effect. Although the plan acknowledges that "…*relatively few residents living outside of the Greenbelt will choose cycling as their main commuting option to downtown*," it also shows that a significant number of AM trips in these areas do not cross the Greenbelt. Because of this, the plan states that suburban roads – local, collector or arterial – should be developed in a way which encourages active transportation, especially by providing safe and comfortable facilities.

The OCP recommends that arterials be designed so that cyclists are separated from traffic; where pedestrian activity is low, multi-use pathways may be effective. The network implementation plan specifically targets a multimodal strategy. It recommends that routes within the 15-minute "bike-shed" around rapid transit stations be made as comfortable as possible, to encourage "bike-and-ride" trips.

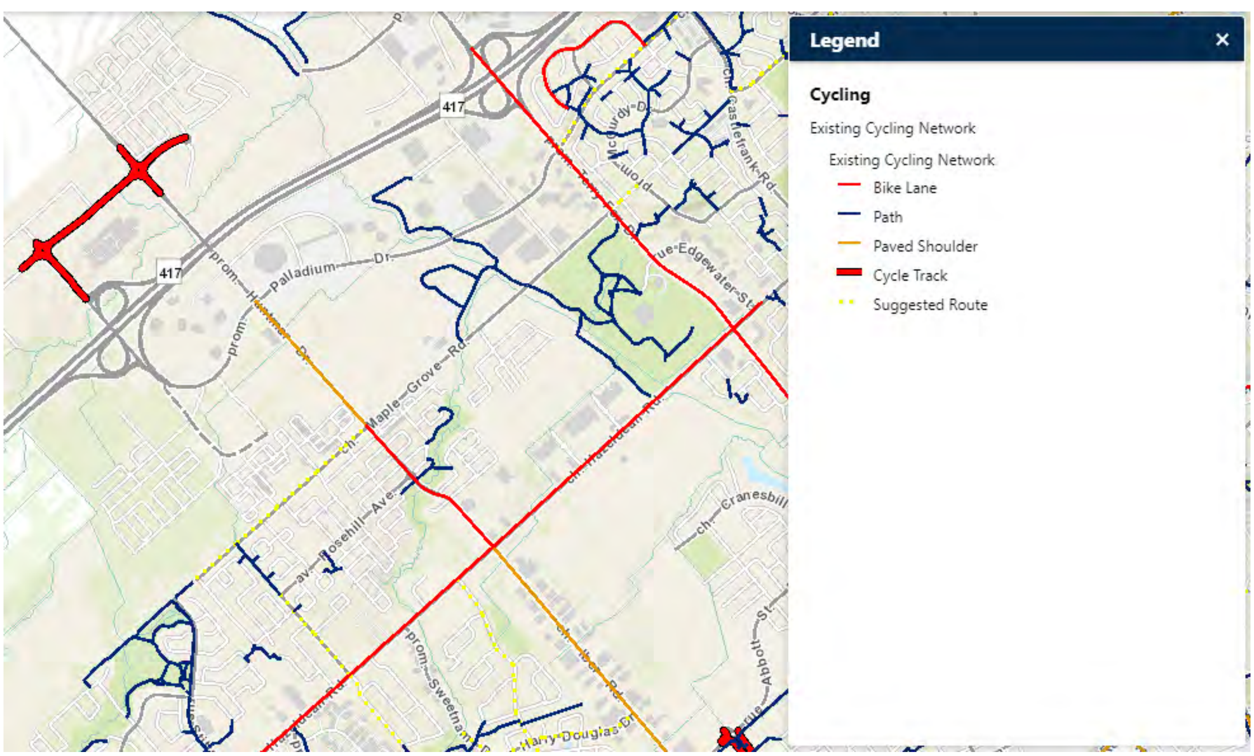
Cycle route designations are also defined by the OCP:

- *Spine Routes*: follow major roadways and may provide reserved space for cyclists, ideally cycle tracks or buffered bike lanes.
- *Local Routes*: provide access from residential streets and commercial areas to spine routes; typically, are on-road facilities, such as bike lanes.
- *Pathways*: provide long, continuous routes, or short connections between other parts of the network

Figure 2-8 shows the existing Study Area cycling network. **Figure 2-9** shows the ultimate cycling network for the greater Study Area. Some key elements include:

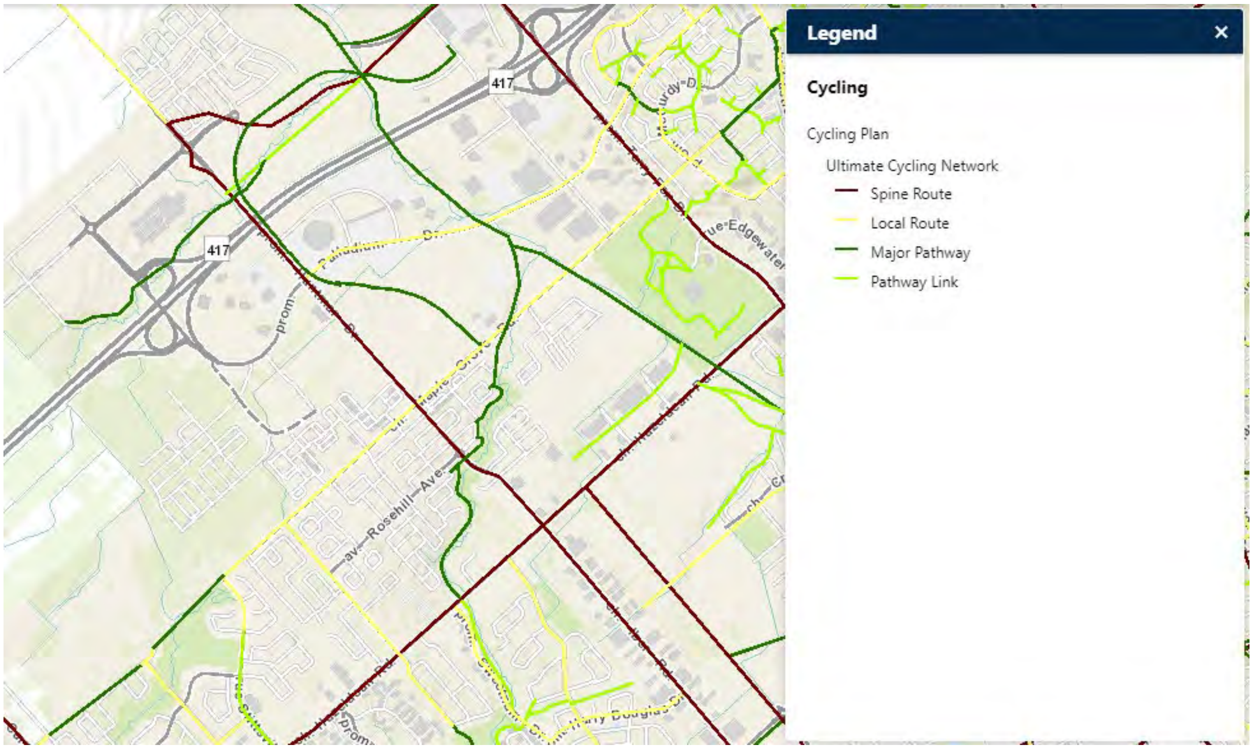
- Huntmar Drive is considered a "spine route", connecting to spine routes Hazeldean Road in the south and Campeau Drive in the north.
- "Major Pathways" in the Study Area include the multi-use pathway which will follow the eventual Kanata Light Rail Transit (LRT) alignment; and a multi-use pathway following the course of Feedmill Creek between Nipissing Crescent and the Kanata LRT pathway.
- Maple Grove Road and Palladium Drive are considered local routes.
- Stittsville Main Street south of Maple Grove Road is considered a local route; an extension is not featured in the ultimate cycling network concept plan.

Figure 2-8: Existing Study Area Cycling Network



Source: City of Ottawa (geoottawa)

Figure 2-9: Study Area Ultimate Cycling Network



Source: City of Ottawa (geoottawa)

Figure 2-10 provides an indication of the existing/targeted walking and cycling mode shares for various travel markets in the City of Ottawa. This shows that the combined active-transportation, morning-peak mode share for the Kanata/Stittsville sub-area was 23% as of 2011 (22% walking and 1% cycling). The overall target mode share for 2031 is 27%, a 1% increase in walking and a 3% increase in cycling.

Figure 2-10: Transportation Master Plan – AM Peak Walking and Cycling Modal Shares (2011 Observed and 2031 Targets)

Mode	Mode shares for 2011 (top) and 2031 (bottom)					
	Inner Area	Inner Suburbs	Orléans	Riverside South/Leitrim	Barr-haven	Kanata/ Stittsville
Walking	51% 52%	14% 16%	19% 20%	18% 21%	23% 24%	22% 23%
Cycling	8% 12%	3% 6%	2% 3%	0% 3%	2% 4%	1% 4%
Total	***59%*** ***64%***	***17%*** ***22%***	***21%*** ***23%***	***18%*** ***24%***	***25%*** ***28%***	***23%*** ***27%***

Source: City of Ottawa Transportation Master Plan (2013)

2.2.1.2 Transit

Figure 2-11 provides an indication of the existing/targeted transit mode shares for various travel markets in the City of Ottawa. This shows that the overall transit mode share for trips originating in the Kanata/Stittsville sub-area was 15% in 2011 and is targeted to be 21% by 2031. The highest transit mode share for AM peak trips originating in Kanata/Stittsville is in trips destined for the Inner Area, at 53%/56%. For trips staying within Kanata/Stittsville, the existing mode share is 5%, with a 2031 target of 10%. Projected increases reflect planned improvements to area rapid-transit, including the new Kanata-North Transitway BRT.

Figure 2-12 depicts the City's 2031 affordable rapid transit/priority transit network plan. **Figure 2-13** depicts the City's ultimate rapid transit/transit priority network plan. With regard to planned area transit improvements, the affordable rapid transit/transit priority network concept depicted in the City's TMP includes:

- an extension of the existing O-Train light rail transit (LRT) system to the existing Bayshore Transitway Bus Rapid Transit (BRT) station[1]
- new grade separated Transitway BRT segments between Bayshore Station and west of Moodie Drive; and between March Road and Terry Fox Station
- new bus transit stations at Moodie Drive, Eagleson Road, Kanata Town Centre, and Terry Fox Drive
- new at-grade BRT corridor following March Road, connecting the western Transitway extension to the Kanata North employment node.
- transit signal priority and queue jump lanes at select intersections on Hazeldean Road between Stittsville Main Street and Eagleson Road
- transit signal priority and queue jump lanes at select intersections on a new North-South arterial between Palladium Road and Fernbank Road

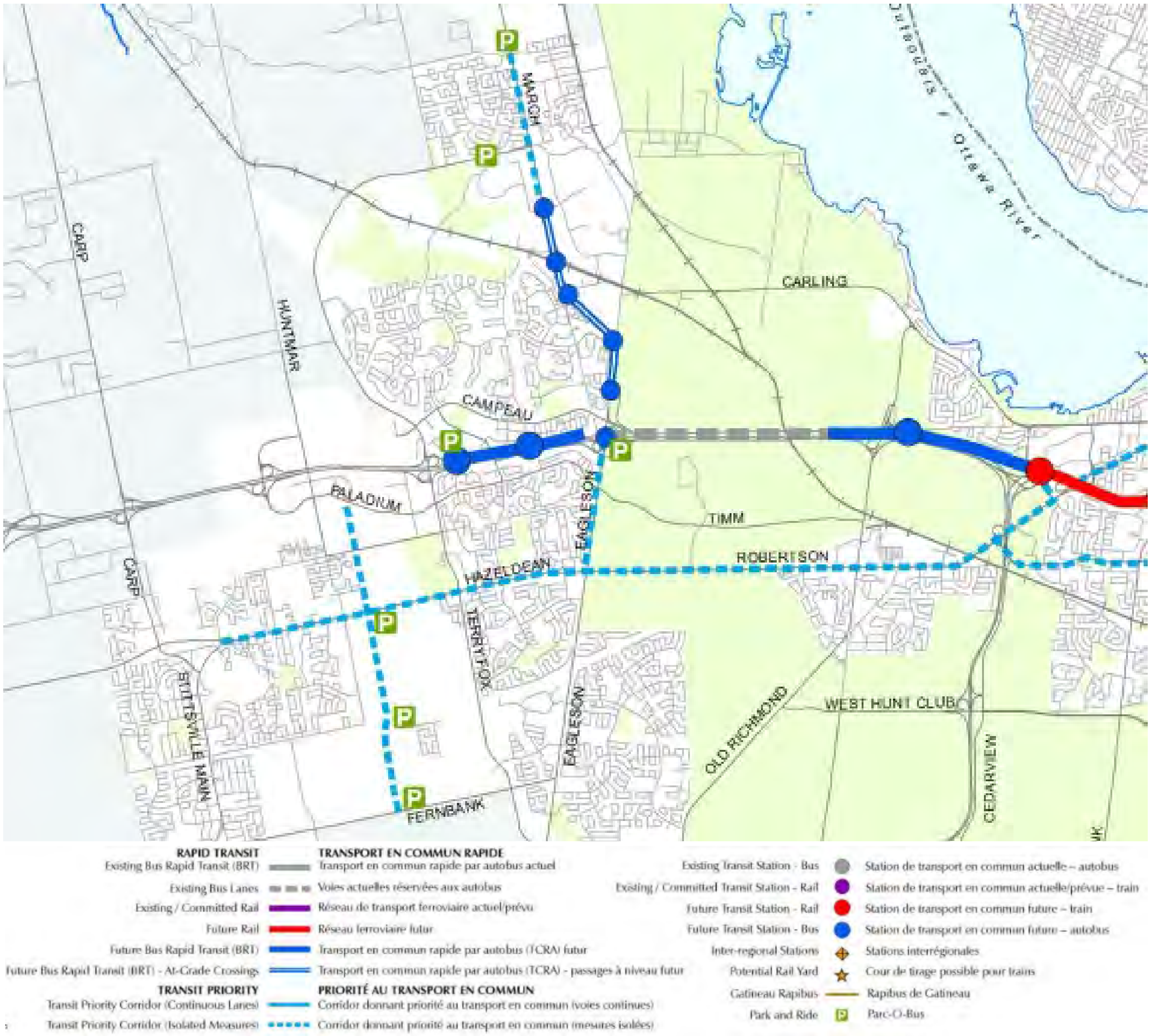
[1] As of the approval by Council of the *Stage 2 Light Rail Transit Project and Procurement Update* on September 13, 2017, the O-train LRT will be extended an additional 2.5 kilometers to a new Moodie Station as well as a Light Maintenance and Storage Facility (LMSF) located between Corkstown Road and Highway 417, west of Moodie Drive.

Figure 2-11: Transportation Master Plan – AM Peak Transit Modal Shares (2011 Observed and 2031 Targets)

Mode shares for 2011 (top) and 2031 (bottom)									
Trips to / Trips from	Inner Area	Inner Suburbs	Orléans	Riverside South/ Leitrim	Barr-haven	Kanata/ Stittsville	Rural Ottawa	Gatineau	*All areas*
Inner Area	15% 20%	28% 35%	28% 30%	9% 15%	5% 15%	31% 35%	1% 2%	29% 32%	***20%*** ***22%***
Inner Suburbs	49% 54%	16% 22%	12% 16%	5% 18%	8% 12%	13% 15%	1% 2%	30% 33%	***24%*** ***28%***
Orléans	61% 65%	19% 22%	8% 11%	4% 7%	10% 12%	6% 7%	0% 0%	27% 30%	***24%*** ***26%***
Riverside South/Leitrim	36% 40%	7% 16%	0% 2%	0% 10%	0% 10%	0% 5%	0% 2%	0% 13%	***9%*** ***16%***
Barrhaven	62% 70%	16% 20%	5% 7%	0% 5%	5% 10%	1% 6%	0% 2%	53% 55%	***20%*** ***26%***
Kanata/ Stittsville	53% 56%	12% 20%	6% 6%	0% 4%	3% 4%	5% 10%	2% 2%	36% 40%	***15%*** ***21%***
Rural Ottawa	31% 39%	4% 8%	3% 10%	0% 2%	2% 3%	1% 3%	1% 1%	7% 8%	***6%*** ***11%***
Gatineau	47% 50%	13% 14%	0% 7%	0% 3%	0% 5%	3% 7%	0% 1%	-	***32%*** ***33%***
All areas	***42%*** ***44%***	***16%*** ***21%***	***9%*** ***13%***	***2%*** ***9%***	***6%*** ***11%***	***6%*** ***11%***	***1%*** ***2%***	***31%*** ***32%***	***22%*** ***26%***

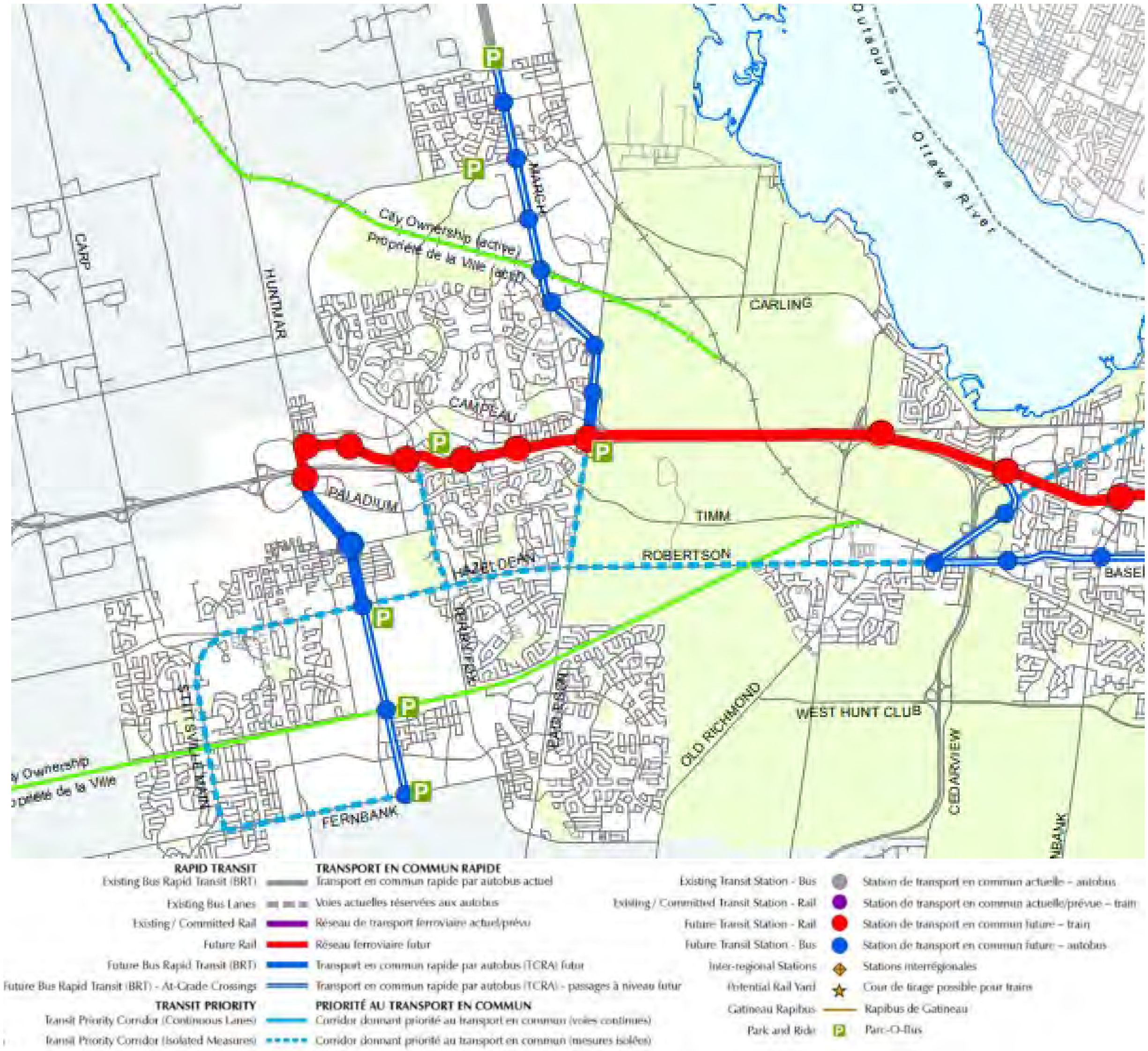
Source: City of Ottawa Transportation Master Plan (2013)

Figure 2-12: Transportation Master Plan – 2031 Affordable Rapid Transit & Transit Priority Network



Source: City of Ottawa Transportation Master Plan (2013)

Figure 2-13: Transportation Master Plan – 2031 Ultimate Rapid Transit & Transit Priority Network



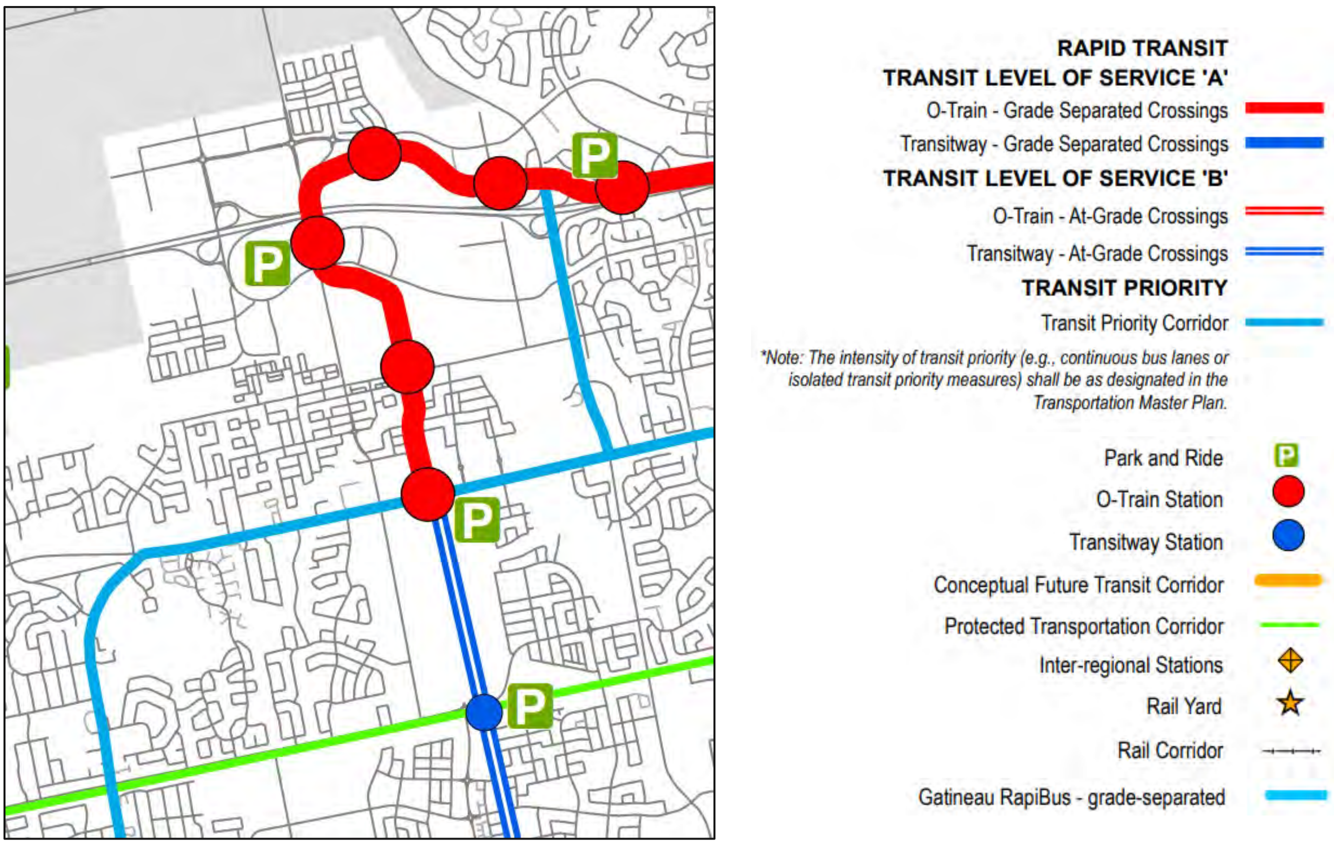
Source: City of Ottawa Transportation Master Plan (2013)

The ultimate rapid transit network depicted by the 2013 TMP has since been superseded by the ultimate network depicted in the New Official Plan (City of Ottawa, 2022), which is shown by **Figure 2-14**. In respect to planned Study Area transit improvements, the affordable rapid transit/transit priority network concept depicted in the NOP includes:

- An extension of the Grade Separated O-Train system west through Kanata north of Highway 417 to Kanata Centrum, then crossing Highway 417 to proceed south adjacent to Huntmar Drive, terminating at Hazeldean Road.
- O-Train Stations at Kanata Centrum, the Huntmar and Palladium intersection adjacent to the CTC, Maple Grove Road, and Hazeldean Road.

- An at-grade Transitway BRT extending south from the terminus of the future O-train extension at Hazeldean Road.
- Park and Ride facilities at the proposed Palladium and Hazeldean O-Train stations.
- Transit Priority Corridors on Hazeldean Road and Terry Fox between Hazeldean and Campeau (note that the extent/intensity of transit priority measures will be determined by the future City of Ottawa TMP update).

Figure 2-14: City of Ottawa New Official Plan - Ultimate Transit Network (Schedule C2)



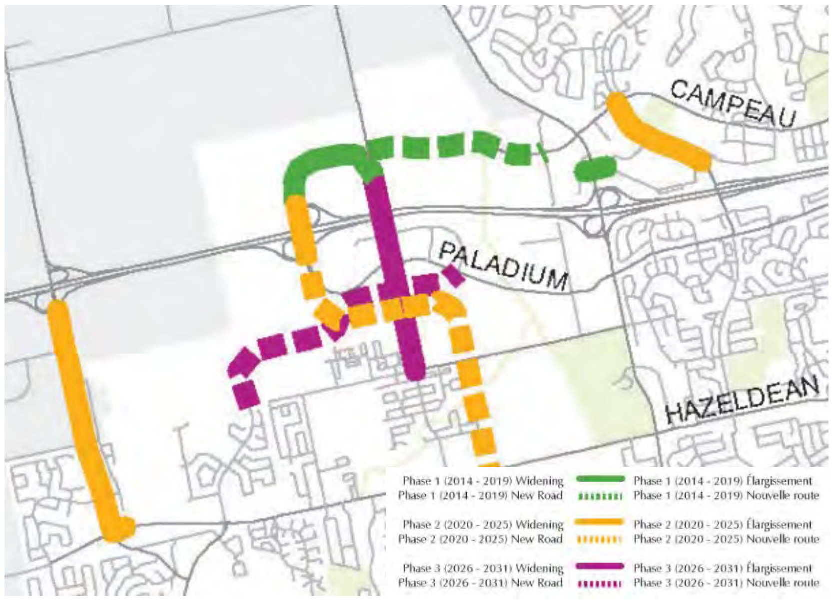
2.2.1.3 Road Network

Figure 2-15 depicts the City's 2031 affordable road network, and **Figure 2-16** depicts the City's 2031 road network concept plan for the broader Study Area. Of interest in these figures is the widening of Huntmar Drive (designated in the 2031 concept plan as a "widened arterial"); the construction of a new collector road (Stittsville Main Street); and the construction of a new north-south arterial which will intersect both. The construction of the north-south arterial is scheduled for Phase 2 (2020-2025) in the affordable road network plan, while both the Stittsville Main Street extension and Huntmar Drive reconstruction are designated as Phase III projects (2026-2031).

The project rationale and relevant details identified in Table A3 of the TMP include:

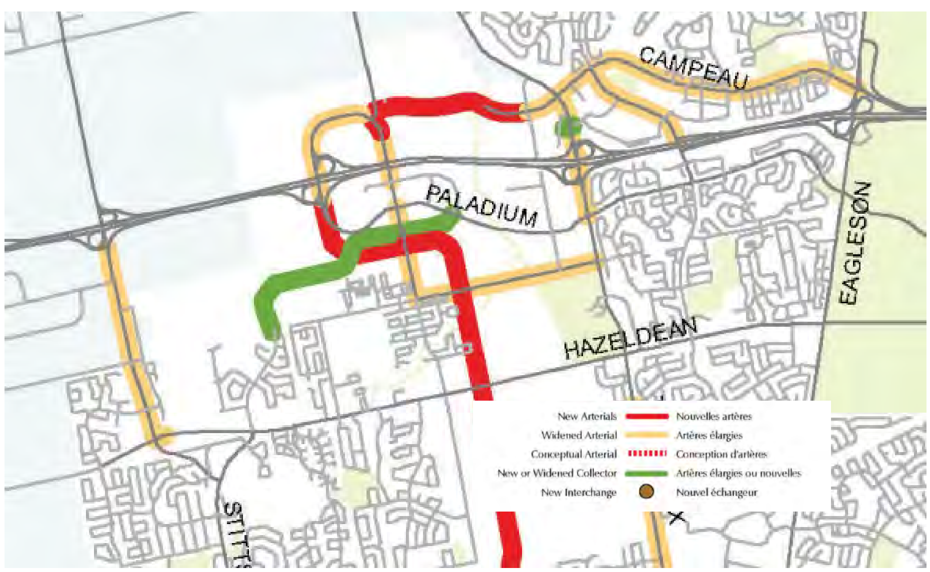
- *Huntmar Drive* – widen from two to four lanes between Campeau Drive extension to Cyclone Taylor Boulevard; widen from two to four lanes between Palladium Drive to Maple Grove Road; *accommodates Kanata West development.*
- Stittsville Main Street Extension – construct a new two-lane road between Palladium Drive and Maple Grove Road; provides capacity for development in Stittsville.

Figure 2-15: Transportation Master Plan – 2031 Affordable Network (Map 11)



Source: City of Ottawa Transportation Master Plan (2013)

Figure 2-16: Transportation Master Plan – 2031 Network Concept (Map 10)



Source: City of Ottawa Transportation Master Plan (2013)

Other relevant, planned area roadway improvements identified as City projects in the current TMP include:

- Campeau Drive (*Phase 1*) – New four-lane road between Didsbury Road and Huntmar Drive[2].
- Stittsville North South Arterial (*Phase 1*) – New two-lane road between Fernbank Road and Abbott Street.
- Palladium Drive Realignment (*Phase 1*) – Realign in vicinity of Huntmar Drive to new north-south arterial.
- Earl Grey Drive Underpass (*Phase 1*) – New underpass of Terry Fox Drive.
- Carp Road (*Phase 2*) – Widen from two to four lanes between Highway 417 and Hazeldean Road.
- Kanata Avenue (*Phase 2*) – Widen from two to four lanes between Highway 417 and Campeau Drive.
- Stittsville North South Arterial (*Phase 2*) – New four-lane road between Palladium Drive (at Huntmar) and Abbott Street.

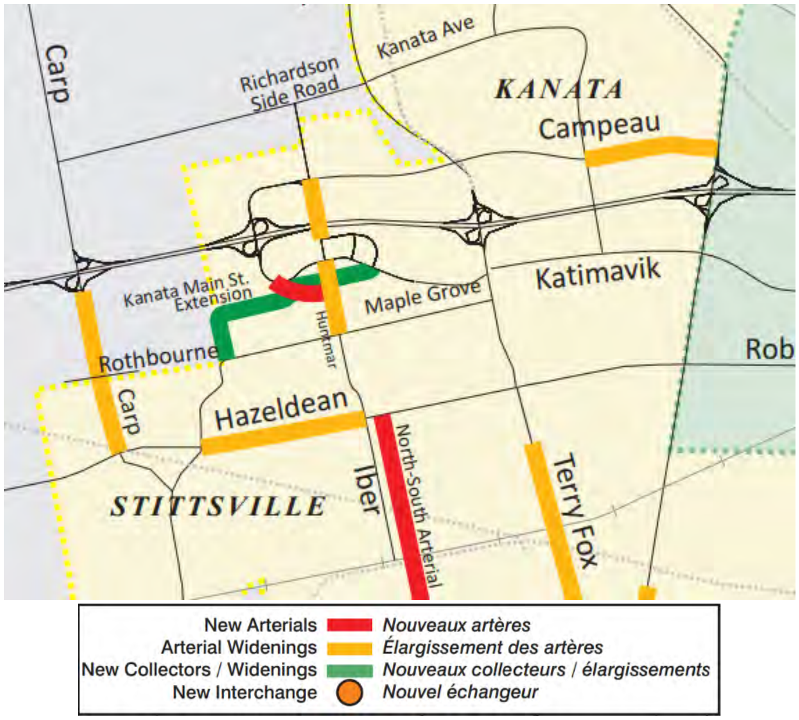
Of note in the rationale provided by the TMP is that many of the transportation network improvements listed above are meant to provide the necessary road capacity to accommodate planned growth in the Kanata West and Stittsville areas.

Justification for both the Huntmar Drive widening and Stittsville Main Street extension was also present in the approved 2008 TMP (see **Figure 2-17**). The projects as identified in the 2008 TMP were as follows:

- *Huntmar Drive* – Widen from two to four lanes from Campeau Drive extension to Cyclone Taylor Boulevard; *accommodates Kanata West development.*
- Kanata West Main Street - New two-lane road from Palladium Drive to Maple Grove Road; provides capacity for development in Kanata West.

[2] Note that this project was completed / opened to public this year.

Figure 2-17: 2008 Transportation Master Plan – Urban Road Network Implementation Plan, Phase 2 (Map 10b)



Source: City of Ottawa Transportation Master Plan (2008)

The 2013 TMP is supplemented by the *Road Network Development Report (IBI Group, 2013)*, which identifies prioritization, affordability, and phasing of the various road projects identified in the TMP. **Table 2-5** summarizes the prioritization criteria outlined in this report. **Table 2-6** provides a breakdown of how the Huntmar Drive and Stittsville Main Street projects were scored with respect to these five criteria.

The scoring reveals that the three major contributing factors to the justification of the Huntmar Drive widening was the access it would provide to new development, the network gaps it would address, and the project’s cost effectiveness (3 points in each category). The same was true of the Stittsville Main Street extension, except that the project was considered less cost effective but more supportive of non-motorized and transit infrastructure. With updates to the planned rapid transit network, such as the extension of the O-train rail transit network to a proposed station at Huntmar Drive and Palladium Road, these scores may require reconsideration.

Table 2-5: 2013 Transportation Master Plan – Prioritization/Scoring Criteria

Criteria	Description	Maximum Points Allocated
Provides Access to New Development	The degree to which the project makes lands accessible for new development	**4**
Manages Congestion	The degree to which the project alleviates congestion on the roadway or on adjacent roadways	**4**
Cost Effectiveness	The ratio of capital cost to vehicle-kilometers travelled. The lower the ratio, the higher the score	**4**
Addresses Network Gaps	Improves connectivity that, in turn, reduces pressures on existing neighbourhoods	**4**
Supports Non-Motorized and Transit Infrastructure	Whether the project will improve the operating environment for transit, cyclists, and pedestrians	**4**
	TOTAL	**20**

Source: Road Network Development Report (IBI Group, 2013)

Table 2-6: 2013 Transportation Master Plan – Prioritization/Scoring

Project	Provides Access to New Development	Relieves Congestion	Cost Effectiveness	Addresses Network Gaps	Supports Non-motorized and Transit Infrastructure	Overall Score	Anticipated Overall Cost (million $)
Huntmar Drive	3	2	3	3	2	**13**	56.00
Kanata West (Stittsville) Main Street	3	2	2	3	3	**13**	14.88

Source: Road Network Development Report (IBI Group, 2013)

The following summarizes the findings for the two corridors:

- *Huntmar Drive* (1.50km between Campeau Drive and Maple Grove Road): widen undivided two-lane rural arterial to a divided four-lane urban arterial; estimated cost $56.00M; project score 13 out of a max 20 points; assigned Phase 3 (2026-2031).

- *Kanata West (Stittsville) Main Street* (2.00km between Palladium Drive and Maple Grove Road; new undivided two-lane urban road; estimated overall cost $14.88M; project score 13 out of a max 20 points; assigned Phase 3 (2026-2031).

2.2.1.4 Multi-Modal Level of Service Guidelines

The Multi-Modal Level of Service (MMLOS) Guidelines (*IBI Group,* 2015) were used to identify the relevant minimal desirable MMLOS for the Study Area, summarized in **Table 2-7** below. The target MMLOS for each mode and roadway class is determined by the land use designation. Modes of travel analyzed include pedestrians (PLOS), bicycles (BLOS), transit (TLOS), trucks (TrLOS) and autos (LOS).

Table 2-7: Study Area – Relevant Minimum Desirable MMLOS Targets

		General Urban Area		Mixed Use Centre		All Other	
MMLOS	**Designations**	**Arterial**	**Collector**	**Arterial**	**Collector**	**Arterial**	**Collector**
PLOS	-	C	C	C	C	D	D
BLOS	Spine Route	C	C	C	B	C	C
	Local Route	B	B	B	B	C	C
TRLOS	Truck Route	D	D	D	D	D	D
	Other	E	No Target	E	No Target	No Target	No Target
LOS	-	D	D	D	D	D	D

Source: Multi-Modal Level of Service (MMLOS) Guidelines (IBI Group, 2015)

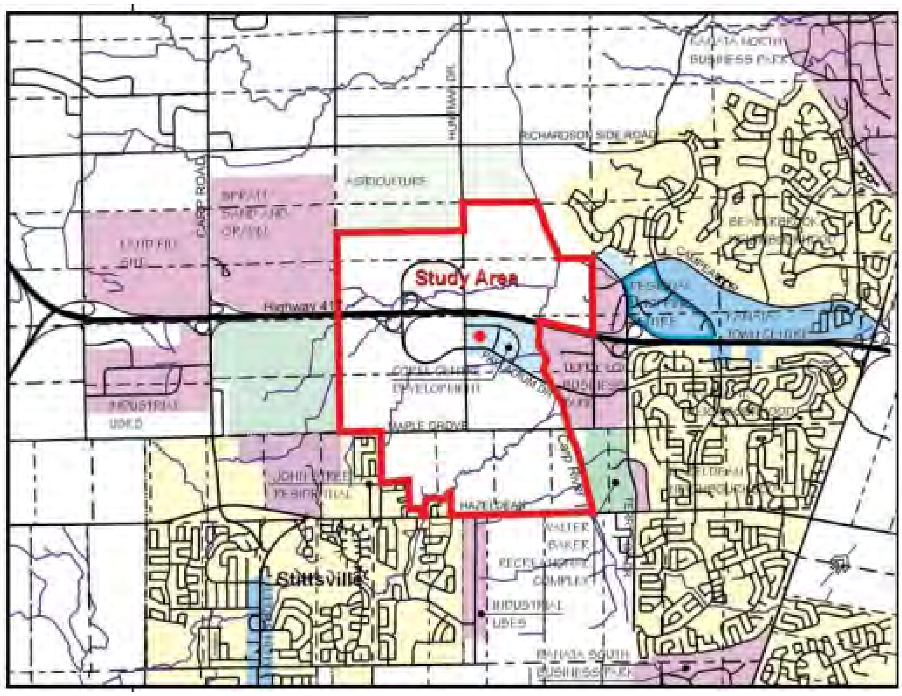
2.2.2 Updates to the City of Ottawa Transportation Master Plan

The City of Ottawa also launched a process to update its Transportation Master Plan – and associated active transportation plans – in June 2019, with completion expected in 2024. This process is in Phase Three of public engagement; before the beginning of Phase Four in Spring 2023, it is expected that the TMP policies and active transportation projects will have been approved by the Transportation Committee and City Council.

2.2.3 Kanata West Concept Plan (2002).

The Kanata West Concept Plan (KWCP) was created in 2002 to guide the development of an area straddling Highway 417 - centered on what is now the Canadian Tire Centre and its surrounding developments - known as Kanata West. The 725-hectare KWCP Study Area (**Figure 2-18**) includes both the Huntmar Drive and Stittsville Main Street extension corridors.

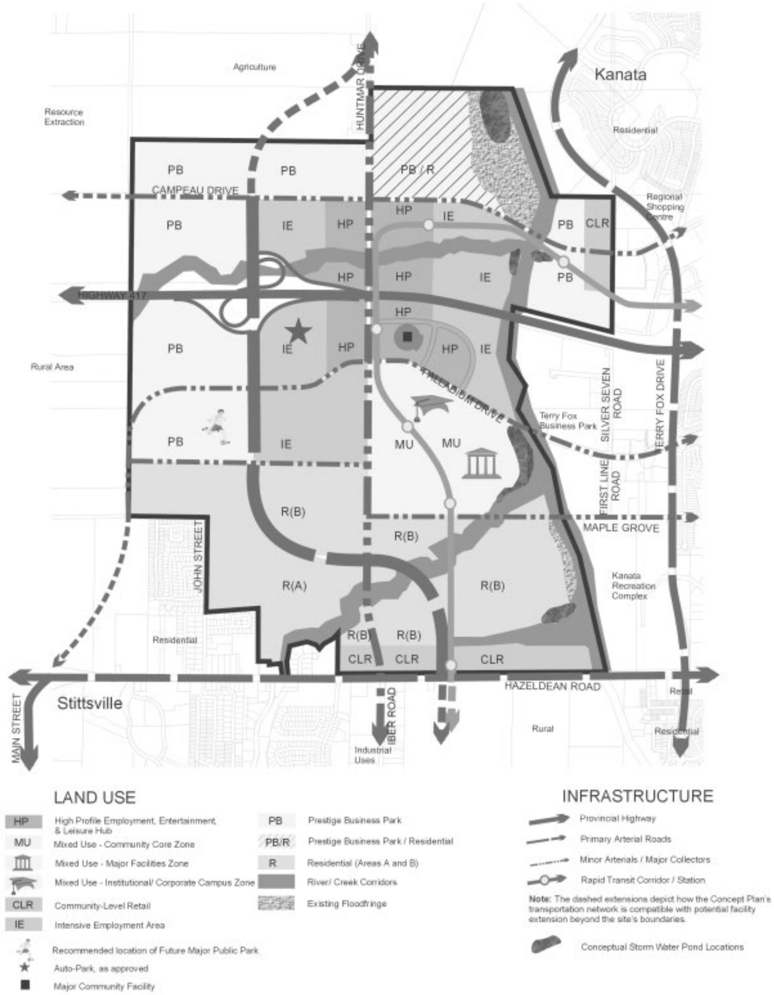
Figure 2-18: Overview of KWCP Study Area and Surrounding Land Uses



Source: Kanata West Concept Plan (2002)

The Canadian Tire Centre and Palladium interchange were identified for increased economic development by updates to the Regional Official Plan in 1997. The ensuing economic study recommended a mixed high-tech and entertainment employment centre to replace what was predominantly agricultural uses at the time. The area was officially brought within the City of Ottawa's urban boundary in October 2000 by Regional Official Plan Amendment #9. The vision for the development of the area was refined by the 2002 KWCP, which called for the creation of a sustainable, mixed-use community and the addition of 25,000 new jobs and 5,000 residential units. An overview of the land use plan proposed by the KWCP is shown in : Kanata West Concept– Land Use Plan **Figure 2-19**.

Figure 2-19: Kanata West Concept– Land Use Plan



Source: Kanata West Concept Plan (2002)

The KWCP outlines a conceptual road network needed to service the proposed development. As shown in **Figure 2-19**, Huntmar Drive was designated as a Major Collector, expected to carry ~900 veh/hour in both directions during the PM Peak. Stittsville Main Street was expected to act as a gateway to the development on either side of the N-S Arterial and was designated as a Minor Collector with a projected PM Peak volume of ~400 veh/hour. At the time, “Main Street” was proposed to be a retail-oriented boulevard with a treed central median.

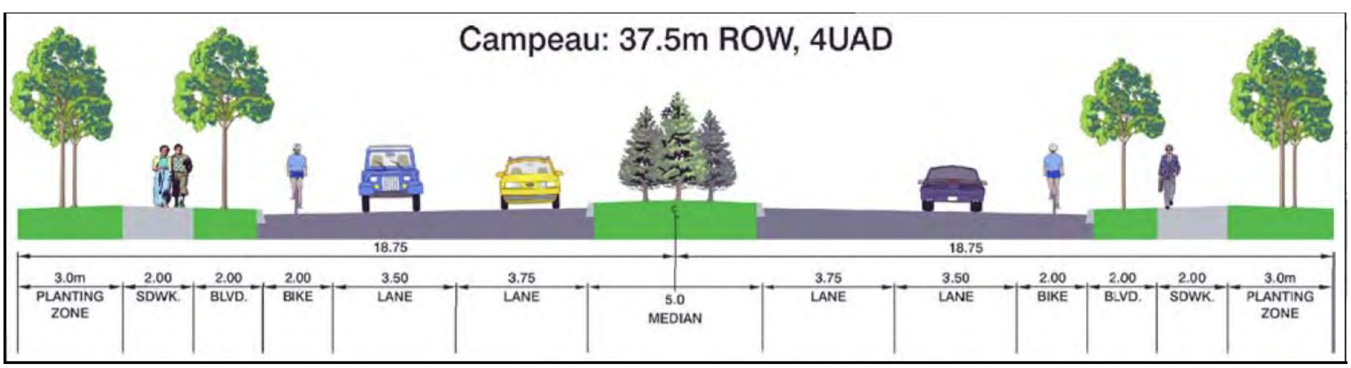
2.2.3.1 Kanata West Transportation Master Plan (2006)

The Kanata West Transportation Master Plan (KWTMP) was a Class Environmental Assessment (EA) Study completed in 2006 for the major road network identified in the KWCP (2002). The set of preferred alternative road links identified by the TMP, to be carried forward to the next phase of the EA process, included:

- The extension of Campeau Drive as a four-lane divided arterial from Didsbury Road west to the existing Palladium Drive;
- The widening of existing Maple Grove Road from two to four lanes between Terry Fox Drive and Huntmar Drive with the section between Terry Fox Drive and the North-South Arterial to be a four-lane divided arterial and the section from the North-South Arterial to Huntmar Drive to be undivided;
- The widening of existing Huntmar Drive from Palladium Drive to Maple Grove Road as a four-lane divided arterial;
- The extension of Huntmar Drive from Maple Grove Road to Hazeldean Road as a four-lane divided arterial;
- The construction of the North-South Arterial as a four-lane divided arterial from Palladium Drive to Hazeldean Road; and
- The relocation of Maple Grove Road west of Huntmar Drive as a two-lane major collector roadway.

Huntmar Drive is recommended by the KWTMP to be extended as a four-lane cross-section south from Palladium Drive. The proposed 37.5m cross-section (which was to be the same as for Campeau Drive) is shown by **Figure 2-20**, and was to contain 2m sidewalks and a planted boulevard on both sides, painted bike lanes, a wide planted median, and two 3.5/3.75m travel lanes in either direction, with an assumed design speed of 70 kph. South of the intersection with the future N-S arterial (Robert Grant Ave.), Huntmar was recommended to proceed as an undivided 4-lane road to Maple Grove Road. The intersections with Palladium, the Stittsville Main extension, Robert Grant, and Maple Grove were all recommended by the TMP to be signalized intersections.

Figure 2-20: Kanata West TMP - Proposed Campeau/Huntmar Cross-Section (South of Palladium Drive)



The Stittsville Main Street extension – also referred to in the KWTMP as the “Relocated Maple Grove Road” – between the Jackson Trails Subdivision and the future North-South Arterial (Robert Grant Ave.) was intended to be a collector road with a recommended ROW between

20m to 24m containing 11.0m of pavement. The intersection with Robert Grant was intended to be signalized; an intersection with the existing Derreen Ave. was not envisioned at this time, meaning that the preferred alignment for the road swung widely between its east-west and north-south segments.

Some conclusions from the KWTMP relevant to the current ESR process include that:

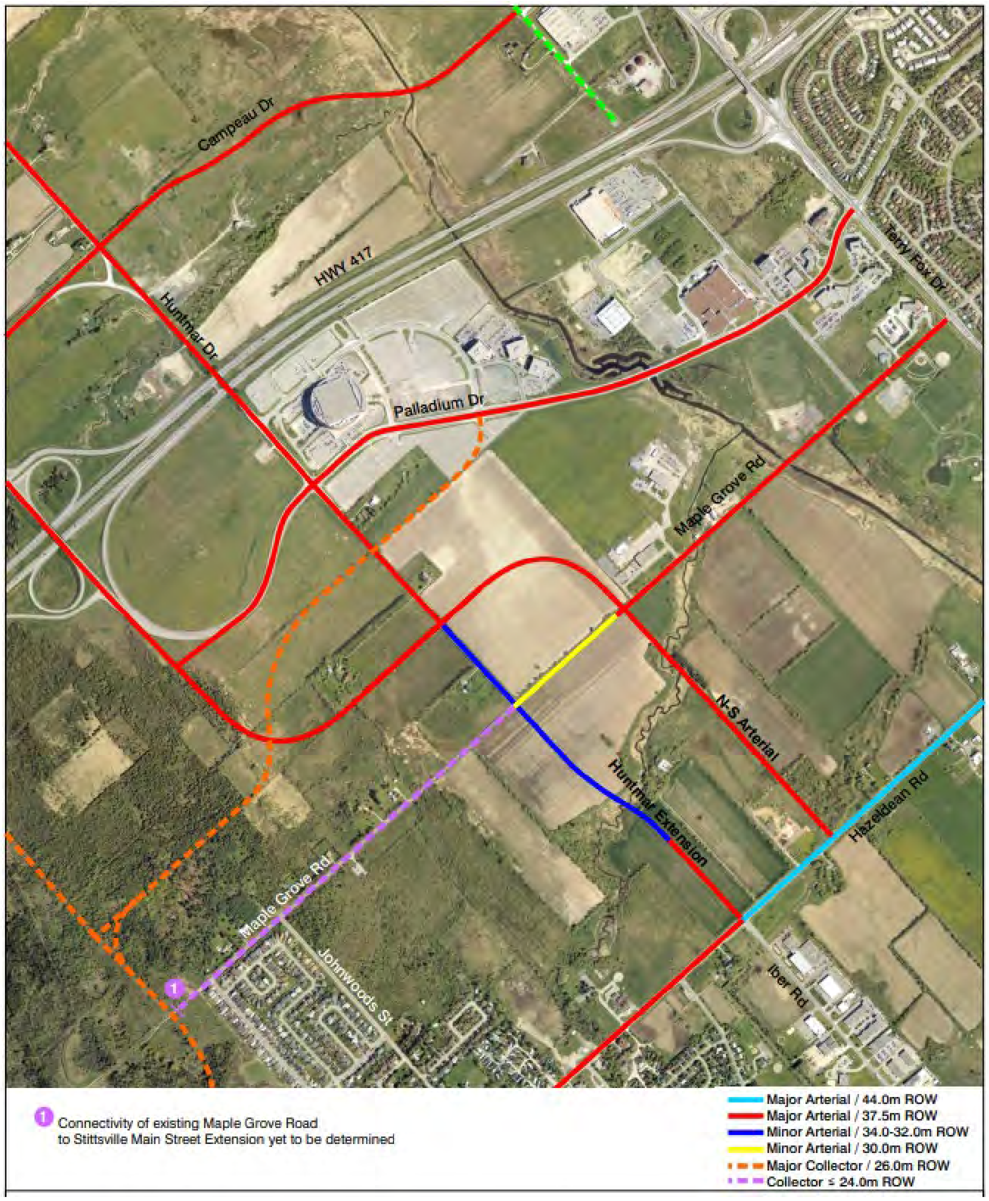
- The planned upgrading of Highway 417 to eight lanes will minimize the amount of additional arterial and major collector road infrastructure required to service the KWDA by 2021.
- The four-laning of Huntmar Drive north of Cyclone Taylor Boulevard, including the four-laning of the Highway 417 overpass, is not warranted prior to 2021, but a 37.5m ROW should be protected for this future widening.
- The early implementation of the Huntmar Drive Extension linking Iber Road to the Palladium Drive Interchange is expected to reduce traffic volumes on Main Street within the Village of Stittsville.

Additionally, the KWTMP outlines a conceptual alignment for a Rapid Transit Corridor west of Kanata Centrum, although it acknowledges the need for a separate EA process to evaluate this further. The conceptual Rapid Transit Corridor was envisioned to exist in an exclusive ROW with at least three stations in the KWDA and contribute to an overall transit modal split of 30% in the PM peak by 2021.

2.2.3.2 Kanata West Development Area Road Network Implementation Priorities (2007)

The Road Network Implementation Plan (RNIP) for the Kanata West Development Area (KWDA) was created in 2007 as a response to the increasing transportation pressures created by accelerated levels of development in the area. The plan outlines priorities for the implementation of transportation projects which support the land use patterns proposed by the KWDA Concept Plan (2003).

Figure 2-21: Proposed Kanata West Road Network and Rights of Way (2007)



Source: Kanata West Development Area Road Network Implementation Priorities (Delcan, 2007)

The full network recommended by the Implementation Priorities study to serve the full development proposed by the Kanata West Concept Plan includes several relevant projects.

- *Huntmar Drive*: widened from 2 to 4 lanes south of Palladium Drive to Maple Grove Road and to be extended south from Maple Grove Road to Hazeldean Road at Iber Road as a 2/4 lane minor arterial (expected completion by 2011)
- *The North-South Arterial*: a new 4-lane divided arterial extending from the Palladium Drive Interchange south to Hazeldean Road (expected completion unknown)

- *Palladium Drive Realignments*: widening from 2 to 4 lanes north of Highway 417; realigned to meet the N-S Arterial at a T-intersection (expected completion unknown)

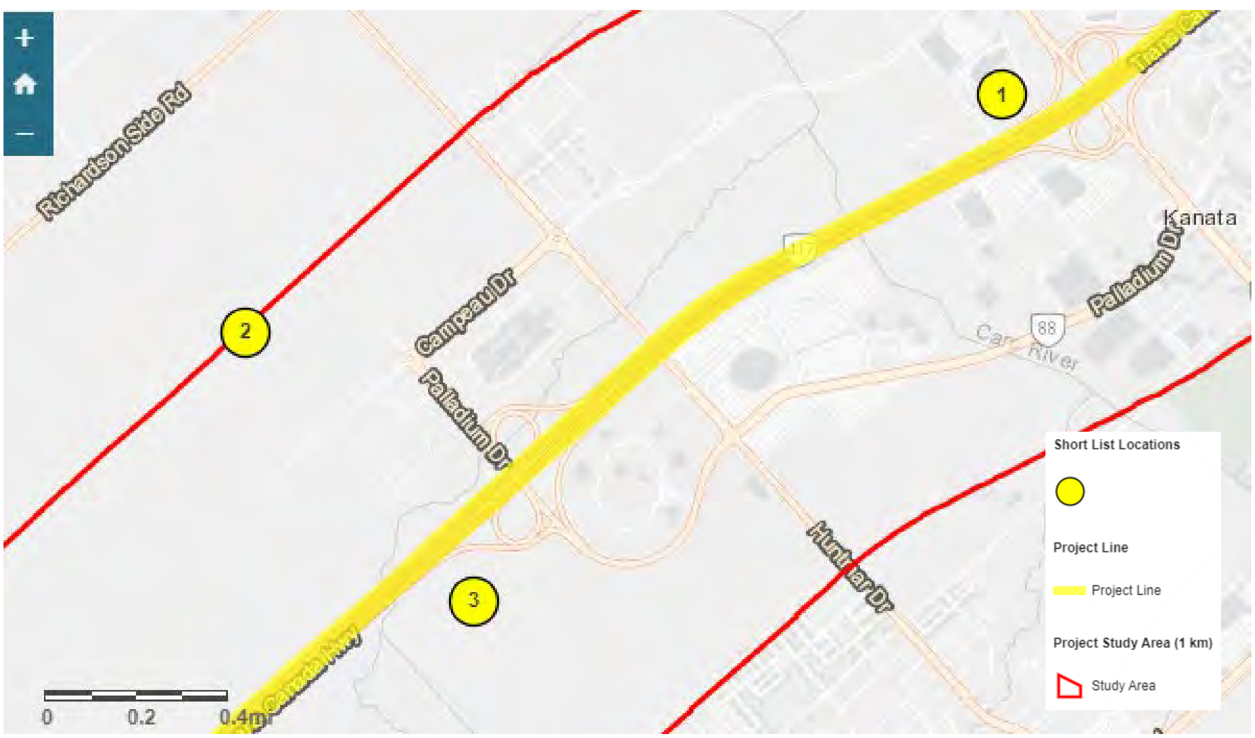
Although the Stittsville Main Street extension is shown in the ultimate road network for the Kanata West area (see: **Figure 2-21**) as a future Major Collector, it is not discussed in the Implementation Priorities study.

2.2.4 Related Planning Studies

2.2.4.1 MTO Site Selection, Preliminary Design and Class Environmental Assessment Study for Ottawa Highway Maintenance Patrol Yard

The Ministry of Transportation (MTO) is completing a Class Environmental Assessment (EA) study to select a new highway maintenance patrol yard. The EA has not been completed yet. The study area, shown in **Figure 2-22** below, contains both Huntmar Drive and the Stittsville Main Street extension corridor. Three short-list locations for the patrol yard are within two kilometers of either Huntmar Drive or Stittsville Main Street, however none of the proposed facilities will abut either road.

Figure 2-22: MTO Site Selection Study Area, Short-List Locations



2.2.4.2 Kanata LRT EA Study (2018)

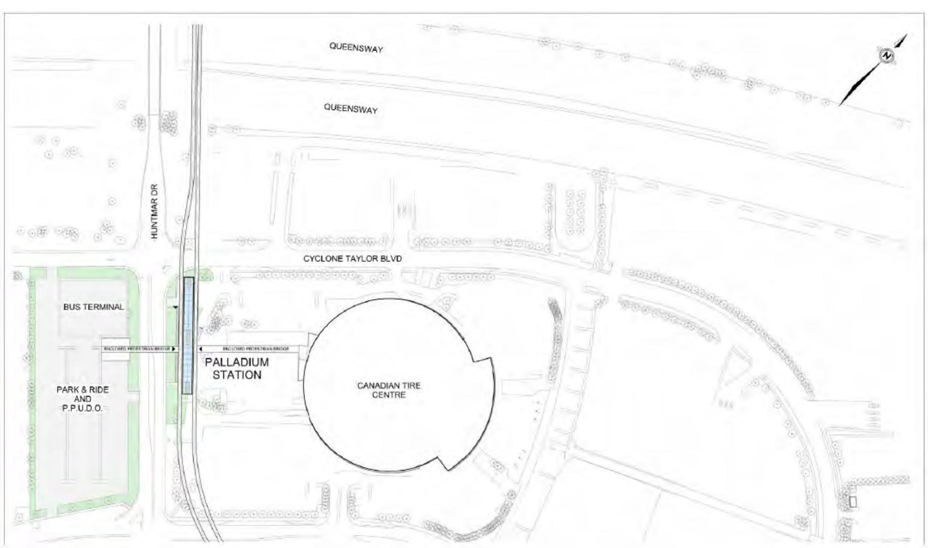
The Kanata LRT EA Study was undertaken to evaluate alternatives for the extension of the City of Ottawa's O-train LRT system into Kanata. The preferred corridor, shown in **Figure 2-23**, includes 11 kilometers of mixed at-grade and grade-separated LRT between Moodie Drive and Hazeldean Road, connecting 8 additional stations to the O-train network.

Figure 2-23: Preferred Kanata LRT Corridor

Source: Kanata LRT EA Study (2018)

The design recommended by the EA Study includes an elevated rapid transit station adjacent to Huntmar Drive between Cyclone Taylor Boulevard and Palladium Drive, as shown by **Figure 2-24**. This proposed "Palladium Station" will be connected to a new combined bus terminal and park and ride lot on the west side of Huntmar Drive via an elevated walkway.

Figure 2-24: Station Area Overview for Proposed Palladium Station



Source: Kanata LRT EA Study (2018)

Figure 2-25 illustrates the location of Palladium Station nearest the Canadian Tire Centre as well as the alignment of the Kanata LRT in the vicinity of the Study Area. South of Palladium Station, the LRT alignment will remain elevated and curve to the east as it crosses Palladium Drive, away from the Huntmar Drive corridor. To the north of the station, the alignment crosses Highway 417 on a new bridge. It is recommended that a multi-use pathway be constructed adjacent to the LRT alignment wherever possible, including on the east side of Huntmar Drive and on the proposed Highway 417 bridge.

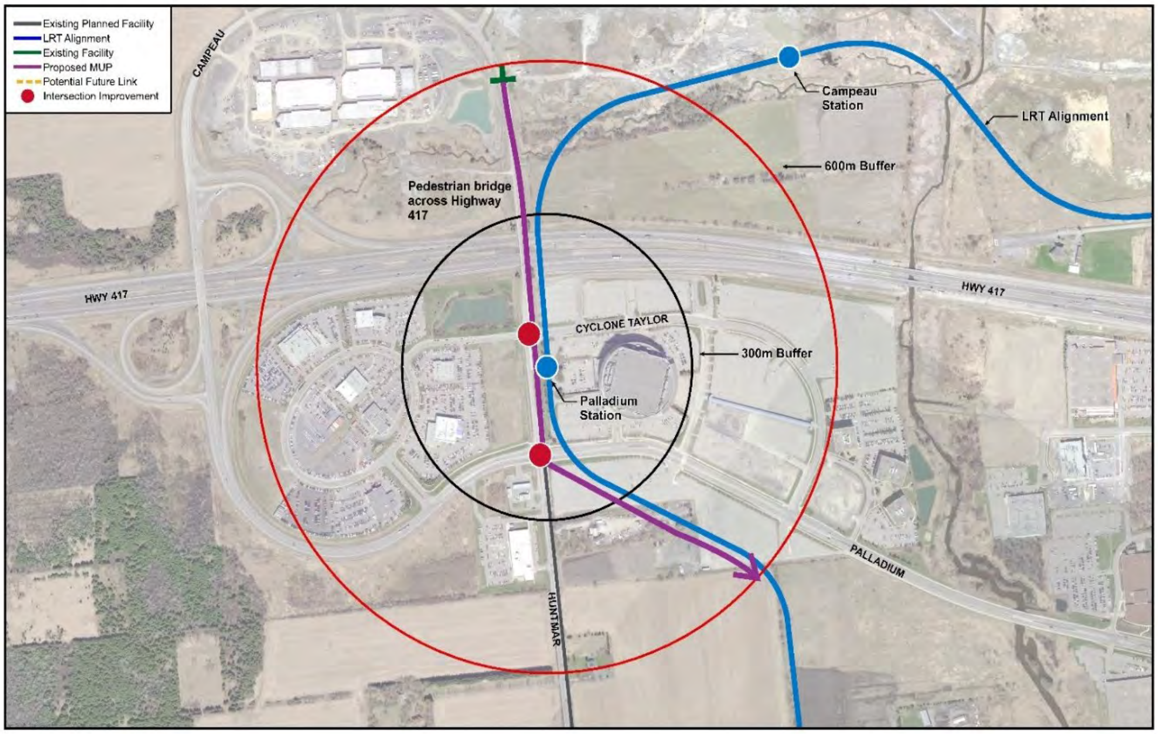
The Kanata LRT EA noted that the Canadian Tire Centre station will serve the major destination/mixed-use centre along Palladium Drive east of Huntmar in either its current form or whatever form future redevelopment may take. This station will also serve the eventual redevelopment of the Palladium Auto-Park, west of Huntmar. The previously approved BRT alignment had also planned a major pathway alongside it, moving south from Palladium and towards Maple Grove Road.

The Kanata LRT study identified the that the current Huntmar Drive overpass has no pedestrian or cycling facility in place. Likewise, Palladium Drive has sidewalks on both sides of the roadway east of the Auto Park, but no cycling facilities.

The Kanata LRT study had proposed the following connections:

- A MUP overpass over Highway 417, parallel to the LRT alignment, as part of Huntmar Drive.
- A MUP overpass, as a stand-alone bridge structure, was suggested in the Kanata LRT EA but not included as part of the project that received approval. This active transportation structure is included as part of this current Huntmar Widening and Stittsville Main Street Extension EA.
- Intersection improvements at the intersections of Huntmar Drive at Cyclone Taylor and Palladium Drive should be explored during detailed design to improve the level of service for pedestrians, cyclists, and all users of the road.

Figure 2-25: Connectivity at Palladium Station



Source: Kanata West EA Study (2018)

2.2.4.3 Transportation Impact Assessment Studies

Figure 2-26 illustrates, while **Table 2-8** summarizes, the location of the proposed developments within the Study Area with available TIA study information. A review of the surrounding TIAs indicated:

- The evaluation of a Stittsville Main Street extension from its existing location to the future Robert Grant Extension was not addressed in full by the primary submissions. A document produced by the proponents of the 195 Huntmar Development in support of the RMA application was reviewed that identified potential long-term forecasts;
- The evaluation of extending Robert Grant from its current location (Abbott Street East) across Hazeldean Drive, through the proposed 130 Huntmar residential development, to its ultimate intersection with Palladium Drive was not considered; and
- The long-term impacts of the Kanata West LRT extension was not considered.

In total, among the identified developments are approximately 2,600 new units within the Kanata West Development Lands.

Figure 2-26: Location of Planned and Approved Developments Within the Project Limits

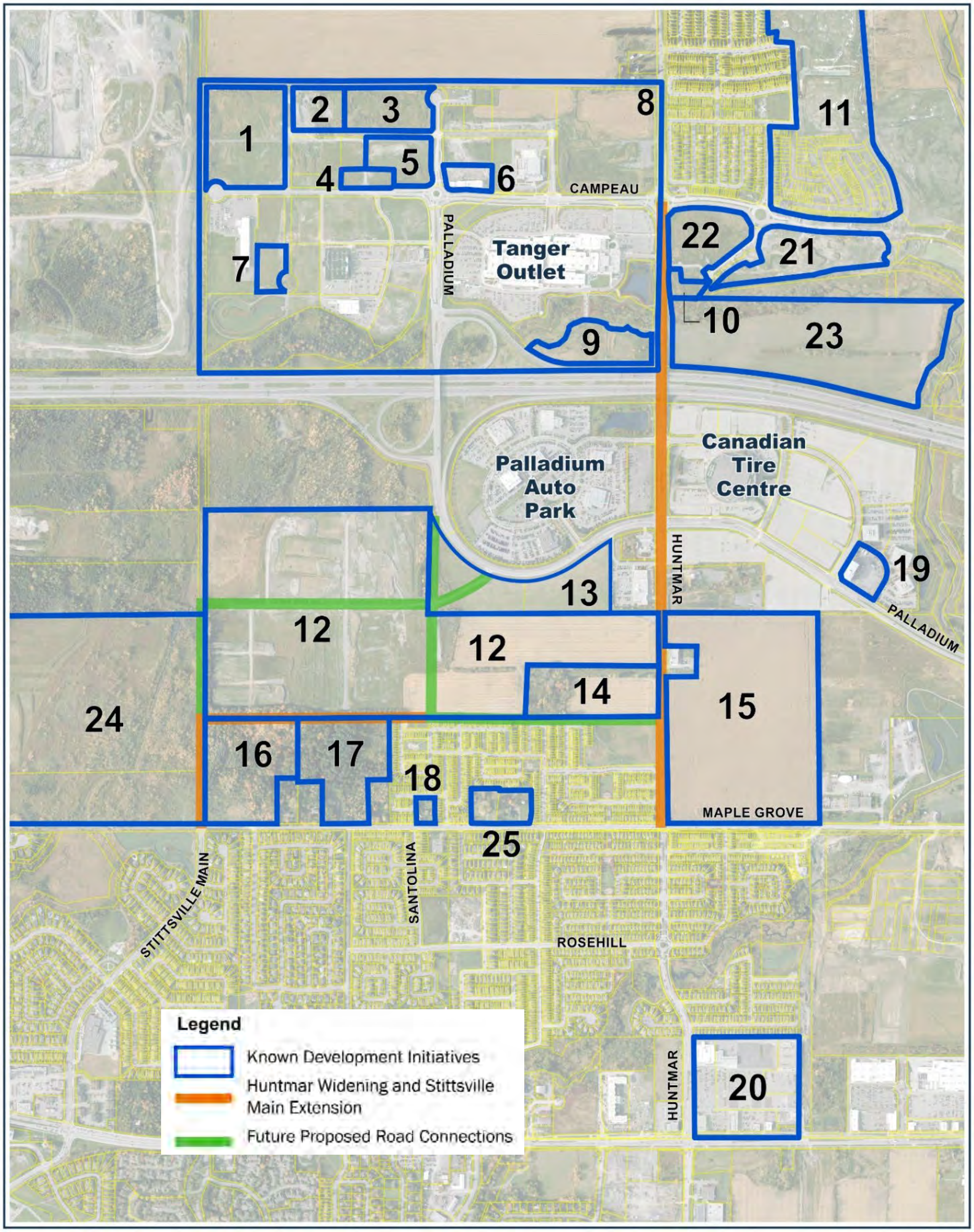


Table 2-8: Description of Each Planned and Approved Development Surrounding the Huntmar & Stittsville Main Widening Study Area

Site	Address	Developer	Brief Description	Tia by	Status
1	8800 Campeau	Kanata West	Maritime Ontario 10,000 ft2 office and 80,000 ft2 warehouse	Parsons	Site Plan Control - Pending
2	1500 Upper Canada	Muzzo Brother Inc.	Two, two-storey warehouse building totaling 64,500 ft2 warehouse and 11,400 ft2 office	Applicant	Site Plan Control - Approved
3	1400 Upper Canada	Taggart / Purolator	Purolator 68,000 ft2 warehouse and 8,400 ft2 office	Parsons (Sept. 2020)	Site Plan Control - Pending
4	8700 Campeau (3199 Palladium Drive)	Kanata West	Kinaxis Office 150,000 ft2 offices	Parsons	Site Plan Control - Approved
6	8600 Campeau	Kanata West	Boreal 120 hotel units	IBI	Site Plan Control - Approved
7	200 Nipissing	Harding Heating	19,000 ft2 warehouse and 3,300 ft2 office/showroom	N/A	Site Plan Control - Approved
8	Kanata West	Kanata West	Phase 1 (built): 340,000 ft2 retail mall, 24,000 ft2 restaurants, 200 hotel rooms. Phase 2: 1,000,000 ft2 commercial/industrial	Parsons	Under Construction
9	319 Huntmar	The Burroughs Kanata	424 mid-rise apartment units (nine storey)	N/A	Site Plan Control - Approved
10	340 Huntmar	Activar	108 Hotel rooms	Parsons	Site Plan Control – Pending

Site	Address	Developer	Brief Description	Tia by	Status
11	450 Huntmar	Minto Arcadia	146 single homes and 255 townhomes	Parsons	Plan of Subdivision - Pending
12	195 Huntmar	Shenkman Corp	155 single homes, 418 townhomes, 13,750 m2 commercial, 41,950 m2 office use	CGH	Plan of Subdivision and Zoning Approved
13	2499 Palladium	Palladium Auto Park	Rezoning to accommodate 7.8 hectares of car dealerships	N/A	Zoning By-Law in Effect
14	173 Huntmar	Amazon Land	52 townhomes, 156 apartment units, 65,000 ft2 office/retail	Parsons	Plan of Subdivision - Approved
15	130 Huntmar	Urbandale	100 single homes, 200 townhomes, 9,200 ft2 retail	Dillon	Plan of Subdivision - Pending
16	1981 Maple Grove	Claridge	139 townhomes, 57 single homes	IBI	Plan of Subdivision - Pending
17	1919 Maple Grove	Formasian	79 townhomes, 440 apartment units	IBI	Plan of Subdivision - Pending
18	1869 Maple Grove	10886378 Canada Inc	8 traditional townhomes, 2 semi-detached townhomes	EXP	Plan of Subdivision - Pending
19	800 Palladium	Cominar	11,000 ft2 shopping center, 80,000 ft2 office, 5,000 ft2 restaurant	Stantec	Site Plan Control - Approved
20	5707 Hazeldean	Wellings	Commercial strip, some lots still vacant	D.J. Halpenny	Under Construction
21	8415 Campeau	Minto	264 stacked townhouse dwellings; 104 townhouse dwellings; 314 parking spaces for stacked dwellings (above and below ground); and 208 parking spaces for the	CGH	Site Plan Control – Additional Submission

Site	Address	Developer	Brief Description	Tia by	Status
			townhouse dwellings (1 in the garage and 1 on the driveway). One (1) 0.56 ha park block and two outdoor amenity areas.		Review Required
22	340 Huntmar	Minto	Study Team aware of planned future development	N/A	No Active Application
23	320 Huntmar	Broccolini	Study Team aware of planned future development	N/A	No Active Application
24	2090 Carp	Cavanagh	Study Team aware of planned future development		No Active Application
25	1837/1849 Maple Grove	Mattamy	62 back-to-back townhome units and 28 traditional townhome units	IBI	Plan of Subdivision - Pending

2.3 Projected Transportation Conditions

2.3.1 Land Use Assumptions

To assess the long-term requirements of the Huntmar and Stittsville Main corridor, traffic forecasts have been developed that reflect the significant growth that is presently underway, and anticipated to continue, in the Kanata West community. The following data was fully considered in the development of the study traffic forecasts:

- The Kanata West Concept Plan (KWCP), that was approved in 2003, with an anticipated growth of 17,000 persons, 6.300 households, 24,000 jobs and approximately 1 million square meters of commercial space.
- The City of Ottawa TRANS Emme™ transportation model, which provides traffic forecasts that correspond to a 2031 horizon and a 2046 horizon.
- The Transportation Impact Studies (Section 2.2.4.3) for lands within and immediately surrounding the Study Area.
- The new Official Plan direction of the Palladium Drive area as a “Protected Major Transit Station Area” which opens the possibility of a dense multi-use urban development for the approximately 42 hectares of land adjacent to the future LRT station.

Two land use scenarios have been developed for the future analysis of the Huntmar Drive corridor:

- 2040 Horizon - A 20-year “business as usual” scenario which represents a 2040 planning horizon that would see the near build-out of the Kanata West lands and additional development growth within the Fernbank lands to the south. This scenario would not include substantial transit-demand shifts to the west extension of the LRT; and
- 2046 Horizon - A beyond-20-year “Transit Oriented Development” (TOD) scenario which would involve substantial TOD and mixed-use development within the Palladium Transit Area lands to achieve a minimum density of 160 persons + jobs / gross hectare. This scenario assumes, at minimum, an LRT station at Palladium Drive to support the TOD area.

The following sections detail the traffic forecast methodology and approach to determine design traffic volumes along Huntmar Drive and Stittsville Main Street for each scenario.

2.3.1.1 TMP/TRANS Model

Population, household and employment data are used as the basis for the travel demand within the TRANS regional model, which is one tool used to inform the infrastructure requirements identified in the TMP. The demographic data assumptions assumed as part of the TMP are summarized for the key zones that are likely to have the greatest influence on the Huntmar Drive and Stittsville Main Street Extension corridors, including:

- Zones 5401, 5402 and 5410 which are located north of the Highway 417 corridor and on either side of Huntmar Drive. These zones represent commercial developments in the vicinity of the Kanata West lands, the expanding Minto Arcadia development and the future Taggart residential lands;
- Zones 5160 which includes the existing Canadian Tire Centre;
- Zones 5150 and 5170, located south of Highway 417 and on either side of the Huntmar Drive corridor, predominantly represents the future 130 Huntmar and 195 Huntmar residential developments, respectively. These develops will have a strong influence on the travel demand on Huntmar Drive, Stittsville Mian Street and Robert Grant Avenue;
- Zone 5124, located east of Stitsville Main Street, contains a substantial amount of existing residential that will likely utilize the future Stitsville Main Street and Maple Grove corridors to access areas to the north of the zone.

Figure 2-27 illustrates the 2011 TRANS zone system and highlights the Kanata West zones summarized within **Table 2-9**. The table indicates the TRANS model background assumptions for the number of persons, the number of households, and the number of jobs projected within the highlighted zones.

Figure 2-27: TRANS Model – Key Study Area Traffic Zones

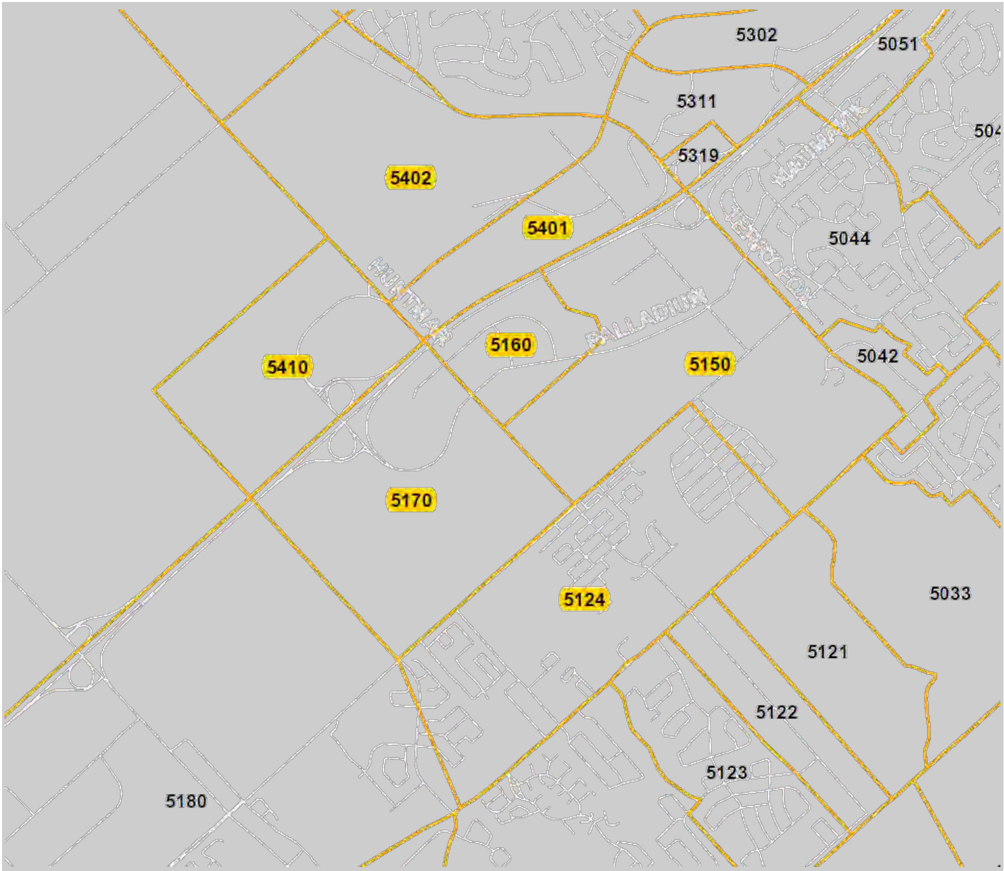


Table 2-9 indicates a significant increase in population/households by the 2031 and 2046 horizon years, particularly within areas south of the Highway 417 corridor. Employment growth over the same period is forecast to be distributed among the selected zones with more than half the growth to occur in the Kanata West lands located north of the Highway 417 corridor. Travel to and from the zones is anticipated to drive traffic growth within the study area.

Zone 5150 east of Huntmar Drive has been exclusively allocated employment growth. Based on a review of the Official Plan and recent development applications, it is anticipated that this zone would be primarily residential in nature with employment limited to areas near Palladium Drive.

Table 2-9: TRANS Model Land Use Assumptions (Districts)

Characteristic	Traffic District	TRANS Model Time Horizon 2011	2031	2046
TOTAL POPULATION	North of Hwy 417	30	1,890	2,782
	South of Hwy 417	4,760	10,800	17,160
	Total	**4,790**	**12,690**	**19,942**
TOTAL HOUSEHOLDS	North of Hwy 417	10	660	1,222
	South of Hwy 417	1,710	3,870	6,775
	Total	**1,720**	**4,530**	**7,997**
TOTAL EMPLOYMENT	North of Hwy 417	510	2,200	3,922
	South of Hwy 417	6,820	7,960	16,040
	Total	**7,330**	**10,160**	**19,962**

Source: City of Ottawa

A review of the City of Ottawa projections from the TRANS model found:

- The Canadian Tire Centre / Palladium Lands TOD zone is anticipated to experience moderate employment growth, the majority of which is forecast to occur beyond 2031.
- North of the Highway 417 corridor, residential growth is concentrated in the Arcadia lands (5402) with negligible development occurring in the Taggart lands (5401). Employment growth is concentrated in the Tanger commercial lands.
- In comparison to the 2003 Kanata West Concept Plan, the TRANS model significantly exceeds the growth targets of 17,000 persons, 6,300 households by 2046. Therefore, it could be reasonable to expect that the build-out of Kanata West would occur over the next 15-to-20 years to reflect City of Ottawa projections.
- To achieve the number of households project by the TRANS model within the Study Area zones (**Figure 2-27**), the KWCP areas would require a sustained annual unit growth of approximately 125-to-175 units/year.

2.3.1.2 Study Area Developments

Section 2.2.4.3 describes a host of development initiatives in various stages of planning, design and implementation within the Study Area. Several transportation studies have been developed to support these major residential and commercial initiatives without full consideration for the roadway network in a regional context. With exception of an analysis completed in support of the 195 Huntmar Development RMA process, limited information of the impacts of the Stittsville Main Street and/or the extension of Robert Grant Avenue is available to inform this study.

The identified development initiatives present the opportunity for more than 2,600 new residential units and more than 640,000 ft^2 of combined commercial, office and industrial opportunities. In comparison to the estimated 6,000 new households presented by the KWCP, and the 3,000 households estimated to have been constructed by 2021, approximately 93% of the residential growth within the greater Study Area has been defined and accounted for. The remaining development parcels that require further study include the Taggart lands located north of the Highway 417 and south of Campeau Drive.

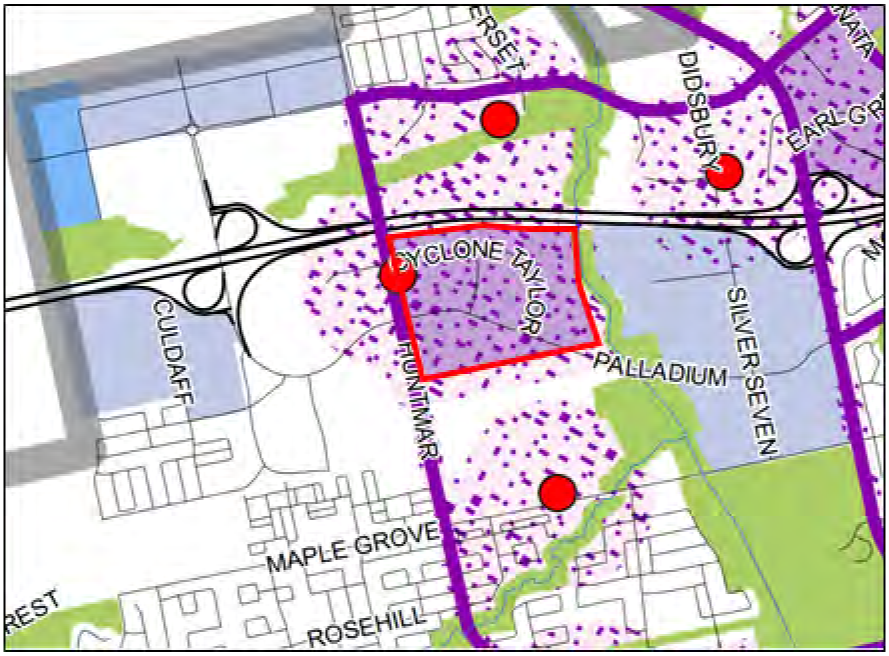
2.3.1.3 Palladium TOD Scenario Land Use

Figure 2-28 illustrates the Palladium Protected Major Transit Station Area and “Hub” as designated within the City of Ottawa’s 2022 Official Plan as approved by the Ministry of Municipal Affairs and Housing. The designated area is approximately 42 gross hectares in size and is currently occupied by the Canadian Tire Centre events center as well as low-rise office-related development.

The following Official Plan density targets and key assumptions were used to establish minimum and maximum densities that are sustainable for an LRT-MUC area:

- Minimum density target of 160 jobs + persons / gross hectare. This is approximately 6,700 jobs + persons in this area.
- A minimum density target of 250 dwelling unit / net hectare of residential development.
- A maximum density target of 200 jobs + persons / gross hectare, based on the maximum allowable density that an LRT can support. This is approximately 12,000 jobs + persons.
- A minimum land coverage of 70% (net-to-gross ratio).
- Development potential would primarily consist of apartment dwelling units (1.62 persons/unit), office-related jobs (1 job/376 sq. ft.) and ground-floor retail opportunities (1 job/286 sq. ft.) consistent with.
- An approximately equal split of persons to jobs in the area.

Figure 2-28: Extract from Official Plan, Palladium Transit Station Hub



Source: City of Ottawa Official Plan (2021) - Modified

Based on the above, the following amount of development could be possible within the Palladium lands:

- 950 retail jobs within approximately 350,000 sq. ft. of GLA retail area;
- 3,500 office jobs within approximately 785,000 sq. ft. of GLA office area; and
- 4,900 new persons within approximately 3,000 apartment units.

This would accomplish an overall density of 225 jobs + persons / gross hectare within the Palladium lands, excluding existing development. The lands would serve as a Kanata West employment hub, deploying principals of a 15-minute community by providing ground-floor retail opportunities while promoting sustainable transit-oriented development connections to the Palladium LRT station.

It is recognized that the timing and potential of these lands are dependent on numerous factors which could greatly impact the outcome of this analysis. The intention is to identify potential travel demands surrounding the subject lands designed with the intention of a transit-oriented development.

2.3.2 Influence of Other Transportation Infrastructure

2.3.2.1 Road Network Changes

Figure 2-29 illustrates the long-term urban roadway network within the greater Study Area. The figure illustrates the following key linkages:

- Campeau Drive extension across the Carp River to complete the east-west arterial connection between Huntmar Drive and Kanata Avenue. This extension, completed in September 2021, best serves to alleviate traffic from the Huntmar and Maple Grove corridors. Its overall impact was estimated based on knowledge of the study area and its background traffic patterns;
- The extension of Maple Grove Road westerly to form a connection to Stittsville Main Street. This connection will be driven by developments nearest Maple Grove Road;
- The complete extension of Robert Grant Avenue northerly across Hazeldean Road and westerly across Huntmar Drive to form an intersection with the extension of Stittsville Main Street. The Robert Grant extension is envisioned as a 4-lane corridor within the 130 Huntmar lands; and
- A 2-lane collector bisecting the 195 Huntmar lands parallel to the Stittsville Main Street connection.

Although it is not currently shown by Official Plan Schedule C4 (see: **Figure 2-29** below), there is an anticipated need for a new transportation link between the Stittsville Main Street corridor and Carp Road. This link would serve the future residential subdivision development at 2090 Carp, as well as the future “Industrial/Logistics” urban expansion area south of Highway 417, identified in Official Plan Schedule C17. Conceptually, this link would be constructed as a collector road, and connect between the proposed Stittsville Main Street/Derreen Avenue roundabout intersection and Carp Road/Westbrook Road intersection. However, this future roadway link will require significant planning efforts to determine the long-term environmental effects of crossing the multiple wetlands in this area. This EA Study will not evaluate in detail the design of this future road link but has taken it into consideration and incorporated additional transportation analysis to reflect the implications it may have on the Stittsville Main Street and Huntmar Drive corridors (See Section 2.8).

Figure 2-29: Planned Urban Road Network

Source: Schedule C4 – Urban Road Network, City of Ottawa (Official Plan, 2022)

2.3.3 Volume Projections

2.3.3.1 TRANS Regional Model Forecasts

2.3.3.1.1 Network Scenarios

With the input from staff at the City of Ottawa, a number of scenarios were assembled for evaluation within the TRANS regional model environment. The scenarios, defined in **Table 2-10**, were strategically developed in an attempt to isolate the potential impact of the Stittsville Main Street extension as a major collector roadway, and to demonstrate longer term requirements to satisfy potential demand associated with full build of the Kanata West Concept Plan.

Table 2-10: TRANS Model Scenarios Completed for Huntmar Widening/Stittsville Main Extension EA

Scenario		Network Description
LAND USE - 2011		
S1-1	2011 Conditions	Network assumes a 2-lane Huntmar Drive. Network does not include Stittsville Main Street Extension, widening of Carp Road, the Campeau extension over Carp Road or the extension of Maple Grove to Stittsville Main.
LAND USE - 2031		
S1-2	S3 (TMP 2031) – KWCP Base Case	Network includes the widening of Huntmar Drive to 4-lanes, the widening of Carp Road to 4-lanes, the extension of Stittsville Main Street to Palladium Drive as a 4-lane arterial, the extension of Campeau over the Carp River and the extension of Maple Grove to Stittsville Main Street.
S2-2	S3 (TMP 2031) - Reconfiguration	Network re-configures the roles of the Stittsville Main Street Extension to a 2-lane Major Collector and Huntmar Drive, between Maple Grove and Robert Grant, as a 2-lane Major Collector.
S3-2	S3 (TMP 2031) – Without Stittsville Main Ext.	Removal of Stittsville Main Street Extension
LAND USE – 2046		
S2-3	S3 (TMP 2031) - Reconfiguration	Network re-configures the roles of the Stittsville Main Street Extension to a 2-lane Major Collector and Huntmar Drive, between Maple Grove and Robert Grant, as a 2-lane Major Collector.
S3-3	S3 (TMP 2031) - Reconfiguration	Removal of Stittsville Main Street Extension

2.3.3.1.2 TRANS Model Results

Table 2-11 summarizes the TRANS model results across the two project screenlines that were established reflecting previous transportation network analyses undertaken during the Kanata West Concept Development study process. Future travel demand has been assessed along Huntmar Drive, Robert Grant Avenue, Stittsville Main Street and Carp Road. The following assumptions have been adopted for the purpose of this assessment:

- Huntmar Drive, north of Maple Grove, is considered an arterial roadway (PS-1) while south of Maple Grove is considered a Major Collector (PS-2);
- Huntmar Drive and Stittsville Main Street are assumed to provide 1-lane in each direction (2-lane facilities); and
- In the 2031 and 2046 model years, Carp Road has been assumed to be widened to 4-lanes (2 in each direction).

The TRANS model outputs are included in **Table 2-11**. Inspection of the table results indicated:

- Across both project screenlines, acceptable volume-to-capacity ratios are expected for each of the horizon years;
- By the 2046 horizon year, Huntmar Drive was found to typically exceed 80% of its available capacity north of Maple Grove in each of the described scenarios.
- Without Stittsville Main in place, by 2046, the traffic volumes along Carp Road were found to increase by up to 13% and along Huntmar by 8%, indicating that traffic utilizing the Stittsville Main Extension is likely destined to the existing Stittsville community and would form a significant amount of cut-through traffic on the community.
- Robert Grant Avenue is under-valued in each model run, as traffic volumes are observed to divert onto Maple Grove eastbound to utilize the Terry Fox Drive interchange rather than back-tracking to the Palladium Drive interchange.
- A review of Stittsville Main Street in the 2036 Scenario (S2-3), the volume capacity ratio was found to exceed 0.95, verifying the attractiveness of this route between Stittsville and the Highway 417.

Overall, the TRANS model results provide general indications of travel demand and vehicle desire lines within the network. However, the results have not been solely relied upon for establishing future infrastructure requirements given the number of anomalies within the modelling process.

Table 2-11: Forecast Project Screenline Performance

Scenario No.	Scenario Description	Peak Directional Demand (veh/h) AM(PM)		Directional Capacity2 (veh/h) AM(PM)		v/c AM(PM)	
		PS-1	PS-2	PS-1	PS-2	PS-1	PS-2
S0	Base-2011	584	298	3200	1600	0.18	0.19
S1-1	Base-2031	1655	350	6100	2400	0.27	0.15
S1-2	Revised-2031	1524	366	3850	2200	0.40	0.17
S1-3	Without Stittsville Main St. 2031	1224	291	3200	2200	0.38	0.13
S2-1	Base-2046	2659	863	6100	2400	0.44	0.36
S2-2	Revised-2046	2370	768	3850	2200	0.62	0.35
S2-3	Without Stittsville Main St. 2046	1892	608	3200	2200	0.59	0.28

Notes:

Directional capacities were obtained from the TRANS model;

Arterials: 800 veh/h, Major Collectors: 650 veh/h.

2.3.3.2 Project Forecasts – 20-Year Forecast (2040)

The Kanata West area is anticipated to fully develop over the next 15-to-20-years, based on a review of on-going development applications and City of Ottawa TRANS model projections. Therefore, a 20-year (2040) design traffic forecast has been developed to evaluate the needs of the Huntmar widening and Stittsville Main Street Extension.

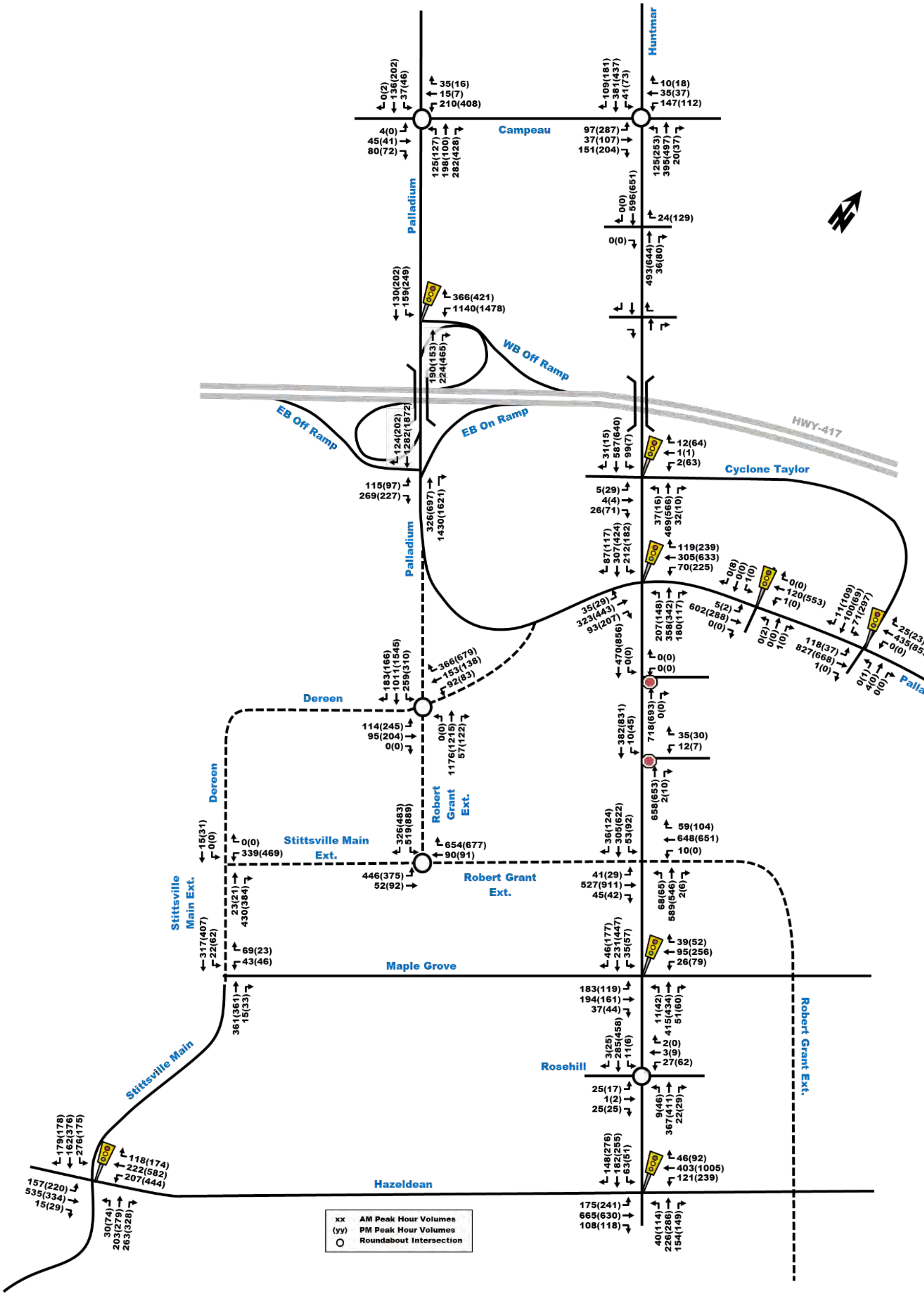
The 20-year (2040) traffic forecast has considered the following:

- The TIA's as described within **Section 2.2.4.3** that support the variety of development applications within the Study Area. Traffic volumes were incorporated into the existing base network before being re-assigned to new infrastructure components.
- A re-assignment of the existing and future auto demands identified with the TIA's to account for the Stittsville Main Street Extension, the extension of Robert Grant Avenue, the widening of Carp Road and the widening of Huntmar Drive. The re-assignment of the existing and future development generated traffic has considered results from the TRANS model, the 2011 OD Study and Streetlight™ data when establishing origin-destination patterns within and surrounding the Study Area.
- A sizeable assignment of thru-traffic from the Fernbank growth areas south of Hazeldean that is envisioned to utilize the future Robert Grant Avenue to access the Highway 417 corridor. This amount of through-traffic is anticipated to grow over time as the lands south of Hazeldean to south of Fernbank Road develop in the coming decades. The thru traffic was estimated from the KWCP Study (2003) and the Kizell Land (5618 Hazeldean Road) Community Transportation Study (Novatech, May 2020).
- The Kanata West LRT Extension and the re-development of the Canadian Tire Center lands are beyond the 20-year design timeframe for the purposes of this assessment.

Figure 2-30 illustrates the morning and afternoon peak hour volumes assuming the 20-year forecast scenario.

In addition to 20-year (2040) peak hour forecasts, a 20-year AADT estimate was determined for planning purposes. To estimate a conversion factor from the peak hour to average annual daily traffic (AADT), the existing 8-hr turning movement count information was reviewed at the intersections of Huntmar/Palladium and Huntmar/Maple Grove. Furthermore, the impacts of approximately 75 Canadian Tire Centre events were considered as an AADT surcharge.

Figure 2-30: 20-Year (2040) Traffic Forecast – Morning (Afternoon) Peak Hours



The Huntmar corridor is anticipated to experience the following two-way AADT values in the 20-year horizon:

- From Campeau to Palladium Drive, approximately 13,500 veh/day
- From Palladium Drive to the future Robert Grant Extension, approximately 13,500 veh/day
- From the future Robert Grant Extension to Maple Grove, approximately 12,000 veh/day

A comparison between the 20-year forecast traffic volumes and the existing traffic counts south of Palladium Drive, there is a nominal increase in north-south traffic along Huntmar despite the additional Kanata West development anticipated to occur in the coming decades. It is expected that a significant amount of the new auto traffic, as well as existing north-south traffic, will divert to the future 4-lane Robert Grant corridor between Palladium Drive and Hazeldean Road.

2.3.3.3 Project Forecasts – Transit-Oriented Demand Scenario (2046)

As development proceeds within the Kanata West area, and density targets increase through the adoption of the new Official Plan, re-development of the Palladium lands into a new, vibrant community increases as a possibility. While it is unlikely that these lands would achieve significant development in advance of the westerly extension of the Kanata LRT to Palladium Station, the following analysis presents a summary of a high-level trip generation process adopted to provide one possible scenario for travel demand within this area in accordance with the new Official Plan directions.

The trip generation presented adopts the latest TRANS 2020 trip generation manual, the ITE Trip Generation Manual (10th edition) and the NCHRP 684 Internal Trip Reduction methodologies to develop peak hour forecast vehicle trips.

The following development was adopted for the purpose of this evaluation:

- 3,000 high-rise apartment dwelling units;
- Approximately 346,500 sq. ft. of retail-related development, some of which is envisioned to be a grocery store; and
- Approximately 750,000 sq. ft of office development.

2.3.3.3.1 Residential

Considering that the development will be located immediately adjacent to the future Palladium LRT station, the transit mode share is expected to be significantly higher than existing Kanata-Stittsville mode shares. As such the TRANS mode share assumptions were adjusted to reflect the opportune location of the site with respect to the future LRT West Extension.

Table 2-12 summarizes the proposed mode shares and the forecast peak hour person trips for both the morning and afternoon hours of travel demand. It is recognized that a 50% auto-mode share is reasonably conservative, given that targets for auto share in other TOD areas are as low as 15%. However, it is believed prudent to account for a significant auto mode share given the uncertainty regarding the future land uses within the Palladium TOD lands (and the auto park lands across Palladium Drive), and the ability to accomplish significant sustainable modes given the location of the subject lands.

Table 2-12: Adjusted Mode Share Percentages and Peak Hour Trips

Travel Mode	Future Mode Share	AM Peak Hour (Person Trips/hr)			PM Peak Period (Person Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	40%	149	332	481	276	200	476
Auto Passenger	10%	38	83	121	68	50	118
Transit	35%	130	289	419	241	175	416
Non-motorized	15%	55	124	179	104	74	178
Total Person Trips	100%	372	828	1,200	689	499	1,188
Total 'New' Residential Condos Auto Trips **No Travel Demand Reductions**		149	332	481	276	200	476

2.3.3.3.2 Office and Retail

A similar exercise was undertaken for the non-residential portion of the future Palladium TOD area. **Table 2-13** summarizes the existing Kanata/Stittsville mode shares, referenced from the 2020 TRANS Trip Generation Manual for Retail/Commercial and non-employment based land uses. The table also presents the proposed mode shares for the non-residential uses for the Palladium TOD area reflecting the presence of the future LRT West Extension, the location of the development relative to the surrounding communities, and the current trends in mode share analysis.

Table 2-14 summarizes the forecast morning and afternoon peak hour person trips, the generated internal vehicle person trip reductions (as per NCHRP 684) and the applicable pass-by trip reductions.

Table 2-13: Existing Non-Residential Mode Shares and Proposed Future TOD Mode Shares

	Kanata-Stittsville Existing Mode Shares		Palladium TOD Future Mode Shares	
Travel Mode	**Retail-Commercial AM / PM**	**Employment**	**Retail/ Commercial**	**Employment**
Auto Driver	81% / 73%	84%	55%	55%
Auto Passenger	12% / 22%	5%	20%	5%
Transit	5% / 1%	8%	10%	25%
Walk/Bike	2% / 4%	2%	15%	10%
Total	**100%**	**100%**	**100%**	**100%**

Table 2-14: Non-Residential Summary of Forecast Morning and Afternoon Peak Hour Person Trips

Office Trip Generation

		AM Peak Hour (Person Trips/hr)			PM Peak Period (Person Trips/hr)		
Travel Mode	**Adjusted Mode Share**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Auto Driver	60%	610	99	709	113	593	706
Auto Passenger	5%	51	8	59	10	50	60
Transit	25%	255	42	297	46	246	292
Non-motorized	10%	102	17	119	18	98	116
Total Person Trips	100%	1,018	166	1,184	187	987	1,174
Less Internal Vehicle Trips (NCHRP 684)		4%	35%	8%	23%	11%	13%
		25	35	60	26	68	94

Travel Mode	Adjusted Mode Share	AM Peak Hour (Person Trips/hr)			PM Peak Period (Person Trips/hr)		
		In	Out	Total	In	Out	Total
Less Pass-by (0%)		0	0	0	0	0	0
Total 'New' Office Auto Trips		**585**	**64**	**649**	**87**	**525**	**612**

Supermarket Trip Generation

Travel Mode	Adjusted Mode Share	AM Peak Hour (Person Trips/hr)			PM Peak Period (Person Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	55%	66	44	110	135	130	265
Auto Passenger	20%	24	16	40	48	47	95
Transit	10%	12	8	20	24	24	48
Non-motorized	15%	17	12	29	37	35	72
Total Person Trips	100%	119	80	199	244	236	480
Less Internal Vehicle Trips (NCHRP 684)		6%	5%	5%	9%	15%	12%
		4	2	6	12	20	32
Less Pass-by (35%)		-18	-18	-36	-41	-41	-82
Total 'New' Supermarket Auto Trips		**44**	**24**	**68**	**82**	**69**	**151**

Shopping Center Trip Generation

Travel Mode	Adjusted Mode Share	AM Peak Hour (Person Trips/hr)			PM Peak Period (Person Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	55%	132	82	214	403	438	841
Auto Passenger	20%	48	30	78	147	159	306
Transit	10%	23	14	37	73	79	152

Travel Mode	Adjusted Mode Share	AM Peak Hour (Person Trips/hr) In	AM Peak Hour (Person Trips/hr) Out	AM Peak Hour (Person Trips/hr) Total	PM Peak Period (Person Trips/hr) In	PM Peak Period (Person Trips/hr) Out	PM Peak Period (Person Trips/hr) Total
Non-motorized	15%	36	22	58	109	119	228
Total Person Trips	100%	239	148	387	732	795	1,527
Less Internal Vehicle Trips (NCHRP 684)		29%	23%	25%	27%	40%	34%
		38	19	54	108	176	284
Less Pass-by (25%)		-20	-20	-40	-70	-70	-140
Total 'New' Shopping Center Auto Trips		**74**	**43**	**120**	**225**	**192**	**417**

2.3.3.3.3 Total Trips Generated

The total person trips anticipated to be generated by the combined land uses of the future Palladium TOD development are provided in **Table 2-15**. The table accounts for reductions in internal vehicle trips and pass-by vehicle trips

Table 2-15: Total Trips Generated by the Palladium TOD Area

Travel Mode	AM Peak (Person Trips/h) In	AM Peak (Person Trips/h) Out	AM Peak (Person Trips/h) Total	PM Peak (Person Trips/h) In	PM Peak (Person Trips/h) Out	PM Peak (Person Trips/h) Total
Auto Driver	957	557	1,514	927	1,361	2,288
Auto Passenger	161	137	298	273	306	579
Transit	420	353	773	384	524	908
Non-motorized	210	175	385	268	326	594
Total Person Trips	**1,748**	**1,222**	**2,970**	**1,852**	**2,517**	**4,369**
Less Internal	-83	-83	-166	-342	-342	-684
Less Pass-by	-38	-36	-72	-111	-111	-222
Total New Auto Trips	**836**	**438**	**1,276**	**474**	**908**	**1,382**

2.3.3.4 Trip Distribution and Assignment

The traffic distribution and assignment for the Palladium TOD area was determined based on the 2011 OD Survey (Kanata-Stitsville District), existing Streetlight OD information, and the location of adjacent arterial roadways and neighbourhoods.

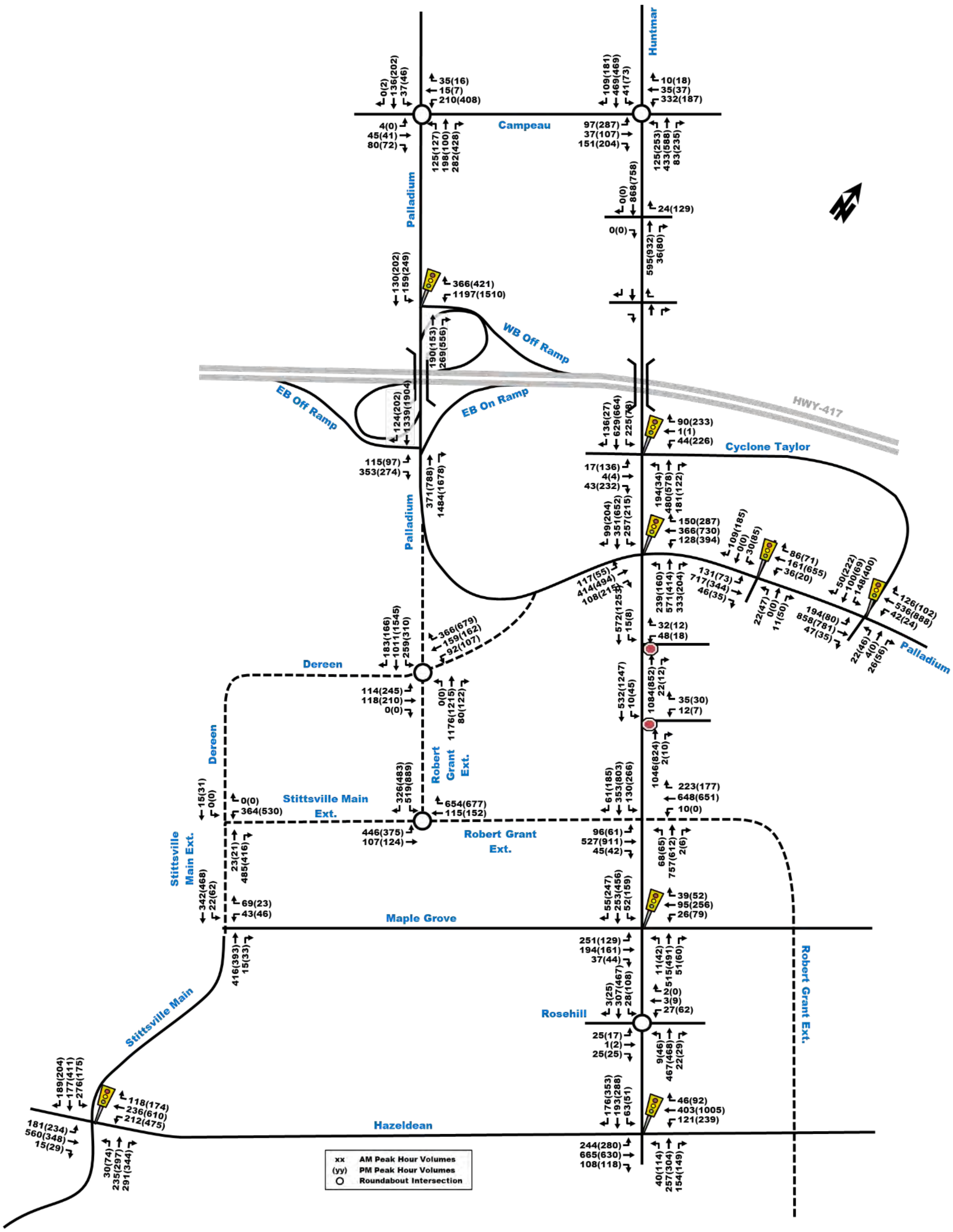
The following distribution was estimated for the residential portion of the development:

- 60% to/from the east, via the HWY-417, Palladium Drive, Maple Grove and Campeau;
- 15% to/from the west, via the HWY-417 and Hazeldean Road;
- 8% to/from the north via Huntmar Drive;
- 12% to/from the south via Stittsville Main Street, Iber Road and the future Robert Grant.
- 5% to/from existing residential areas nearest Maple Grove to account for a local shift in travel demand

The following distribution was estimated for the office, retail and commercial portion of the development:

- 55% to/from the east, via the HWY-417, Palladium Drive, Maple Grove and Campeau;
- 15% to/from the west, via the HWY-417 and Hazeldean Road;
- 5% to/from the north via Huntmar Drive;
- 20% to/from the south via Stittsville Main Street, Iber Road and the future Robert Grant.
- 5% to/from existing residential areas nearest Maple Grove to account for a local shift in travel demand

Figure 2-31: Palladium TOD Beyond 20-Year Forecast (2046) – Morning (Afternoon) Peak Hours



The anticipated ‘new’ and ‘Pass-By’ auto trips for the proposed development from **Table 2-15** were then assigned to the road networks according to the above distribution. **Figure 2-31** illustrates the morning and afternoon peak hour design forecast assuming the Palladium TOD lands are developed.

Based on existing 8-hr turning movement information, and assuming the Canadian Tire Centre remains in operation with similar traffic patterns, the Huntmar corridor is anticipated to sustain the following two-way AADT values in the beyond 20-year forecast (2046):

- From Campeau to Palladium Drive, approximately 17,700 veh/day
- From Palladium Drive to the future Robert Grant Extension, approximately 19,400 veh/day
- From the future Robert Grant Extension to Maple Grove, approximately 14,500 veh/day

The intensification of the Palladium Drive lands is anticipated to have a significant impact on travel demand for all arterial facilities within the Study Area. The Huntmar Drive corridor is anticipated to form the primary north-south route for auto and active travel.

2.3.3.5 Special Events at the Canadian Tire Centre

The Study Area contains the Canadian Tire Centre facility, home to the NHL’s Ottawa Senators, several restaurants and several businesses. The facility is host to a variety of events, including concerts, figure skating shows and other entertainment gatherings. In total, approximately 70-to-80 events occur during a typical calendar year. The arena has a current capacity for approximately 19,000 fans for hockey events.

The facility typically generates large travel demands, with significant inbound traffic volumes in the hour previous to the event, and significant outbound volumes in the hour following an event. Traffic congestion has been observed to occur surrounding the building for vehicles destined to the Highway 417 via Palladium Drive, Huntmar Drive northbound (2-lanes NB post-game) and Terry Fox Drive (through Palladium Drive eastbound).

The following peak directional volumes were identified through a 2012 count that encompassed an Ottawa Senators game (attendance: 18,854):

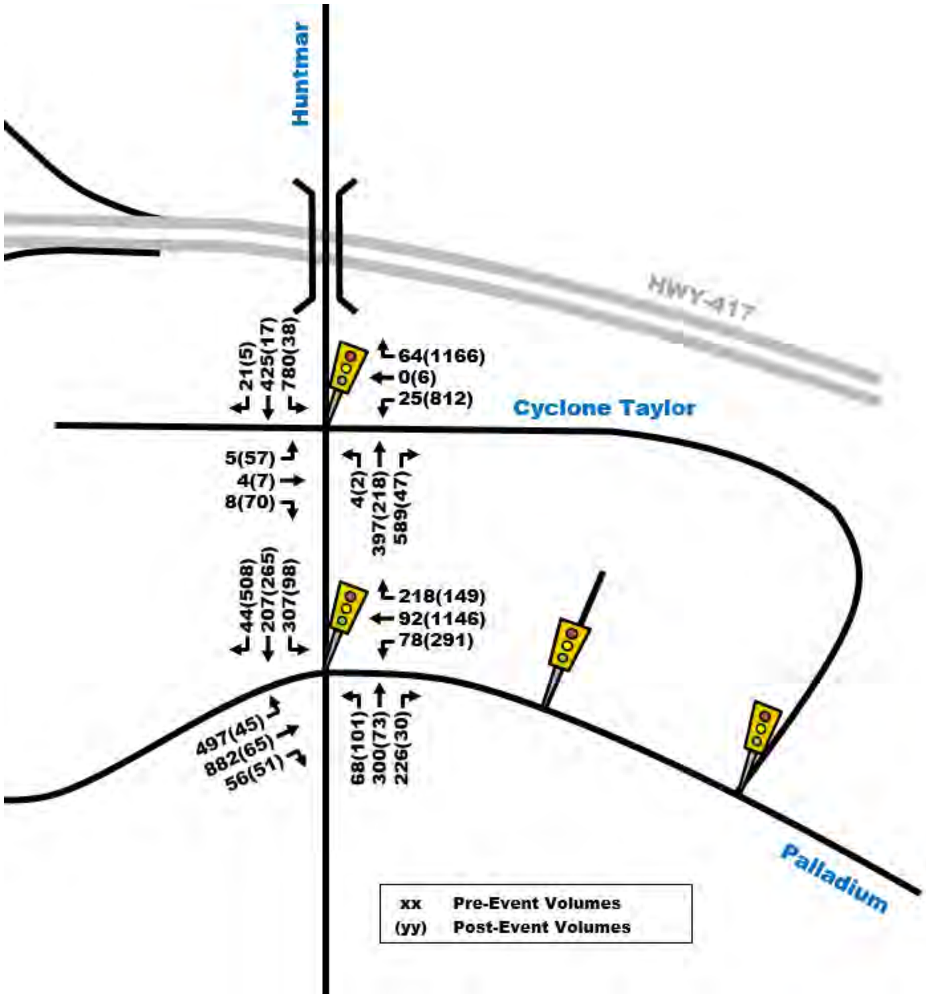
- During the pre-event period (6:30 PM to 7:30PM:
  - Huntmar Drive, southbound, north of Highway 417 experienced up to 900 veh/hour;
  - Huntmar Drive, northbound, north of Palladium drive serviced up to 650 veh/hour; and
  - Huntmar Drive, northbound, south of Palladium Drive, experienced up to 450 veh/hour.
- During the post-event period (10:30 PM to 11:30PM):
  - Huntmar Drive, northbound, north of the Highway 417 had up to 1,200 veh/hour;
  - Huntmar Drive, southbound, north of Palladium Drive had more than 800 veh/hour; and

- Huntmar Drive, southbound, south of Palladium Drive experienced up to 1,100 veh/hour.

The subject study recognizes that these peak period traffic volumes are a unique situation, given the location of the facility and its reliance on auto modes, which occurs outside the common commuter hours of travel demand. However, designing the entirety of the road system to achieve a high auto level of service to manage what amounts to an extreme traffic situation is not typical. The EA study intends to identify and develop solutions that balance all modes of travel for the communities growing in and around the Study Area while maintaining the opportunity for continued traffic management measures to meet the needs of the Canadian Tire Centre.

It is fully recognized that the advent of the Palladium TOD scenario, the LRT West Extension and build-out of the Kanata West Lands would have significant impacts to the auto demand to, and from, the Canadian Tire Centre to the extent that such a scenario would pose challenges to fully quantify. The intensification of jobs in the form of destination retail, the increase of focus on active modes within the Palladium lands, and the additional connectivity of the LRT would likely reduce the overall peak-impact of event traffic on the surrounding road network. Therefore, the existing peak event traffic superimposed over a forecast estimate of off-peak traffic is believed to embody a ‘worst-case’ scenario for auto demand on the Huntmar Drive corridor surrounding the CTC event center.

Figure 2-32: Forecast Canadian Tire Centre Event Traffic – Pre-Event (Post Event) Peak Hours



2.3.3.6 Network Capacity Requirements

A review of forecast link peak hour traffic volumes for Huntmar Drive and Stittsville Main Street was undertaken to assess the network capacity needs in the immediate study area.

Table 2-16 and **Table 2-17** summarize the peak hour-peak-direction forecast traffic volumes for the 20-year forecast (2040), the 20-year with Palladium TOD lands forecast (2046), and the CTC Event Traffic forecast for the Huntmar Drive and Stittsville Main Street corridors, respectively. The table depicts the peak direction critical volume-to-capacity ratio based on an estimate of the peak directional capacity for key segments along each corridor, which is a key indicator for the potential need to undertake roadway widening. Based on City of Ottawa published auto level of service targets for arterial streets, a level of service "D" which corresponds to a volume-to-capacity (v/c) ratio threshold of 0.90, is ideal for the study area. While up to a v/c ratio of 1.0 could be acceptable nearest the future Palladium TOD areas given the ultimate built form of the area.

Inspection of the tables indicated:

- The development of the Palladium TOD lands, despite the introduction of the LRT West Extension, is anticipated to trigger the need for additional widening of the Huntmar Drive corridor from Maple Grove Road to Robert Grant Avenue.
- A 4-lane Huntmar Drive, particularly north of Palladium Drive, is required to meet demand to and from the Canadian Tire Centre for pre-event and post-event traffic; and
- The Stittsville Main Street corridor, incorporating the necessary design elements to minimize cut through traffic, can remain a 2-lane major collector facility for its service life.

Based on foregoing analysis, Huntmar Drive between Robert Grant Avenue and Maple Grove Road is recommended to be constructed as a 4-lane roadway. Following the future completion of Robert Grant (4-lane arterial), the widening of Carp Road (4-lane arterial) and the extension of Stittsville Main Street (2-lane major collector) it could possibly be considered to be reduced to a 2-lane roadway in this segment only. This will largely depend on the road network in place at the time of construction for Huntmar Drive.

Table 2-16: Peak Direction Hourly Traffic Forecasts (2040 and 2046) – Auto Volumes on Huntmar Drive by Segment, Rounded

	Huntmar Drive								
	Campeau to Palladium			Palladium to Robert Grant			Robert Grant to Maple Grove		
Scenario – Peak Hour	NB (veh/h)	SB (veh/h)	Critical v/c (1)	NB (veh/h)	SB (veh/h)	Critical v/c (1)	NB (veh/h)	SB (veh/h)	Critical v/c (1)
20-Year Forecast (2040)	720	715	0.72	690	785	0.79	660	665	0.67
20-Year Forecast Palladium TOD (2046)	1,010	870	**1.01**	1,050	1,160	**1.16**	830	860	0.86
CTC Event Traffic Without Palladium TOD	1,450	1,030	**1.45**	600	1,050	**1.05**	480	800	0.80

Note: (1) Assumes single lane capacity of arterial road to be 1,000 veh/hr

Table 2-17: Peak Direction Hourly Traffic Forecasts – Auto Volumes on Stittsville Main Street by Segment, Rounded

	Stittsville Main Street					
	Hazeldean to Maple Grove			Maple Grove to Robert Grant		
Scenario – Peak Hour	NB (veh/h)	SB (veh/h)	Critical v/c (1)	EB (veh/h)	WB (veh/h)	Critical v/c (1)
20-Year Forecast (2040)	395	460	0.57	495	575	0.72
20-Year Forecast with Palladium TOD (2046)	425	520	0.64	550	635	0.79

Note: (1) Assumes single lane capacity of major collector to be 800 veh/hr

2.4 The Planned Transportation Function of Huntmar Drive

The existing Huntmar Drive corridor, between Campeau Drive and Maple Grove Road, is designated in the City's Official Plan and TMP as an Arterial Road and Cycling Spine Route. The planned widening would emphasize this road as a vital multi-modal north-south travel link serving the growing communities in west Ottawa.

Once completed, the improved Huntmar Drive corridor would serve as a multi-modal connection between Hazeldean Road and the residential communities surrounding the corridor to the Highway 417 and commercial destinations north and east of the Study Area. The central section is aligned with the future LRT extension, connecting from the Canadian Tire Centre station to the intersection with the future Robert Grant Extension.

Based on this understanding, the planned transportation function of widened Huntmar Drive can be summarized as follows:

- Active Transportation: accommodate an in-corridor cycling spine route through cycle tracks and pedestrian travel through continuous sidewalks;
- Transit Network: provide for a prominent role, in the short term, as a primary north-south transit corridor that would continue to connect commuters from Stittsville and Kanata to the Line 1 extensions to Moodie Drive station through the existing Canadian Tire Centre park and ride. Ultimately, the Huntmar Drive corridor will likely accommodate a variety of

commuter transit stops along the corridor in support of nearby LRT stations at Campeau Drive, the Canadian Tire Center (Palladium Station) and Hazeldean;

- Arterial Connection: provide additional north-south connectivity and through distributing travel demand between the Hazeldean Road and Highway 417;
- Connect Communities: link the growing communities of Stittsville and Kanata across the Highway 417 corridor for general movements by all modes;
- Truck Route: Huntmar Drive is not anticipated to be a frequently used truck corridor given the role of Palladium Drive in supporting heavy goods movement in the area. However, a decision on whether it will be given a 'truck route' designation will be made in the future, by the City's Traffic Services group and according to the Truck Route Designation Policy.
- Network Resiliency: Resiliency in events such as disabled vehicles, emergency responders, etc.

Based on the foregoing analysis, it is recommended that the Huntmar Drive corridor provide for 4 general purpose travel lanes, cycle tracks and sidewalks within the study area.

The widening of Huntmar Drive will serve to increase north-south capacity and improve connectivity for the growing communities of West Ottawa. Huntmar Drive currently forms intersections with Campeau Drive (roundabout), Cyclone Taylor (TCS), Palladium (TCS) and Maple Grove (TCS). The subject roadway will also develop a new intersection with the future Robert Grant Avenue Extension (north-south arterial) approximately 300m north of the existing Huntmar/Maple Grove.

2.4.1 Highway 417 Crossings

The existing Huntmar Bridge provides for 2 travel lanes (1 in each direction) and lacks active transportation infrastructure. The existing bridge is anticipated to be removed in favour of a wider structure to better accommodate transportation demands over the Highway 417. The bridge serves as a primary connection between the Canadian Tire Centre and future LRT station on the south, and the Tanger Outlet Mall and future residential developments to the north.

The bridge serves a key function for Canadian Tire Centre events. During the post-event period, the two lanes are re-assigned to two northbound travel lanes to improve patron egress times. Throughout the events, police intervention is typically required to prevent pedestrian crossings of the bridge given the dangers that are presented by the narrow crossing. The future bridge cross section ought to best accommodate event traffic, whether the demand is from auto, bike or pedestrian demands, across the Highway 417 corridor.

The required width of the bridge ultimately depends on:

- The desired pedestrian and cycling infrastructure to facilitate crossing the bridge, recognizing Huntmar Drive as a key multi-modal corridor;

- The forecast auto travel demand during the typical morning and afternoon commuter periods to best accommodate long-term sustainable development within the Palladium TOD Lands;
- The travel demand associated with pre-event and post-event traffic at the Canadian Tire Centre; and
- Anticipated operations at the Cyclone Taylor intersection, with particular attention to the operations of the southbound left-turn movement during the typical morning commute and pre-event period.

Reflecting on the above, and the link capacity analysis presented in Section 2.3.3.6, the recommended bridge cross-section is to include two vehicle travel lanes in each direction, plus a southbound left turn lane serving the existing and anticipated high intensity land use at the Canadian Tire Centre site that will use Cyclone Taylor Boulevard as one of its primary access points. This bridge will also provide an opportunity to provide active transportation facilities which are now absent from the crossing.

In addition, given that both the Kanata LRT and Huntmar Drive are both capital intensive projects that may be delivered far in the future, there is an opportunity to implement a stand-alone interim active transportation bridge solution across Highway 417. The evaluation of alternative solutions and designs will address these choices in this EA (**Section 4.0**).

2.4.2 Robert Grant Extension (North-South Arterial)

The Robert Grant Extension, previously known as the North-South Arterial, was formalized through the Kanata West Transportation Master Plan (2006) and subsequent Kanata West Development Area Road Network Implementation Priorities Study (2007). At the time, the Robert Grant Extension was identified as a 4-lane major arterial roadway with a timing that was outside the scope of the study.

The Robert Grant Extension is planned to connect Palladium Drive and Stittsville Main Street to Abbott Street in the south, with connections across existing arterial roads of Huntmar Drive, Maple Grove Road and Hazeldean Road. The implementation of this corridor would increase north-south capacity parallel to Huntmar Drive and the Stittsville Main Street corridors, while providing an alternate route for Stittsville residents utilizing Stittsville Main Street/Carp Road to access the Highway 417 corridor. Robert Grant is anticipated to be constructed as a 2-lane (one lane in either direction) arterial corridor with further opportunities for widening.

The 2013 Transportation Master Plan identifies the Robert Grant Avenue (Formerly the North-South Arterial), between Palladium Drive and Fernbank Road as:

- A New Road within the 2031 Affordable Network (Map 11) slated for the 5-year period between 2020-and-2025;
- A Bus Rapid Transit Corridor with At Grade Crossings within the 2031 Network Concept (Map 4) and Ultimate Networks (Map 3); and

- A Transit Priority Corridor (Isolated Measures) within the Affordable Network (Map 5).

In review of the 20-year and beyond traffic forecasts indicates there is a likely need to widen Robert Grant Avenue, from Palladium Drive to Hazeldean Road, to support the full build-out of the Kanata West Lands and further development within the Fernbank growth areas. The additional capacity would serve to mitigate traffic congestion concerns along Stittsville Main Street and Huntmar Drive south of Maple Grove. Without the eventual 4-laning, additional traffic demand could be expected along Huntmar Drive particularly south of Robert Grant Avenue. The configuration of Robert Grant Avenue, and its long-term staging, remains to be studied. This facility is not a component part of this EA, however its intersection with Huntmar Drive is.

2.5 The Planned Transportation Function of Stittsville Main Street

The existing Stittsville Main Street corridor, north of Hazeldean Road, is designated in the City's Official Plan as a Major Collector roadway. It currently services commercial uses along Hazeldean, the St. Stephen's Catholic School and a variety of low-density residential. The planned extension would further enrich the existing and planned communities on either side of the corridor, providing additional connectivity for walking, cycling and transit.

Once completed, the Stittsville Main Street Extension would serve as a multi-modal connection between Hazeldean Road and Robert Grant Avenue, providing an alternative connection to the Highway 417 and commercial and employment destinations north and east of the Study Area. The corridor would provide additional connections to the future Palladium LRT station while promoting active transportation opportunities to the event centre.

Based on this understanding, the planned transportation function of an extended Stittsville Main Street can be summarized as follows:

- Active Transportation: accommodate cycle tracks and sidewalks to provide for a continuous active modes corridor from Hazeldean Road northerly to Robert Grant Avenue;
- A new Major Collector Connection: Stittsville Main Street will provide additional north-south connectivity for all modes between Stittsville, the Palladium Lands and Tanger Outlets;
- Support Transit Network: provide for a continuous alternative connection between the Stittsville community and the Palladium park and ride, and ultimately, the future LRT station;
- Establishing a gateway: The extension would provide the opportunity to establish a gateway into the growing community of Stittsville; and
- Adapting to the Community: provide connections to the existing and future residential land uses to encourage the transportation vision and choice for neighbourhood connectivity.

The need for the Stittsville Main Street extension is based on the need to increase north-south capacity and improve connectivity for the growing communities of West Ottawa. The corridor will form major intersections with Maple Grove Road, NS collector into 130 Huntmar and the Robert Grant Avenue intersection. Several minor accesses are anticipated to be in place to adjacent residential communities on either side of the roadway. As the design of Robert Grant Avenue is being completed by area developers and approved by the City, the mandate of this EA is to result in a functional design that connects into the west leg of a roundabout intersection that is proposed as part of that project.

2.6 Need and Opportunity for Huntmar Drive Improvements

The long-term horizon would see the elevation of Huntmar Drive into a primary multi-modal complete street corridor serving a wide variety of urban land uses. The existing 2-lane corridor was found to be below multi-modal transportation level of service targets for pedestrians, cyclists, transit and auto vehicles. With the advent of additional residential and commercial growth, as well as further intensification of the Palladium lands, there exists the opportunity to widen the Huntmar Drive corridor to better suit the needs of the future community.

Table 2-18 summarizes the preliminary design directions for the Huntmar corridor based on the assessment of needs and opportunities. A 4-lane facility is proposed for the section between Campeau and Robert Grant, with left-turn lanes provided where warranted. For the section between Robert Grant and Maple Grove, it is anticipated that the roadway will have already been reconstructed to a four-lane arterial road standard in the very short term, to address vehicle demand during the period where Robert Grant is not operating. However, when Robert Grant and the future Kanata LR system are operating at full capability, and travel behaviours have shifted accordingly, there remains an opportunity to operate this southerly segment successfully as a two-lane roadway in the future. This two-lane functionality would be more in keeping with the existing and planned land use, and the road network south of Robert Grant, and would acknowledge that Huntmar is a two-lane road south of Maple Grove for which efforts need to be made to discourage this southerly corridor from functioning as a de facto Arterial Road (and thus not be consistent with the Official Plan).

Further, given the longer-term time frame of the associated new complete street bridge crossing for Huntmar Drive over Highway 417, and the longer term time frame of the Kanata LRT, there is a need and opportunity for an interim active transportation connection across Highway 417. This forms part of this project and the evaluation of alternative solutions and designs follows in this EA.

Table 2-19 summarizes the ultimate (beyond 20-year) peak hour directional and AADT traffic forecasts for the three primary Huntmar Drive segments. The table also indicates an estimate for the commercial truck activity along the corridor.

Table 2-18: Huntmar Drive Corridor Summary

Huntmar Drive Segment: Campeau to Palladium		
Design Parameter	**Recommended Configuration**	**Justification**
Roadway Classification	Arterial Corridor	Existing and future role in the transportation network
Number of Travel Lanes	4-Lanes (2 per direction)	Peak Hour Volumes > 1,000 veh/h
Huntmar Drive Segment: Palladium to Robert Grant Avenue		
Design Parameter	**Recommended Configuration**	**Justification**
Roadway Classification	Arterial Corridor	Existing and future role in the transportation network
Number of Travel Lanes	4-Lanes (2 per direction)	Peak Hour Volumes > 1,000 veh/h
Huntmar Drive Segment: Robert Grant Avenue to Maple Grove Road		
Design Parameter	**Recommended Configuration**	**Justification**
Roadway Classification	Arterial Corridor	Existing and future role in the transportation network, traffic volumes exceed threshold for Major Collector function
Number of Travel Lanes	Interim: 4-Lanes (2 per direction) Ultimate: 2-lanes (1-per direction)	Interim 4-lane strategy to accommodate traffic volumes in advance of parallel supportive north-south arterials. Peak Hour Volumes > 850 veh/h

Table 2-19: Huntmar Drive Forecast Traffic Volume Summary

	Ultimate +20-Year with Palladium TOD Lands		
Segment	**Directional PHV**	**Two-way AADT***	**Commercial Vehicles****
Campeau to Palladium	1,010 veh/h	17,200 veh/day	2%
Palladium to Robert Grant	1,200 veh/h	19,100 veh/day	2%
Robert Grant to Huntmar	850 veh/h	14,330 veh/day	1%

*estimated using existing standard factors for reference in determining design criteria only
**see section 2.3.3.3 for limitations and recommendations

2.7 Need and Opportunity for the Extension of Stittsville Main

The existing Stittsville Main Street dead-ends west of Maple Grove Drive, serving a minor collector role in connecting local residents to Hazeldean Road. As the community of Stittsville grows, additional multi-modal connectivity is beneficial to facilitate the movement of people and goods in the area. The Stitsville Main Street extension would serve to provide a multi-modal major collector between the existing Stittsville communities, the future communities within the study area, and the Palladium lands forming an alternative travel corridor. The route is anticipated to be highly desirable for both local and cut-through traffic and therefore should enumerate elements of Complete Street design and traffic calming measures to balance the competing needs of vulnerable and auto road users.

Table 2-20 summarizes the preliminary design directions for the corridor based on the assessment of needs and opportunities. The need is for a 2-lane facility (one vehicle travel lane per direction), with turn lanes where warranted. The corridor will intersect with Robert Grant at the proposed roundabout, and the methods to intersect at Derreen and at Maple Grove will be assessed in this EA.

Table 2-21 summarizes the ultimate (beyond 20-year) peak hour directional and AADT traffic forecasts for the three primary Huntmar Drive segments. The table also indicates an estimate for the commercial truck activity along the corridor.

Table 2-20: Stittsville Main Street Corridor Summary

Stittsville Main Street Segment: Maple Grove to Derreen		
Design Parameter	**Recommended Configuration**	**Justification**
Roadway Classification	Major Collector Corridor	Future role in the transportation network
Number of Travel Lanes	2-Lanes with limited auxiliary turn lanes	Peak Hour Volumes < 900veh/hr, role of corridor as a major collector to serve local residential communities

Stittsville Main Street Segment: Derreen to Robert Grant		
Design Parameter	**Recommended Configuration**	**Justification**
Roadway Classification	Major Collector Corridor auxiliary left turn lanes at major intersections	Existing and future role in the transportation network
Number of Travel Lanes	2-Lanes (1 per direction)	Peak Hour Volumes > 1,000 veh/hr

Table 2-21: Stittsville Main Street Forecast Traffic Volume Summary

	Ultimate+20-Year with Palladium TOD Lands		
Segment	**Directional PHV**	**Two-way AADT***	**Commercial Vehicles****
Derreen to Robert Grant	630 veh/h	10,300 veh/day	<2%
Maple Grove to Derreen	530 veh/h	8,600 veh/day	<2%

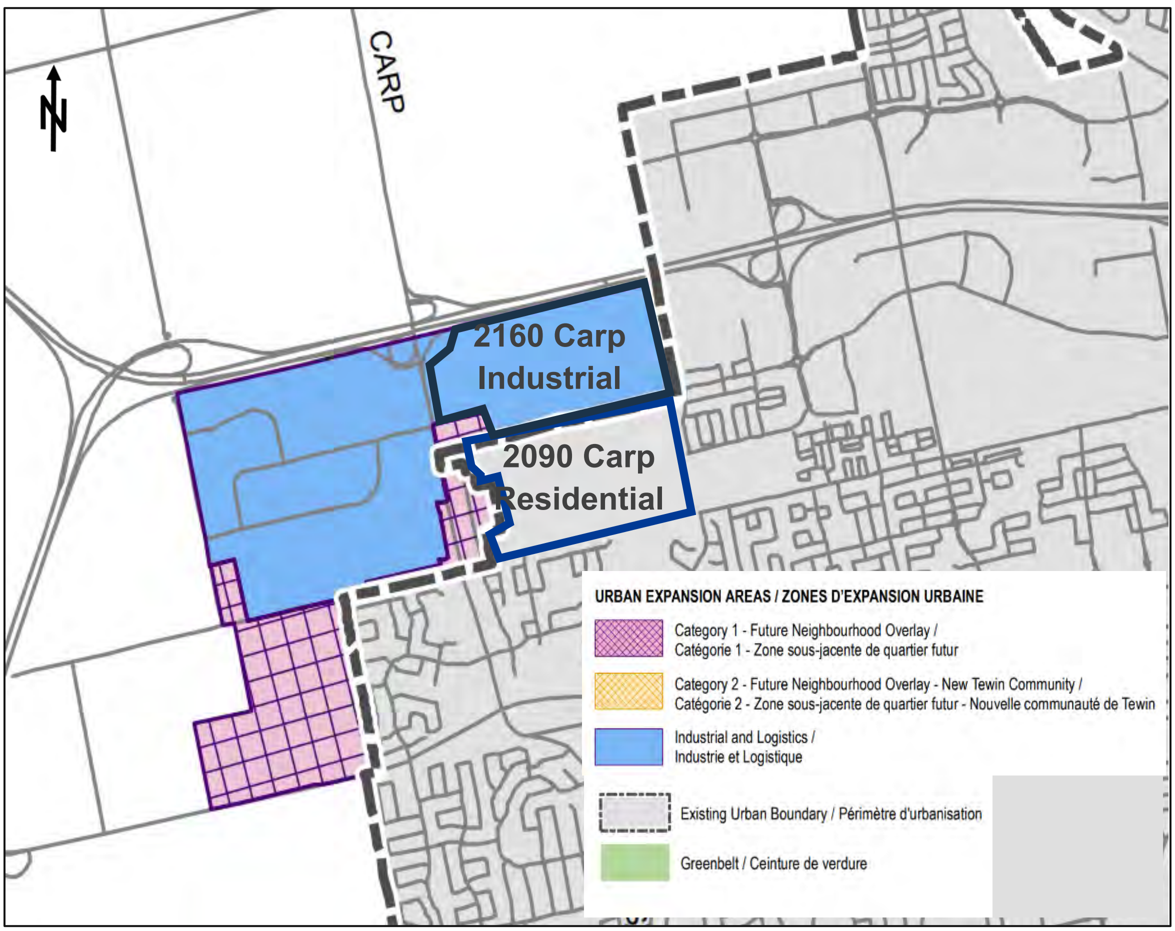
*estimated using existing standard factors for reference in determining design criteria only
**see section 2.3.3.3 for limitations and recommendations

2.8 Potential Additional Major Collector

During the course of study, the City's new Official Plan was approved by the Province of Ontario. As part of this approval, the lands west of the study area have been identified for increased development potential. These lands are formed by two components, both illustrated by **Figure 2-33**. The first is the 2090 Carp Road lands located within the current Urban Boundary. The second is the 2160 Carp Road lands located within the Urban Expansion Area designated by the new Official Plan. At this time, it is expected that the 2160 Carp Road lands would be developed as an industrial-employment site while the 2090 Carp Road development would be primarily residential in nature.

The purpose of this section is to provide a traffic analysis of the future build-out implications of these two parcels on the Huntmar Drive and Stittsville Main Street corridors.

Figure 2-33: City of Ottawa Official Plan, Schedule C17 – Urban Expansion Areas, Extract of Lands Nearest Carp Road



Although not defined by the new Official Plan, it is anticipated that these subject lands will need to be serviced by a future east-west roadway connecting Carp Road to Stittsville Main at some point north of Maple Grove Road. This future road link would serve the industrial lands to the north and the residential lands to the south. Neither a detailed cross section nor the location of future access points along this road will be developed in this EA study. However, for the purposes of this evaluation, it is assumed that the primary access point for the industrial lands will be provided off of Carp Road, thereby directing a significant portion of the industrial generated truck and auto traffic to Carp Road.

2.8.1 Future Land Use Assumptions

The industrial lands (2160 Carp Road) and the 2090 Carp Road residential lands do not have associated development applications at this time. The 2090 Carp Road landowner is currently in the initial conceptual design process; however, subdivision land use details are currently not available for this study. The City of Ottawa was contacted to obtain relevant land areas, residential densities and industrial employment densities.

For the 2090 Carp Road area, these lands are estimated to have a net developable area of 38.2 hectares. Based on the City of Ottawa’s Greenfield Residential Land Survey Update (2022), 2090 Carp Road was identified as a “No Plan” parcel. Therefore, an average residential unit density of 37.1 units per net hectare was assigned to the lands, for a total of 1,417 dwelling units. A split of 60% low-rise units and 40% single units was assumed for the purposes of this analysis.

For the 2160 Carp Road industrial area, the lands are envisioned as a mix of light industrial, warehousing and logistical uses. A dense logistic facility, such as the Amazon developments in Barrhaven and on Boundary Road, are not expected however one or more logistics facilities are contemplated in the analysis. The vacant area is estimated to be 45 net hectares, with a potential of 25 jobs per net hectare. This is similar to the existing Carp Road industrial land in the southwest quadrant of the interchange (~30 jobs/net hectare) and the A.G Reed Industrial Park (27 jobs/net hectare). A net hectare to gross-floor-area ratio of 30% was determined based on a review of existing industrial lands in the City of Ottawa and the current intensity of the adjacent complete Carp Road industrial. This would result in approximately 1.5M GFA of industrial warehousing and logistics within the parcel.

2.8.2 Forecasting

2.8.2.1 Trip Generation and Mode Shares

Residential

The 2090 Carp Road residential development has the potential for 1,417 dwelling units which are assumed to be designated 60% low-rise units and 40% single units. The trip generation rates were obtained from the City’s 2020 TRANS Trip Generation Manual Report for residential uses. The relevant trip rates for the peak hour of the development are summarized in **Table 2-22** below.

Table 2-22: Proposed Residential Development Trip Rates

Land Use	Dwelling Type	Data Source	Trip Rates AM Peak	Trip Rates PM Peak
2090 Carp Residential Development	Single-Detached	ITE 210	T = 2.05(du)	T = 2.48(du)
	Multi-Unit (Low-Rise)	ITE 220	T = 1.35(du)	T = 1.58(du)

Notes: T = Average Vehicle Trip Ends; du = Dwelling Units

Table 2-23 summarizes the conversion factors from the 2020 TRANS Manual, Table 4, to convert the peak-period person-trips to peak-hour person trips by mode. Note that conversion factors for passenger trips are assumed to be equivalent to the published 'Auto Driver' factors for both the morning and afternoon peak period-to-hour conversion.

Table 2-23: Residential Peak Period to Peak Hour Conversion Factors (2020 TRANS Manual)

Travel Mode	Peak Period to Peak Hour Conversion Factors AM	Peak Period to Peak Hour Conversion Factors PM
Auto Driver	0.48	0.44
Passenger	0.48	0.44
Transit	0.55	0.47
Bike	0.58	0.48
Walk	0.58	0.52

Table 2-24 summarizes the historical mode shares for each dwelling type for Kanata-Stittsville which were adopted for this analysis. Given the site context and the long-term development nature of the residential community, transit services are expected to consist of local bus routing through the community which form connections to the Carp Road/Westbrook park-and-ride and the future Palladium LRT.

Table 2-24:TRANS Mode Shares for Kanata-Stittsville

Travel Mode	Single Dwelling		Low Rise	
	AM	PM	AM	PM
Auto Driver	52%	56%	52%	58%
Auto Passenger	15%	19%	14%	17%
Transit	20%	14%	22%	17%
Cycling	1%	1%	0%	0%
Walking	12%	9%	11%	8%

Table 2-25 and **Table 2-26** summarize the forecast peak hour residential trips for the low-rise and single dwelling unit types, respectively. The sum of residential trips by mode share is demonstrated by **Table 2-27**. A 5% internalization of trips has been assumed within the community. In summary, the residential portion of the development would generate up to 1,115 external person-trips in the morning peak hour and 1,180 person-trips in the afternoon peak hour, of which 550-to-650 trips are external auto trips.

Table 2-25: Residential Peak Hour Trips Mode Shares Breakdown- Low Rise Units

Travel Mode	AM Peak (Trips/h)			PM Peak (Trips/h)		
	In	Out	Total	In	Out	Total
Auto Driver	86	202	288	214	131	346
Auto Passenger	25	57	82	74	46	120
Transit	39	92	131	59	36	95
Cycling	2	4	6	4	2	6
Walking	25	58	83	43	26	69
Total Person Trips	177	413	590	394	242	636
5% Internalization	-4	-10	-14	-11	-6	-17
‘New’ Auto Driver Trips – Low-Rise	82	192	274	204	125	328

Table 2-26: Residential Peak Hour Trips Mode Shares Breakdown – Singles Units

Travel Mode	AM Peak (Trips/h)			PM Peak (Trips/h)		
	In	Out	Total	In	Out	Total
Auto Driver	86	201	287	192	151	343
Auto Passenger	24	56	80	58	45	103
Transit	42	99	141	59	47	106
Cycling	1	1	2	1	1	1
Walking	21	50	72	30	22	53
Total Person Trips	174	407	581	339	266	606
5% Internalization	-4	-10	-14	-10	-7	-17
'New' Auto Driver Trips Single Units	82	191	273	182	143	326

Table 2-27: Residential Peak Hour Trips Mode Shares Breakdown – All Residential Units

Travel Mode	AM Peak (Trips/h)			PM Peak (Trips/h)		
	In	Out	Total	In	Out	Total
Auto Driver	173	403	575	406	282	688
Auto Passenger	48	113	162	132	91	223
Transit	82	190	272	118	83	201
Cycling	2	5	7	4	3	7
Walking	46	108	155	73	49	122
Total Person Trips	351	820	1,171	734	507	1,242
5% Internalization	-8	-20	-28	-21	-14	-35
'New' Auto Driver Trips All Residential	164	383	547	385	268	653

Industrial

Traffic volumes for the study area industrial lands were developed utilizing the Institute of Transportation Engineer's 11th Edition. The 14 hectares gross floor area was divided evenly between the "Warehouse" and "Light Industrial" ITE land uses. The relevant vehicle and truck trip rates are summarized in **Table 2-28** below.

Table 2-28: 2160 Carp Road Industrial Trip Rates

Land Use	ITE/TRANS Designation	Data Source	Trip Type	Trip Rates: AM Peak	Trip Rates: PM Peak
Industrial	Warehouse	ITE 150	Vehicle	T = 0.17(x)	T = 0.18(x)
			Truck*	T = 0.06(x) + 0.99;	T = 0.05(x) + 0.82;
	Light Industrial	ITE 110	Vehicle	T = 0.74(x)	T = 0.65(x)
			Truck*	T = 0.03(x)	T = 0.05(x)

Notes: T = Average Vehicle Trip Ends
Peak Hour of Generator
Gross Floor Area (1,000 ft2)

*Truck Trip rates assume

Using the "vehicle" trip rates provided in **Table 2-28**, the total number of person trips per hour generated by the proposed warehouse are multiplied by a factor of 1.28, as per TIA standards, to account for typical North American auto occupancy values of approximately 1.15 and combined transit and non-motorized modal shares of less than 10%. The resulting total person trips per hour for the warehouse and light industrial uses are summarized in **Table 2-29** and **Table 2-30**, respectively. **Table 2-31** summarizes the total forecast trips generated by the industrial lands.

Table 2-29: Industrial Peak Hour Trips Mode Shares Breakdown – Warehouse Use

Travel Mode	AM Peak (Trips/h)			PM Peak (Trips/h)		
	In	Out	Total	In	Out	Total
Auto Driver	121	17	138	20	126	146
Auto Passenger	7	1	8	1	7	8
Transit	12	2	14	2	12	14
Cycling	1	0	1	0	1	1
Walking	4	1	5	1	4	5
Total Person Trips	145	21	166	24	150	174
5% Internalization	-6	-1	-7	-1	-6	-7
'New' Auto Driver Warehouse/Logistics	115	16	131	19	120	139

Table 2-30: Industrial Peak Hour Trips Mode Shares Breakdown – Light Industrial Use

Travel Mode	AM Peak (Trips/h)			PM Peak (Trips/h)		
	In	Out	Total	In	Out	Total
Auto Driver	462	138	600	148	380	528
Auto Passenger	25	7	32	8	20	28
Transit	44	13	57	14	37	51
Cycling	4	1	5	1	3	4
Walking	14	4	18	5	12	17
Total Person Trips	549	163	712	176	452	628
5% Internalization	-23	-7	-30	-7	-19	-26
'New' Auto Driver Light Industrial	439	131	570	141	361	502

Table 2-31: Industrial Peak Hour Trips Mode Shares Breakdown – Total Trips

Travel Mode	AM Peak (Trips/h) In	AM Peak (Trips/h) Out	AM Peak (Trips/h) Total	PM Peak (Trips/h) In	PM Peak (Trips/h) Out	PM Peak (Trips/h) Total
Auto Driver	583	155	738	168	506	674
Auto Passenger	32	8	40	9	27	36
Transit	56	15	71	16	49	65
Cycling	5	1	6	1	4	5
Walking	18	5	23	6	16	22
Total Person Trips	694	184	878	200	602	802
5% Internalization	-29	-8	-37	-8	-25	-34
'New' Auto Driver Trips Industrial Areas	554	147	701	160	481	640

The 2160 Carp Road lands are forecast to generate between 640 new external vehicles trips in the morning peak hour and 701 new external trips in the afternoon peak hour. A 5% internalization was assumed to occur between uses within the industrial lands.

A review of truck trips per the ITE Trip Generation Manual found that 70-to-80 heavy vehicles would be expected from the industrial lands during their respective site peak hours. Many of these trucks would be expected to use the Carp Road interchange to access the future major collector at Westbrook. Trucks typically arrive after, and before, the lunch peak period thereby typically avoiding the commuter peak periods. Inspection of the ITE truck survey found that the commuter peak hours typically accommodate 10-to-25 trucks during the commuter peak hours.

2.8.2.2 Trip Distribution and Assignment

In review of forecast 2046 TRANS model outputs and the 2011 OD Survey (Kanata-Stittsville), as well as the location of adjacent arterial roadways and anticipated connections via the future major collector roadway, the distribution of the external generated traffic volumes was determined as follows:

Residential:

- 60% to/from the east via Palladium Drive, Robert Grant and the Highway 417

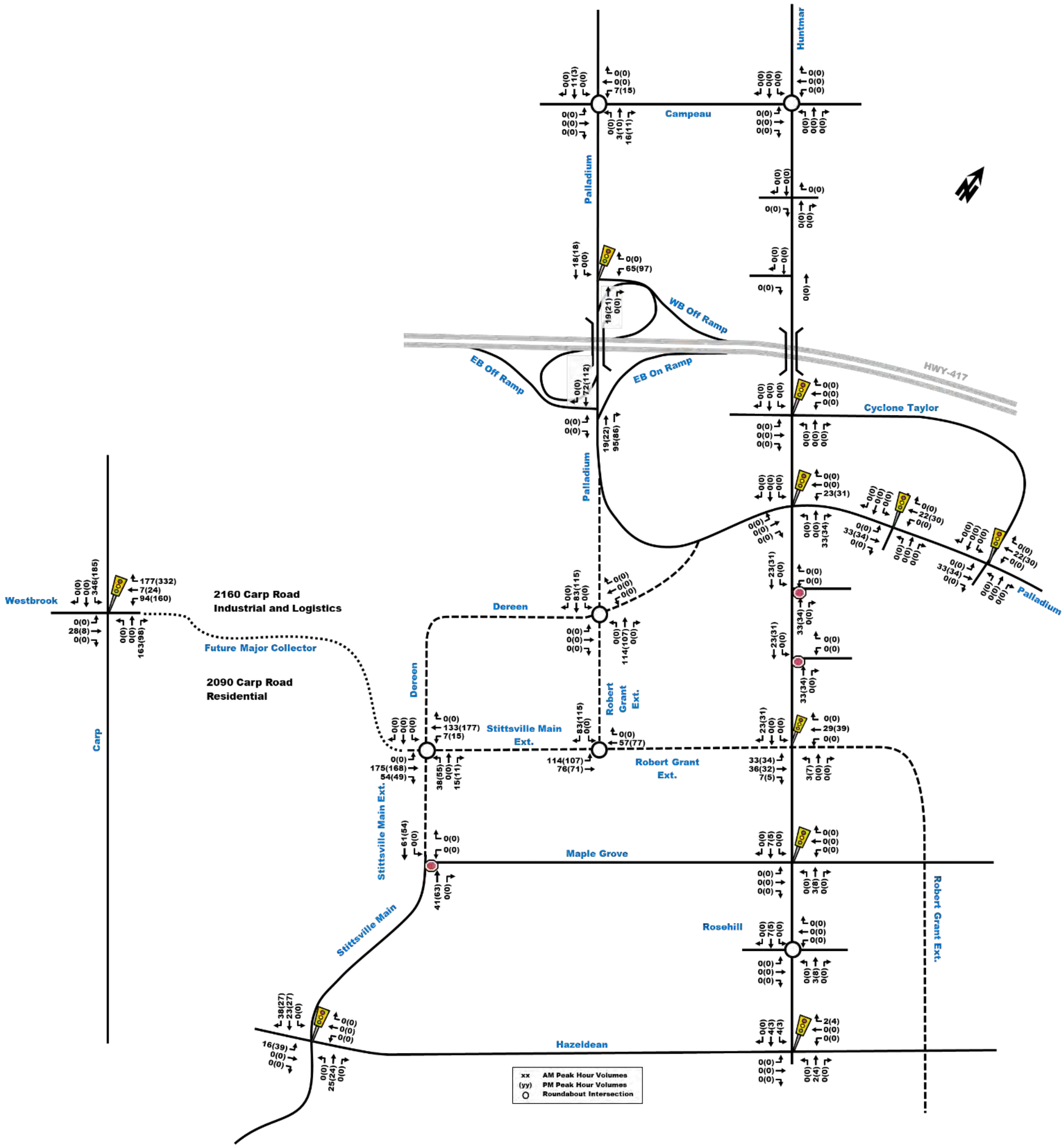
- 10% to/from the west via Highway 417 and Hazeldean Road
- 10% to/from the north via Campeau and Carp Road
- 20% to/from the south via Carp Road, Robert Grant and Iber Road

Industrial:

- 55% to/from the east via Palladium Drive, Robert Grant and the Highway 417
- 20% to/from the west via Highway 417, Hazeldean Road and Westbrook Drive
- 10% to/from the north via Campeau and Carp Road
- 15% to/from the south via Carp Road, Robert Grant and Iber Road

The anticipated total 'new' auto trips from **Table 2-28** and **Table 2-31** have been illustrated in **Figure 2-34**.

Figure 2-34: Forecast Traffic Assignment, Future Carp Road Expansion Lands – AM (PM) Peak Hour



2.8.2.3 Total Forecast Traffic Volumes

The traffic assignment presented in **Figure 2-34** was superimposed on previous traffic forecasts prepared as part of the subject EA. **Figure 2-35** illustrates the subsequent 20-year forecast

(2040) while **Figure 2-36** illustrates the beyond 20-year forecast (2046) which includes re-development of the Palladium lands a TOD area.

Figure 2-35: 20-Year (2040) Traffic Forecast, with Carp Road Expansion Lands – AM (PM) Peak Hour)

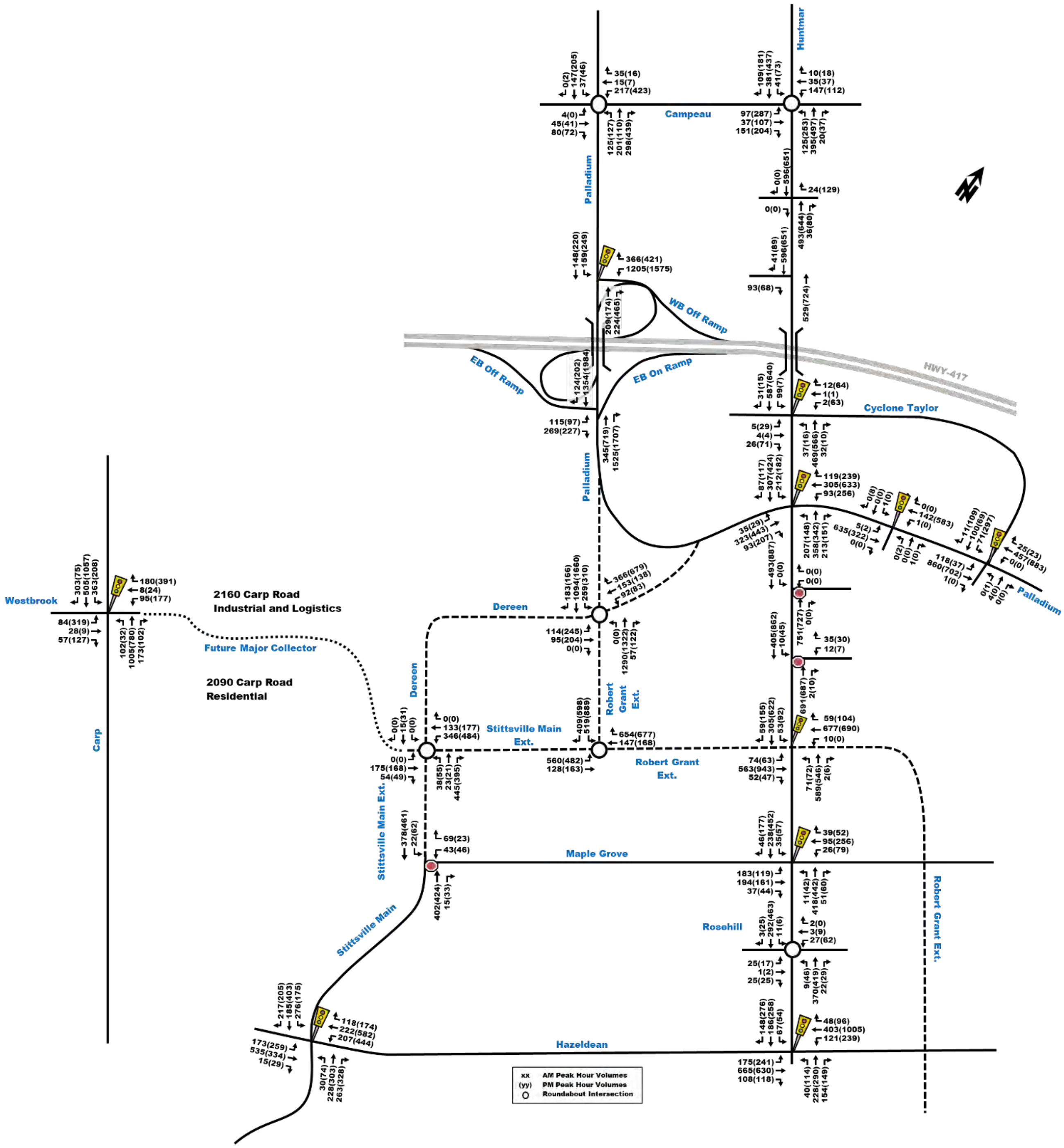
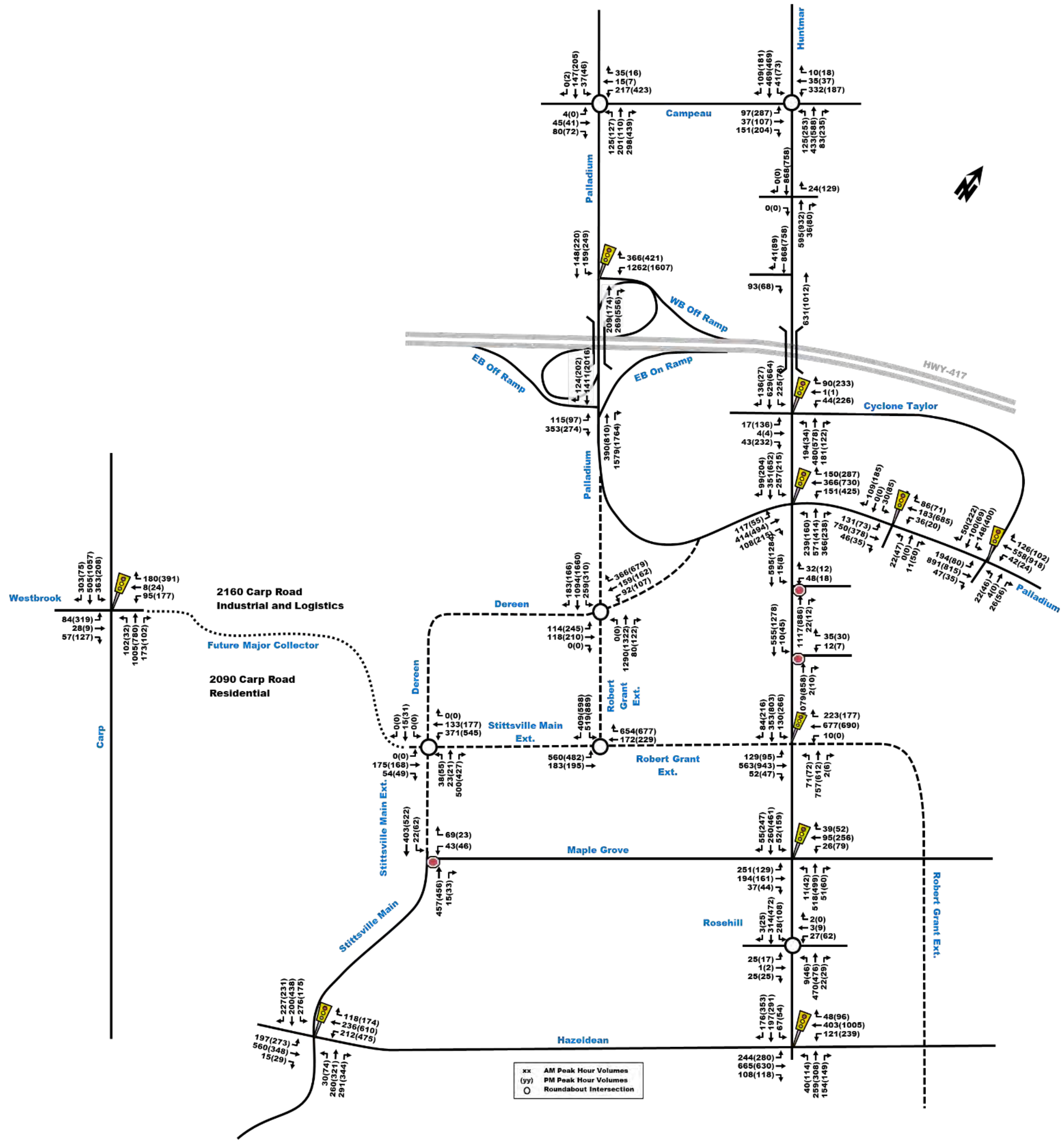


Figure 2-36: Beyond 20-Year (2046) Traffic Forecast with TOD Lands, with Carp Road Expansion Lands – AM (PM) Peak Hour



2.8.3 Traffic Analysis

Intersection capacity analysis was undertaken for the following volume scenarios:

- Existing Conditions (2020 traffic volumes) have been updated to include the Carp/Westbrook intersection;
- 2040 Horizon - Future Long-Term (**Figure 2-35**) forecast including the identified residential and industrial trip generation; and
- 2046 horizon - Future Long Term (**Figure 2-36**) with the Palladium TOD area developed and the identified land uses.

SYNCHRO analysis was undertaken as per City of Ottawa TIA guidelines.

2.8.3.1 Carp Road/ Westbrook - Existing Conditions Intersection Capacity Analysis

Table 2-32 summarizes the existing traffic operations analysis at the Carp/Westbrook signalized intersection, assuming the morning and afternoon peak hours of travel demand. The table indicates the critical movement for the intersection, based on the volume-to-capacity ratio (signal-controlled) per City of Ottawa guidelines. The intersections were also assessed 'as a whole' based on a weighted v/c ratio.

As shown in **Table 2-32,** the Carp/Westbrook intersection operates with poor levels of service in the afternoon peak hour, where the southbound through movement is above capacity. The future 4-laning of the Carp Road corridor is anticipated to improve levels of service at this intersection.

Table 2-32: Carp/Westbrook - Existing Intersection Performance – AM (PM) Peak Hours

	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
Intersection	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized						
Carp/Westbrook	D(**F**)	0.81(1.15)	NBT(SBT)	16.5(65.8)	C(**F**)	0.77(1.05)

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

2.8.3.2 20-Year (2040) Forecast Intersection Capacity Analysis

Similar to **Table 2-32**, **Table 2-33** summarizes the 20-year (2040) forecast traffic operations analysis at the study area intersections, assuming the morning and afternoon peak hours of travel demand. The intersection analysis assumes the following infrastructure assumptions:

- A 4-lane Carp Road has been constructed to support the primary Highway 417-Stittsville route choice.
- Maple Grove Road has been extended westerly to Stittsville Main to form a “T” intersection.
- A 4-lane Robert Grant is in place from Palladium Drive to at least Hazeldean Road.
- Huntmar Drive is typified by a 4-lane arterial cross-section north of Robert Grant Avenue, and 2 lanes south of this location; and
- Stittsville Main is a 2-lane major collector facility between the future intersection with Maple Grove to the future roundabout at Robert Grant Avenue.

Table 2-33: Intersection Capacity Results Assuming the 20-Year Volume Forecast (2040) - AM (PM) Peak Hours

	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
Intersection	**LoS**	**max. v/c or avg. delay (s)**	**Movement**	**Delay (s)**	**LoS**	**v/c**
Signalized						
Huntmar/Cyclone Taylor	A(A)	0.24(0.31)	SBT(SBT)	6.7(8.3)	A(A)	0.22(0.27)
Huntmar/Palladium	D(D)	0.82(0.87)	SBL(WBL)	24.2(30.0)	A(B)	0.49(0.66)
Huntmar/Maple Grove	A(B)	0.53(0.69)	WBT(NBT)	24.0(16.4)	A(A)	0.49(0.59)
Huntmar/Hazeldean	B(C)	0.63(0.72)	NBT(WBT)	27.8(35.1)	A(B)	0.50(0.68)
Huntmar/325m S of Palladium	A(A)	0.25(0.31)	NBT(SBT)	4.2(4.4)	A(A)	0.24(0.30)
Huntmar/Robert Grant	D(D)	0.81(0.85)	EBL(EBT)	30.9(29.9)	B(C)	0.67(0.72)

	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
Intersection	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Stittsville Main/Hazeldean	C**(E)**	0.74(0.99)	EBT(WBL)	29.4(42.0)	B(B)	0.63(0.69)
Carp/Westbrook	D(D)	0.90(0.89)	NBT(WBR)	38.0(39.1)	D(C)	0.85(0.77)
Roundabout						
Huntmar/Campeau	B(B)	11(12)	SB(SB)	6(7)	A(A)	-
Unsignalized						
Stittsville Main/Maple Grove (All-Way STOP Control)	B(C)	13(17)	NB(WB)	13(15)	B(B)	-
Stittsville Main/Derreen (All-Way STOP Control)	B(C)	13(20)	WB(WB)	13(17)	B(C)	-

Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane.

A review of **Table 2-33** indicates that study area intersections operate 'as a whole' at an acceptable LoS 'D' or better during peak hours with critical movements operating at LoS 'E or better. The addition of the traffic volumes from the Carp Road expansion areas were found to have a nominal impact on the overall transportation network. The widening of the Carp Road corridor would be required to maintain acceptable traffic operations at the Carp/Westbrook intersection in the long-term horizon. Some intersections had their timing cycles optimized and, in some cases, a permitted protected or fully protected turning phase was added to alleviate turning congestion.

2.8.3.3 20-Year Forecast (2046) – Palladium TOD Scenario and Major Collector Intersection Capacity Analysis

Similar to **Table 2-33, Table 2-34** provides a summary of the peak hour traffic operations assuming the 20-year – Palladium TOD forecast scenario for the study area intersections with the additional Carp Road development. Again, similar overall network infrastructure assumptions are in place for this analysis, which includes widening of Carp Road to 4-lanes.

Given the advent of the Palladium TOD lands and the Carp Road expansion areas, the study area intersections continue to typically operate ‘as a whole’ at an acceptable LoS ‘E’ or better with critical movements operating at LoS ‘E’ or better.

Table 2-34: Intersection Capacity Results 20-Year Palladium TOD Scenario and Major Collector Forecast – AM (PM) Peak Hours

	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
Intersection	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized						
Huntmar/Cyclone Taylor	A(B)	0.51(0.67)	NBL(EBT)	9.7(14.1)	A(B)	0.39(0.61)
Huntmar/Palladium	D(E)	0.84(0.99)	NBT(WBL)	33.0(42.7)	C(D)	0.78(0.87)
Huntmar/Maple Grove	B(C)	0.64(0.72)	NBT(NBT)	27.2(18.3)	A(B)	0.59(0.64)
Huntmar/Hazeldean	B(C)	0.69(0.75)	NBT(WBT)	28.6(36.1)	A(C)	0.48(0.72)
Huntmar/325m S of Palladium	A(A)	0.39(0.46)	NBT(SBT)	4.8(5.1)	A(A)	0.38(0.45)
Huntmar/Robert Grant	E(E)	0.99(0.96)	WBT(SBL)	44.2(35.8)	E(C)	0.92(0.76)
Stittsville Main/Hazeldean	C(E)	0.77(0.94)	WBL(WBL)	30.6(40.7)	B(C)	0.66(0.73)
Carp/Westbrook	D(D)	0.90(0.89)	NBT(WBR)	38.0(39.1)	D(C)	0.85(0.77)
Roundabout						
Huntmar/Campeau	B(B)	12(12)	SB(SB)	7(8)	A(A)	-
Unsignalized						
Stittsville Main/Maple Grove (All-Way STOP Control)	C(C)	15(21)	NB(SB)	14(18)	B(C)	-

	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
Intersection	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Stittsville Main/Derreen (All-Way STOP Control)	C(D)	15(28)	WB(WB)	15(22)	C(C)	-

Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane.

2.8.3.4 Link Level Traffic Volumes – With the Additional Major Collector

The traffic link volumes for the future Huntmar Drive and Stittsville Main Street corridor have been summarized in **Table 2-35** and **Table 2-36** assuming both the TOD lands are in place and the Carp Road expansion areas. The addition of the Carp Road expansion areas results in a nominal increase to the Huntmar Drive volumes between Robert Grant and Palladium Drive. Stittsville Main Street will be expected to be a primary access for the residential community at 2090 Carp Road, which is reflected in a significant peak hour volume increase of 200 vehicles in the peak direction. Stittsville Main Street is anticipated to continue to serve the role as a major collector for the surrounding communities.

The future major collector roadway to Westbrook Road is anticipated to accommodate up to 600 vehicles per hour in the peak direction. This traffic volume would be typical of 2-lane major collectors in the City of Ottawa.

Table 2-35: Huntmar Drive Forecast Traffic Volume Summary

	2046 Forecast - Beyond 20-Year with Palladium TOD Lands and Carp Road Expansion Areas		
Segment	Directional PHV	Two-way AADT*	Commercial Vehicles**
Campeau to Palladium	1,010 veh/h	17,200 veh/day	2%
Palladium to Robert Grant	1,285 veh/h	20,350 veh/day	2%
Robert Grant to Huntmar	890 veh/h	14,840 veh/day	1%

*estimated using existing standard factors for reference in determining design criteria only

Table 2-36: Stittsville Main Street Forecast Traffic Volume Summary

	2046 Forecast - Beyond 20-Year with Palladium TOD Lands and Carp Road Expansion Areas		
Segment	**Directional PHV**	**Two-way AADT***	**Commercial Vehicles****
Derreen to Robert Grant	830 veh/h	13,700 veh/day	<2%
Maple Grove to Derreen	570 veh/h	9,600 veh/day	<2%

*estimated using existing standard factors for reference in determining design criteria only

2.8.4 Conclusions

The following findings and conclusions have been determined from this analysis.

Land Uses

- The 2090 Carp Road and 2160 Carp Road lands are bordered by the Highway 417, Carp Road and Stittsville Main Street. They remain undeveloped and a “No Plan” area at the time of this analysis.
- A future major collector roadway, of which the exact alignment remains to be determined, will connect the intersections of Carp/Westbrook to Stittsville Main/Derreen to service the 2090 Carp Road and 2160 Carp Road lands.
- The 2090 Carp Road lands were analyzed for development potential which indicated an average residential density of 37.1 units per net hectare (38.2 net hectares available). A total of 1,417 dwelling units were established for the analysis, 60% of which were assigned as ‘low-rise’ units while the balance were assumed as single units.
- The 2160 Carp Road lands are expected to develop as a light industrial, warehousing and logistics area. The 45 net hectares of developable land were assessed and, based on a review of City of Ottawa industrial develops, indicated the potential for 1.5M square feet of gross floor area lands.

Trip Generation

- The 2090 Carp Road residential community is forecast to generate between 1,100-and-1,200 new two-way person trips during the morning and afternoon peak hours. 550-to-650 new external vehicle trips are forecasted from the community.

- The 2160 Carp Road industrial lands are forecast to generate between 640-and-700 new vehicle trips during the morning and afternoon peak hour.
- The 2160 Carp Road industrial lands would generate between 70-to-80 trucks during the site peak hour. During the commuter peak hour, approximately 20-to-40 trucks are forecast to use the Carp Road interchange.

Transportation Operations

- Based on a review of the forecast peak hour analysis, the study area intersections ‘as a whole' are anticipated to operate within acceptable delay and target level of service thresholds considering the surrounding land uses and design intention of the corridor.
- The widening of Carp Road would be required in the long-term horizon to maintain acceptable traffic operations due to the additional traffic to and from the Carp Road lands.
- The future development within the Carp Road lands is not anticipated to change the functional requirements for the Stittsville Main Street corridor or the Huntmar Drive corridor.
- The future major collector roadway connecting Carp Road to Stittsville Main Street is expected to function with a single general-purpose lane in each direction with auxiliary turn lanes at critical intersections and junctions.

3.0 EXISTING ENVIRONMENTAL CONDITIONS

This information was prepared by a multidisciplinary team of land use planners, biologists, geologists, archaeologists, landscape architects, municipal engineers, transportation planners, and experts in air quality, noise and vibration. This team of specialists collected, consolidated, reviewed, and screened all available information with a view towards establishing the basis for development, analysis, and evaluation of alternative transportation solutions.

The inventory considered all available background material, and is of sufficient detail to enable the analysis and evaluation of alternative transportation solutions, designs, mitigating measures and monitoring programs.

The general methodology involved the following elements:

- The submission of requests for data, drawings and reports to affected agencies;
- Contacting and meeting with affected parties as required;
- Consolidating, reviewing and analysing relevant material for each element;
- Conducting air photo interpretation and field verification as required; and
- Identifying elements or criteria that could be considered potential evaluation criteria.

Specific methods of investigation may be discussed in further detail in the respective sections as warranted. Transportation conditions and planning policies related to transportation were summarized in the Needs and Opportunities section of the ESR and are considered as forming part of the existing conditions for the Study Area.

3.1 Social Environment

The existing conditions for the social environment within the Study Area are documented through a review of relevant policy and readily available documents.

3.1.1 Regulatory Planning Policies

3.1.1.1 Provincial Policy

The Provincial Policy Statement (PPS) (MMAH, 2020) is issued under Section 3 of the *Planning Act*. The Provincial Policy Statement provides policy direction on matters of provincial interest related to land use planning and development. As a key part of Ontario’s policy-led planning system, the PPS sets the policy foundation for regulating the development and use of land. It also supports the provincial goal to enhance the quality of life for all Ontarians by building strong, healthy, and resilient communities with long-term economic prosperity. It includes policies on key issues that affect our communities, such as:

- the efficient use and management of land and infrastructure;

- protection of public health and safety;
- protection of the environment and wise use and management of resources; and
- ensuring appropriate opportunities for employment and residential development, including support for a mix of these uses.

Municipalities use the PPS to develop their Official Plans and to guide and inform decisions on planning matters. All decisions affecting land use planning matters "shall be consistent with" the PPS (MMAH, 2020).

The PPS defines *Development* as "*the creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the Planning Act*." Many land use policies outlined in the PPS restrict development in and/or near elements of provincial interest (e.g. provincially significant wetlands) unless it can be demonstrated that there will be no negative impact on the environmental features or their ecological functions. However, as per the PPS, "*activities that create or maintain infrastructure authorized under an environmental assessment process"* are not considered development.

Notwithstanding, environmental assessments have regard to matters of provincial interest and where impacts cannot be avoided shall be minimized to the extent possible through appropriate mitigation, monitoring and/or compensation.

3.1.2 Municipal Policy

Guidance for transportation planning in the City of Ottawa is provided in the City of Ottawa Official Plan (2022); the Transportation Master Plan (2013) and its associated Cycling and Pedestrian Plans (2013); the Kanata West Concept Plan (2002) and Kanata West Development Area Road Network Implementation Priorities Study (2007); and the Kanata LRT EA Study (2018).

3.1.2.1 City of Ottawa New Official Plan (2022)

The City of Ottawa launched a multi-year process to update their Official Plan in 2019. The New Official Plan (OP) - which will guide growth and manage physical change up to 2046 (City of Ottawa, 2022) - was approved by City Council in October, 2021 and by the Ministry of Municipal Affairs and Housing in November 2022., It is a legal document that addresses matters of provincial interest defined by the PPS. Broadly, the OP aims to promote an intensification of land uses which supports sustainable transportation options; as per *Big Policy Move 2*, the "…overarching mobility goal of the Official Plan is that by [2046], more than half of all trips will be made by sustainable transportation such as walking, cycling, transit or carpooling" (City of Ottawa, 2022).

The 2022 City of Ottawa Official Plan divides the city into six concentric policy areas called transects. These policy areas widely determine built form and transportation planning priorities. The Huntmar Drive and Stittsville Main Street EA Study Area is in the "suburban transect". This

Transect is generally characterized by a “conventional suburban model”, with a wide separation of land uses and low-rise building forms. The OP aims to gradually ‘complete’ suburban neighbourhoods under the principles of the ’15-minute neighbourhood’, enhance mobility options and street connectivity, and direct significant development to Hubs and Corridors within the Transect.

OP designations for the Study Area are shown in **Figure 3-1** and summarized in **Table 3-1**. Huntmar Drive is considered a Minor Corridor; the “Corridor” designation is applied to the lands along streets “…whose planned function combines a higher density of development…and a higher level of street transit service than abutting Neighbourhoods”. The protected ROW requirement for Huntmar Road between the urban area (north limit) and Maple Grove, as per Schedule C16, is 37.5m.

Notably, the lands surrounding the existing Canadian Tire Centre and future Palladium LRT station are designated in the OP as a “Hub”. Hubs are intended to be higher density, mixed use employment nodes centered on planned or existing rapid transit stations. Their strategic purpose includes establishing an environment which prioritizes transit users, cyclists, and pedestrians. The OP states that where “corridors” intersect or overlap with “hubs”, “…*vehicular traffic along the Corridor shall be managed with street design and measures including traffic calming so as not to undermine the pedestrian, cyclist, and transit-user focused environment of the Hub”.*

Additionally, there are several categories of “overlays” in the OP, which provide additional policy direction to underlying designations. An “Evolving Neighbourhood” overlay is applied to most of the Huntmar corridor, including the lands directly adjacent to the road, and the areas surrounding the future Arcadia, Palladium, and Maple Grove rapid transit stations. This overlay is applied to areas which are in a stage of their evolution which creates the opportunity “…to achieve an urban form in terms of use, density, built form and site design”, and so might be expected to accommodate more density than the surrounding neighbourhoods.

Section 4.1.1 of the Official Plan makes the distinction between “access” streets, which have a close relationship to surrounding land uses, exhibit lower vehicular speeds, and prioritize sustainable modes; and “flow” streets, which play a structural role in the overall street network and connect multiple areas of the city. In the Suburban Transect, “…all streets within Hubs and within an Evolving Overlay shall be identified as access streets,” meaning that Huntmar Drive would be considered an access street under the OP.

The Stittsville Main Street is located in a “neighbourhood” and is considered a Future Major Collector (see: **Figure 3-2**). Major collectors are meant to provide connections between arterial and local roads and should “…accommodate safe use by all travel modes and the efficient operations of transit services”. New urban major collectors should have a 26m protected ROW unless otherwise indicated.

Table 3-1: City of Ottawa New Official Plan (2022) Designations

Resource	Designation	Location within the Study Area
A – TRANSECT POLICY AREAS	Suburban	Full Study Area
	Hub	Area containing the existing Canadian Tire Centre and surrounding parking lots
	Corridor – Mainstreet	Hazeldean Road
	Corridor – Minor	Huntmar Dr, Campeau Dr (East of Huntmar Dr)
	Mixed Industrial	Area north of Campeau Dr and west of Huntmar Dr; area south of Hwy. 417 between Palladium Dr and the existing urban boundary; area surrounding Iber Rd between Maple Grove Rd and Abbott St
	Industrial and Logistics	Area west of Upper Canada St/Nippissing Ct
B5 – SUBURBAN (WEST) TRANSECT	Greenspace	Area at the end of Nippissing Ct, north of Hwy. 417; area surrounding the Feedmill Creek watercourse, intersecting Huntmar Dr north of Hwy. 417; area surrounding the Ruisseau Poole Creek watercourse, intersecting Huntmar Dr south of Maple Grove Rd; area to the west of the northern terminus of the existing Stittsville Main St
	Evolving Neighbourhood Overlay	Area immediately adjacent to Huntmar Dr between Campeau Dr and Hazeldean Rd; areas within a 400m radius of the future Arcadium, Palladium, Maple Grove and Hazeldean LRT stations; area within 150m of the Palladium Hub
	Neighbourhood	All parts of the Study Area not covered by another designation
C1 – PROTECTED MAJOR TRANSIT STATION AREA	Protected Major Transit Station Area	Palladium Hub (area containing the existing Canadian Tire Centre and surrounding parking lots)
C2 – TRANSIT NETWORK (ULTIMATE)	O-Train – Grade Separated Crossings	Planned Kanata LRT alignment
	O-Train Station	Planned Arcadium, Palladium, Maple Grove and Hazeldean LRT stations
	Transit Priority Corridor	Hazeldean Rd

Resource	Designation	Location within the Study Area
C3 –ACTIVE TRANSPORTATION NETWORK (URBAN – MAJOR PATHWAYS)	Major Pathway	Feedmill creek pathway; Kanata LRT pathway
C4 – URBAN ROAD NETWORK	Arterial – Existing	Huntmar Dr north of Maple Grove Rd; Maple Grove Rd east of Huntmar Dr; Campeau Dr west of Huntmar Dr; Palladium Dr
	Arterial – Future	Robert Grant Ave
	Major Collector – Existing	Stittsville Main St north of Hazeldean Rd; Huntmar Dr south of Maple Grove Rd
	Major Collector – Future	Stittsville Main St Extension
	Collector – Existing	Maple Grove Rd west of Huntmar Dr
	Collector – Future	Derreen Ave; Maple Grove Rd extension
	Provincial Highway	ON Hwy 417
C7-A – DESIGN PRIORITY AREAS	Design Priority Area	Palladium Hub
C11-A – NATURAL HERITAGE SYSTEM	Urban Natural Feature	Areas surrounding Feedmill Creek on both sides of Palladium Dr; area to the west of the existing Stittsville Main St terminus
C12 – URBAN GREENSPACE	Park	Pioneer Plains Park
	Open Space	Area surrounding Feedmill Creek to the east of Huntmar Dr; areas to the north of the Urban Natural Features on either side of Palladium Dr
	Urban Natural Features	Areas surrounding Feedmill Creek on both sides of Palladium Dr; area to the west of the existing Stittsville Main St terminus
C16 – ROAD CLASSIFICATION AND RIGHTS-OFWAY PROTECTION	37.5m	Huntmar (Urban area-north limit to Maple Grove Road)
	New Urban Collectors and Major Collectors (26m)	Stittsville Main St Extension

Figure 3-1: City of Ottawa New Official Plan (2022) - Study Area Land Use Designations (Schedule B)

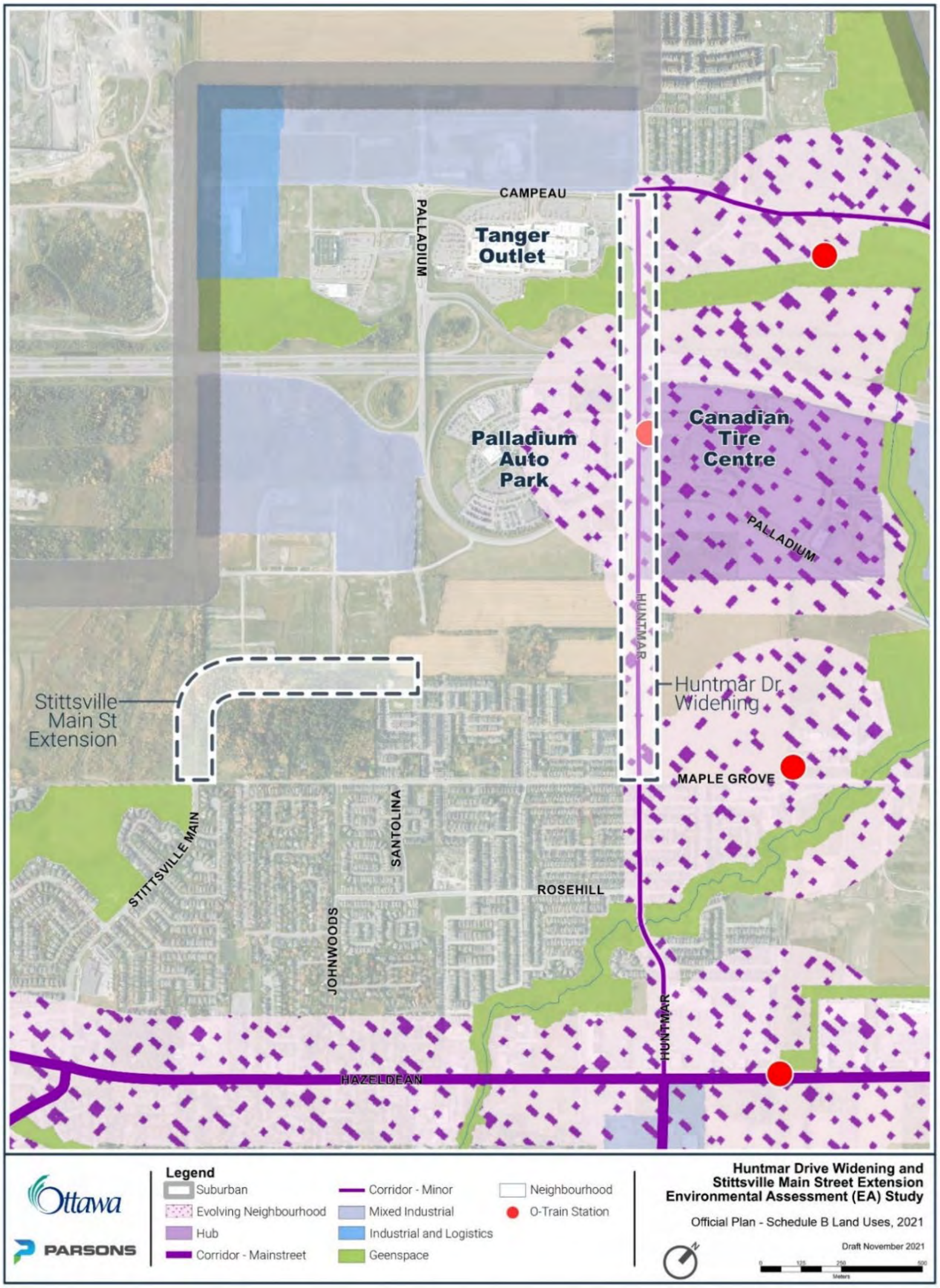


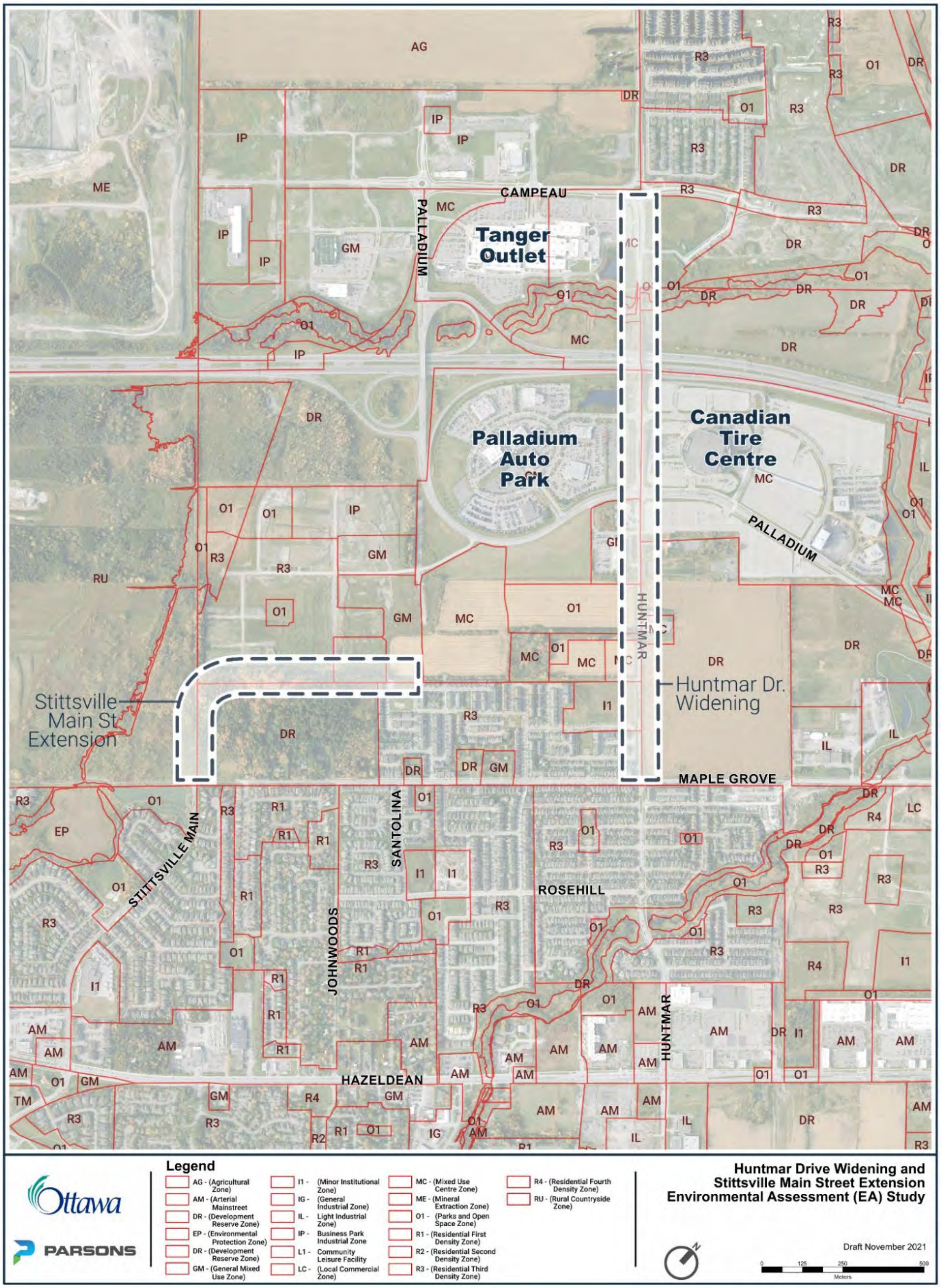
Figure 3-2: New City of Ottawa Official Plan Schedule C4 - Urban Road Network

3.1.3 Comprehensive Zoning By-Law

The City of Ottawa Zoning By-Law implements the land use objectives of the Official Plan at a site-specific level. Given the detailed nature of zoning provisions, a characterization of zoning is provided rather than a detailed inventory of applicable zones and related standards. Zoning for the Study Area is shown in **Figure 3-3**.

The lands adjacent to the Huntmar corridor are primarily designated as Mixed-Use Centre (MC), General Mixed Use (GM), and Development – Residential (DR), as well as Parks and Open Space (O1) and Minor Institutional (I1A), with some Residential (R3) at the south end of the Study Area. The Stittsville Main Street Extension corridor is primarily surrounded by lands contained by the Residential (R3) and Development – Residential (DR) zones, with General Mixed Use (GM) and Parks & Open Space (O1) zones at either end of the Study Area and a large area to the west currently designated as a Rural Countryside Zone (RU).

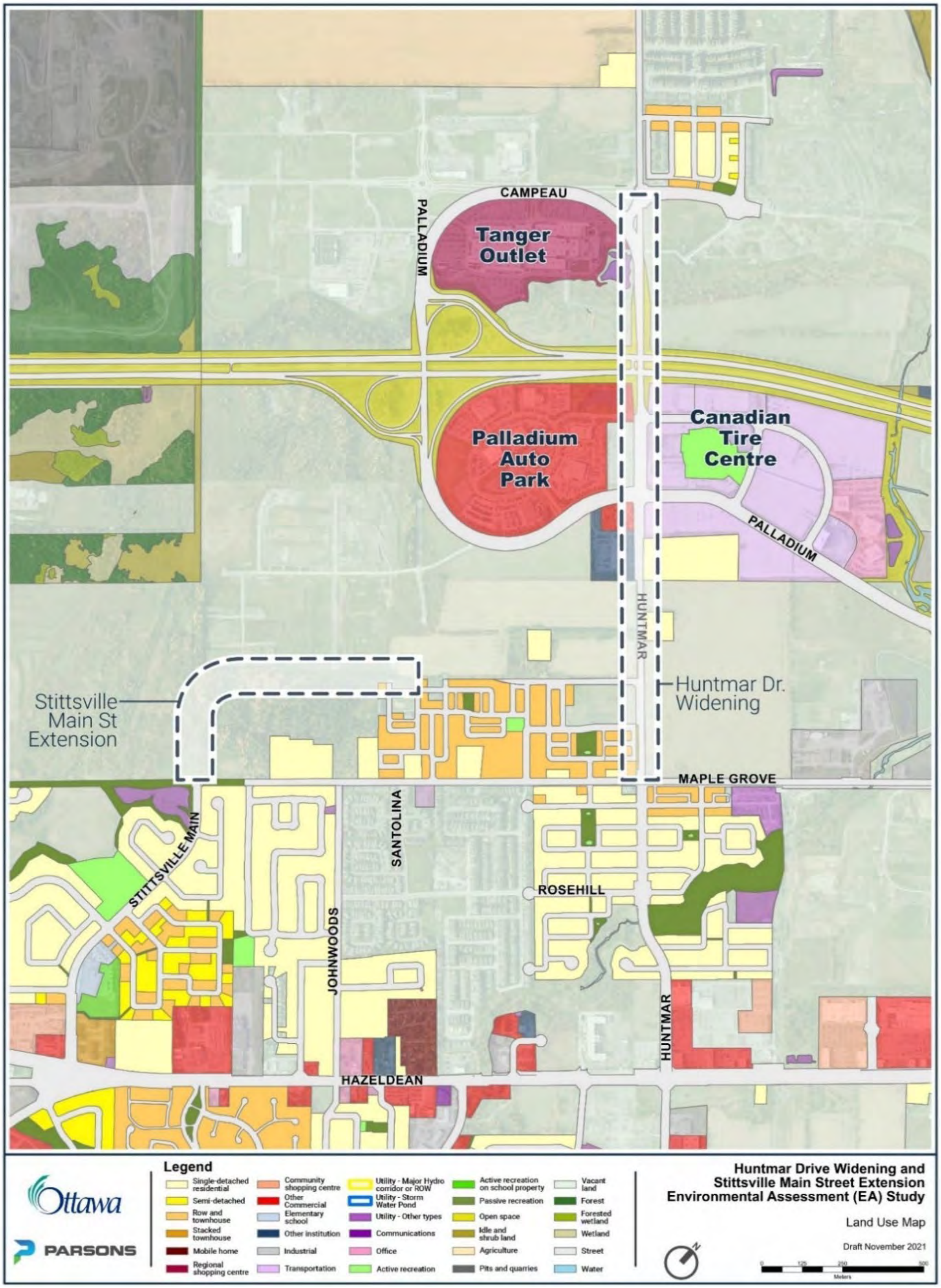
Figure 3-3: Zoning for the Study Area



3.1.4 Existing Land Use

A detailed inventory of existing land uses is shown in **Figure 3-4**. Note that the dataset used here was compiled in 2015, meaning that some information may be out of date. A large portion of the lands at the north and south ends of the Huntmar corridor was, at the time that the data was collected, “Vacant Land”. Other significant uses included “Regional Shopping Centre” (Tanger Outlets), “Other Commercial” (Palladium Auto Park), “Transportation” (parking lots surrounding the Canadian Tire Centre), “Active Recreation” (the Canadian Tire Centre), and “Open Space” (the Highway 417 Corridor). As well, there were some institutional and residential (“Single Detached” as well as “Row and Townhouse”) land uses abutting the Study ROW. The majority of the land surrounding the Stittsville Main Street Extension corridor was “Vacant Land”, with “Single-detached residential” and “Passive recreation” uses at the south end and some “Row and townhouse residential” to the east.

Figure 3-4: Study Area Land Uses (2015)



3.1.5 Development Applications

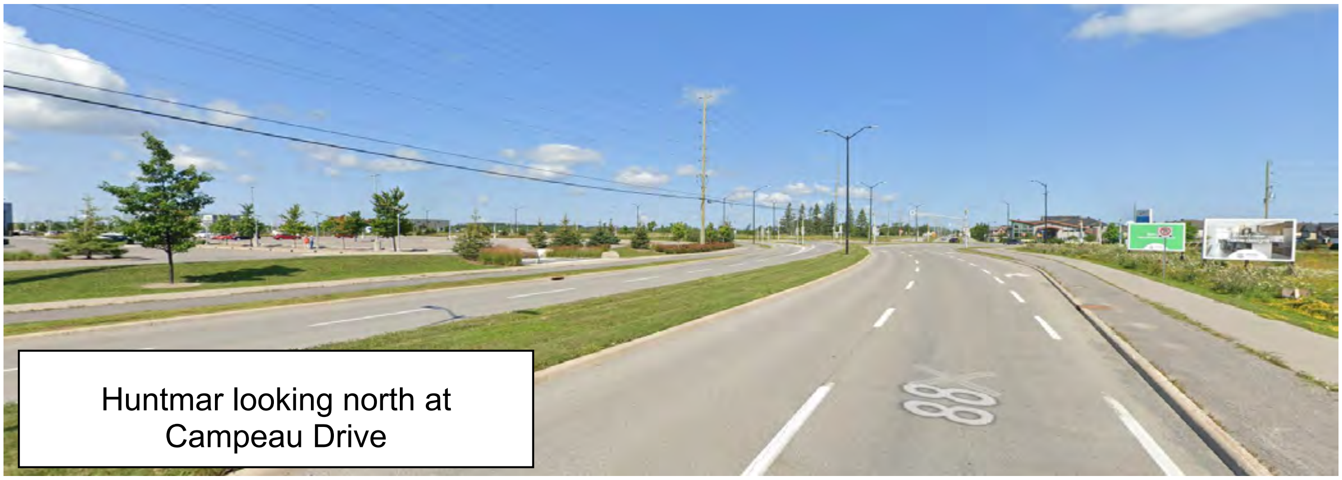
Refer to **Section 2.2.4.3** for a summary of relevant area development applications.

3.1.6 Landscape Character

A review of the existing landscape character was conducted for the Study Area. Huntmar Drive between Campeau Drive and Maple Grove Road is a combination of institutional and commercial land uses. A significant portion of the existing corridor is undeveloped “greenfield”, or lands in the process of being developed into residential subdivisions.

3.1.6.1 Campeau Drive to Highway 417

Moving south from Campeau Drive, Huntmar Drive is a 4-lane cross-section with a grass median containing contemporary streetlighting, segregated cycle tracks and ~1.8m concrete sidewalk on both sides of the road. To the west of the corridor is the Tanger Outlets shopping centre, which is set back approximately 100m and separated by a large parking lot and a storm-water management pond. To the east of the road are empty development lands, with some ongoing construction activity. The sidewalk, cycle tracks, and median end at the Tanger Outlets driveway as the road transitions to a 2-lane cross-section approaching the Highway 417 Bridge. At this point, the road begins to slope upwards towards the bridge; there are traffic barriers on both sides and worn dirt pathways indicative of pedestrian traffic despite “no-pedestrian” signs. Approximately 40 metres after the barriers begin, Huntmar Drive crosses Feedmill Creek, which is visible from the road and is surrounded by dense vegetation. Behind the barriers are steep embankments sloping to greenfield development lands on one side and agricultural lands on the other. There are very few trees within the City owned ROW, but there is a high-voltage hydro line in the boulevard on the west side of the corridor. There are bus-pads on both sides of the road at Campeau Drive, but otherwise no notable streetscaping or public-realm enhancements (except for some landscaping and benches on Tanger Outlets lands). There are currently no land uses which front directly on to Huntmar Drive between Campeau Drive and the Highway 417 Bridge.



Huntmar looking north at Campeau Drive

Huntmar looking south towards Highway 417

3.1.6.2 Highway 417 to Palladium Drive

At the south end of the Highway 417 bridge, Huntmar widens back to a 4-lane cross-section as it slopes back down to the Cyclone Taylor Drive intersection. North of Cyclone Taylor Drive there are no sidewalks and traffic-barriers close to the road edge on both sides. Behind the barriers are steep embankments leading to a stormwater management pond on one side and a large parking lot on the other. South of Cyclone Taylor, Huntmar Drive remains a 4-lane cross-section with a grass median and a concrete sidewalk on the east side of the road. There are very few trees in the City owned ROW, although there is a row of dense, mature trees separating the sidewalk from the parking lot just south of Cyclone Taylor. On the west side of the road, there is no sidewalk, but there is a thin strip of pavement which is used to access the bus-stop at Cyclone Taylor. The grass boulevard leads into some semi-naturalized growth beneath a high-voltage hydro line. Behind this, a row of widely spaced mature trees marks the edge of an empty car-storage lot. Apart from standard streetlighting and signage, there are no streetscaping or public-realm enhancements.

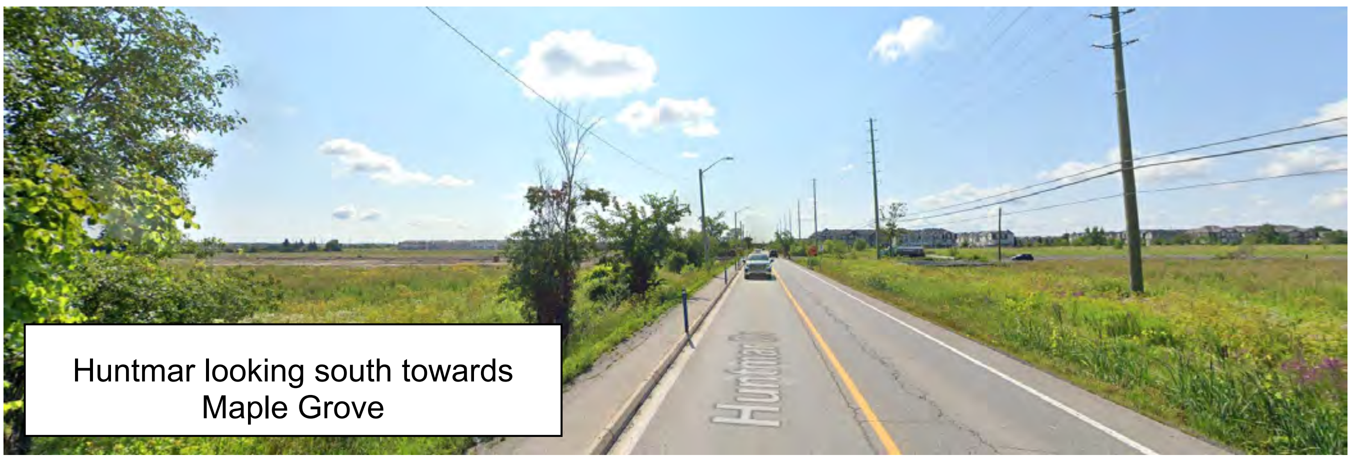
There are no uses fronting directly on to Huntmar Drive along this segment. On the east side of the road south of Cyclone Taylor is the Canadian Tire Centre (CTC) event venue, which is set back ~110m from the road edge and is surrounded by large parking lots. To the west of the corridor is a collection of car dealerships known as the Palladium Auto Park, which is surrounded by large storage lots. Neither of these uses interface with the Huntmar Drive public realm.

Huntmar looking south at Cyclone Taylor

3.1.6.3 Palladium Drive to Maple Grove Road

South of Palladium Drive, Huntmar Drive narrows again to a 2-lane cross-section. The paved sidewalk on the east side of the road ends after ~100m and becomes an at-grade combined active-transportation facility, demarcated by low concrete barriers and flexible bollards. There is a painted bike-lane on the west side of the road, but this also ends after ~100m, becoming a narrow paved shoulder. The cross-section here is rural, with heavily vegetated stormwater ditches on both sides. Land uses are a mix of institutional and commercial towards the north end of the segment, transitioning to residential development lands towards the south. To the south of Palladium is a large CTC parking lot on the east side of the road, separated by a grass boulevard containing a row of large boulders, and a gas station on the west. South of this is an Ottawa Police Services headquarters, set back by ~40m with several landscaping elements in the boulevard. Across the road from this is a residential property, obscured from view by dense, mature trees. Except for the Kanata Academy Private School on the east side of the road, the rest of the corridor to Maple Grove Road is surrounded by empty development lands on both sides. At Maple Grove Road, an existing residential subdivision sides on to the Huntmar Drive ROW. There are combined streetlighting/utility poles along the entire east side of this segment, and a high-voltage hydro line in the boulevard along the west.

Huntmar looking south, south of Palladium Drive



Huntmar looking south towards Maple Grove

3.1.6.4 Stittsville Main Street – Connection Points

It is difficult to evaluate the landscape character of the Stittsville Main Street extension, as the existing corridor is primarily surrounded by undeveloped land which will be described in more detail in **Section 3.2: Natural Environment**. However, a brief description of the landscape character at the eastern and southern ends of the corridor is given here.

The eastern connection point of Stittsville Main Street to the future Robert Grant Avenue is currently empty development and agricultural lands to the north, and a built-out subdivision of primarily semi-detached townhouse-style residential. There is a row of mature trees and vegetation demarcating the line between the existing subdivision and future development lands.

The existing northern terminus of Stittsville Main Street, at the south end of the Study Area, is similarly surrounded by empty, but highly vegetated lands to the north, and a built out subdivision of single-detached residential to the south-east, and a stormwater pond/park space to the south-west. A paved, east-west multi-use path intersects with the street at this point.

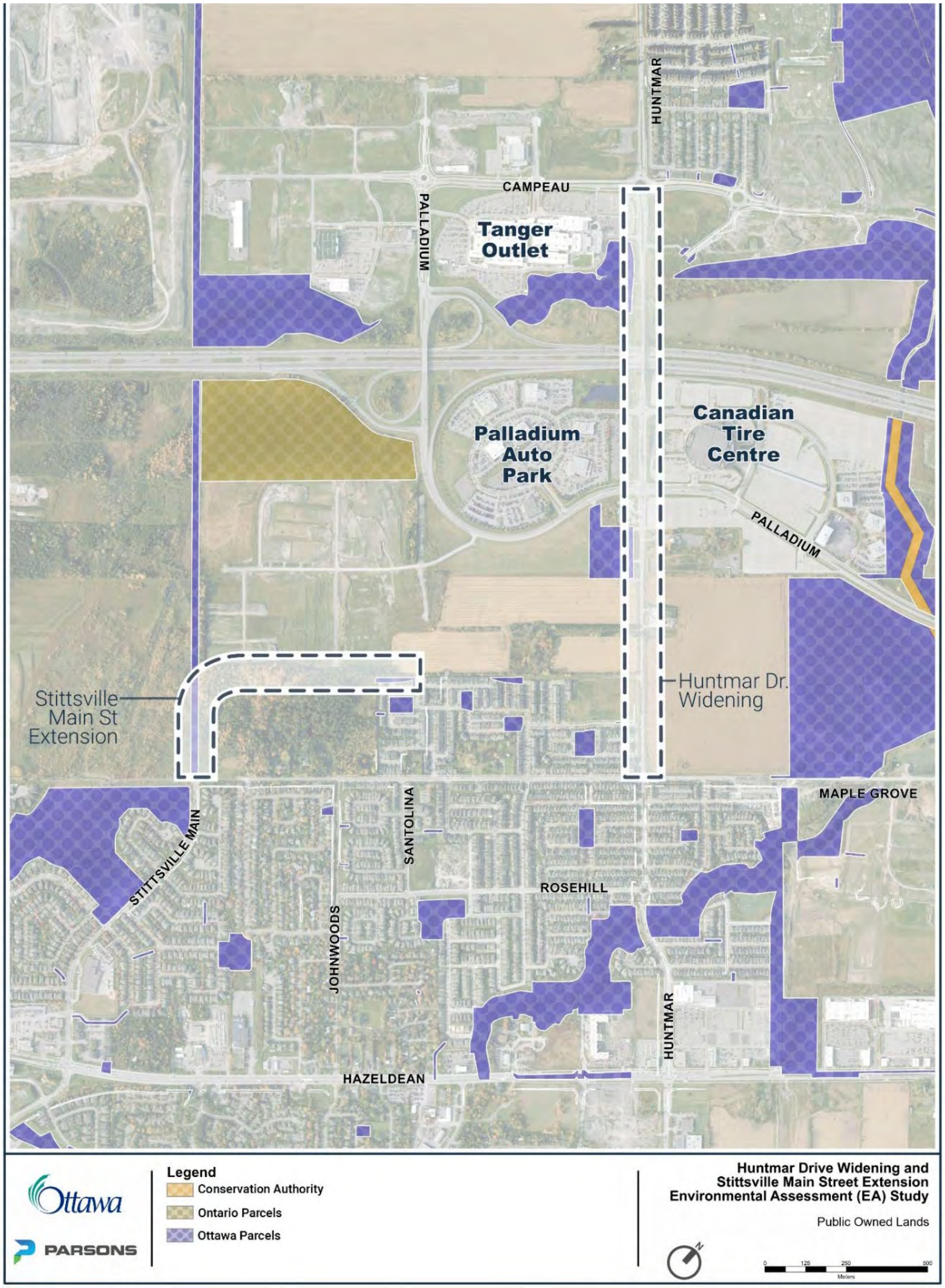
3.1.7 Land Ownership

Figure 3-5 shows public land ownership for the Study Area. Land owned by the City of Ottawa (other than municipal street ROWs) in the area of Huntmar Road includes parcels on both sides of Huntmar Drive containing the Feedmill Creek watercourse, as well as the Ottawa Police Service property at 211 Huntmar, and two large parcels to the east of the 130 Huntmar development lands which contain the “Maple Grove Depot” located at 1655 Maple Grove Road.

The City of Ottawa has been implementing the policies of the Official Plan wherein a ROW of 37.5m is incrementally being acquired as conditions of development approval of abutting properties. This ROW is to be centered on the historic roadway centreline and applied equally at 18.75m per side, plus any other widenings taken at intersections.

The City also owns property both within and adjacent to the Stittsville Main Street ROW, including the protected ROW land extending north from the existing terminus of the road and the open space to the south-west of the Study Area. The Province of Ontario owns a large parcel south of Highway 417 at the Palladium interchange, which is under consideration for MTO Ottawa Highway Maintenance Patrol Yard. All other lands not identified as provincial or municipal are privately owned, except for roadways.

Figure 3-5: Existing Public Land Ownership in the Study Area



3.1.8 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. Priority #4 of the *Plan* is to "Apply a climate lens to asset management and capital projects", including roads and pathways. Accordingly, studies should integrate climate considerations such as asset resiliency and risk management and should recommend a design which is in line with greenhouse gas emission targets.

The City, in partnership with the National Capital Commission (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. According to the 2020 Report, residents of Ottawa should expect:

- The region to become warmer across all seasons;
- The region to become wetter across all seasons but summer;
- The timing of the seasons to shift and for periods of extreme heat to become more common;
- The volume and intensity of rainfall to increase;
- Less snowfall and a shorter snow season; and
- Conditions favorable to extreme events (freezing rain, tornadoes, wildfires, etc.) to become more common.

Some of the potential impacts of these climactic trends include wide ranging repercussions for public health and safety, higher risk of flooding, and a shorter life expectancy for roads and other infrastructure (Climate Projections for the National Capital Region, 2020).

3.1.9 Cultural Heritage Resources

Cultural heritage resources include archaeological resources, built heritage resources and cultural heritage landscapes.

3.1.9.1 Archaeological Resources

A Stage 1 Archaeological Assessment (AA) (Project Information Form number P051-0213-2021) was undertaken on September 14, 2021, by LHC Heritage Planning and Archaeology for the project study area. A Stage 1 AA consists of a review of geographic, land use and historical information for the property and the relevant surrounding area and contacting MCM to find out whether, or not, there are any known archaeological sites on or near the property. Its purpose is to identify areas of archaeological potential and further archaeological assessment (e.g., Stage 2-4) as necessary. For the purposes of determining archaeological potential, the archaeological Study Area consists of the existing road allowance as defined by the Project Limits, plus a 10-metre buffer on either side. A Stage 1 Archaeological Assessment (**Appendix B**) was completed and determined that portions of the Study Area do exhibit archaeological potential **Figure 3-6**. A Stage 2 AA and any further recommended assessment (e.g., Stage 3 and 4) will be completed as early as possible in the detailed design phase and prior to any ground disturbing activities.

Figure 3-6: Archaeological Assessment Recommendations

3.1.9.2 Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (dated September 3, 2021, prepared by LHC Heritage Planning and Archaeology, and included as **Appendix B**) was prepared for the Study Area. The Report provided an overview of recognized and potential Cultural Heritage Resources (CHR) which includes built heritage resources (BHR) and cultural heritage landscapes (CHL). BHR is defined as 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 Indigenous community. BHRs are generally located on a property that has been designated under Parts IV or V of the *Ontario Heritage Act* (OHA), or included on local, provincial and/or federal registers. CHL 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 Indigenous community. Farms and cemeteries are examples of CHLs.

For the purposes of determining cultural heritage, the cultural heritage Study Area is defined as the Project Limits plus a 250m buffer around them (**Figure 3-7**). The CHAR 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 CHAR Study Area.

There is one property in the CHAR Study Area designated under Section 29 Part IV of the OHA:

- CHR-1, 173 Huntmar Drive.

There is one property in the CHAR Study Area designated under Section 27 Part IV of the OHA:

- CHR-2, 1837 Maple Grove Road.

Several individual residential properties in the CHAR Study Area 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 only one was determined to have potential built heritage resource or cultural heritage landscape:

- CHR-3, 210 Huntmar Drive.

Figure 3-7: Cultural Heritage Resources

Legend
- Study Area
- Cultural Heritage Resources

TITLE
Cultural Heritage Resource Mapping

CLIENT
Parsons Inc.

PROJECT
Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment Huntmar Drive Widening and Stittsville Main Street Extension: Kanata, Ottawa, Ontario

PROJECT NO. LHC0257

CONSULTANT
LHC

YYYY-MM-DD	2021-08-12
PREPARED	LHC
DESIGNED	JG
FIGURE #	19

NOTE(S)
1. All locations are approximate.

REFERENCE(S)
1. Service Layer Credits: Source: Esri, Maxar, GeoEye, EarthStar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

3.1.10 Indigenous Land Claims

The Study Area is within the Algonquins of Ontario Settlement Area, an area of unceded territory covering more than nine million acres, including the City of Ottawa. The Study Area is within the Treaty 27 and Treaty 27 ¼ lands, also known as the Rideau Purchase, which involved the land along the south short of the Ottawa River and extended inland to the east shore of the Chandos Lake There is no known current use of lands and/or resources for traditional purposes nearby. Known areas used for traditional fishing include the Rideau River which is more than 17km east of the Study Area (Algonquins of Ontario, 2014). Consultation was undertaken with identified groups that may have an interest in the Study Area and circulated the Cultural Heritage Report for review and comment.

3.1.11 Noise, Air Quality and Vibration

Existing conditions for noise, air quality and vibration were assessed for the Project. The complete report can be found in **Appendix B**. For the purposes of this assessment, the Study Area as it relates to noise, air quality and vibration is defined as a 200m buffer of the Project Limits. Sensitive land uses within the corridor are sporadic and include residential properties, specifically at the outdoor living area.

3.1.11.1 Air Quality

Roadway vehicle traffic is the primary source of air-borne pollutants in the Study Area. Emissions from roadway vehicles include Carbon Monoxide (CO), Hydrocarbons (HC), Oxides of Nitrogen (NOx) and Particulate Matter (PM), among other volatile organic compounds (VOC), which contribute to ambient air quality levels. The concentrations of pollutants produced by vehicle emissions are low throughout the Study Area, with the exception of the immediate area surrounding Highway 417 where they are moderate.

3.1.11.2 Noise

Vehicular traffic is the primary source of environmental noise within the Study Area. According to the City of Ottawa's Environmental Noise Control Guidelines (Environmental Noise Control Guidelines, 2016), 55 decibel units (dBA) of roadway noise is acceptable in outdoor living areas (OLA's), with mitigating measures being required as the noise levels exceed 60 dBA. Noise levels in the Study Area are elevated around Highway 417, Palladium Drive and Huntmar Drive, and are expected to exceed 60 dBA where receptors are located in close proximity to these roadways. Noise levels are moderate to low and will fall below 55 dBA as distance increases from highways and arterial roadways.

3.1.11.3 Ground Vibrations and Ground Borne Noise Assessment

Roadway traffic can produce perceptible levels of ground vibrations, and incidentally ground-borne noise. According to various industry standards, the appropriate criteria for residential buildings are 0.14 millimeter per second (mm/s) root mean square for vibrations and 35 dBA for ground borne noise. In general terms, vibration levels throughout the Study Area are low (< 0.1 mm/s). The future Kanata LRT will be built near the Huntmar Drive corridor and will contribute to ground vibrations once completed.

3.2 Natural Environment

The natural environment existing conditions provides a high-level summary of natural environment features of provincial interest as identified by the PPS (MMAH, 2020), Ministry of the Environment, Conservation and Parks (MECP) and the City's Official Plan (Official Plan, consolidated, 2013). Existing Natural Heritage Features are shown in **Figure 3-8** (data cited to 2013 OP as the 2022 OP had not been adopted at the time of writing)**.** The complete report is provided in **Appendix B**.

For the purposes of this assessment, the Study Area as it relates to the natural environment is defined as a 120m buffer of the Project Limits which is consistent with the minimum distance to natural features before potential impacts require detailed evaluation according to Provincial Policy (MMAH, 2020).

3.2.1 Terrestrial Environment

The Study Area is located within the Kemptville Ecodistrict 6E-12. This area consists of limestone plain and sandstone bedrock covered with sand, silt, lime clay, and loam soils. The north and west boundaries in which the Study Area occurs includes portions of the Russell and Prescott Sand Plains and the Edwardsburg Sand Plain (Henson and Brodribb, 2005).

Natural vegetation cover within Ecodistrict 6E-12 is primarily composed of forest and swamp along with other wetlands and alvar communities to a lesser degree (Henson & Brodribb, 2005). Common forest species that are characteristic for this region include Sugar Maple (*Acer saccharum*), Red Maple (*Acer rubrum*), ash species (*Fraxinus sp.*), and American Beech (*Fagus grandifolia*) to name a few. Alvars that are present in the area are considered high-quality occurrences but are relatively uncommon (Crins et. al., 2009).

Terrestrial habitat features within the Study Area include forest fragments, riparian areas, and limited wetland communities, as well as cultural meadows, vacant agricultural fields and fencerows, and constructed green lands. Vegetation communities throughout the Study Area are heavily influenced by the anthropogenic landscape and are dominated by tolerant native species including Manitoba Maple (*Acer negundo*), Green Ash (*Fraxinus pennsylvanica*), Eastern White-cedar (*Thuja occidentalis*), Wild Grape (*Vitis riparia*), Goldenrods (*Solidago, Euthamia species*), Asters (*Symphyotricum species*), Common Milkweed (*Asclepias syriaca*) and Broadleaf Cattail (*Typha latifolia*). Introduced and invasive species are also common throughout the Study Area and include European Buckthorn (*Rhamnus cathartica*), Tatarian

Honeysuckle (*Lonicera tatarica*), Purple Loosestrife (*Lysimachia salicaria*), and Pale Swallowwort (*Vincetoxicum rossicum*).

3.2.2 Natural Heritage Features

The Study Area is a mixed-use area, comprising of agricultural lands, residential, commercial, and institutional properties with small pockets of natural areas (e.g., thickets, meadows, woodlands, and riparian communities). Additionally, a number of vacant lands are slated for future development, including vacant fields/meadow communities along Huntmar Drive and woodlands along the Stittsville Main Street Extension ROW. The Study Area lies outside of the NCC Greenbelt and is considered part of the suburban area.

The Study Area includes portions of land identified as natural heritage features, specifically significant woodlands and valleylands in two distinct sections (City of Ottawa, 2013). No Natural Environment Areas, Areas of Natural and Scientific Interest, or Provincially Significant Wetlands occur within the Study Area.

3.2.2.1 Urban Natural Areas (UNA)

The City of Ottawa undertook the Urban Natural Areas Environmental Evaluation Study (UNAEES) (Muncaster and Brunton, 2005) 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. The Urban Natural Areas (UNAs) identified in the UNAEES were ranked as High, Moderate, or Low ecological significance (Muncaster and Brunton, 2005). The results of the UNAEES resulted in protecting of some lands deemed significant. Not all lands identified in the UNAEES are significant and / or protected.

One UNA evaluated with Moderate significance was identified within the Stittsville Main Extension Study Area **(Figure 3-8).**

- North of Maple Grove (UNA 32) – This area has been ranked as moderately significant and contains regenerating agricultural fields regenerating into woodlands including young to submature Upland Coniferous Forest and submature Mixed Swamp. Overall biodiversity was ranked as low and not regionally rare or uncommon plant or animal species were noted. Black Ash (*Fraxinus nigra*) was noted as being present within submature Mixed Swamp communities; this tree has recently been identified as a provincial Species at Risk (as of January 2022) but is not yet legally protected.

UNA 32 has been greatly reduced in size and integrity by clearing associated with the development of 195 Huntmar. Future development applications have been filed for the remaining portions of this UNA at 1981 and 1919 Maple Grove Drive.

3.2.2.2 Urban Natural Features

Urban Natural Features (UNF) support biodiversity and wildlife habitat within the urban area. UNFs are natural landscapes that may include woodlands, wetlands, watercourses and ravines that can occur on City, federal, provincial and privately-owned lands.

Urban Natural Features are designated by the City of Ottawa in the OP to preserve natural features for conservation or passive leisure uses. No UNFs occur in or within 120m of the Study Area as of June 6, 2022 under the 2013 City of Ottawa Official Plan (City of Ottawa, 2013). Under the new OP, Schedule C11A indicates that areas surrounding Feedmill Creek on both sides of Palladium Drive will become a designated UNF, as well as the area to the west of the existing Stittsville Main Street terminus.

3.2.2.3 Significant Woodlands

One significant woodland is located within the Study Area and is located north of Maple Grove Road, along the Stittsville Main Extension corridor, and is associated with UNA 32 (UNA 32 is shown on **Figure 3-8**). An area of approximately 12.5 ha of the existing canopy cover is greater than 45 years of age (GeoOttawa, 2021).

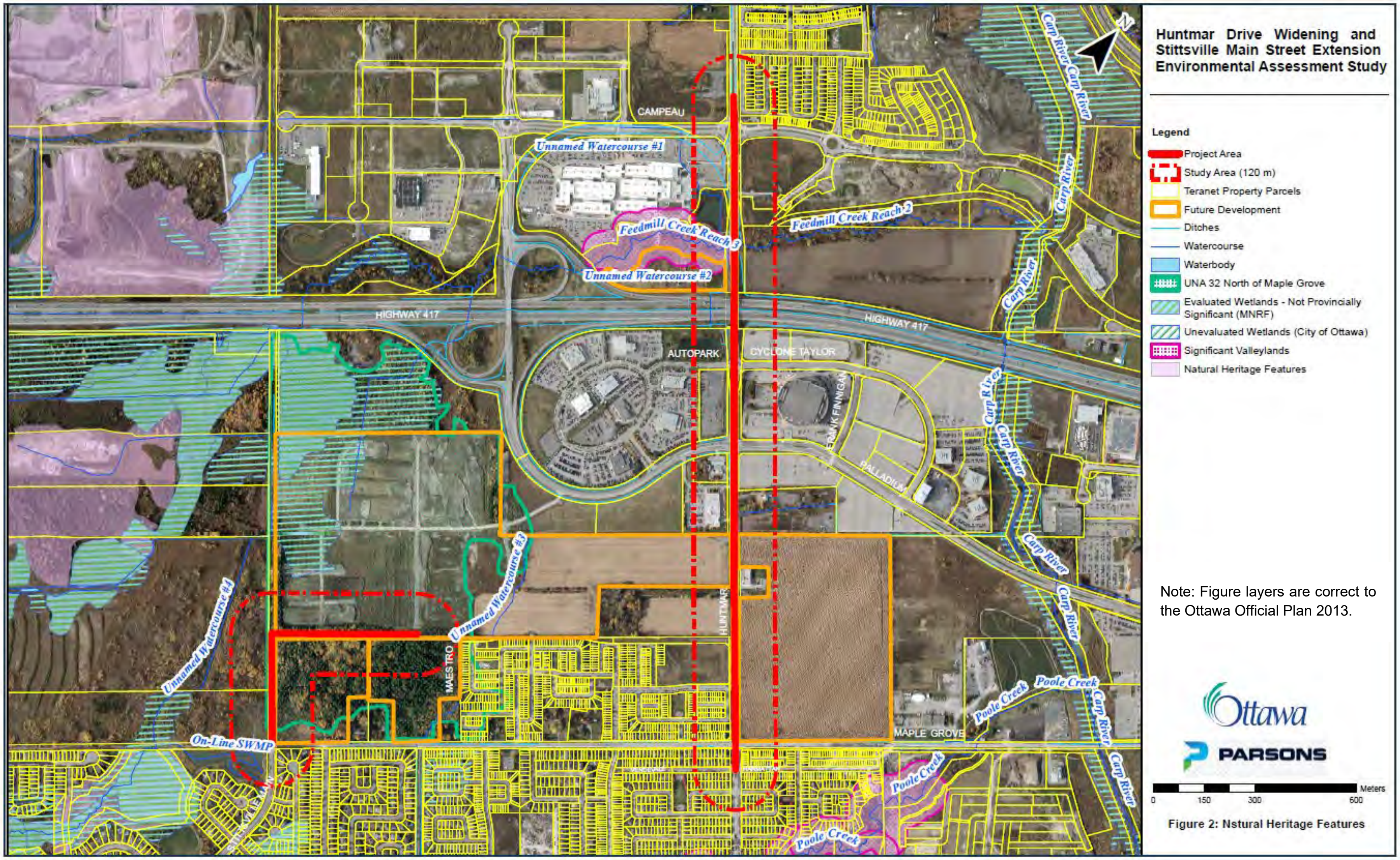
3.2.2.4 Significant Valleylands

One significant valleyland occurs within the Study Area, located north of Highway 417 and west of Huntmar Drive within the Feedmill Creek corridor **(Figure 3-8).**

3.2.2.5 Linkage Features

Linkages/corridors promote ecological functions. Corridors should be preserved and/or designed to accommodate the natural movement/life patterns of fauna and flora disbursement as movement is key for biodiversity conservation and long-term viability of ecological systems (MNR 2010). The Feedmill Creek Corridor is a wildlife linkage feature, although not formally named as such in the new Official Plan (2022, Schedule C11). Riparian and shoreline linkages that interact with terrestrial ecosystems tend to support increased biodiversity; meeting needs of multiple species (MNR 2010).

Figure 3-8: Natural Heritage Features found in the Study Area



3.2.3 Aquatic Environment

The Study Area is located in the Carp River Watershed which is in the northwest portion of the City of Ottawa. The aquatic features within the Study Area are tributaries to the Carp River. The Carp River drains an area of approximately 306 km² and discharges to the Ottawa River at Fitzroy Harbour (City of Ottawa 2004). Feedmill Creek and three unnamed watercourses are present within the Study Area. Additionally, three storm water management ponds (SWMP) are present within the Study Area. Floodplains are present within the Study Area along the riparian area of Feedmill Creek.

3.2.4 Species at Risk and Species of Conservation Concern

A review of online resources (e.g., wildlife atlas records, Natural Heritage Information Centre [NHIC] database) identified 25 Species at Risk (SAR) with historical occurrence records that overlap with the Study Area, either within 1 km (as per NHIC) or 10 km (as per wildlife atlas records) of the Study Area (**Table 3-2**).

Table 3-2: SAR and Species of Conservation Concern Wildlife Records

Common Name	Taxonomic Name	Source	ESA Status	SARA Status (Schedule 1)
PLANTS				
Butternut *	*Juglans cinerea*	NHIC 2021	END	END
Black Ash	*Fraxinus nigra*	UNAEES 2005	END!	NAR+
REPTILES				
Blanding's Turtle	*Emydoidea blandingii*	ORAA 2019	THR	END
Midland Painted Turtle	*Chrysemys picta marginata*	NHIC 2021	NAR	SC
Snapping Turtle	*Chelydra serpentina*	NHIC 2021	SC	SC
AMPHIBIANS				
Western Chorus Frog	*Pseudacris triseriata*	ORAA 2018	NAR	THR
BIRDS				
Barn Swallow *	*Hirundo rustica*	Ebird, OBBA 2008	THR@	THR

Common Name	Taxonomic Name	Source	ESA Status	SARA Status (Schedule 1)
Bobolink	*Dolichonyx oryzivorus*	NHIC 2021, OBBA 2008	THR	THR
Cerulean Warbler	*Setophaga cerulea*	OBBA 2008	THR	END
Common Nighthawk	*Chordeiles minor*	OBBA 2008	SC	THR
Eastern Meadowlark *	*Sturnella magna*	OBBA 2008	THR	THR
Eastern Whip-poor-will	*Antrostomus vociferus*	OBBA 2008	THR	THR
Eastern Wood-pewee	*Contopus virens*	OBBA 2008	SC	SC
Golden-winged Warbler	*Vermivora chrysoptera*	OBBA 2008	SC	THR
Least Bittern	*Ixobrychus exilis*	OBBA 2008	THR	THR
Loggerhead Shrike	*Lanius ludovicianus*	OBBA 2008	END	END
Olive-sided Flycatcher	*Contopus cooperi*	OBBA 2008	SC	THR
Red-headed Woodpecker	*Melanerpes erythrocephalus*	OBBA 2008	END	END
Wood Thrush *	*Hylocichla mustelina*	EBird, NHIC, OBBA 2008	SC	THR
Yellow Rail	*Coturnicops noveboracensis*	OBBA 2008	SC	SC
MAMMALS				
Little Brown Myotis	*Myotis lucifuga*	AMO 1994, MacPherson 2021	END	END

Common Name	Taxonomic Name	Source	ESA Status	SARA Status (Schedule 1)
Small-footed Bat	*Myotis leibii*	AMO 1994, MacPherson 2021	END	NAR
Northern Myotis	*Myotis septentrionalis*	AMO 1994, MacPherson 2021	END	END
Tri-coloured Bat *	*Perimyotis subflavus*	AMO 1994, MacPherson 2021	END	END
INVERTEBRATES				
Monarch *	*Danaus plexippus*	OBA 2019	SC	SC

* Observed in the Study Area during Site Visits

"!" Note that Black Ash is designated as Endangered in Ontario, as of January 1, 2022, however, as per the Minister's Order ERO 019-4278 (Government of Ontario 2022) protections will not be implemented until two years from the date added to the SAR Ontario list.

"+" Note that Black Ash is designated as Not At Risk federally, as of June 6, 2022, however it is under consideration as Threatened based on the most recent COSEWIC 2018 report.

"@" Note that Barn Swallow is designated as Threatened both federally and provincially as of June 6, 2022. Following the 2021 COSEWIC report designation of Special Concern, the ESA downgraded the barn swallow designation to Special Concern in Jan 2023.

Status Source:

ESA (Endangered Species Act) Status (MNRF 2020)

SARA (Species at Risk Act) Registry (federal status - listed) (ECCC 2022)

Extinct - A species that no longer exists anywhere.

Extirpated (EXT) - Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.

Endangered (END) - Lives in the wild in Ontario but is facing imminent extinction or extirpation.

Threatened (THR) - Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.

Special Concern (SC) - Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

Not at Risk (NAR) - A species that has been evaluated and found to be not at risk.

Data Deficient (DD) - A species for which there is insufficient information for a provincial status recommendation.

Ten (10) species listed as threatened or endangered have the potential to occur within the Study Area, based on the presence of suitable habitat. Of these, four (4) were observed during site visits. Additionally, two (2) species of special concern were observed, with another eight (8) species of special concern and species of conservation concern having potential to occur, which includes species that are under consideration for listing at the time of writing of this report.

3.3 Physical Environment

A review of existing subsurface and hydrogeological conditions was undertaken. The complete report is included in **Appendix B**.

3.3.1 Subsurface Conditions

Surficial geology in the vicinity of Huntmar Drive consists of offshore marine deposits of silty clay to clay. The thickness of the overburden along the alignment is generally between 15 and 25 metres (m) below ground surface, decreasing to between 10m to 15m below ground surface at the intersection of Maple Grove Road. Shallow bedrock (between 0m and 3m depth) is present along most of the alignment of Stittsville Main Street. Where present, the overburden consists primarily of deposits of glacial till. Surficial geology for the Study Area is shown by **Figure 3-9**; drift thickness by **Figure 3-10**.

Bedrock geology in the Study Area is shown in **Figure 3-11.** The bedrock throughout most of the Study Area consists of interbedded limestone and shale of the Verulam formation, and limestone of the Bobcaygeon formation.

Figure 3-9: Surficial Geology in the Study Area

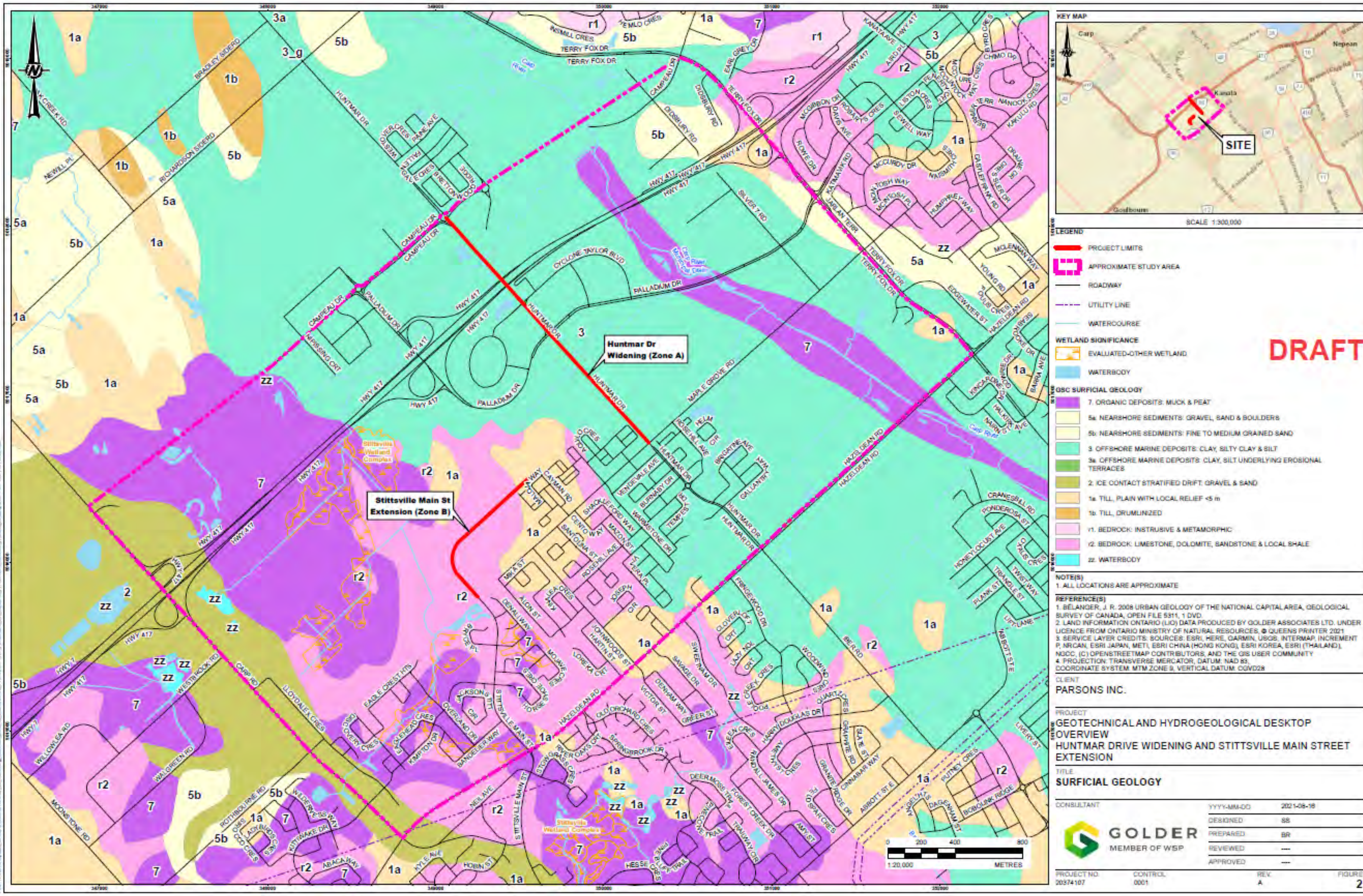


Figure 3-10: Drift Thickness in the Study Area

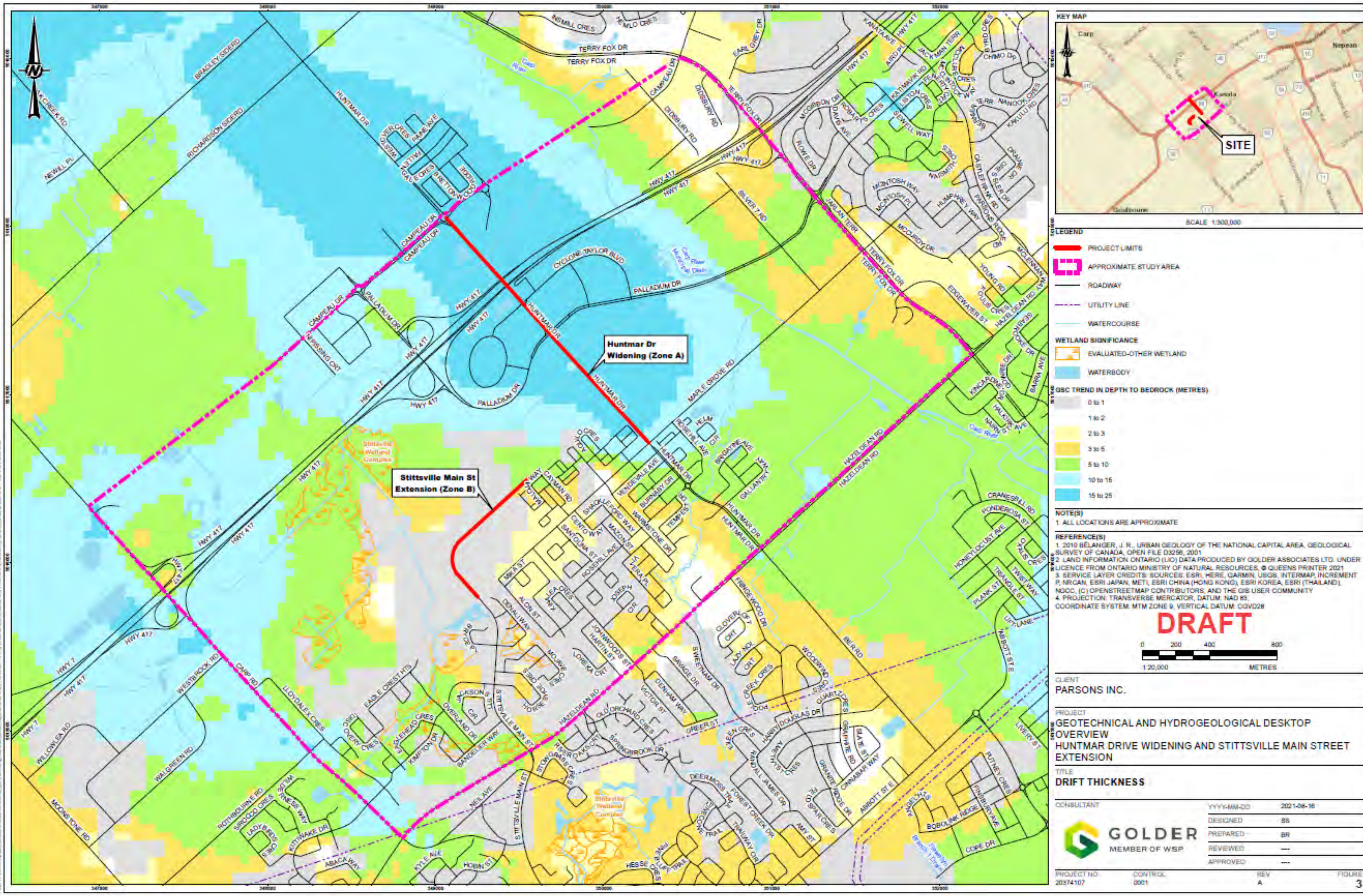
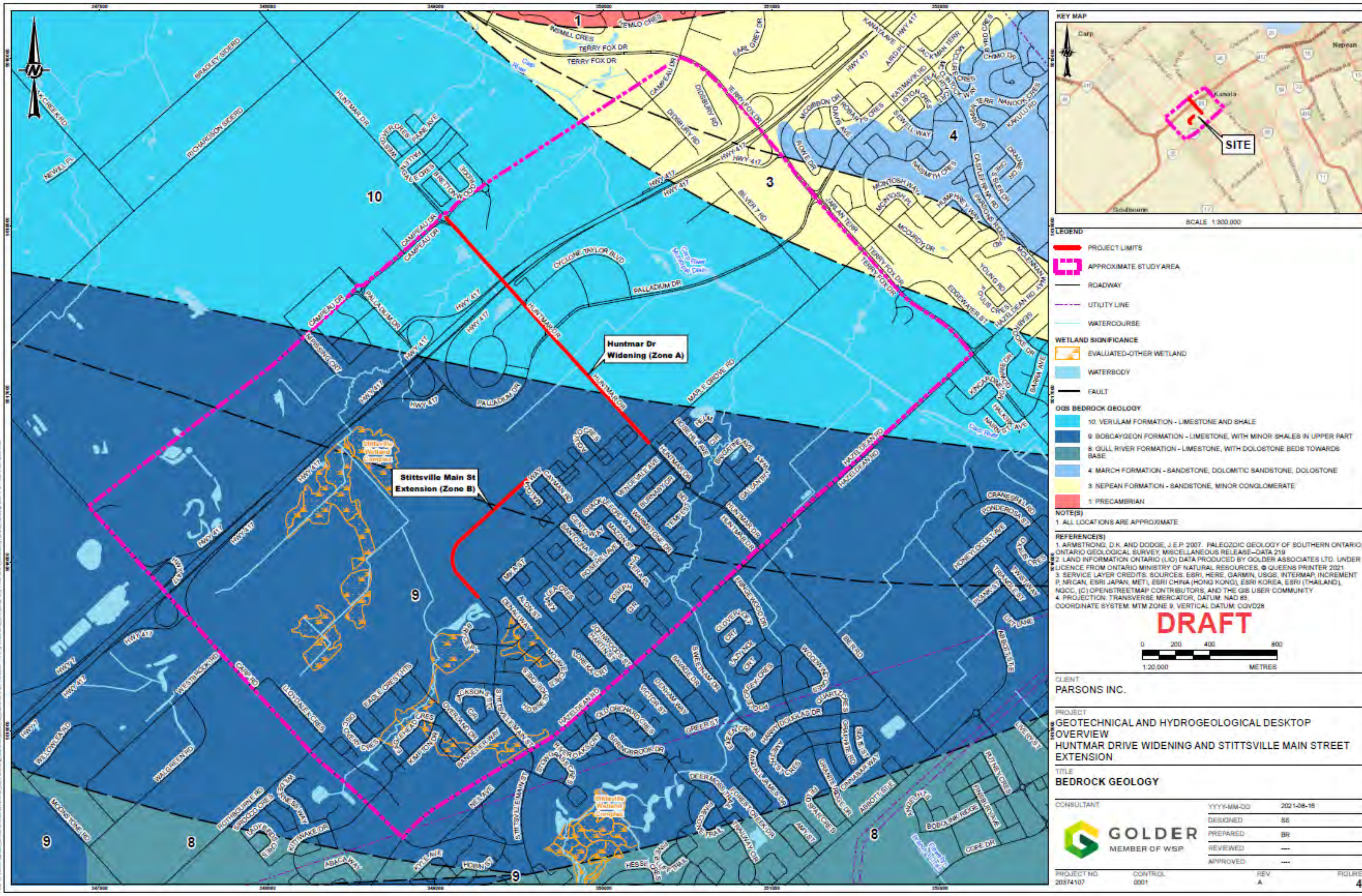


Figure 3-11: Bedrock Geology in the Study Area



3.3.2 Fluvial Geomorphology

Fluvial Geomorphic existing conditions were characterized for the Study Area. The full report is included in **Appendix B**. The report presents an evaluation of channel geomorphology characteristics and associated geomorphic hazards where Huntmar Drive crosses Feedmill Creek. The description of Feedmill Creek is defined by two sections or “reach lengths” of the watercourse: one located upstream of the existing Huntmar Drive crossing and another located downstream as described in **Table 3-3**.

Table 3-3: Summary of Existing Fluvial Geomorphic Characteristics

Reach	Delineation of Reach Boundaries	General Description of Channel Morphology and/or Water Feature Conditions	Bankfull Width	Channel Substrate	Riparian Conditions	Additional Remarks from Background Review and Field Reconnaissance
FC-01 at Feedmill Creek Downstream of Huntmar Drive[1]	▪ Reach length of approximately 0.7 km ▪ Upstream reach break located at the culvert crossing at Huntmar Drive and downstream from the outlet of a stormwater pond outlet (possible change in channel hydraulics and hydrology). ▪ Downstream reach break located at upstream extent of where channel planform was shown to be historically realigned/straightened (i.e., immediately upstream of the confluence with the Carp River) (marked change in channel planform).	▪ Small to medium sized permanent watercourse with a well-defined channel that includes: • mostly alluvial controls; • moderate sinuosity, • bed morphology consists of flat and pool sections followed by a sediment bar downstream of crossing location; • moderate side slopes; and • slight entrenchment. ▪ Mostly stable conditions with some evidence of erosion and/or depositional features at the channel. ▪ Existing channel pattern at the study reach supports unconfined conditions.	3.8 m – 10 m with a value of 3.8 m at a location immediately downstream of the Huntmar Drive crossing	▪ Silty clay at bed (D_{50} = 0.006 mm). ▪ Silty clay at banks (D_{50} = 0.003 mm).	Riparian areas along both reaches include a dense cover of shrubs and grasses with a mix of small and mature trees.	▪ Examples of undercutting along banks and sediment bar formation ▪ Possible channel re-construction downstream of stormwater pond outlet (i.e., section of channel located at the upstream end of the reach)
FC-02 at Feedmill Creek Upstream of Huntmar Drive	▪ Reach length of approximately 0.5 km ▪ Upstream reach break located at the culvert crossing at Highway 417 Exit 142 ▪ Downstream reach break located at the culvert crossing at Huntmar Drive and immediately downstream from the outlet of a stormwater pond outlet (possible change in channel hydraulics and hydrology)	▪ Small to medium sized permanent watercourse with a well-defined channel that includes: • mostly alluvial controls, • moderate sinuosity (albeit comparatively less sinuous than FC-01 based on the review of unaltered channel conditions [prior to 2002], especially along the central portion of the reach); • bed morphology consists of flat, rifle and pool sections, with localized flooding near downstream end of reach due to the presence of a beaver dam; • moderate side slopes; and • slight entrenchment. ▪ Mostly stable conditions with some evidence of erosion and/or depositional features at the channel. ▪ Existing channel pattern at the study reach supports unconfined conditions.	~ 3.8 m at each of the surveyed locations including a cross-section location immediately upstream of the Huntmar Drive crossing	▪ Silty clay at bed and banks (Laboratory/D_{50} results not obtained at FC-02).		▪ Multiple instances of historical channel realignment identified along central portion of the reach (refer to Section 2.1). ▪ Examples of undercutting along the banks of riffle features. ▪ Presence of beaver dam and associated raised water levels in the area immediately upstream of the Huntmar Drive road crossing.

[1]Source: Golder, 2018

3.3.3 Hydrogeology

Previous investigations within the Study Area indicated that the static groundwater level generally ranged anywhere from near ground surface to approximately 6m below the ground surface but was commonly less than 3m below ground surface. The water table was generally found in the silty clay overburden particularly near Huntmar Drive. The water table could be found in the bedrock, depending on the thickness of overburden, in areas where the bedrock is located close to surface such as near Stittsville Main Street.

It should be noted that the data from the reviewed investigations took place over several decades and may not be representative of the current groundwater conditions given that factors such as infrastructure development can impact groundwater levels. Groundwater levels are also expected to fluctuate seasonally, and higher groundwater levels can be expected during wet periods of the year, such as spring.

3.3.3.1 Groundwater Supply Wells

There are 104 wells in the Ministry of the Environment, Conservation and Parks (MECP) Water Well Information System (WWIS) database that were completed as water supply wells within the Study Area. Wells in the WWIS with a poor location accuracy greater than 300m were excluded. Within the Study Area, 97 of the water supply wells were completed in bedrock and the remaining seven wells were completed in the overburden.

3.3.3.2 Overburden Aquifers

Based on information from the WWIS, there are seven supply wells in the Study Area completed in the overburden. There is one overburden well located near Huntmar Drive that was completed within a thin gravel layer approximately 21m below ground surface and beneath the glacial till. The well completed in this gravel layer may indicate the presence of a confined gravel aquifer below the clay and glacial till deposits near Huntmar Drive. This gravel aquifer is likely of relatively limited extent as there are very few wells in the area that use it and its presence is not indicated in the well information of other wells in the area or in borehole records from previous investigations. The six remaining overburden wells were completed within the sand and gravel aquifer located along Carp Road (western extent of Study Area). This thicker deposit of sand and gravel located at the western extent of the Study Area along Carp Road is most likely the principal overburden aquifer in the Study Area. Given that most of the water supply wells near Carp Road and across the rest of the Study Area are completed in the bedrock, the principal water supply aquifer in the Study Area is still considered to be the underlying bedrock formations.

3.3.3.3 Bedrock Aquifers

The Bobcaygeon and Verulam Formations which underly the majority of the Study Area are expected to provide marginally adequate to acceptable well yields for domestic consumption (<10 to 15 litres/minute) and are usually only exploited where better aquifers are too deep.

3.3.4 Source Protection Area

The *Clean Water Act*, 2006 provides the legislative framework for Source Protection in Ontario. The Study Area for the project falls within the Rideau Valley Source Protection Area (Mississippi-Rideau Source Protection Plan, 2020). The Rideau Valley Source Protection Region is 8,500 square km. Source protection plans exist to protect drinking water across municipal boundaries. The Mississippi – Rideau Source Protection Plan (2020) and City of Ottawa (2013) identifies four vulnerable areas: Significant Groundwater Recharge Areas (SGRAs), Highly Vulnerable Aquifers (HVAs), Intake Protection Zones (IPZs) and Wellhead Protection Areas (WHPAs) and within the city.

3.3.4.1 Groundwater Recharge and Vulnerable Aquifers

Source Protection mapping indicates that SGRAs are found within the Study Area, and that the majority are located within the northeast portion of the Study Area (Mississippi-Rideau Source Protection Region, 2020). HVAs are present within the Study Area and are located within the northeast portion of the Study Area (Mississippi-Rideau Source Protection Region, 2020). Feedmill Creek and the Carp River are included in both areas. No policies apply within SGRAs or HVAs.

3.3.4.2 Intake Protection Zone

There are no IPZs within the Study Area. The majority of municipal drinking water intakes use surface water from Ottawa River (City of Ottawa, 2013), the IPZs are, therefore, concentrated along Rivers and lands adjacent to the intake points that are greater than 8.5 km from the Study Area.

3.3.4.3 Wellhead Protection Area

There are no WPHA’s within the Study Area. The nearest protection area is located approximately 7.5 km northwest in the direction of Carp, Ontario (City of Ottawa, 2003).

3.3.5 Contamination and Hazardous Materials

A Limited Phase I Environmental Site Assessment (ESA) was completed to support the Project. For the purposes of determining areas of potential environmental concern, the Study Area is defined – in accordance with Ontario Regulation 153/04 Part XV.1 of the *Environmental Protection Act* – as the Project Limits plus a 250m buffer around them. The complete report is included in **Appendix B.**

The primary objective of the Phase One ESA is to identify, based on readily available information and without intrusive investigation, Areas of Potential Environmental Concern (APEC) which have the potential to impact the soil and/or groundwater within the Study Area related to former activities within the Study Area and to identify the need for further ESA activities (i.e., Phase II ESA).

Based on the information obtained, four Potentially Contaminating Activities (PCAs) were identified:

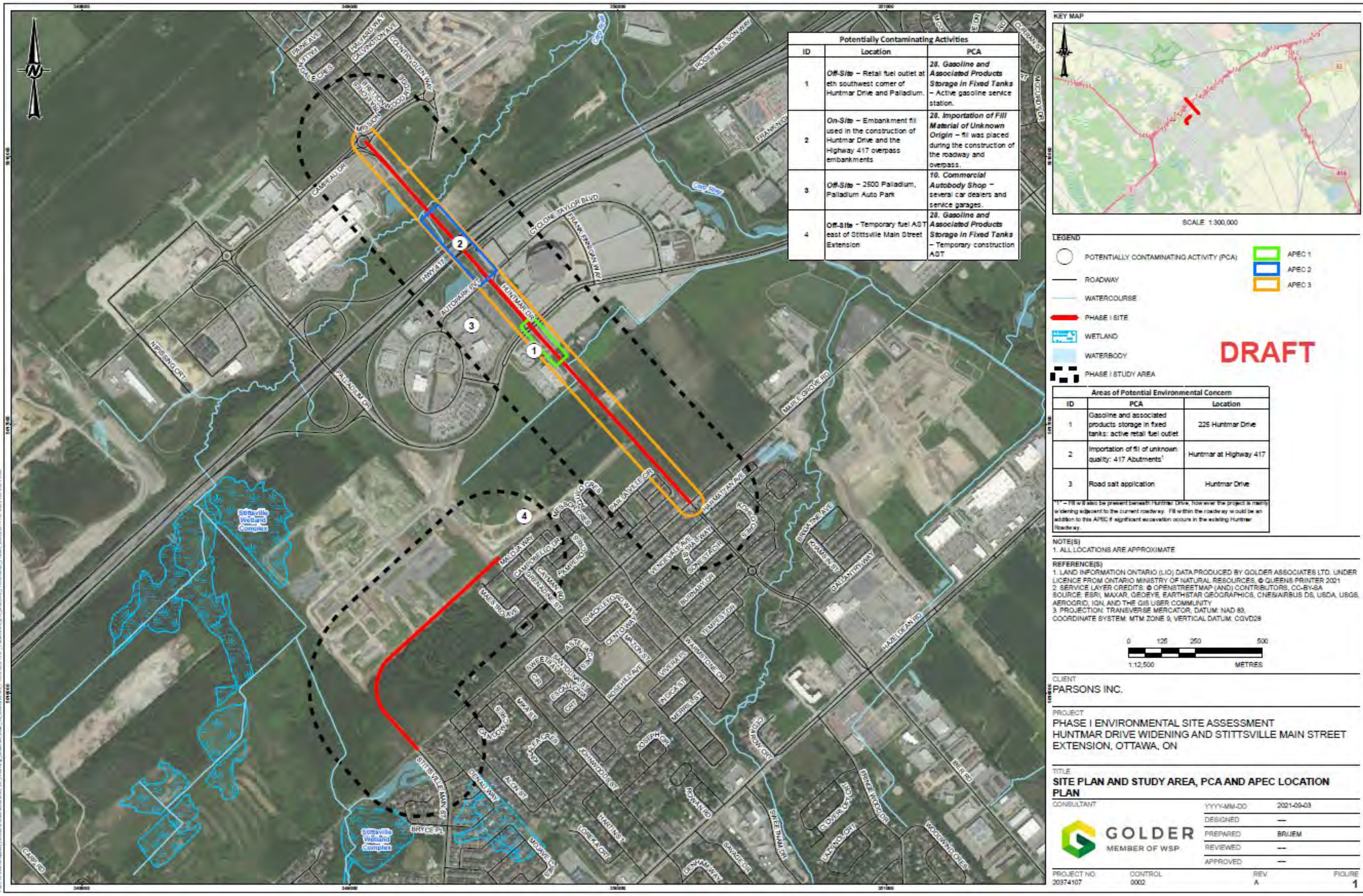
1. Retail fuel outlet at the southwest corner of Huntmar Drive and Palladium Drive
2. Embankment fill used in the construction of Huntmar Drive and the Highway 417 overpass embankments
3. Palladium Auto Park
4. Temporary fuel Aboveground Storage Tank (AST) east of Stittsville Main Street Extension

As well, three APECs related to potential impacts to soil and/or groundwater were identified:

1. Active retail fuel outlet (225 Huntmar Drive)
2. Fill: 417 Abutments (Huntmar at Highway 417)
3. Road salt application (Huntmar Drive)

Study Area APECs are illustrated by **Figure 3-12**.

Figure 3-12: Site Plan and Study Area, Potential Contamination Activities and Areas of Potential Environmental Concern Location Plan



3.3.6 Infrastructure and Utilities

This section identifies existing infrastructure and utilities within the Study Area.

The documents reviewed to inform this section include the City of Ottawa *Utility Coordinating Committee drawings* (UCC), GeoOttawa web mapping, and the 2013 *Infrastructure Master Plan* (City of Ottawa, 2013). the City of Ottawa Water and Wastewater Networks – Interactive Map, the City of Ottawa Construction-and-Infrastructure-Interactive map, and the City of Ottawa Development Application Search Tool.

3.3.6.1 Water Distribution Network

3.3.6.1.1 Existing Water Distribution Network

The Project Limits are within pressure zone “3W”. The City of Ottawa municipal water distribution network partially services the area within the Project Limits. The distribution network includes backbone watermains, feedermains, distribution mains, valves, valve chambers and hydrants. The network includes the Kanata West feedermain, a 610 mm diam. feedermain. The feedermain is located on Campeau Drive, from Huntmar to beyond the eastern Project Limit. The feedermain is also on Huntmar Drive from Campeau Drive to 135 m north of Hwy 417 where the feedermain turns west for some 30 m and continues south to Autopark Priv. From there, the feedermain turns east to Huntmar Drive and continues some 20 m south on Huntmar Drive. Watermain materials are prestressed concrete (C301) and polyvinyl chloride (PVC). The watermains range in size from 152 mm diameter to 610 mm diameter and were installed between 1995 and 2021.

New watermain is proposed on Stittsville Main Street to serve the adjacent developments. An initial segment of the new watermain has been constructed from Curaglass Walk to Robert Grant Avenue and is serving the 195 Huntmar development. The remainder of the watermain will be constructed by other developers at an unknown date in the future.

The watermains are detailed in **Table 3-4** and shown in **Figure 3-13** and more recently installed are illustrated on **Figure 3-14**.

Table 3-4: Parallel Watermains

Stittsville Main Street Extension	Diameter (mm)	Material	Year Installed
Curraglass Walk to Robert Grant Avenue	305	PVC	2021
Huntmar Drive	**Diameter (mm)**	**Material**	**Year Installed**
25m north of Campeau Drive to Campeau Drive	305	PVC	2014
Campeau Drive to 135 m north of Highway 417	610	C301	2014/2016
135 m north of Highway 417 to Autopark Private (30 m offset to the west)	610	C301	2014/2016
Cyclone Taylor Boulevard to 20 m south of Cyclone Taylor Boulevard	610	C301	2014
Cyclone Taylor Boulevard to Palladium Drive	305	PVC	1995
318 m to 301 m north of Maple Grove Road	406	PVC	2021
18m north of Maple Grove Road to Maple Grove Road	406	PVC	2007

Table 3-5: Crossing Watermains

Stittsville Main Street Extension	Diameter (mm)	Material	Year Installed
Allied Mews	203	PVC	2021
Kindred Row	152	PVC	2021
Culdaff Road	305	PVC	2021
166 m east of Culdaff Road	305	PVC	2021
Robert Grant Avenue	305	PVC	2021
Huntmar Drive	**Diameter (mm)**	**Material**	**Year Installed**
Campeau Drive	305	PVC	2014
Campeau Drive	203	PVC	2013
Campeau Drive	610	C301	2013/2014
170 m north of Highway 417	305	PVC	2016
135 m north of Highway 417	610	C301	2016
Cyclone Taylor Boulevard	610	C301	2014
Cyclone Taylor Boulevard	305	PVC	2014
Palladium Drive	305	PVC	1995/2004
310 m north of Maple Grove Road	406	PVC	2021
Maple Grove Road	406	PVC	2007
Maple Grove Road	305	PVC	2007

3.3.6.1.2 Future Water Distribution Projects

The 2013 Infrastructure Master Plan (IMP) identifies one growth-related project in the Project Limits. The project will involve the extension of the Kanata West Feedermain, (610 mm diam.) on Huntmar Drive from Cyclone Taylor Boulevard to Palladium Drive. The construction of this work is not currently scheduled.

Adjacent developers will construct a watermain under Stittsville Main Street from Maple Grove Road north to the Stittsville Main Street/Derreen Ave roundabout, continuing east to connect to the new watermain that currently terminates at Culdaff Walk. The construction timing of this work has not been determined.

The City of Ottawa has not scheduled any capital works in the near future.

Figure 3-13: Water Distribution Network in Relation to the Project Limits

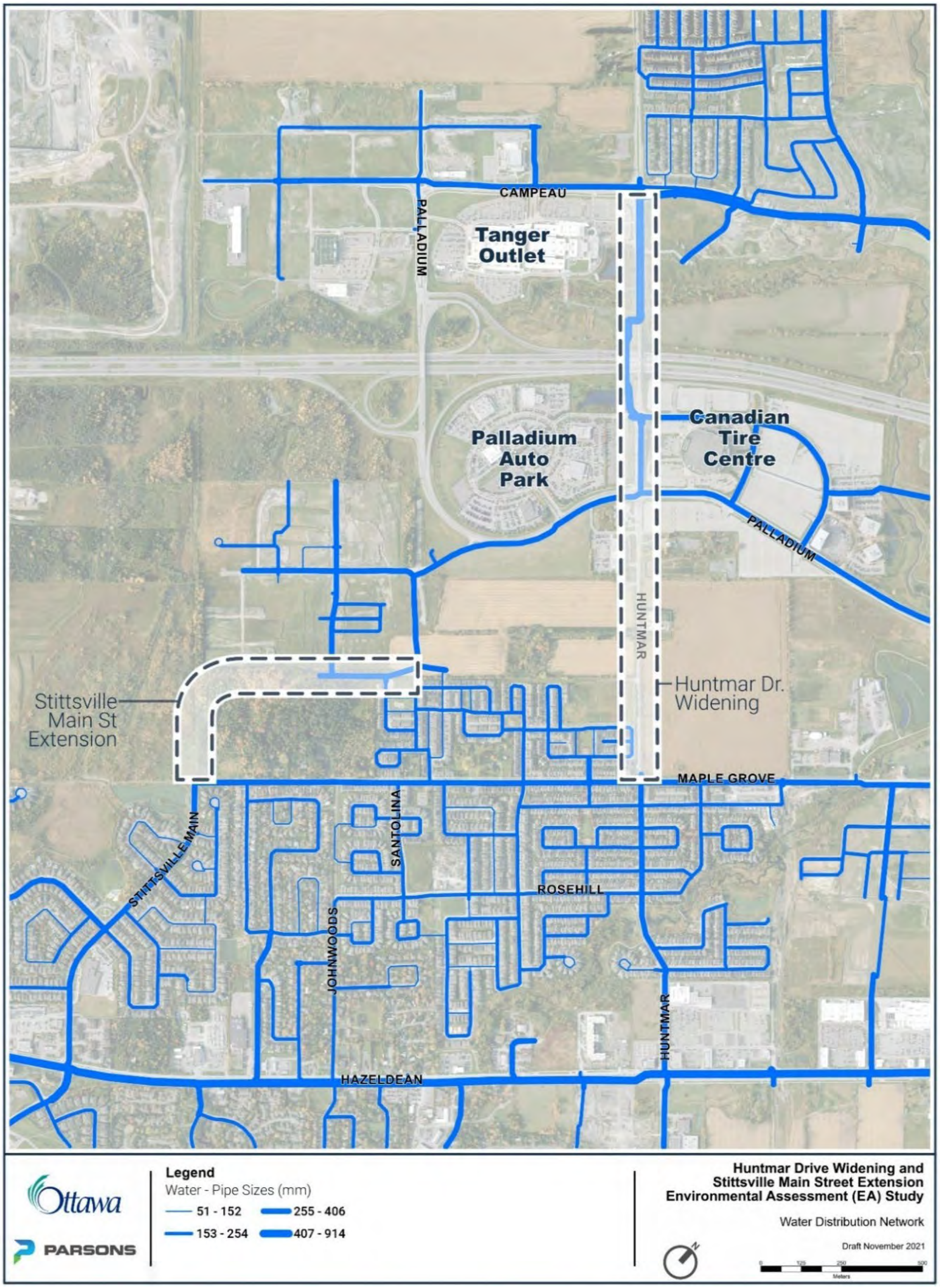
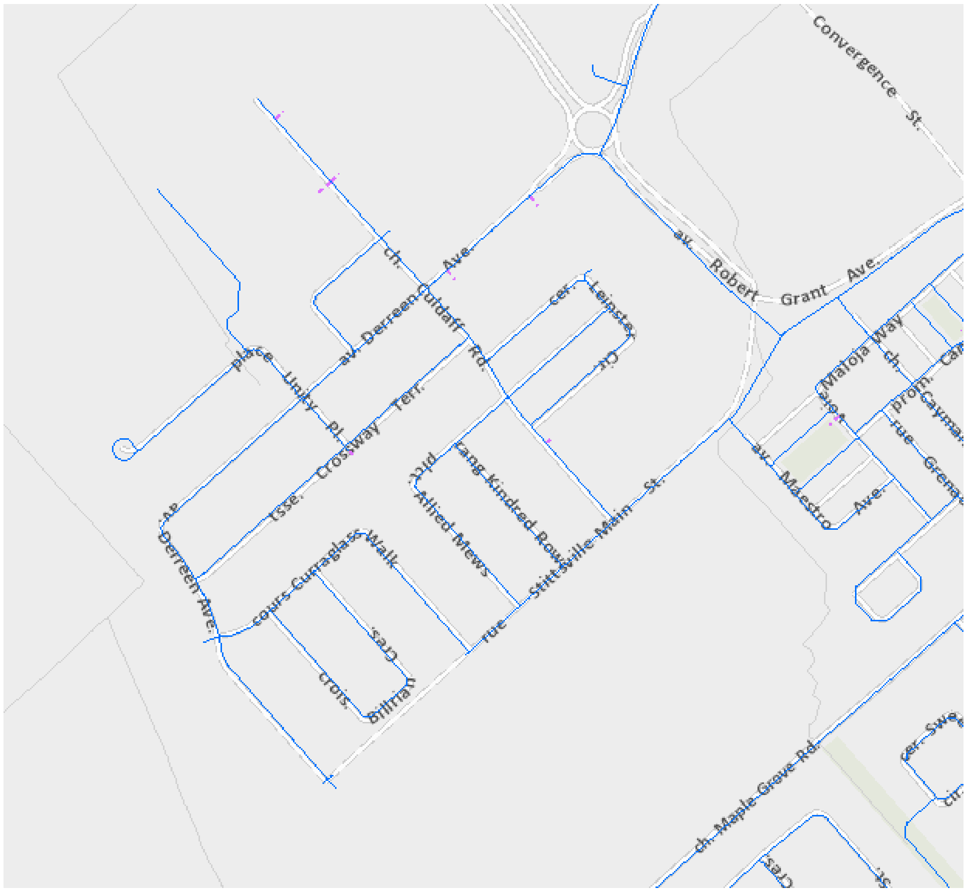


Figure 3-14: Additional Watermains in the Vicinity of Stittsville Main Street



Source: GeoOttawa, 2023

3.3.6.2 Wastewater Collection System

3.3.6.2.1 Existing Wastewater Collection System

The City of Ottawa municipal wastewater collection system partially services the area within the Project Limits. The wastewater collection system includes sewer collectors/trunks, local sanitary sewers, and maintenance holes. Sewer materials include concrete (CONC), and polyvinyl chloride (PVC). The sewers range in size from 200 mm to 825 mm diameter and were installed between 2007 and 2021. The sanitary sewers are detailed in **Table 3-6** and **Table 3-7**, and shown in **Figure 3-15**.

Table 3-6: Parallel Sanitary Sewers

Stittsville Main Street Extension	Diameter (mm)	Material	Year Installed
178 m east of Culdaff Road to Robert Grant Avenue	200	PVC	2021
Huntmar Drive	**Diameter (mm)**	**Material**	**Year Installed**
Campeau Drive to 155m south of Campeau Drive	300	CONC	2014
Cyclone Taylor Blvd. to Palladium Drive	250	PVC	--

Table 3-7: Crossing Sanitary Sewers

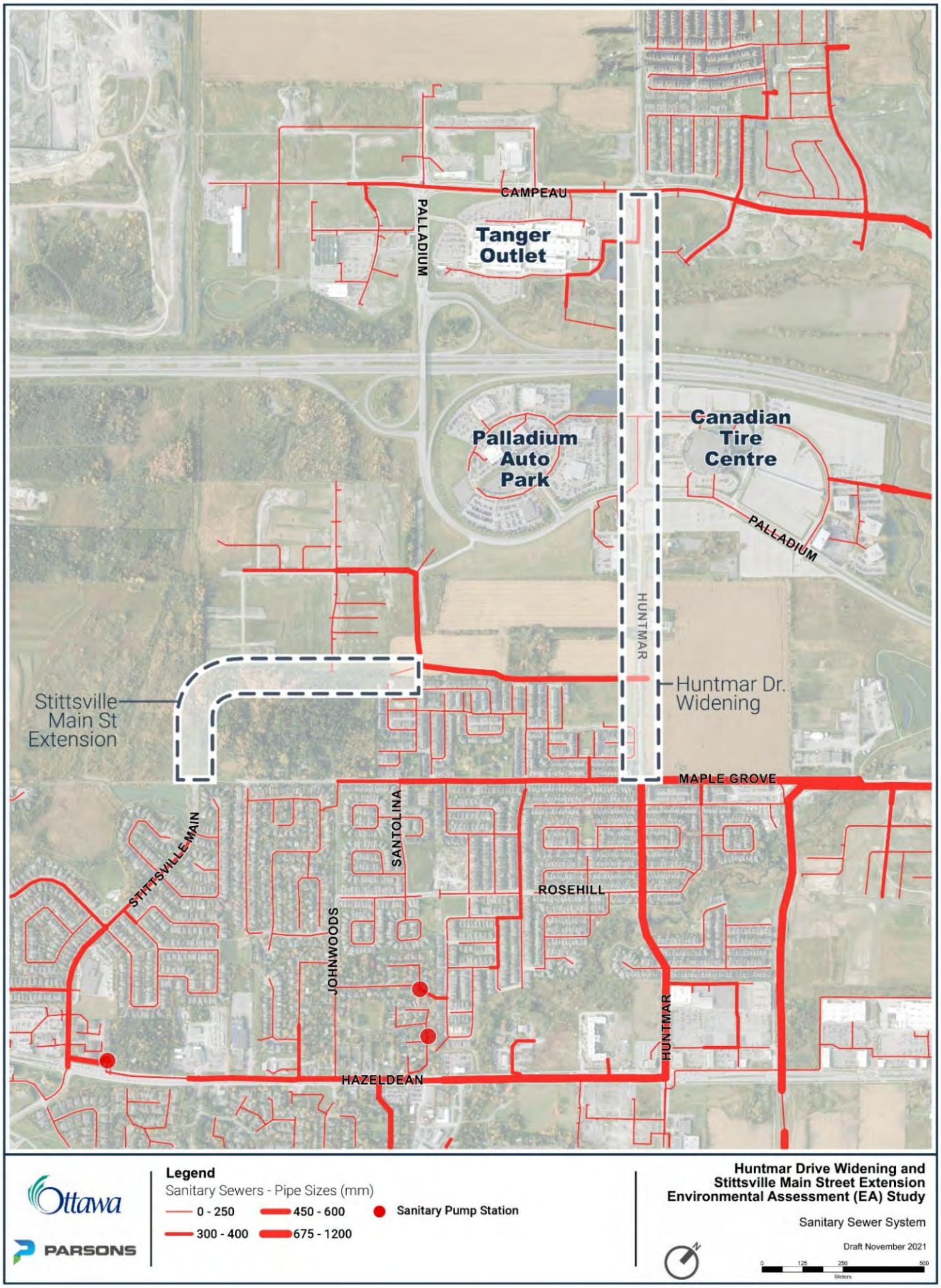
Stittsville Main Street Extension	Diameter (mm)	Material	Year Installed
Robert Grant Avenue	450	PVC	2021
Huntmar Drive	**Diameter (mm)**	**Material**	**Year Installed**
Campeau Drive	375	CONC	2013/2014
313 m north of Maple Grove Road	450/500	PVC	2021
Maple Grove Road	600	CONC	2007
Maple Grove Road	825	CONC	2007
Maple Grove Road	200	PVC	2007

3.3.6.2.2 Future Wastewater Collection Projects

The 2013 IMP identifies the Kanata West Sewers as a growth-related project in the Project Limits. This work has been completed.

The City of Ottawa has not scheduled any capital works in the near future.

Figure 3-15: Wastewater Collection System in Relation to the Project Limits



3.3.6.3 Stormwater Collection System

3.3.6.3.1 Kanata West Master Servicing Study

The stormwater management guidelines for the future development of Kanata West, including Huntmar Drive and Stittsville Main Street Extension, are detailed for the most part in the in the *Kanata West Master Servicing Study* by Stantec Consulting Ltd and Cumming Cockburn Ltd./IBI, dated June 16, 2006. (KWMSS) and its refinements.

The section of Huntmar Drive not covered by KWMSS is between the Huntmar Drive bridge high point and Palladium Drive For this section, background information on the existing stormwater management was found in the *Stormwater Management report Palladium Auto-Park* by J.L. Richards & Associates, dated April 2003 and to in the *Addendum to Final Stormwater Design Plan for the Ottawa Senators Palladium NHL Arena Development* by J.L. Richards & Associates, dated June 21, 1994.

3.3.6.3.2 Existing Stormwater Collection System

The City of Ottawa municipal stormwater collection partially services the area within the Project Limits. The stormwater collection system includes ditches, collectors/trunks, local storm sewers, catch basins, maintenance holes and culverts. Sewer materials include concrete (CONC), polyvinyl chloride (PVC). The sewers range in size from 375 mm to 2250 mm in diameter and were installed between 1995 and 2021. Storm sewers are detailed in **Table 3-8** and **Table 3-9** and shown in **Figure 3-16**.

Table 3-8: Parallel Stormwater Sewers

Huntmar Drive	Diameter (mm)	Material	Year Installed
100 m north to 144 m south of Campeau Drive	375/450	CONC	2014
30 m south of Cyclone Taylor Boulevard to Palladium Drive	375/450	PVC	1995
Maple Grove Road	525	CONC	2007

Table 3-9: Crossing Stormwater Sewers

Stittsville Main Street Extension	Diameter (mm)	Material	Year Installed
Culdaff Road	675	CONC	2021
Huntmar Drive	**Diameter (mm)**	**Material**	**Year Installed**
Campeau Drive	675	CONC	2013
Palladium Drive	450	CONC	2014
Maple Grove Road	525	CONC	2007
Maple Grove Road	2250	CONC	2007

3.3.6.3.3 Future Stormwater/Drainage Projects

The 2013 IMP does not identify specific growth-related stormwater projects in the Project Limits.

The KWMSS guides stormwater management for future developments, including much of the study area of this EA. It defines catchment areas and specifies the ponds to which they each outlet. The drainage areas and outlets for Stittsville Main Street and Huntmar Drive are detailed in **Figure 3-17**.

Future storm sewer is planned by adjacent developers for the segment of Stittsville Main Street from Derreen Avenue to Robert Grant Avenue. The area generally drains to the north, with the storm sewer connecting to outlets on Derreen Avenue, Culdaff Road, and Robert Grant Avenue. Given the multiple outlets, the storm sewer is intermittent with variable size ranging from 375mm PVC to 600mm concrete pipe. The construction timing of this storm sewer is not currently known.

The City of Ottawa has not scheduled any capital works in the near future.

Figure 3-16: Existing Stormwater Collection System in Relation to the Project Limits

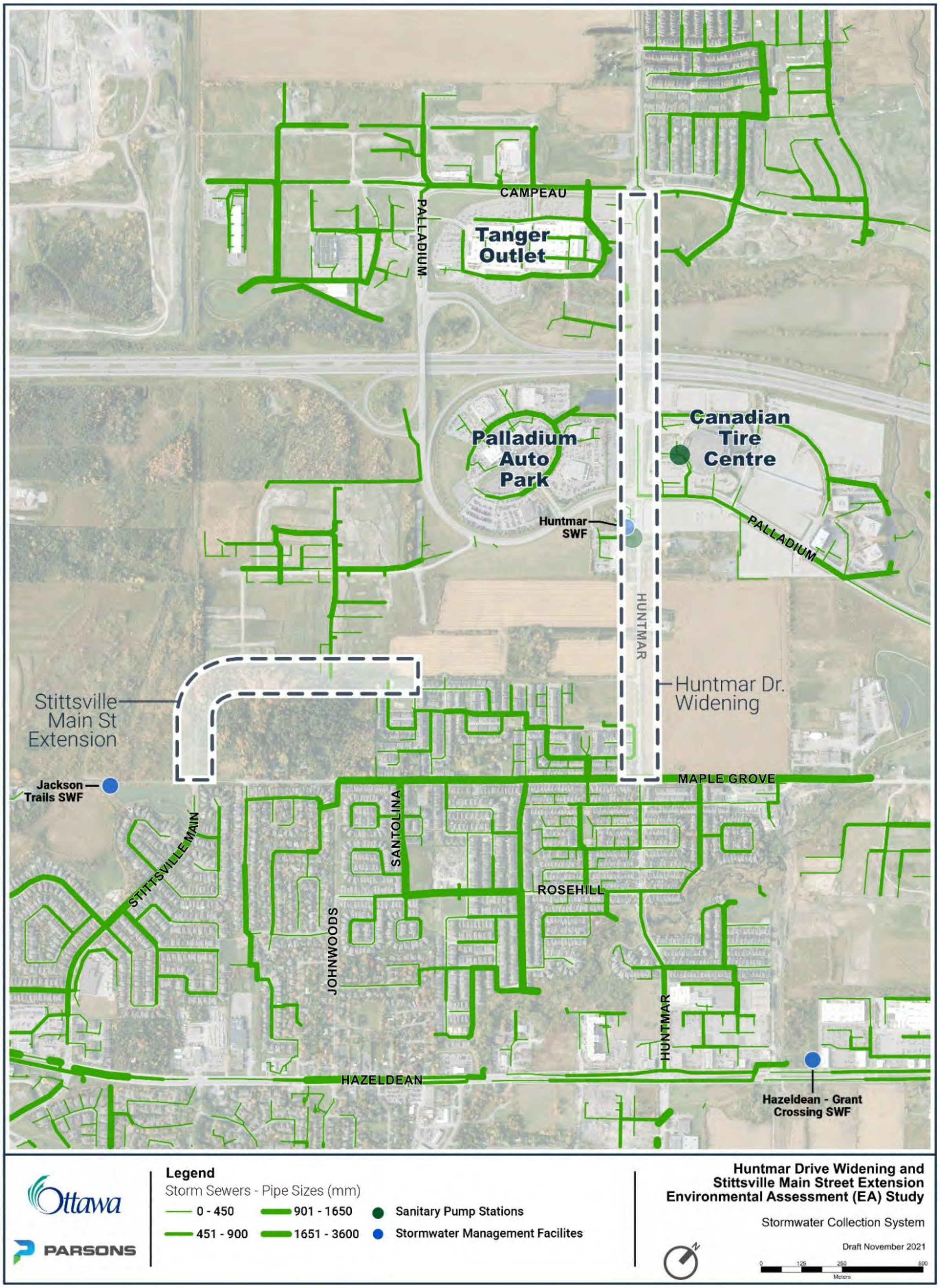
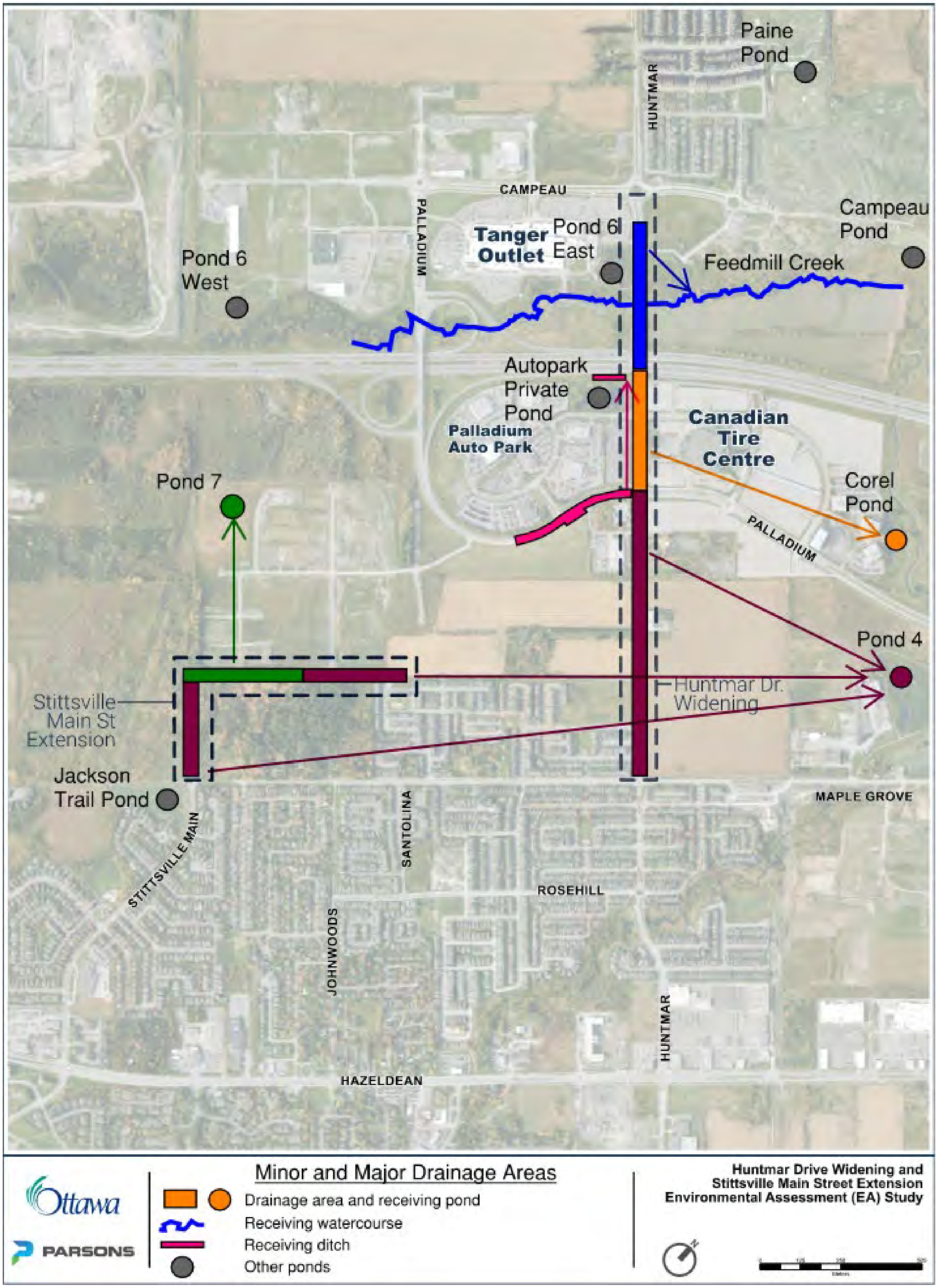


Figure 3-17: Corridor Catchment Areas and Associated Outlet Ponds



3.3.6.4 Gas Distribution

Enbridge Gas partially services the area within the Project Limits. The natural gas distribution network includes gas mains ranging in sizes from 50 mm to 150 mm diameter. There is no gas main identified as "vital". The gas mains are detailed in **Table 3-10** and **Table 3-11**.

Table 3-10: Parallel Gas Mains in Relation to the Project Limits

Huntmar Drive	Side of Road	Diameter (mm)	Type
Campeau Drive to Palladium Drive	east	150	--
52 m north of Maple Grove Drive to Maple Grove Drive	west	100	--
165 m south of Campeau Drive	south	100	--
Palladium Drive	south	50	--

Table 3-11: Crossing Gas Mains in Relation to the Project Limits

Huntmar Drive	Side of Road	Diameter (mm)	Type
165 m south of Campeau Drive	south	100	--
Palladium Drive	south	50	--
48 m north of Maple Grove Road to Maple Grove Road	west	100	--
Maple Grove Road	north	100	--
Maple Grove Road	south	100	--

3.3.6.5 Electricity Distribution

Hydro Ottawa and Hydro One partially services the area within the Project Limits. Hydro Ottawa services Huntmar Drive and the area east of it. Hydro Ottawa has a few underground concrete duct banks, individual conduits and buried cables on Huntmar Drive. These duct banks vary in size from 542mm to 680 mm wide. Hydro One services the area west of Huntmar Drive. Hydro One has overhead cables on poles west of Huntmar Drive, from Campeau Drive to Maple Grove Road. At Maple Grove Road, the cables are transferred underground in a duct bank going west on Maple Grove Road. Stittsville Main Street Extension is within Hydro One servicing territory. There is currently no electricity distribution network within Stittsville Main Street Extension area.

3.3.6.6 Telecommunications Distribution Systems

Telecommunications services are partially provided within the Project Limits. These services are provided by Bell, Rogers, Atria, and Telus. They are distributed through underground concrete duct banks, conduits, cables and overhead cables on poles. There are no communication services on Stittsville Main Street Extension.

3.3.6.7 Future Private Developments

The future private developments adjacent to the Project Limits are listed below. These developments will be serviced by existing and/or proposed watermains, sanitary sewers and storm sewers within the Project Limits and are to be accounted for in the detailed design.

- 130 Huntmar Drive
- 173 Huntmar Drive
- 195 Huntmar Drive
- 319 Huntmar Drive
- 320 Huntmar Drive
- 333 Huntmar Drive
- 370 Huntmar Drive
- 1919 Maple Grove Road
- 1981 Maple Grove Road
- 2090 Carp Road

4.0 EVALUATION OF ALTERNATIVE SOLUTIONS

EA processes recognize that there may be various alternatives or options that address a need or opportunity and require that proponents explore all reasonable solutions. Alternative planning solutions are functionally different but general ways of addressing a need or opportunity. The 2013 TMP evaluated alternative solutions at the network level for each of Huntmar Drive and Stittsville Main Street road projects (keeping in mind that the new TMP is not yet complete and only some sections are available in draft form). The resulting recommended solutions are described below in **Table 4-1**.

Table 4-1: Huntmar and Stittsville Main Road Projects as per 2013 TMP

Project (TMP Schedule)	General Description	Rationale
Huntmar Drive (Affordable Network and Network Concept)	Widen from two to four lanes between Campeau Drive extension to Cyclone Taylor Boulevard. Widen from two to four lanes between Palladium Drive to Maple Grove Road.	Accommodates Kanata West Development
Stittsville Main Street Extension (Affordable Network and Network Concept)	New two-lane road between Palladium Drive and Maple Grove Road	Provides capacity for development in Stittsville

This chapter describes the process of re-validating the TMP recommended solutions for the two transportation corridors in consideration of the existing conditions in the Study Area, planning policy directions for growth as outlined in the City's Official Plan and the re-confirmed need and opportunity presented in **Section 2.0**.

4.1 Planning Principles

The vision defined by the new draft TMP is that "*In 2046, Ottawa's transportation network will be flexible, dependable, safe and efficient in meeting the evolving needs of residents and businesses across the City, while enabling the City to meet its climate change goals. The network will provide travel options for people regardless of their income, identity, or ability*." This vision for transportation in the City is supported by guiding principles that provide a basis for developing and evaluating alternatives as part of this Study. The alternative solutions considered were evaluated against relevant principles presented in both the 2013 and draft TMP including:

1. Reduce automobile dependence
2. Promote active transportation and transit use
3. Integrate transportation and land use
4. Protect the environment and enhance the economy
5. Recognize and meet the diverse mobility needs of all residents, businesses and visitors
6. Promote better public health
7. Improve safety

4.2 Description of Long List of Alternative Solutions

To assist in the re-validation of the recommended solutions, a range of alternative solutions were developed that have some potential to address the above-noted planning principles for each of the road corridors (Huntmar Drive and Stittsville Main Street).

4.2.1 Alternative Solutions for Huntmar Drive

The alternative solutions considered for Huntmar Drive include:

1. Do nothing in the Study Area. Provide no new transportation infrastructure in the Study Area and do not widen Huntmar Drive. Rely on other transportation infrastructure investments outlined in the TMP for transportation capacity for all modes.
2. Improve transit service within the Study Area. Leave Huntmar Drive as a two-lane road in the Study Area. Improve bus transit service through increased route options and number of trips offered. Construct a new park and ride facility in the Study Area to provide access to improved transit service.
3. Construct pedestrian and cycling facilities only. Leave Huntmar Drive as a two-lane road in the Study Area.
4. Reconstruction. Provide additional capacity by widening and reconstructing Huntmar Drive as a Complete Street accommodating all modes (walking, cycling, transit, automobiles and trucks) (*TMP Solution*).
5. Add capacity to other existing north-south facilities (such as Terry Fox Drive and Carp Road) to serve north-south travel demand and include active transportation facilities.

4.2.2 Alternative Solutions for Stittsville Main Street

The alternative solutions considered for Stittsville Main Street include:

1. Do nothing. Provide no new transportation infrastructure in the Study Area and do not extend Stittsville Main. Rely on other transportation infrastructure investments outlined in the TMP for transportation capacity for all modes.
2. Construct new pedestrian/cycling facilities only. Do not construct a new roadway in the Study Area. Construct contemporary pedestrian and cycling facilities only within a dedicated corridor.
3. Extend the facility as a complete street. Extend Stittsville Main from Maple Grove Road to the future Robert Grant Avenue accommodating all modes (walking, cycling, transit, automobiles and trucks). (*TMP Solution*).
4. Do not extend the street north of Maple Grove Road, but a) construct an appropriate intersection and easterly connection to existing Maple Grove Road, and b) construct a new road segment connecting the southerly extent of Derreen Avenue to Robert Grant Avenue.

The long lists of alternative solutions were each subject to a two-step screening/evaluation process. The first step involved screening the ability of each alternative to sufficiently meet the planning principles. If the alternative passed that screening, it was then carried forward for a more holistic evaluation considering all aspects of the environment at a high-level and in consideration of the existing conditions documented in the previous chapter.

4.3 Screening of Long List of Alternative Solutions

As noted, the first step in the evaluation process is screening alternative solutions based on their ability (or not) to sufficiently achieve the identified planning principles as outlined in **Section 4.1**. Those cells highlighted in green identify the solutions that were carried forward whereas cells highlighted in **red** represent those solutions that do not sufficiently satisfy the planning principles and were therefore screened out. Cells that are highlighted in yellow partially satisfy the planning principles and are also carried forward for further analysis.

The results of the screening of the long list of alternative solutions for Huntmar Drive are shown in **Table 4-2**.

Table 4-2: Results of Screening of the Long List of Alternative Solutions for Huntmar Drive

	Alternative	Description	Recommendation
1	Do nothing in the Study Area.	Does not sufficiently address the planning principles	Carried forward for comparison purposes
2	Improve transit service within the Study Area only; do not widen.	Does not sufficiently address the planning principles	Screened out
3	Construct pedestrian and cycling facilities only; do not widen.	Partially satisfies the planning principles	Carried forward for further evaluation
4	Provide additional capacity by widening and reconstructing Huntmar Drive as a Complete Street.	Satisfies the planning principles	Carried forward for further evaluation
5	Add capacity to other existing north-south facilities (such as Terry Fox and/or Carp).	Partially satisfies the planning principles	Carried forward for further evaluation

The results of the screening of the long list of alternative solutions for Stittsville Main Street are shown in **Table 4-3**.

Table 4-3: Results of Screening of the Long List of Alternative Solutions for Stittsville Main Street

	Alternative	Description	Recommendation
1	Do nothing in the Study Area.	Does not sufficiently address the planning principles	Carried forward for comparison purposes
2	Construct new pedestrian/cycling facilities only.	Does not sufficiently address the planning principles	Screened out
3	Extend the facility as a complete street.	Satisfies the planning principles	Carried forward for further evaluation
4	Do not extend the street northerly, but connect to Maple Grove Road, and construct a street segment between Derreen Avenue and Robert Grant Avenue.	Partially satisfies the planning principles	Carried forward for further evaluation

The Do Nothing alternative does not address the planning principles but is carried forward as an alternative solution for comparison purposes for each detailed evaluation. Alternative solutions that partially address the planning principles were also carried forward for further evaluation. Transportation Demand Management measures do not on their own address the need and planning principles and are therefore not included as an independent alternative solution. They are, however, an important component and are considered part of all solutions. Similarly, new pedestrian and cycling infrastructure will be provided in any preferred solution, in keeping with the corridor's Official Plan and TMP designations and other council policies, but on their own do does not satisfy the transportation demand and the Complete Street Approach.

4.4 Evaluation of Alternative Solutions for Huntmar Drive

The alternative solutions carried forward were subject to an evaluation process that evaluated each of the alternative solutions to criteria considering all aspects of the environment. The results are presented individually in **Table 4-4** and **Table 4-5** for each of the evaluations of Huntmar Drive and Stittsville Main Street Corridors.

Table 4-4: Evaluation of Alternative Solutions Results - Huntmar Drive

	Criteria	Alternative 1: Do Nothing in the Study Area (for comparison purposes)	Alternative 3: Construct pedestrian and cycling facilities only; do not widen.	Alternative 4: Widen and reconstruct Huntmar Drive as a Complete Street.	Alternative 5: Add capacity to other existing north-south facilities (such as Terry Fox and/or Carp).
1	Supports a reduction in automobile dependency and GHG emissions.	Does not contribute to reducing automobile dependency. Could potentially result in increased GHG emissions, noise and energy consumption from added congestion (increased travel time, delay at intersections, etc.) in the Study Area.	Partially addressed. Provides additional transportation capacity within the Study Area only for active modes, which limits the ability of creating a positive modal shift or reduction in the project's contribution to climate change. Would not provide capacity for improved local bus transit to provide efficient transit connection to the future LRT station eliminating the attraction to use LRT, a large capital investment. Instead, there would likely be an increase in bus transit travel time and a reduction in transit reliability. Could potentially result in increased GHG emissions, noise and energy consumption from added congestion in the Study Area.	Delivers a project that would provide the best opportunity/ incentive for a positive modal shift for all modes. Provides a good opportunity/incentive for supporting the integration/connection with the LRT stations which will make transit more attractive than the use of private automobiles. With additional lanes, local transit service could operate more efficiently. Active modes would be more attractive as reconstruction would provide an enhanced level of service, continuous facilities connecting existing routes. Efficient transit service and connections and more attractive pedestrian and cycling facilities supports a reduction of GHG emissions. This solution encourages a positive impact on modal shift to transit and active modes that would result in a positive impact on the project's contribution to climate change. Provides the opportunity to build in resiliency of the corridor to climate change effects.	Partially addressed. Provides additional transportation capacity within the Study Area for all modes. Would not deliver the best opportunity/incentive for positive modal shift from automobile dependency because it doesn't provide the most direct or efficient access for all modes to future LRT service. As a result, other, more direct roads would still suffer congestion. Other roadways i.e. Terry Fox Drive are already 4+ lanes, adding more lanes is not justified and would be an overbuild. Some limited cycling and pedestrian facilities exist on parallel corridors (such as painted bike lanes, east-side sidewalk on Terry Fox), which could accommodate some active transportation demand. Would have limited opportunity to reduce GHG emissions as direct routes would still experience congestion.
2	Consistent with existing transportation network	Does not support the vision of the road network identified in the 2013 and draft new TMP. Does not support the large economic transit investment of LRT.	Does not support the vision of the road network identified in the 2013 and draft new TMP. Partially supports the large economic transit investment of LRT by providing safe and efficient pedestrian and cycling connections, but not the opportunity for improving local bus connections to future LRT stations. Does not provide sufficient vehicle capacity.	Fully addressed. Provides necessary additional multi-modal transportation capacity within the Study Area for all modes. Reconstructed Huntmar Drive provides a direct connection to planned growth areas. Significant transit-oriented development is anticipated at the future Palladium LRT station, for example, which would be primarily served by Huntmar Drive.	Does not address. Adding capacity to other north-south roadways in place of Huntmar Drive would not provide the most direct or efficient access for all modes to future O-Train rapid transit service. Also, there would be no upgrades to the Huntmar active transportation facilities and no additional capacity for improving connecting bus service in the corridor. Other adjacent north-south roadways have already been reconstructed (Terry Fox), or their future widening has already been accounted for in the supporting traffic

	Criteria	Alternative 1: Do Nothing in the Study Area (for comparison purposes)	Alternative 3: Construct pedestrian and cycling facilities only; do not widen.	Alternative 4: Widen and reconstruct Huntmar Drive as a Complete Street.	Alternative 5: Add capacity to other existing north-south facilities (such as Terry Fox and/or Carp).
					analysis for this Study. Any further widening beyond what has already been considered would become an overbuild, creating potentially unsafe roadways, which is ultimately not in line with City planning principles.
3	Support existing and planned land uses. Enhance the economy.	Does not address the planned function to accommodate growth/support land use investment. Future developments would be limited to the capacity of the existing transportation network. Minimizes/avoids impacts to existing land uses. Congestion impacts to road users and businesses. May add additional traffic on other major roadways in the Study Area.	Does not provide sufficient transportation capacity to service the future growth and development in the Study Area. Does not support land use investment. Minimizes / avoids impacts to existing land uses. Congestion impacts to road users and vehicles. May add additional traffic on other major roadways in the Study Area.	Fully addressed. Provides the best opportunity to accommodate additional transportation demand and support adjacent planned growth areas in the Study Area as a complete street accommodating all modes. Supports the opportunity for future intensification by supporting a modal shift to transit and active modes and creating more capacity in the transportation network. Project would be planned in accordance with municipal, provincial and federal guidance where applicable.	Partially addressed. Does not provide an efficient connection from planned growth areas in the Study Area. Roads located closer to growth areas would still suffer congestion. Does not provide opportunity/support land use investment. Numerous businesses would have property impacts from road widening. Reconstruction could substantially restrict existing access to businesses and institutions. Considerable additional ROW would be required which will impact existing spaces
4	Sensitive to the natural environment.	No physical impacts. However, there would be no opportunity to improve corridor through landscaping, adapt infrastructure to be more resilient to climate change.	Partially addressed. Minimal physical impacts are anticipated from only adding pedestrian/cycling facilities. A large portion of the corridor is undeveloped. Impacts to Feedmill Creek will require additional study and mitigation. There are opportunities to avoid/minimize physical impacts to the extent feasible. Additional mitigation will be recommended where required.	Partially addressed. Minimal physical impacts are anticipated from reconstruction. A large portion of the corridor is undeveloped. Impacts to Feedmill Creek will require additional study and mitigation. There are opportunities to avoid/minimize physical impacts to the extent feasible. Additional mitigation will be recommended where required. Provides an opportunity/supports land use investment by improving movements and access within the area for all modes. Provides an opportunity to enhance the natural environment by implementing new stormwater management features and increasing the tree canopy.	Does not address. The investment to existing vegetated spaces, parks and landscaping would be lost. The loss of natural spaces within other corridors would result in significant loss of greenscape and little space to replace and relandscape.

	Criteria	Alternative 1: Do Nothing in the Study Area (for comparison purposes)	Alternative 3: Construct pedestrian and cycling facilities only; do not widen.	Alternative 4: Widen and reconstruct Huntmar Drive as a Complete Street.	Alternative 5: Add capacity to other existing north-south facilities (such as Terry Fox and/or Carp).
5	Consistent with vision for complete streets. Promote better public health and improve safety.	Does not deliver a complete street as this solution maintains existing travel lanes and existing very limited facilities for other modes (cyclists, transit, pedestrians). There is no opportunity to increase accessibility, physical activity and improve public health. Does not deliver a system that includes contemporary safety design. Little to no facilities exist for cyclists and pedestrians today.	Partially addressed. Would improve equity with enhanced and contemporary active transportation facility design. Providing pedestrian/cycling facilities would complete the connection to/from high-order facilities in the area. Provides a new opportunity to increase physical activity and improve public health where previous opportunity did not exist due to lack of facilities. Improved active transportation facilities might marginally contribute to an increased active mode share falling short of the benefit of complete street implementation. Would be designed to include contemporary safety standards. Does not meaningfully improve transit amenities nor transit service. Does not improve public realm and landscaping.	Fully addressed. Would improve equity with access to enhanced and contemporary multi-modal facility design. Reconstruction of Huntmar Drive would complete the connection to/from high-order facilities in the area. As a complete street, Huntmar Drive would provide a new opportunity to increase physical activity and improve public health where previous opportunity did not exist due to lack of facilities. Increased mode share toward transit, walking and cycling would improve air quality and reduce congestion and noise which improves health. Would be designed to improve public realm, landscaping and tree canopy. Would be designed to include contemporary safety standards. Facilities to accommodate all modes would be provided through reconstruction as a complete street.	Does not address. Adding capacity to other existing north-south facilities would result in an overbuild as most area roadways have already been reconstructed as complete streets. Even wider roads create increased pedestrian crossing distances and higher level of stress to pedestrians and cyclists given the increase in traffic volumes. Unnecessary additional road capacity could dimmish health resulting in increased air pollution, noise and energy consumption. Wider roads increase the perceived allowable speed on roads this would pose a safety issue to all users.
6	Compactness and affordability. Life Cycle Costs.	Does not deliver a cost-effective solution. No capital cost.	Does not deliver a cost-effective solution. Construction would be expensive relative to overall benefit to the transportation corridor. Potential that future development and associated increase in travel demand will necessitate widening, resulting in additional costs and physical impacts and disruption to the corridor again.	Provides opportunity to improve all modes in a cost-effective way and with a compact footprint. Life cycle costs are anticipated, however, will be designed in consultation with relevant City departments to minimize costs associated with operation and employ contemporary design.	Does not deliver a cost-effective solution and would result in throw away costs. Property impacts/ requirements are likely the greatest for this option. Capacity is not needed/justified and would be an overbuild. It could lead to induced demand. It could lead to increase in operating speeds and increase in level of stress for pedestrian and cyclists, highest cost of all alternatives.
	Conclusion	**Not Recommended** ×	**Not Recommended** ×	**Recommended Preferred Solution** ✓	**Not Recommended** ×

4.5 Evaluation of Alternative Solutions for the Huntmar Drive / Highway 417 Crossing

In addition to the range of alternative solutions considered for Huntmar Drive, there is also a need to consider a range of alternative solutions for the Huntmar Drive crossing of the Highway 417. The alternative solutions considered include:

1. Do nothing; leave existing bridge in place
2. Remove bridge, eliminate connection across Highway 417
3. Repurpose existing bridge for northbound or southbound vehicle travel lanes and build parallel complete street bridge to the east or west
4. Construct a single replacement complete street bridge in the same general alignment
5. Construct a replacement complete street bridge in the same general alignment with the flexibility to also construct a separate/parallel interim active transportation bridge

Both Alternatives 1 and 2 are not in line with the City's planning principles, as they would fail to maintain the north-south continuity for all modes along the Huntmar Drive corridor. It is expected that this would temper the positive modal shift expected to result from the other improvements recommended by this Study. Community consultation identified an acute need for better and safer active transportation facilities crossing Highway 417 at this location. The existing bridge over Highway 417 at Huntmar Drive does not have pedestrian facilities and does not have separated cycling facilities. The removal of the bridge would not address active transportation needs. There are limited alternative options for crossing Highway 417 in the Study Area and the closest crossing at the Palladium Drive interchange would not address active transportation needs. Additionally, Alternatives 1 and 2 are not consistent with complete street guidelines for the City of Ottawa and planning policies and would result in significant congestion and bottlenecks at other crossings. Alternative 2 eliminates a necessary arterial road connection for all modes north and south of Highway 417, and neither option would provide the opportunity for improved, continuous local transit connections along the corridor connecting to the future LRT service.

The possibility of constructing a new bridge structure as presented by Alternative 3 is constricted by existing and planned major infrastructure investments. A new bridge cannot be built east of the existing bridge as this is the planned location for the future Kanata LRT bridge. New crossings cannot be built west of the existing bridge as they would conflict with an existing major trunk watermain, Hydro One line and stormwater management facilities. Based on these alignment constraints, Alternative 3 is not considered viable and removed from further consideration.

The reconstruction of the Huntmar Drive bridge represents a significant opportunity to connect the north and south portions of the community for active mode users and furthermore to provide a high-quality connection to the future Palladium employment hub and LRT station. Given this, the preferred solution for a new crossing of Highway 417 includes a new complete street bridge within the same general alignment (Alternatives 4/5). This solution avoids conflict with other major existing or planned infrastructure and maintains a needed, continuous arterial road and cycling spine route connection. It provides for active transportation and transit service, connecting the communities north and south of the Highway 417. This bridge would form the long-term solution that provides sufficient capacity and level of service for all modes. Analyses indicate that there is a potential to stage the construction of this bridge as lateral segments, thus providing continuity of the arterial road network during its construction.

Further, analyses indicate that there is sufficient space between such a complete street bridge and the Kanata LRT alignment to construct an interim active transportation bridge. This potential interim investment would provide the missing active transportation functionality across Highway 417 for the period prior to the construction of the Huntmar Drive complete street bridge, and prior to the construction of the Kanata LRT. It would also remain in-place for the fullness of time, being an early delivery of part of the multi-use pathway (MUP) facility that is planned along the west and north side of the Kanata LRT.

On the basis of the foregoing, Alternative 5 is the recommended solution for the Huntmar Drive / Highway 417 crossing. Alternative 4 is not recommended, as this does not provide flexibility for the delivery of an interim active transportation crossing of the highway.

Regarding the interim active transportation crossing solution, it is important to note that the option to deliver the crossing as an above grade bridge crossing versus an underground tunnel were evaluated. The overhead structure is favoured as part of the recommended solution because it:

- Can be designed in a space-efficient manner that does not interfere with the Kanata LRT alignment to the east.
- Can be designed in a space-efficient manner that does not interfere with the Huntmar complete street bridge alignment to the west.
- Can best be delivered with accessible grades in a manner that ties into Cyclone Taylor Boulevard at-grade, to the south of Highway 417.
- Avoids risks associated with flooding of below-grade infrastructure.
- Avoids tunnelling or excavating under Highway 417.

4.6 Evaluation of Alternative Solutions for Stittsville Main Street

Table 4-5: Evaluation of Alternative Solutions Results - Stittsville Main Street

	Criteria	Alternative 1: Do Nothing in the Study Area (for comparison purposes)	Alternative 3: Extend Stittsville Main Street as a complete street.	Alternative 4: Do not extend the street northerly, connect to Maple Grove Road, and construct a street segment between Derreen Avenue and Robert Grant Avenue.
1	Supports a reduction in automobile dependency and GHG emissions.	Does not contribute to reducing automobile dependency. Could potentially result in increased GHG emissions, noise and energy consumption from added congestion in the Study Area.	Fully addressed. Provides necessary additional transportation capacity within the Study Area for all modes. Constructing the road as a complete street would link the surrounding communities to future LRT service with high quality active transportation facilities, as well as enabling bus service to connect neighbourhoods. Providing sufficient capacity to meet travel demand offers the opportunity to reduce congestion, noise and energy consumption and therefore GHG emissions.	Partially addressed. Provides some additional transportation capacity within the Study Area for all modes. Addresses the need for direct, efficient access to future LRT service from portions of the surrounding neighbourhoods. Does not provide the opportunity for local bus service to connect these neighbourhoods. May result in added congestion and travel distance which will increase GHG emissions.
2	Consistent with existing transportation network	Does not support the vision of the road network identified in the 2013 and draft TMP.	Fully addressed. Provides necessary additional transportation capacity and missing link within the Study Area for all modes.	Does not address. The absence of an extended Stittsville Main Street would fail to meet the long-term multi-modal transportation requirement for connecting the growing communities surrounding the Study Area to the existing transportation network. The Study Area transportation network would operate less efficiently in the absence of a needed major collector. Could result in additional traffic diverting on to Maple Grove Road, which does not support the intended purpose of that road as a minor collector.
3	Support existing and planned land uses. Enhance the economy.	Does not address the planned function to accommodate growth. Would fail to connect adjacent planned growth areas in the Study Area to the existing transportation network. Minimizes/avoids impacts to existing land uses. Does not provide opportunity/support for land use investment or further economic development.	Fully addressed. Provides the best opportunity to accommodate additional transportation demand and connect adjacent planned growth areas in the Study Area to the existing transportation network. Supports the opportunity for future intensification by creating more capacity in the transportation network and supports a shift towards sustainable modes which are more conducive to dense land use patterns. Extending Stittsville Main Street would complete the connection of the surrounding communities to /from high order transportation facilities.	Does not address the planned function to accommodate growth. Would fail to connect adjacent planned growth areas in the Study Area to the existing transportation network. Property impacts and impacts on existing land uses still anticipated.
4	Sensitive to the natural environment.	No physical impacts. However, existing Study Area environment is already substantially disturbed as a result of ongoing development in planned growth areas.	Partially addressed. Some physical impacts are anticipated from constructing the road. A significant portion of the Study Area environment has already been substantially disturbed as a result of ongoing development in planned growth areas. Will result in impacts to a significant woodland north of Maple	Partially addressed. Would result in nearly the same impacts to the natural environment as Alternative 3. Same with Alternative 3, impacts are anticipated to be minimized or eliminated through mitigation measures.

	Criteria	Alternative 1: Do Nothing in the Study Area (for comparison purposes)	Alternative 3: Extend Stittsville Main Street as a complete street.	Alternative 4: Do not extend the street northerly, connect to Maple Grove Road, and construct a street segment between Derreen Avenue and Robert Grant Avenue.
			Grove Road (see Section 3.2.2.2), however this woodland is subject to planned future development so construction of the road will not have any additional impacts. There are opportunities to avoid/minimize physical impacts to the extent feasible. Additional mitigation will be recommended where required. Provides an opportunity/supports land use investment by improving movements and access within the area for all modes. This solution encourages a positive impact on modal shift to transit and active modes that would result in a positive impact on the project's contribution to climate change. Provides the opportunity to build in climate change resiliency to corridor infrastructure.	
5	Consistent with vision for complete streets. Promote better public health and improve safety.	Does not deliver a complete street that would provide the needed multi-modal transportation capacity. Does not deliver a system, or opportunity to increase physical activity and improve public health. Does not deliver a system that includes contemporary safety design. Little to no facilities exist for cyclists and pedestrians today.	Fully addressed. Extending the road would provide the opportunity for a complete street vision to be built. Constructing the road as a complete street would meet the needs of a diverse range of users. Would improve equity with access to enhanced and contemporary facility design. As a complete street, the Stittsville Main Street extension would provide a new opportunity to increase physical activity and improve public health where previous opportunity did not exist because of a lack of facilities. An increased mode share of transit, walking and cycling would improve air quality and reduce congestion and noise. Would be designed to contemporary safety standards.	Partially addressed. The portion of roadway constructed would be designed as a complete street. However, a continuous complete streets connection would not be provided. Discontinuous facilities do not provide the best opportunity for improving public health. Would avoid creating a direct traffic link between Stittsville Main Street and the Palladium highway interchange, possibly reducing cut-through traffic and improving overall traffic safety. However, has the potential to direct additional traffic to Maple Grove or Derreen.
6	Compactness and affordability. Life Cycle Costs.	Does not deliver a cost-effective system. No capital cost.	Delivers a cost-effective solution for all modes based on projected capacity needs within the corridor. Life cycle costs are the most of all options but will be designed in consultation with relevant City departments to minimize costs associated with operation and employ contemporary design.	Does not address the need for added capacity and continuous facilities for all modes within the corridor. May result in a slightly lesser capital cost. May result in higher life cycle costs if it is determined that the missing connection is needed in the future.
Conclusion		**Not Recommended** ×	**Recommended Preferred Solution** ✓	**Not Recommended** ×

4.7 Preliminary Preferred Solutions

In consideration of the planning principles for the Study Area, the Preliminary Preferred Solution to reconstruct Huntmar Drive as a complete street as identified in the TMP is re-confirmed. On the basis of the needs assessment documented in **Section 2.0**, the solution will provide for a four-lane, complete street roadway with active transportation and transit features. The facility will be designed to include a complete bridge replacement of the Highway 417 crossing in its existing location, with the opportunity to construct a separate active transportation bridge structure in advance of the full reconstruction of the roadway and its bridge. The Preliminary Preferred Solution for Stittsville Main Steet is to extend the street north and east as a complete street providing for all modes from Maple Grove Road to the west leg of the future Robert Grant Avenue roundabout.

4.8 Stakeholder Consultation

4.8.1 First Round of Consultation Group Meetings

The first round of Study Consultation group meetings (Agency, Business and Public) were held on September 29 and October 4, 2021 respectively. These meetings were held virtually via MS Teams. A presentation was provided followed by discussion. The Study Team, including members from the City of Ottawa and the consultant team, were available to discuss the study and answer questions at each of the consultation group meetings. Input received at these meetings included discussion on the following topics:

- General support for alternatives that to not impact the hydro corridor were preferred.
- General support for the provision of separated, buffered active-transportation (AT) facilities on Huntmar Drive. Safety concerns and missing links were also discussed.
- Opportunities for and design considerations regarding streetlighting.
- Opportunities to provide traffic calming for “hubs” and school zones for Huntmar Drive and overall for Stittsville Main were discussed.
- Discussion was given to construction methodology and replacement options for the Huntmar/Highway 417 bridge as well as the design.
- Local bus service and stop designs for Stittsville Main Street were discussed.
- Landscaping and shading opportunities for Stittsville Main Street were discussed.
- Concerns for widening Huntmar Drive were expressed. Rationale was discussed.
- Design and safety and future connection to Robert Grant Avenue was discussed.
- Concerns were received regarding the need for on-street parking on Stittsville Main Street.

- Stormwater management considerations were discussed.
- The need for more emphasis on climate change considerations.

For a full account of discussion from these consultation group meetings refer to **Appendix A**.

4.9 Final Preferred Solutions

The Preliminary Preferred Solutions were presented to stakeholders in a series of consultation events including the study's three consultation groups (Agency, Business, and Public) in September/October 2021. Comments received during the consultation group meetings included general support for the alternative solutions presented.

In consideration of the comments received and the ability to further consider comments as part of alternative designs and opportunities to minimize potential effects through the prescription of mitigation measures, the Preliminary Preferred Solutions were confirmed as final.

5.0 UPDATE TO EXISTING CONDITIONS

Following the establishment of existing conditions for the Study Area, more detailed analyses were conducted to further inform and develop the subsequent evaluation criteria and evaluation of alternative designs discussed in **Section 6.0.**

5.1 Natural Environment Focused Field Studies

An extensive natural environment focused field study program was undertaken. The complete report can be found in **Appendix B**. Natural environment field surveys were conducted as part of this update to existing conditions and included:

- Ecological Land Classification (ELC);
- Significant Wildlife Habitat (SWH) assessment;
  - Amphibian breeding surveys;
  - Breeding bird surveys;
  - Bat Acoustic Survey;
  - Bat Cavity Tree Survey;
  - Raptor Over-Wintering Survey;
- Mature and Distinctive Tree Survey;
- Aquatic features assessment; and,
- SAR habitat suitability analysis.

Conducting these surveys was limited to areas where consent to enter was obtained during the appropriate timing window for each field survey.

5.1.1 Ecological Land Classification

Fourteen (14) natural vegetation communities were documented within the Study Area following the established methodology as per the *ELC system for southern Ontario* (Lee et. al., 1998) with updates from the 2008 catalogue. The majority of vegetation communities were delineated based on aerial photography interpretation with subsequent field verification and inventory. Due to limited access to some properties within 120m of the Study Area, vegetation communities were delineated based on aerial photograph interpretation and classified to Community Series level (i.e., units that are normally visible and consistently recognizable on air-photos, Lee *et. al.* 1998), with narrower community levels provided where evident and supported by field assessment.

No ELC vegetation communities were found to be provincially at risk or rare as per the Natural Heritage Information Centre (NHIC). One live butternut (endangered) was observed adjacent to the Huntmar Drive ROW in community MEM_10 Detailed ELC mapping is found in **Appendix B**.

5.1.2 Significant Wildlife Habitat

There are four categories of SWH: seasonal concentration areas, migration corridors, rare or specialized habitats and Species of Conservation Concern. Species and their habitats that are already protected as Endangered or Threatened under the ESA are not considered in the assessment of SWH.

Candidate and confirmed SWH features were identified within the Study Area (**Table 5-1**). There are no candidate or confirmed animal movement corridors for the Study Area. Candidate SWH refers to those natural features that are potentially significant based on the presence of suitable habitat in the criteria outlined in MNRF's SWH guidance document (2015).

All candidate and confirmed SWH features were identified based on ELC, wildlife habitat assessments, and targeted surveys.

Table 5-1: Summary of Candidate and Confirmed SWH for the Study Area

SWH Category	Wildlife Habitat	Determination
Seasonal Concentration Areas	Waterfowl stopover and staging areas (terrestrial and aquatic)	Candidate
	Raptor Wintering Area	
	Turtle Wintering	
	Reptile Hibernacula	
Rare or Specialized Habitat	Waterfowl Nesting Area	Candidate
	Turtle Nesting Area	
	Amphibian breeding habitat	

SWH Category	Wildlife Habitat	Determination
Habitats for Species of Conservation Concern	Special Concern and Rare Wildlife Species	Candidate for: Midland Painted Turtle, Snapping Turtle, Eastern Ribbonsnake, Common Nighthawk, Eastern Wood-pewee, Golden-winged Warbler, Olive-sided Flycatcher. Confirmed for Wood Thrush

5.1.3 Mature and Distinctive Tree Survey

Under the Tree Protection Bylaw No. 2020-340, Distinctive Trees are defined as living trees with a diameter equal to or greater than 50cm that are located on properties less than 1 hectare (ha) in size. While the majority of the property throughout the Study Area is either city-owned, or greater than 1ha in size, trees over 50cm located on these properties are notable features for wildlife and canopy cover values.

All trees equal or greater than 50cm DBH within 50m of the Project Limits were recorded, with trees located on private property under 1ha labelled as Distinctive Trees and trees located on public property, or properties greater than 1ha in size labelled as Large Diameter Trees.

A total of 31 trees measuring greater than 50cm DBH were recorded within 50m of the Project Limits. Of these, one meets Distinctive Tree criteria (on Private Property <1ha in size). The remaining 30 trees are all either located on City of Ottawa Property or on properties greater than 1ha in size. Design work should consider the avoidance of impacts to Large Diameter and Distinctive Trees wherever feasible. Detailed information is provided in **Appendix B**.

5.1.4 Aquatic Resources

Existing fisheries community and habitat information for watercourse features in the Study Area is available through existing studies and on-line databases. The existing fisheries communities were identified through background information collection from available sources. Site visits were undertaken on August 31, 2021, to generally characterize the existing fish habitat within the Study Area and confirm the findings of the background information. The Study Area contains Feedmill Creek which contains a mix of warm and cool water generalist fish species that are moderately to highly tolerant of degraded habitats. Detailed information is provided in **Appendix B**.

5.1.5 Aquatic Features Assessment

Aquatic feature site visits were completed in September 2021 to confirm existing information and note new or changed characteristics. Detailed information is provided in **Appendix B.**

5.1.5.1 Feedmill Creek

Feedmill Creek is a tributary of the Carp River (**Figure 3-8**) Within the Study Area, Feedmill Creek is classified as a permanent watercourse which provides direct fish habitat. It flows from west to east within the Study Area via culvert under Huntmar Drive. West of Huntmar Drive and south of Campeau Drive is the confluence of Feedmill Creek and an outlet for a storm water management pond. The feature was conveying flow at the time of the site visit, however, recent beaver activity upstream of the storm water management pond outlet has impounded Feedmill Creek west of Huntmar Drive. The confluence of Feedmill Creek and Unnamed Watercourse 2 occurs between the impoundment and Huntmar Drive.

Aquatic vegetation such as Water Plantain (*Alisma gramineum*) and Narrow-leaved Arrowhead (*Sagittaria filiformis*) was observed in this reach. Feedmill Creek is known to be cool water fish habitat. In 2019 MVCA observed young of year Northern Pike (*Esox lucius*) in the reach upstream of Huntmar, suggesting potential presence of spawning habitat (MVCA, 2021).

5.1.5.2 Unnamed Watercourse 1

Unnamed Watercourse 1 is located at the northwestern portion of the Study Area (**Figure 3-8**). Flow is conveyed from the northwest directly into the stormwater management pond west of the Huntmar Drive, south of Campeau Drive. The site visit concluded that Unnamed Watercourse 1 appears to be an ephemeral drain feature with a defined channel containing terrestrial vegetation and no water.

5.1.5.3 Unnamed Watercourse 2

This unnamed watercourse is located adjacent Huntmar Drive, southwest of the Feedmill Creek (**Figure 3-8**). This largely linear feature receives roadside drainage from Huntmar Drive and Highway 417 in addition to the storm water management pond located south of Hwy 17 in the Palladium Auto Park. This feature possessed a defined channel with terrestrial vegetation and low water flow. It is important to note that the Unnamed Watercourse 2 that enters Feedmill Creek along the Huntmar Drive ditchline is at a higher grade than Feedmill Creek which likely serves as a barrier to upstream fish movement during periods of low flow.

5.1.5.4 Unnamed Watercourse 3, Tributary to Carp River

Unnamed Watercourse 3 is a tributary to the Carp River located south of Highway 417 (**Figure 3-8**). This drain feature conveys flow from west to east within the project limits via a culvert under Huntmar Drive approximately 200m south of the Palladium Drive intersection. Terrestrial vegetation and no water were observed within the watercourse suggesting this watercourse is an ephemeral feature. No defined channels were observed on the west side of Huntmar Drive within the hedgerow, however, the road ditchline was heavily armored with rip-rap. The channel in the east side of Huntmar Drive contained gravel and boulders at the culvert outlet. A head water drainage assessment was conducted in April and August of 2018 (MVCA 2021). Water was present within the channel during the 2018 assessment, but no fish data were collected.

5.1.5.5 Unnamed Watercourse 4 and Storm Water Management Pond west of Stittsville Main Street

The SWMP west of Stittsville Main Street receives precipitation and snow melt runoff directly from the adjacent residential areas and associated roads (**Figure 3-8**). The outlet of the SWMP is not in the 120m Study Area, however, the outlet contributes flow to Unnamed Watercourse 4 which does not enter the 120m Study Area but is in close proximity to the northwestern boundary of the Study Area. Based on the information request from MVCA Unnamed watercourse 4 is considered a tributary of the Feedmill Creek. MVCA identified warm water fish in the Unnamed Watercourse 4 and are considered present as of 2004 surveys.

Three SWMP occur in the Study Area and SWMPs frequently contain fish. SWMPs are generally not considered fish habitat but the fish are protected from harm and may be protected from disruption during critical life stages (e.g., spawning).

5.1.5.6 Tanger Outlets Storm Water Management Pond, north of Highway 417

The SWMP west of Huntmar Drive and south of Campeau Drive receives precipitation and snow melt runoff directly from the Tanger Outlets and the surrounding roads (**Figure 3-8**). The SWMP outlets into Feedmill Creek, downstream of the observed beaver impoundment. This is a permanent feature.

5.1.5.7 Autopark Storm Water Management Pond, south of Highway 417

The SWMP south of Highway 417 receives precipitation and snow melt runoff directly from the Palladium Auto Park and Huntmar Drive (**Figure 3-8**). The outlet discharges to a culvert that conveys the flow under Highway 417 to Feedmill Creek. This is a permanent feature.

5.1.6 Species at Risk Habitat Suitability Analysis

Following additional field surveys including targeted surveys 11 species listed as threatened or endangered have potential to occur or were confirmed present within the Study Area.

- 4 were observed during site visits: Butternut (6 in total found), Tri-coloured Bat, Eastern Meadowlark, and Barn Swallow

    - Observation of Eastern Meadowlark and Barn Swallow are considered incidental as suitable breeding habitat was not associated with these observations.
- 7 additional threatened or endangered species have potential to occur in the Study Area as suitable habitat exists. These are: Blanding's Turtle, Eastern Whip-poor-will, Least Bittern, Red-headed Woodpecker, Little Brown Bat, Eastern Small-footed Myotis and Northern Myotis.

11 species of special concern and/or species of conservation concern have the potential to occur. These species are designated as special concern under one or both the ESA and SARA or are listed as Endangered but does not yet have defined legislative protection (Black Ash).

- 2 were observed during site visits: Wood Thrush and Monarch
- 9 additional species have potential to occur in the Study Area as suitable habitat exists. These are: Black Ash, Midland Painted Turtle, Snapping Turtle, Western Chorus Frog, Common Nighthawk, Eastern Ribbonsnake, Eastern Wood-pewee, Golden-winged Warbler, Olive-sided Flycatcher

5.2 Fluvial Geomorphic Assessment

A fluvial geomorphic assessment was conducted for two reach lengths of Feedmill Creek to determine the extent of the 100-year erosion limit and thereby inform the functional design of an upgraded crossing structure. The full report is provided in **Appendix B**. Following the assessment of the 100-year erosion limit of the channel it was determined that the meander bends located upstream of the Huntmar Drive crossing are not at risk of significantly encroaching on future infrastructure (via lateral and/or downstream migration). Recommended crossing structure size should be the width of one and a half times the average bankfull width of the channel in the vicinity of the existing crossing recognizing that, with few exceptions, this dimension is generally in line with the observed extent of lateral channel adjustment over the period of the historical air photograph record.

Following the completion of this report it was learned that as part of a separate study, Feedmill Creek is undergoing rehabilitation, so these results may no longer apply. Rehabilitation of Feedmill Creek is anticipated to occur prior to the widening of Huntmar Drive. During the time of the detailed design of the culvert crossing underneath Huntmar Drive, the new existing conditions resulting from the rehabilitation project will be surveyed and studied to inform this design. In the interim, this EA assumes that the culvert will be designed to existing 2022 conditions.

6.0 EVALUATION OF ALTERNATIVE DESIGNS

This section provides a summary of the overall principles and design and evaluation criteria that guide the design and evaluation of the recommended infrastructure solutions. These criteria are sensitive to the site-specific conditions within the Study Area, drawing on the findings of existing conditions documented in **Sections 3.0 and 5.0.**

The evaluation process chosen to determine the alternative designs for the transportation solutions is a stepwise process and considers the varied opportunities, constraints, policies, geometric design requirements and environmental effects. The first step was to establish the road design criteria for each of the roadways then, upon further dissection of those design criteria, establish the best outcome following discussion. The next step was to evaluate alternative cross sections, then alignments and intersection options. Preliminary preferred designs were confirmed for each of the corridors following another round of stakeholder consultation as described in **Section 6.4**.

As outlined in **Section 4.0**, the extension of Stittsville Main Street as a Major Collector Road will provide increased north-south and west-east connectivity to the existing and planned communities on either side of the corridor, creating a multi-modal link between Hazeldean Road and Robert Grant Avenue. The Huntmar Drive widening will emphasize the road's role as a multi-modal north-south Arterial travel link, serving the residential communities in Kanata and Stittsville, and the institutional and commercial destinations within and near the Study Area. The renewed Huntmar Drive crossing over Highway 417 as a complete street, together with the flexibility for an interim active transportation crossing, will provide continuous path of travel for all road users, providing a multi-modal connection between the communities on either side of the highway. Design Criteria were developed to respond to these intended functions, to the requirements of policy and site-specific conditions, as well as to study priorities and needs of varying road users.

6.1 Huntmar Drive Widening

6.1.1 Design Criteria

Design Criteria for the Huntmar Drive widening are as follows:

- Arterial Road and cycling Spine Route designation;
- Accessible in accordance with all municipal and provincial guidelines and standards;
- Protected intersections where signalized;
- Local Street intersections as 30 km/h streets;
- Undivided travel lanes (no mid-block medians) as per 2018 Council approved arterial road cross sections;

- Transit route;
- Potential for Truck Route;
- 37.5m ROW, as per Official Plan policy (additional space at intersections, and grading easements as required);
- Posted Speed of 50kph or 60kph (design speed 70kph);
- Lane widths as per council policy;
  - 3.5m outside travel lanes (ensures sufficient space for bus transit operations)
  - 3.25 interior travel lanes
- 2.0m minimum sidewalks on both sides;
- 1.8 to 2.0m Uni-Directional cycle tracks on both sides;
- 4.0m bus pads/stops following City guidelines for interactions with active transportation facilities;
- Tree planting as per City requirements;
- Four travel lanes (two in each direction);
- Snow storage along curb line;
- High-voltage overhead hydro line retained in place where possible;
- No on-street parking; and
- Left turn and right turn lanes where needed.
- Design reflects roadway designation as primary fire response route by Ottawa Fire Services, and as “key emergency response route” by City of Ottawa Traffic Calming Design Guidelines.

Note that, as per the directive of the Fall 2018 City of Ottawa Council report advising against medians for urban arterials with posted speeds less than 70kph, design alternatives featuring continuous medians were not considered. Medians provide no benefit for street tree planting, are more costly to construct and can result in less compact infrastructure and they also unnecessarily lengthen pedestrian crossing distances. For these reasons, options including mid-block medians do not align with the Study’s planning objectives and are not considered further. Where left-turn lanes and traffic signals are required, narrow 1.5m medians may be needed for signal plants, and narrow medians may also be employed to prohibit undesired/unsafe turning movements at private approaches.

6.1.2 Rural versus Urban Cross Section

An urban road cross-section is recommended. 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 Huntmar Drive due to the planning context provided by the New Official Plan, the road's designation as Minor Corridor, the presence of the planned Palladium development "hub" and rapid transit station, and the adjacent development lands on both sides of the corridor. It is expected that over time, in response to these policies, significant development will take place along the corridor, creating an "urban" setting, where today the setting of the corridor might be considered "rural". The OP's Corridor designation applies to bands of land along specified streets whose planned function combines a higher density of development, a greater degree of mixed uses and a higher level of street transit service than abutting Neighbourhoods, but lower density than nearby Hubs. Hubs are identified as Protected Major Transit Station Areas (PMTSAs) for the purposes of the Provincial Policy Statement. At the Palladium Hub, the OP allows for mid-high density development centered on the future LRT station, which could result in particular transit-oriented development and urbanization along this segment of Huntmar. The redevelopment vision for the section of Huntmar bordering the Palladium Hub involves a highly active street-front, appropriate of an urban roadway cross-section.

6.1.3 Design Speeds and Posted Speed Limit

A design speed of 70kph was selected to reflect Huntmar Road's arterial function. A design speed of 70kph leaves the flexibility to select either a 50kph or 60kph posted speed at some point in the future, depending on the emergent priorities for the corridor which may evolve with the ongoing development of the area. This strategy was approved through consultation with City transportation planning staff. The road is in the Urban Area and will feature active transportation facilities, and is designated a Minor Corridor, so lower vehicular operating speeds may be desirable. However, the role of Huntmar in the wider transportation network as a high-volume arterial is also acknowledged, which creates the need for sufficiently high traffic speeds to maintain roadway function and traffic flow. Pedestrian and cyclist safety can be addressed with fully separated facilities and a wide buffer to vehicle travel lanes, minimizing the interaction between active road users and higher speed traffic.

6.1.4 Alternative Cross-Section Arrangements

The City of Ottawa's *Arterial Road Cross-Sections* – which were approved by Council in 2018 as supplemental guidance for the City's *Regional Road Corridor Design Guidelines (2000)* – were used as a starting point for the evaluation of alternative cross-section arrangements for Huntmar Drive. These cross-sections assumed a narrower ROW than what is protected in the Official Plan for Huntmar Drive but could still be used to compare options for generalized cross-section arrangements. Of the Council endorsed cross-sections, two were determined to most closely meet the design criteria for Huntmar Road. **Option A**, shown in **Figure 6-1** shows a 4-lane cross-section with 3.5m outside vehicle travel lanes; 3.25m interior travel lanes; and unidirectional cycle tracks on both sides separated from 2.0m sidewalks by a 2.0m planting strip. **Option B**, shown in **Figure 6-2**, is largely the same but with side-by-side cycle tracks and sidewalks, separated by an unspecified delineation strip.

Figure 6-1: Huntmar Drive (Option A) - Separated Cycle Tracks/Sidewalks

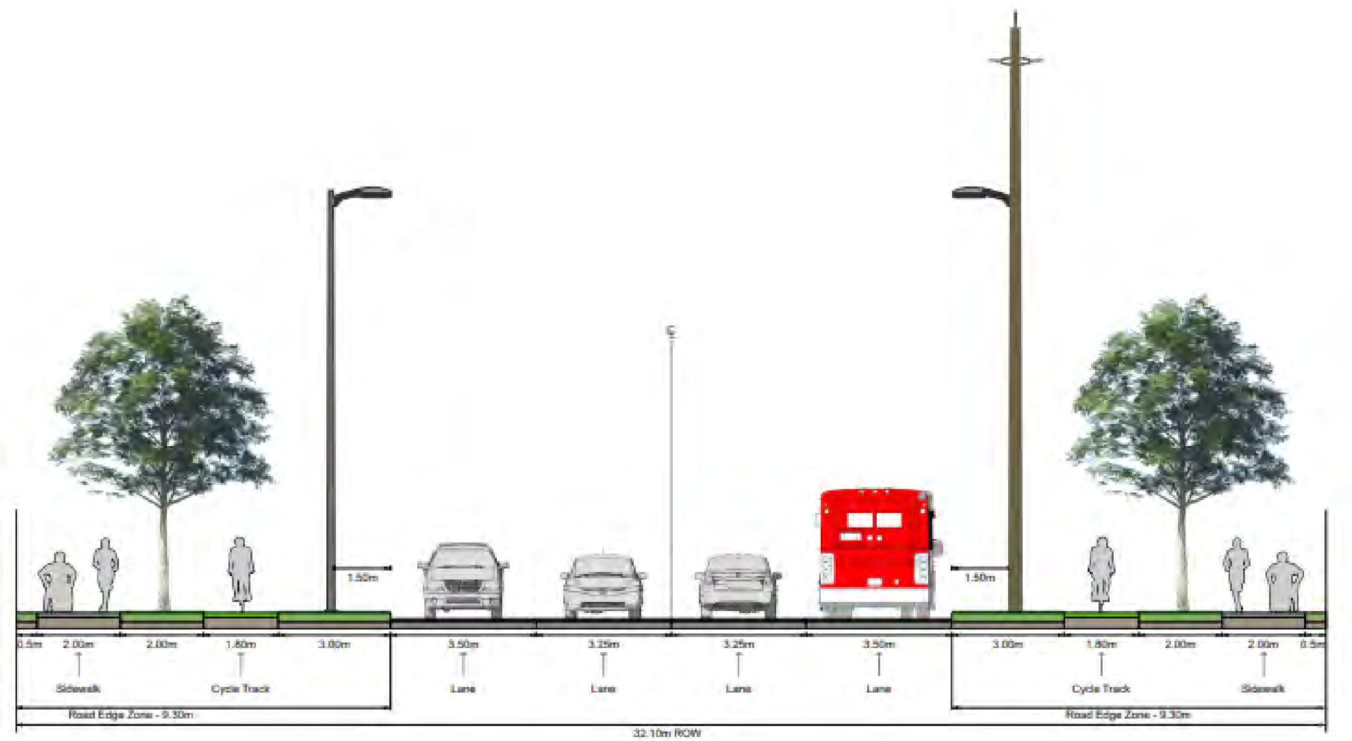
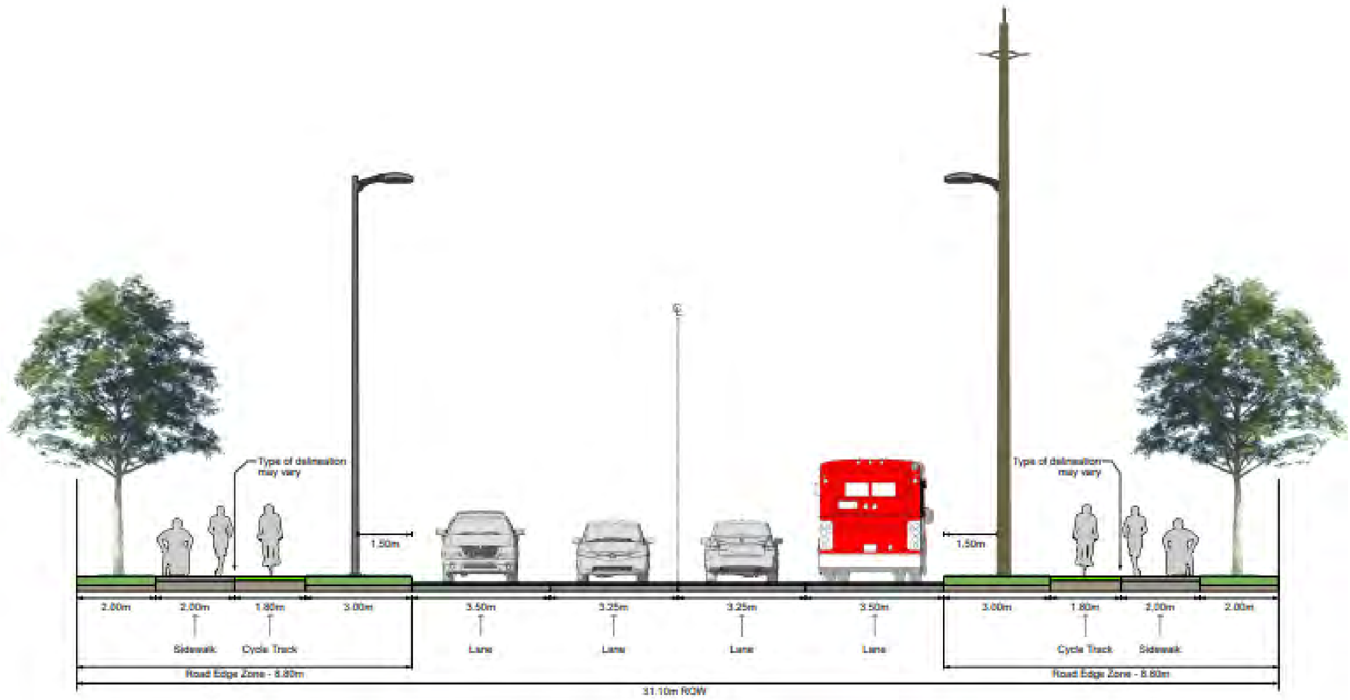


Figure 6-2: Huntmar Drive (Option B) - Combined Cycle Tracks/Sidewalks

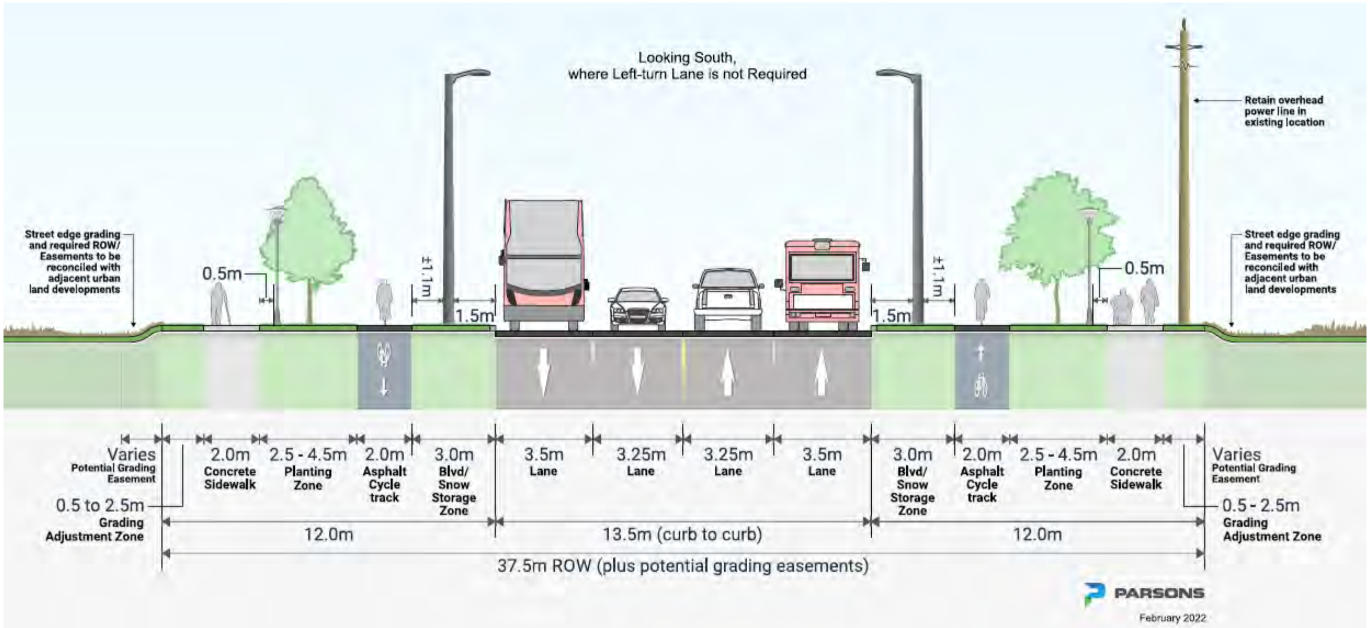


6.1.5 Preferred Cross-Section

The preferred cross-section shown in **Figure 6-3** is a version of **Option A** updated for a 37.5m ROW that does not include 5m grassy medians, chosen through consultation with the Study's Agency, Business, and Public consultation groups, as well as through analysis of the environmental, planning and engineering context for the roadway. Both alternatives largely meet the design criteria outlined in Section 6.1.1. However, consultation group feedback indicated a preference for fully separated active transportation facilities, which is provided in **Option A** by a wide planting zone, over bundled facilities as shown by **Option B**. Some concern was voiced over the potential for unsafe interactions between cyclists and pedestrians created by placing sidewalks and cycle tracks directly adjacent to each-other.

Additionally, providing a planting zone between the sidewalk and cycle track allows street trees to be positioned in such a way as to provide shade to both facilities simultaneously while also providing a space for snow storage. The wide protected ROW of Huntmar Drive allows the planting zone provided in this space to be of a sufficient width to encourage healthy tree growth. Under the bundled arrangement shown by **Option B**, street trees would be planted in the outer boulevard, potentially placing the cycle tracks outside of the area of shade coverage.

Figure 6-3: Preferred Cross-Section for the Huntmar Drive Widening



The preferred design fulfills the Complete Street vision for Huntmar Drive, providing safe and comfortable facilities for all users. The design features 2.0m unidirectional cycle tracks and sidewalks on both sides. The variable-width planting zone provided is a sufficient minimum width for healthy tree growth and will also contain pedestrian-scale lighting to supplement the main overhead fixtures. Two travel lanes are provided undivided in both directions, with ample snow storage space in the boulevards and ROW space for left-turn lanes at intersections where needed. The existing hydro line on the west side of the corridor will be maintained in place in the outer boulevard. Street edge grading on both sides will vary with the form of future development, some of which is expected to be street fronting.

It is also important to note that the width of the planting zone will need to vary along the project length, such as in instances where turning lanes are required at intersections which in turn reduce the amount of space available for snow storage. Decisions on whether the grassy spaces are to be re-allocated to remove space from roadside snow storage to wider planting zones can be made at the detailed design stage. Similarly, there will be segments where there is insufficient space to provide a planting zone between the sidewalk and cycle track. In these segments, the sidewalk and cycle track will abut each other and the implementation of half-height curbs vis a vis other methods to provide tactile delineation will be determined at the detailed design stage.

6.1.6 Intersection Considerations

The Huntmar Drive component of this EA Study includes the design of three major signalized intersections – at Cyclone Taylor Boulevard, Palladium Boulevard, and Robert Grant Avenue – as well as several existing and planned minor and private approaches from developments adjacent to the corridor. The design for the widened Huntmar Drive will tie into the existing

Campeau Drive roundabout at the north end of the corridor, and into the proposed signalized protected intersection at Maple Grove in the south which is being designed by others and approved by the City as part of an ongoing intersection modification project.

For the three major signalized intersections, the following options were evaluated:

- Roundabout; and
- Signal Controlled Protected Intersection.

All intersection options would include accessibility measures following all relevant City of Ottawa standards. Other design considerations for this intersection type analysis and evaluation were:

- Route consistency;
- ROW requirements;
- Accessibility;
- Pedestrian and bicycle safety; and
- Traffic volumes and traffic flow balance.

At the Cyclone Taylor and Palladium intersections, the option of a roundabout was ruled out due to insufficient space. Widening out the intersections to provide space for a roundabout would have notable impacts on existing land uses. As such, the preferred alternative for these intersections is that they be designed as full signalized protected intersections.

At the future Robert Grant intersection, the implementation of a roundabout would require the notable acquisition of property from developments (such as at 173 Huntmar and 130 Huntmar) that have been undergoing land use studies and pre-consultations on the basis of signalized intersections. Rather, designing the Robert Grant intersection as a signalized intersection would both avoid the need for this additional planning disruption and property acquisition and would maintain continuity for road users on Huntmar Drive as a north south route served by signalized intersections.

Further, the use of signalized intersections can be an opportunity to showcase and implement the City's new design guidelines for protected intersections. A protected intersection provides cyclists with a continuous, protected north-south cycling route, without the requirement to dismount to cross any intersecting roadways, and they can be designed as state of the art from an accessibility perspective. On the other hand, roundabouts in Ontario come with the requirement for walk and dismounts at crosswalks and have some performance limitations for those with accessibility challenges. For these reasons, the preferred alternative for the Robert Grant intersection is that it be designed as a full signalized protected intersection.

6.2 Huntmar Drive / Highway 417 Crossings

6.2.1 Design Criteria

Design criteria for the Huntmar Drive complete street bridge crossing of Highway 417 are as follows:

- Posted Speed of 50kph or 60kph (design speed 70kph);
- Five (5) lane cross-section (two travel lanes in each direction, single southbound left-turn lane);
- Lane widths as per council policy and MTO guidance;
- 3.5m outside travel lanes for transit;
- 3.3m interior travel lanes;
- 2.0m minimum sidewalks on both sides;
- 1.8 to 2.0m Uni-Directional cycle tracks on both sides;
- Half-height curbs as the method to separate sidewalks and cycle tracks;
- Pedestrian railing (1.37m height);
- Curbside safety barriers;
- Overhead clearance to Highway 417 travel lanes below in accordance with MTO requirements; and
- Potential to be constructed in lateral phases in order to maintain roadway connectivity during construction.

6.2.2 Lane and Active Transportation Requirements

Substantial traffic analysis was undertaken to determine that, as a result of the bridge's role in serving event traffic at the adjacent Canadian Tire Centre, a southbound left-turn lane extending onto the bridge is needed to accommodate lengthy queues for this movement. Accordingly, the cross-section options evaluated for the Huntmar / Highway 417 complete street bridge crossing will feature five lanes: two through lanes in both directions and a single southbound left-turn lane. This arrangement, with 3.5m curb lanes, will also accommodate bus transit as required.

Also of importance is the provision of high-quality active transportation facilities spanning the bridge, as outlined in the criteria in the preceding section. This will connect the facilities on the north and south sides of the highway, which would otherwise be inaccessible, contributing to an overall fragmented active transportation network. The evaluated alternative designs centre around variations of these design criteria and corresponding arrangements.

6.2.3 Cross-Section Options

Option A, shown in **Figure 6-4**, features 2.0m sidewalks and 2.0m unidirectional cycle tracks on both sides delineated by half-height curbs and separated by traffic lanes by a curbside concrete barrier. Wide, 1.5m roadside buffers on both sides contribute to an overall wider bridge width of 30.15m. **Option B** (**Figure 6-5**) is a variation of Option A featuring reduced roadside buffers, which results in an overall bridge width which is 2m narrower. For **Option C** (**Figure 6-6**) the concrete barrier is shifted to be between the sidewalks and cycle tracks, so that the cycle track is adjacent to the travel lanes and separated only by a 0.25m offset. **Option D** (**Figure 6-7**) does not feature a concrete AT barrier, and as a result features the narrowest total bridge width possible while still meeting the minimum design criteria. All options feature a 1.37m pedestrian railing on the outside bridge edge.

Figure 6-4: Option A (Roadside Barrier with Wide Buffer, Half-height Curb

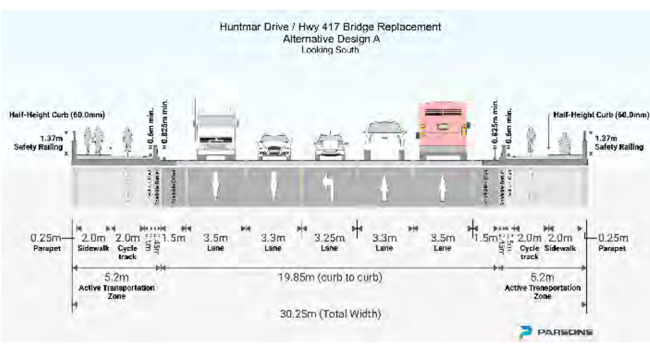


Figure 6-5: Option B (Roadside Barrier with Narrow Offset, Half-height Curb

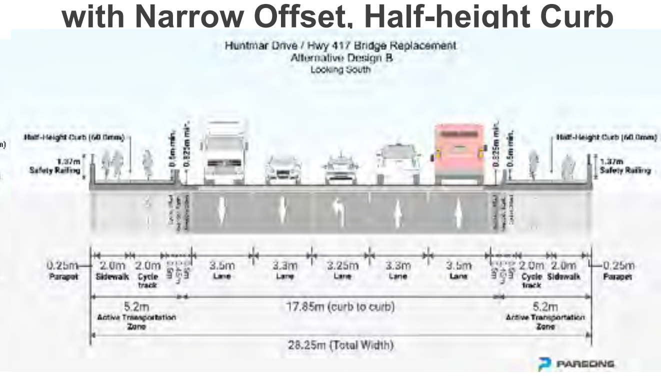


Figure 6-6: Option C (Barrier-Separated Sidewalk/Cycle Track Narrow Roadside

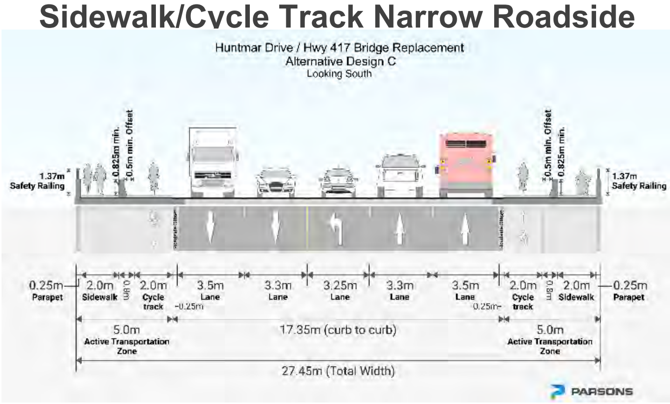
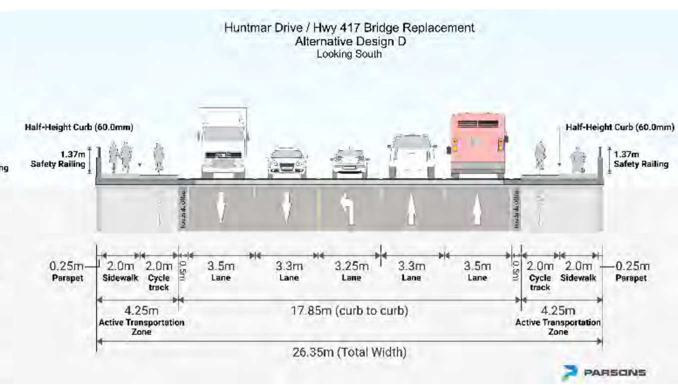


Figure 6-7: Option D (No Roadside Barrier)



6.2.4 Preferred Cross-Section

Through consultation group feedback, the preferred Huntmar/Hwy. 417 bridge cross-section was determined to be Option A. This option provides the highest level of active transportation comfort and safety, a priority of the project, while still meeting traffic requirements. Option C does not provide sufficient separation between cyclists and vehicle traffic; Option D does not provide sufficient separation for cyclists or pedestrians. The wide curbside buffer provided in Option A creates very good separation between motor vehicles and cyclists and also provides ample space for snow storage compared to Option B. Option A best addresses concerns over the possibility that snow could accumulate against the roadside barrier and impede the outside travel lanes, and other than cost, there is no impediment in this case to providing the greater width in favour of roadside safety.

6.2.4.1 Bundled Active Transportation Facility Delineation

For options A, B, and D, options for the delineation between the cycle tracks and sidewalks were evaluated. The preliminary preferred option, based on feedback from City staff and from external accessibility stakeholders, is a half-height curb delineator, as illustrated in the cross-section diagrams above. This provides a strong level of demarcation between the bundled active transportation facilities, preventing cyclists from encroaching on the pedestrian space on the bridge span. Half-height curbs also have minimal lateral space requirements, which would allow them to be implemented without adding to the overall bridge width; a tactile delineation strip was ruled out for this reason.

However, the viability of implementing half-height curbs over the bridge span will need to be re-evaluated at detailed design and in consultation with MTO. It is acknowledged by the City that, at this time, MTO does not endorse the use of half-height curbs on structures within MTO's corridor. During deatiled design, the metholodogy of delineation between cycle track and sidewalk should be confirmed in accordance with the MTO standards, applicable guidelines and best practices aapplicable at that time. It is anticipated that there may be engineering challenges related to 'stepping' the active transportation facilities, and the more viable option will be to provide the sidewalk and cycle track as a single level surface. In this case a painted delineator should be the preferred option because of its minimal lateral space requirements. This EA provides the approval for these options, and other options that may emerge in the future, all to be explored during detailed design and corresponding to the best practices, design guidelines, and codes of the day.

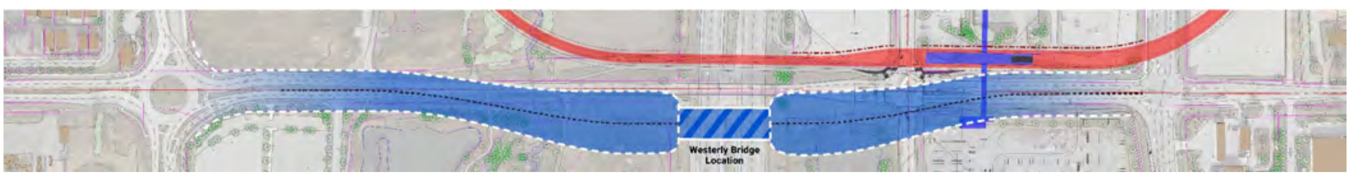
6.2.5 Bridge Alignment Considerations

Options were evaluated for the alignment of the replacement Huntmar / Highway 417 complete street bridge, which are shown in the figures below. The options included: 1. maintain the current bridge location and construct the new bridge over the alignment of the existing bridge; 2. shift the bridge alignment to the east of the existing bridge location; and 3. shift the bridge alignment to the west of the existing bridge location. The preferred design is **Option 1**, maintaining the existing bridge alignment. Option 2 is not feasible because it would interfere with the future LRT bridge to be constructed as part of the Kanata O-Train extension and it would also negate the opportunity for an interim active transportation bridge in that location. Option 3 creates conflicts with the high-voltage Hydro One line to the west of the Huntmar corridor, as well as trunk watermain and stormwater management facilities. For these reasons, Option 3 was also screened out.

Figure 6-8: Huntmar / Hwy. 417 Crossing Alignment Option 1 (Current Bridge Location) – Preferred

Figure 6-9: Huntmar / Hwy. 417 Crossing Alignment Option 2 (East of Current Bridge Location)

Figure 6-10: Huntmar / Hwy. 417 Crossing Alignment Option 3 (West of Current Bridge Location)



6.2.6 Potential Parallel Active Transportation Bridge

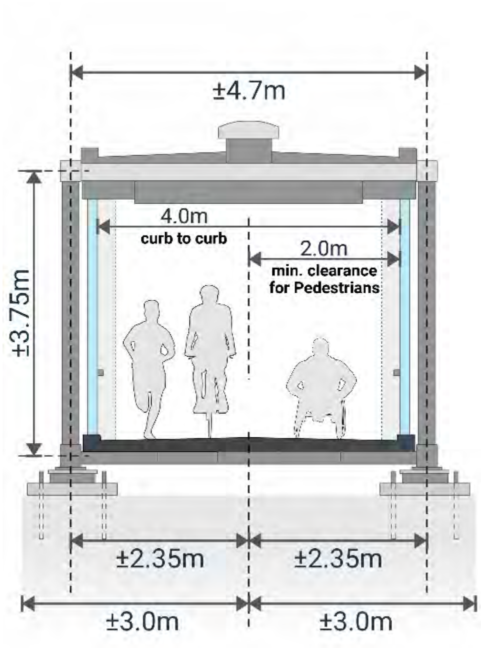
Responding to the need and opportunity established in the recommended solution, flexibility is built into this EA for the delivery of an interim active transportation (AT) bridge crossing over Highway 417. Key planning and design criteria include:

- Overhead bridge structure for the reasons outlined in the evaluation of alternative solutions;
- Enclosed and weather protected other than at the ends which will be open;
- Accessible and with a smooth rolling surface;
- Illuminated to City standards;
- Wide enough to accommodate both pedestrians and cyclists in a multi-use pathway format;
- Sufficient interior headroom for users including maintenance activities;

- Aligned to the east of the future Huntmar complete street bridge;
- Aligned to the west of the Kanata LRT alignment and as an early delivery of the Highway 417 crossing that was identified as part of that project (but not EA approved);
- Designed to be constructable in advance of either the Huntmar complete street bridge, or in advance of the Kanata LRT, or in advance of both;
- Designed in a manner to as to not infringe on the ability to construct the adjacent structures to the east or west; and
- Overhead clearance to Highway 417 travel lanes below in accordance with MTO requirements.

Responding to these criteria, the preferred design is shown in below.

Figure 6-11: Cross Section Design for the Active Transportation Bridge



In addition to the dimensions shown on this design, the project will make best efforts to provide for exterior seating on each end of the bridge structure. The provision of seating will acknowledge that the bridge crossing over Highway 417 is relatively long, and that there is insufficient lateral space within the interior of the bridge to provide seating without encumbering movement along it.

MUP connections to the bridge ends will be made to and from the active transportation infrastructure on both sides of Highway 417 on the east side of Huntmar Drive (toward Campeau Drive to the north, and Cyclone Taylor Boulevard to the south).

6.3 Stittsville Main Street Extension

6.3.1 Design Criteria

Design criteria for the Stittsville Main Street extension are as follows:

- Major Collector Road;
- 26m ROW, as per Official Plan policy (additional grading easements possible);
- Accessible in accordance with all municipal and provincial guidelines and standards;
- Protected style Stop-controlled intersection at Maple Grove;
- Local Street intersections as 30 km/h streets;
- Two travel lanes (one in each direction);
- Provision of on-street parking;
- Posted Speed of 40kph (design speed 50kph);
- 3.5m minimum travel lane width (accommodates transit);
- 9.0m minimum curb-to-curb width to accommodate snow clearance vehicles;
- Periodic “bulb-outs” to organize on-street parking and provide minimum 9m curb-to-curb width;
- Snow storage along curb line;
- Below-grade utilities;
- Undivided;
- Traffic calming / speed reduction elements to dissuade through traffic;
- Left turn lanes where needed;
- Bus pads/stops following City guidelines for interactions with AT facilities; and
- Tree plantings as per City requirements.

Design reflects roadway designation as primary fire response route by Ottawa Fire Services and expected future designation as a “key emergency response route” by City of Ottawa Traffic Calming Design Guidelines. An urban cross-section is favoured for the Stittsville Main Street extension, because of the existing and future urban development immediately adjacent to it. It is anticipated that the ongoing and planned development of the subdivisions directly adjacent to the corridor will create an ‘urban’ (or semi-urban/suburban) context rather than a rural setting which implies open ditches. Some of these developments are not anticipated to front directly on to Stittsville Main Street, based on a review of draft plans of subdivision that are in-process. However, they ideally can be designed while having regard to the City’s OP and Urban Design

Guidelines for Greenfield Neighbourhoods to contribute to successful public realm along this Major Collector.

6.3.2 Design Speeds and Posted Speed Limit

For Stittsville Main Street, a design speed of 50 km/h and a posted speed of 40 km/h were selected following dialogue with the City's transportation planning and traffic staff, as well as input from community leaders. This road segment is a major collector serving several developing communities in Stittsville and West Kanata, and so is expected to be well used. However, a higher speed limit might encourage through traffic between Stittsville and Highway 417, which is not desirable. As well, the lower posted speed reflects the road's intended role as a community-oriented corridor, meant to equitably accommodate a range of modes and road users. The preferred design has regard for the City of Ottawa Designing Neighbourhood Collector Streets Guidelines, Traffic Calming Guidelines and the 30 km/h Street Design Toolbox. Interventions that are built into the preferred design specifically to help reduce vehicle speed are:

- Curvalinear centreline to result in a mild chicane effect;
- In-lane bus stops;
- Use of on-street parking;
- Alternating on-street parking;
- Relatively narrow asphalt roadway;
- Bulb-outs;
- Street tree planting;
- Roundabout "gateway" intersection at Derreen; and
- Stop-controlled intersection at Maple Grove with protected intersection design features.

Furthermore, all intersecting side-streets are to be designed to implement the City's 30 km/h Street Design toolbox.

Design features include neckdowns (reduced width of the roadway throat at the Major Collector Road intersection), and the potential for continuous active transportation crossings which can be evaluated at the detailed design of these intersections.

6.3.3 Cross-Section Options

Figure 6-12: Stittsville Main Street Alternative A2 (MUP on one side, periodic parking on both sides, painted centreline)

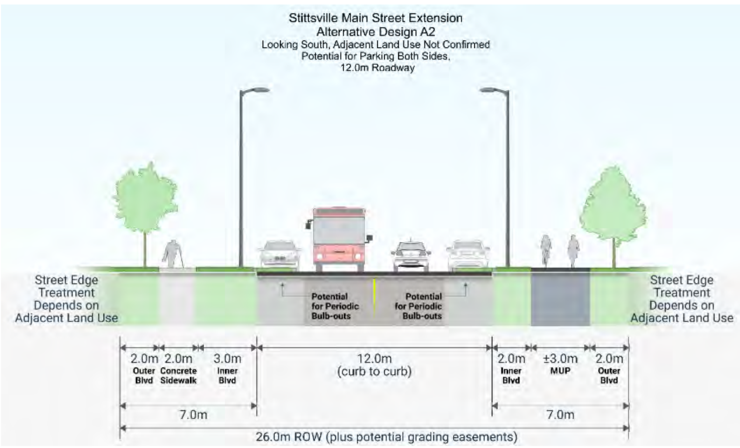


Figure 6-13: Stittsville Main Street Alternative A1 (MUP on one side, periodic parking on both sides)

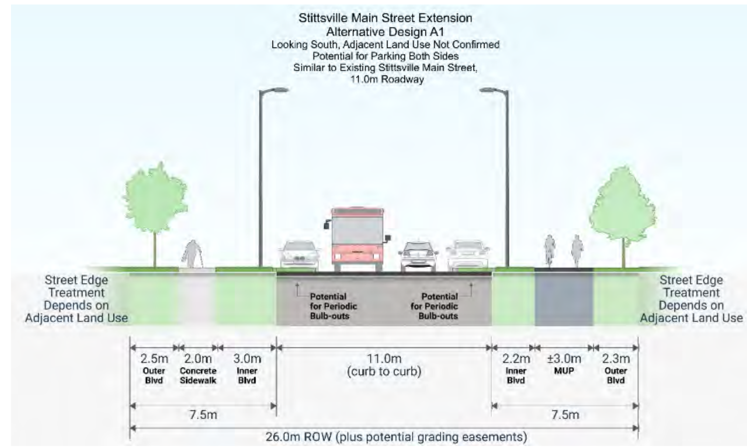


Figure 6-14: Stittsville Main Street Alternative B (MUP on one side, parking alternates sides)

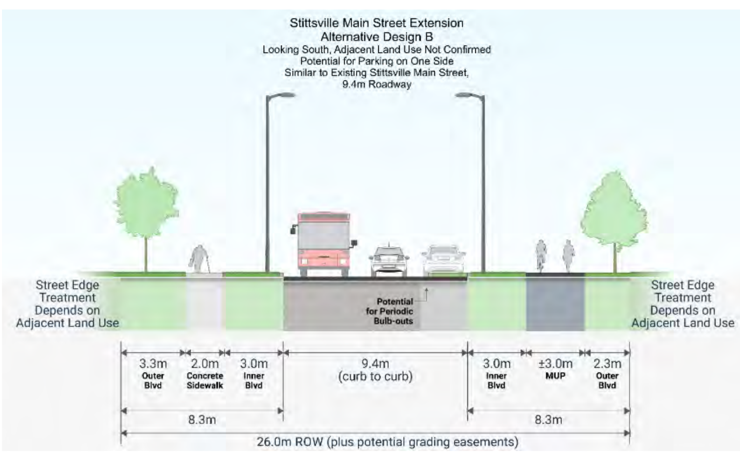


Figure 6-15: Stittsville Main Street Alternative C1 (half-height curb delineated sidewalk/cycle track, undivided, periodic parking on both sides)

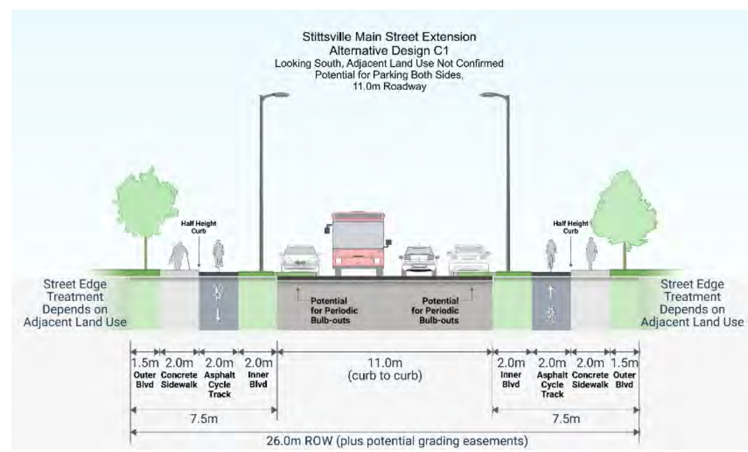


Figure 6-16: Stittsville Main Street Alternative C2 (half-height curb delineated sidewalk/cycle track, painted centre line, periodic parking on both sides)

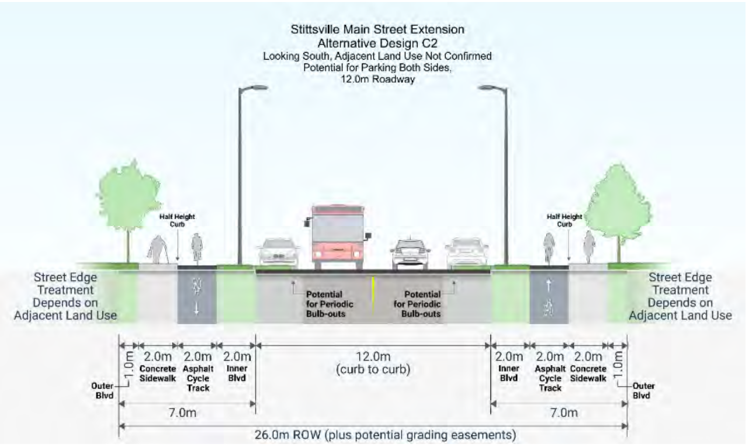


Figure 6-17: Stittsville Main Street Alternative D (half-height curb delineated sidewalk/cycle track, undivided, parking alternates sides)

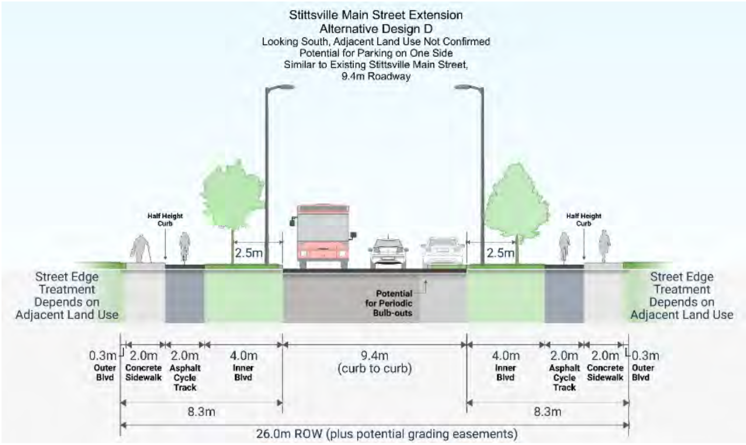


Figure 6-18: Stittsville Main Street Alternative F (modified Option D with 3.0m setbacks to fronting residential uses)

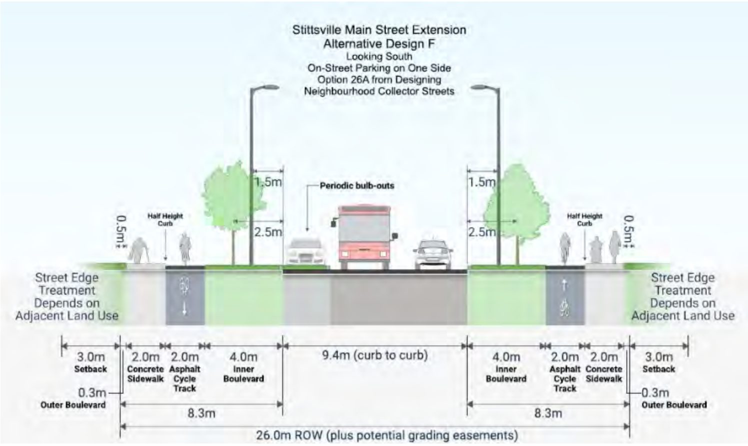


Figure 6-19: Stittsville Main Street Alternative E (buffer-separated sidewalk/cycle track, undivided, parking alternates sides)

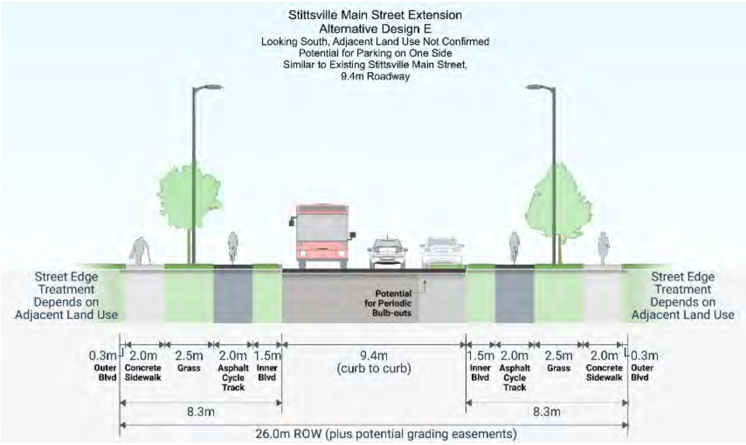
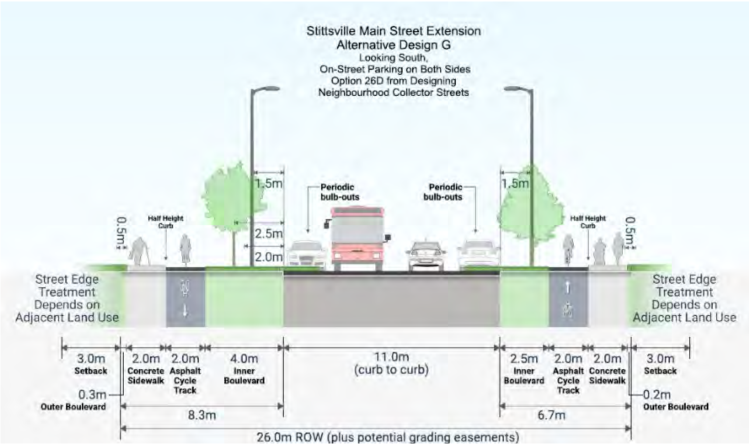


Figure 6-20: Stittsville Main Street Alternative G (modified Option C1 with 3.0m setbacks to fronting residential uses)



Option A1 features two undivided 3.5m travel lanes, with 2.4m parking bays on both sides of the road. Cycling facilities are provided through a MUP on one side of the road, with a separate 2.0m sidewalk provided on the opposite side. **Option A2** is a modification of A1 which features a painted centreline divider, slightly increasing the overall pavement width. Parking in both options would be provided using periodic “bulb-out” parking bays, situated opposite from one-another on both sides of the road. This would create a pattern of alternating roadway widening and narrowing, or a “bottlenecking” effect intended to provide traffic calming friction.

Option B is a modification of alternative A1 which limits parking to only one side of the road at a time, allowing for a narrower overall pavement width. Parking bays under this arrangement would alternate from side-to-side moving down the corridor, creating a gentle “chicaning” effect, again intended to provide traffic calming friction.

Option C1 is a modification of A1 which replaces the MUP with a 2.0m sidewalk and 2.0m cycle track on both sides of the road. The form of delineation between the active transportation facilities could be decided at future detailed design, however as per the preference expressed by members of the City’s accessibility advisory committee, a half-height curb delineator is depicted here. **Option C2** uses the same general arrangement, but with a painted centreline divider.

Option D combines the separated active transportation arrangement of Options C1 and C2 with the alternating-side parking provision depicted in Option B. 4.0m inner boulevards are provided to allow ample space for healthy street tree growth and snow storage.

Option E uses the same roadway and parking arrangement as Option D, but instead of bundling the sidewalk and cycle track using a half-heigh delineator, the active transportation facilities are separated by a 2.5m planting strip, which meets the minimum recommended width for healthy street tree growth (however, at this width, reduced tree growth and reduced tree survival is expected). This option potentially provides a more comfortable experience to active road users by placing them on completely separate paths of travel. A 1.5m inner boulevard is also provided for snow storage.

Option F is a combination of Option D with recommended Option 26A from the City of Ottawa’s *Designing Neighbourhood Collector Streets* guidelines. **Option G** is a modification of Option 26D from the same guidelines.

6.3.4 Preferred Cross-Section

Following input from various City branches involved in street design and maintenance, the preferred cross-section design for the Stittsville Main Street extension is **alternative Option F**. This option best responds to the City’s Designing Neighbourhood Collector Streets guideline document and provides a full complete streets treatment for the road. The design includes fully separated 2.0m wide sidewalks and cycle tracks and a wide planting zone that can accommodate large trees, in accordance with the above-noted guidelines. This design features a single 3.5m travel lane in both directions, wide enough for transit vehicles, as well as periodic 2.4m parking “bulb-outs” which would bring the total pavement width to 9.4m, satisfying the requirements of the city’s road maintenance emergency services teams as well as OC Transpo. The on-street parking, as well as the two-lane undivided design with no painted centre line, would combine to have a traffic calming effect and dissuade through traffic as discussed in a preceding section.

6.3.5 Alternative Alignments

Two alternative alignments were considered for the “elbow” of the extended Stittsville Main Street, at the transition between the north-south and east-west segments of the road; these are summarized by **Figure 6-21.**

Alternative A shows Stittsville Main intersecting with Derreen at a “T” intersection (the preferred type for this intersection is discussed in a subsequent section). This alternative maintains the option to add a future fourth leg to the intersection, allowing the east-west segment of Stittsville Main to be extended into the development lands to the west towards Carp Road. Alternative A would also create continuity between Derreen Avenue and the north-south segment of Stittsville Main, contributing to a stronger grid pattern in the overall road network.

Alternative B provides a cross-cutting alignment which would prevent through traffic on Stittsville Main from having to slow/stop at an intersection with Derreen, improving the road’s functionality as a Major Collector. Alternative B would require significant additional property acquisition and would interfere with the ongoing development plans for the subdivision at 1981 Maple Grove. As well, the traffic calming effect of providing an intersection at Derreen is desirable in the context of the surrounding communities, reducing vehicle speeds and through-traffic demand. For these reasons, **Alternative A** is the preferred alignment.

Figure 6-21: Alternative Alignments for Stittsville Main Street

6.3.6 Intersection Considerations

The extension of Stittsville Main Street includes the design of two intersections, at Maple Grove Road and Derreen Avenue. Construction of the Maple Grove intersection is dependent on the extension of Maple Grove itself from its current terminus at Alon Street to meet the Stittsville Main Street alignment. Construction of the Derreen intersection is subject to the confirmation of alternative Alignment A as the preferred option for Stittsville Main, as outlined in Section 6.3.5. Additionally, the Stittsville Main Street design will tie into an in-progress roundabout at Robert Grant Avenue, which has been designed externally as part of ongoing area development activities.

For the two intersections listed above, the following options were evaluated: stop controlled, signalized, and roundabout. All intersection options would include accessibility measures following all relevant City of Ottawa standards. Other design considerations for this intersection type analysis and evaluation were:

- Route consistency;

- ROW requirements;
- Accessibility;
- Pedestrian and cyclist safety;
- Traffic volumes and traffic flow balance; and
- Community context.

For the Maple Grove intersection, the recommended intersection type is stop-controlled. The warrants for signalization in terms of vehicular traffic volume were not met, so this option was ruled out. A roundabout would require a large footprint, impacting the stormwater management pond to the south-west of the intersection and the existing residential properties to the south-east; as well, a roundabout was not considered compatible with the proposed multi-use path crossing. A stop-controlled intersection would effectively provide for active transportation users crossing at this location and continuing on the multi-use pathway on the Maple Grove Road corridor and would limit the need for additional property acquisitions.

The recommended intersection method for Derreen Avenue is a roundabout. As with Maple Grove, the warrants for signalization were not met. However, in this case there are no existing properties which would be impacted by the additional space requirements. A roundabout can also act as an effective community gateway and traffic calming measure, featuring some additional landscaping elements in the centre circle. It would additionally tie in well to the proposed roundabout at Robert Grant Avenue, providing some east-west route consistency.

The east-west portion of Stittsville Main will also feature a number of minor intersections with local access roads. The preferred design for these intersections is to be stop-controlled on the minor approach and uncontrolled on Stittsville Main, as the volume of traffic using these local roads is expected to be negligible. The option exists to apply an emerging design practice for the cyclist and pedestrian crossings at these minor intersections, *Continuous Footways/Bikeways*. These would provide active users with a continuous, raised path of travel as they cross the minor approach, improving safety by introducing vertical deflection for vehicles and reducing their speed. The option of applying this design alternative is to be evaluated at detailed design; see Section 4.8.4 of the City of Ottawa’s 30km/h Street Design Toolbox for additional details.

6.4 Stakeholder Consultation

6.4.1 Second Round of Consultation Group Meetings

The second round of consultation group meetings (Agency, Business and Public) were held on February 23, 2022 and June 7, 2022. These meetings were held virtually via MS Teams. A presentation was provided followed by discussion and later circulation of notes and presentation boards. The Study Team, including members from the City of Ottawa and the consultant team, were available to discuss the study and answer questions at each of the consultation group meetings. Input received at these meetings included discussion on the following topics:

- Review of Study Objectives;
- Planning Framework;
- Preliminary Recommended Plan;
  - Huntmar Drive Widening
  - Huntmar / Highway 417 Crossing
  - Stittsville Main Street Extension
- Basis for the Plan; and
- Next Steps.

For a full account of discussion from these consultation group meetings refer to **Appendix A.**

6.4.2 Public Consultation Event #1

The first public consultation event was organized as an online live presentation On Wednesday June 15, 2022 followed by a question and answer period. Accessible and bilingual information boards, roll plans and the presentation were provided on the website for the study. Feedback on the materials presented was requested between June 15 - July 6, 2022 via survey or email.

The consultation event included a series of display boards presenting the work completed to date focusing on:

- Introduction and Study Objectives;
- Background, Need and Opportunity;
- Existing Conditions and Planning Framework;
- Preferred Solutions and Preliminary Preferred Designs; and
- Next Steps.

The material presented on the display boards for the online public consultation event included:

- Introduction
- Land Acknowledgement
- Study Objectives and Study Area
- Environmental Assessment Process, Consultation and Schedule
- What We've Heard So far
- Project Need and Opportunity
- Complete Street Approach, Hubs and Corridors
- Existing Transportation Conditions and Projected Transportation Conditions
- Existing Conditions - Physical and Environmental

- Evaluation of Alternative Solutions
- Identifying the Preliminary Preferred Solutions
- Key Design Considerations, Accessibility in the Design
- Evaluation of Alternative Designs Criteria and Methodology
- Alternative Designs - Huntmar Drive
- Alternative Designs - Huntmar Drive/HWY 417 Crossing
- Alternative Designs - Stittsville Main Street
- Alternative Designs - Stittsville Main Street continued
- Recommended Design - Stittsville Main Street
- Huntmar Drive at HWY 417 Bridge Crossing Alignment Choices
- Stittsville Main Street Alignment Choices
- Stittsville Main Street Intersection Choices
- Huntmar Drive Intersection Choices
- Opportunity for an Active Transportation Bridge
- Property Acquisition Processes
- Next Steps

Notification of the consultation period occurred through a variety of means. Email reminders following the initial invitation to the study stakeholders on the project mailing list. Individuals within the Study Area were also notified of the consultation event through circulation of approximately buckslips and its notice was posted to the project website as well as on social media. Advertisements were also placed in citywide newspapers including the Ottawa Citizen and Le Droit on June 4 and 11, 2022.

At this time in the study, Indigenous communities were emailed on June 17, 2022 to offer a meeting to discuss the study and answer any questions.

To assist with obtaining feedback on the materials presented, an online survey was provided on the study's website. Alternatively, emails could be submitted, or the City project manager could be contacted to arrange other means of providing feedback. A total of 17 responses to the survey and emails from 5 individuals were received.

For a full record of all comments received during this round of consultation, refer to **Appendix A.**

6.5 Preliminary Preferred Designs

The Study Team reviewed the feedback received during and after the second round of Consultation Group Meetings and the first Public Consultation Event. There was notable support for the preliminary preferred designs exactly as presented. Following consultation, the preliminary preferred designs were refined in only very minor ways and were established as the preferred designs for the purposes of moving into the Recommended Plan and functional design phase of the study.

7.0 RECOMMENDED PLAN AND ASSESSMENT

This section of the ESR describes the Recommended Plan for the Huntmar Drive widening and Stittsville Main Street extension, which encompass all elements required to support design, construction, operation and implementation. Functional design drawings (plates) illustrating all features including property necessary to support the project are included in **Section 8.0.** An impact assessment follows the description of the Recommended Plan including recommended mitigation and monitoring measures as required.

The Recommended Plan has been advanced to a functional level of design, which permits identification of infrastructure footprint, property requirements, project impacts, and cost estimates which can be evaluated as part of the assessment of effects, with appropriate mitigation measures developed where necessary. Should any changes be made in subsequent design phases that are inconsistent with these final descriptions and change any potential impacts of the project, the proponent will be subject to the addendum process and subject to MECP approval. The proponent will, as per the Act, be required to complete either an addendum, or a revised ESR. This process is described in full detail in **Section 9.5**.

7.1 Recommended Plan Overview

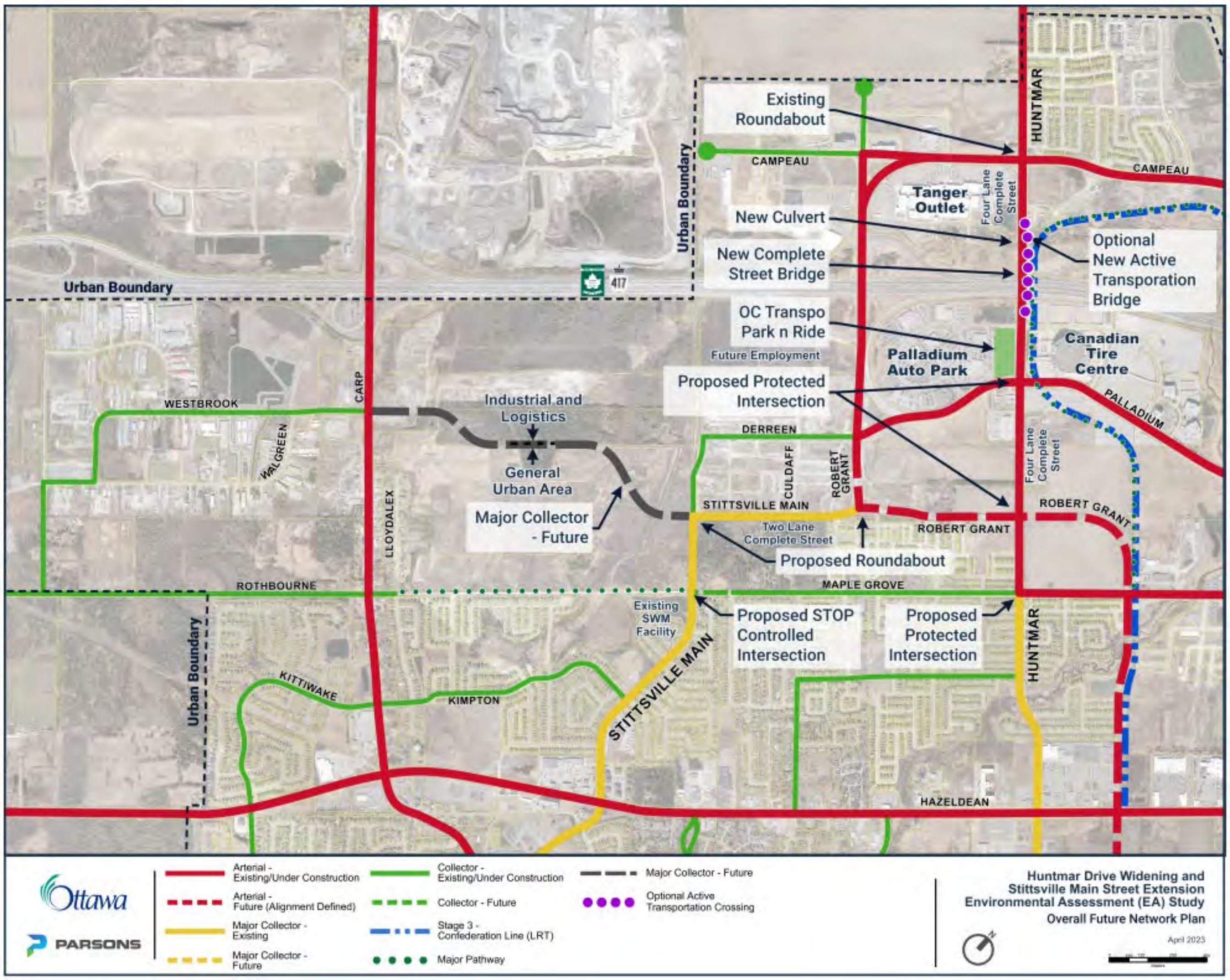
Based on the evaluation of design considerations, preferred design alternatives, and comments received through consultation activities, a Recommended Plan was prepared for the Huntmar Drive Widening and Stittsville Main Street Extension. The Recommended Plan, in the context of the surrounding future transportation network, is summarized in **Figure 7-1** below, and includes the following key benefits:

- Provides sufficient transportation capacity and access to accommodate area development, by:
  - Reconstructing Huntmar Drive as a four-lane arterial road between Campeau Drive and Maple Grove Road;
  - Extending Stittsville Main Street as a two-lane major collector road from its current terminus at Maple Grove Road to the future Robert Grant Avenue;
- Improves multi-modal connectivity to the future Palladium LRT station, as well as to adjacent communities, commercial uses, and future employment centres;
- Implements a “complete-street” design on both corridors, improving active transportation facilities by providing fully separated cycling facilities and new or improved sidewalks;
- Improves roadway safety;
- Improves existing bus stop locations and amenities;

- Expands the public realm and provides expanded placemaking opportunities, particularly emphasizing the vicinity of the future Palladium LRT Station area 'hub';
- Incorporates climate change mitigation and adaptation strategies;
- Plans for tree-planting and enhanced landscaping where appropriate; and
- Provides a new active transportation crossing of Highway 417 at Huntmar Drive.

Implementation of the project will require approximately 1.60 hectares of private and public property (**Section 9.2**).

Figure 7-1: Recommended Plan in the Overall Future Road Network



7.2 Recommended Design

This section provides a more detailed description of the project elements, including alignment, cross-section, active transportation facilities, and corridor elements. Functional design drawings (plates) illustrating all features including property necessary to support the project are included in **Section 8.0**.

The Recommended Plan has been advanced to a functional level of design, which permits identification of infrastructure footprint, property requirements, project impacts, and cost estimates which can be evaluated as part of the assessment of effects, with appropriate mitigation measures developed where necessary.

7.2.1 Huntmar Drive

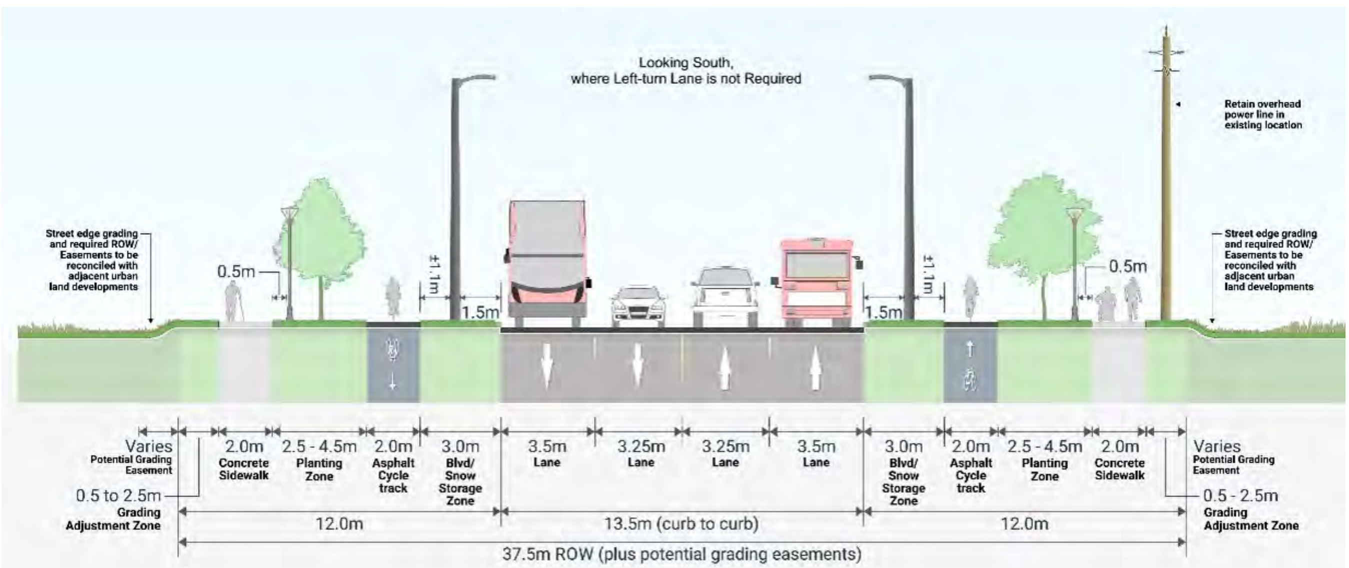
The Recommended Plan for Huntmar Drive will result in the reconstruction of the existing two-lane rural cross section as a four-lane “complete street” arterial road between Campeau Drive and Maple Grove Road (**Figure 7-2**). The “complete streets” and road safety-related modifications include:

- Continuous 2.0m unidirectional cycle tracks and 2.0m sidewalks on both sides, for the full length of Huntmar Drive (Campeau to Maple Grove).
- Four travel lanes (two per direction), undivided, with auxiliary lanes for turning movements where needed.
- Existing signalized intersections at Palladium Drive and Cyclone Taylor Boulevard to be reconstructed as fully protected intersections, as per the City of Ottawa *Protected Intersection Design Guide (September 2021)*. The effective turning radii have been reduced where appropriate using ride-over truck-aprons, to reduce vehicle turning speeds.
- New signalized, protected intersections to provide access to planned future developments at 320 Huntmar and 130 Huntmar.
- New signalized, protected intersection at the intersection with the future Robert Grant Avenue.
- Bus stops following OC Transpo *Bus Stops and ‘Off-Road’ Cycling Facilities Interaction Zone Design Guidelines*, featuring improved passenger loading areas, tactile walking surface indicators, and benches. Where appropriate, proposed tree plantings positioned to provide shade to bus waiting areas.
- Rest areas, comprised of concrete pads with benches, to be positioned intermittently along the length of the corridor, spaced approximately 100m apart.
- Improved connectivity to existing and future area cycling routes, including a 3.5m MUP link to the future Kanata LRT MUP, positioned to the north of Feedmill Creek within the 30m

offset from the centre of the watercourse. This MUP is to transition to a separated bi-directional cross-ride and crosswalk at the south leg of the proposed signalized intersection access for the 320 Huntmar development, to connect to the existing Feedmill Creek pathway segment west of Huntmar Drive.

- Minimum 3.0m tree-planting area provided between sidewalk and cycle track, where space is available, so that proposed street trees provide shade to both facilities.
- Entrance reconstructions along the length of the corridor.
- Grade raise on Huntmar Drive on approach to the Highway 417 crossing, to accommodate the MTO minimum clearance requirement of 5.0m. (The existing bridge does not meet clearance requirements at approximately 4.5m).

Figure 7-2: Recommended Plan for Widening Huntmar Drive



The section of Huntmar Drive between Cyclone Taylor Boulevard and Palladium Drive that is adjacent to the OP designated Palladium "hub" and a planned future elevated LRT station is targeted for substantial growth and is subject to a heightened standard of urban design. Some additional features for implementation in this area includes:

- Proposed additional public realm embellishment area at the north-east corner of the Huntmar/Palladium intersection, which would partially utilize the space under the future Kanata LRT elevated guideway as a new public space.
- Wider (2.5m) east side sidewalk to accommodate higher expected pedestrian traffic relating to the adjacent LRT station and 'hub' designation.

Figure 7-3 illustrates the proposed design concept for the widening of Huntmar Drive in the vicinity of the 'hub' area.

Figure 7-3: Artistic Rendering of 'Hub' Area for the Widening of Huntmar Drive

Other notable features of the Recommended Plan for the Huntmar Drive widening include the following:

- The proposed geometric design avoids the existing high-voltage power line to the west of the corridor, so that existing poles can be maintained in place. Hydro One will need to be consulted at the detailed design phase as there may be fill placed adjacent to some poles, and anchors impacted.
- The existing Feedmill Creek culvert under Huntmar Drive is to be replaced to accommodate the widened cross section. The culvert sizing should be reconfirmed during detailed design in accordance with the preliminary fluvial geomorphology recommendations and the existing conditions at that time.
- The inclusions of the median island at the 319 Huntmar access location is to prevent left turns in and out of this site. The crest curve over the bridge would result in unsafe left turn maneuvers in an out of this site.
- A potential future park access into the 195 Huntmar development.
- The left turn lane on the southbound approach to the intersection with Cyclone Taylor Boulevard has been significantly lengthened to accommodate additional left turn capacity into the Canadian Tire Centre site.
- The watermain maintenance access track has been realigned at the northwest corner of Huntmar Drive and Autopark Private intersection.
- Retaining walls on approach to the Highway 417 crossing will:

  - Avoid property acquisition from the Canadian Tire Centre parking lot, beyond which is required for construction of the Kanata LRT
  - Accommodate the grade difference between the potential Highway 417 Active Transportation bridge approaches and Huntmar Drive.
- Grade raise on Cyclone Taylor Boulevard and Autopark Private, to accommodate the grade raise on Huntmar Drive on approach to the Highway 417 crossing.
- Reconstruction of the Canadian Tire Centre service access off Cyclone Taylor Boulevard. The grade difference necessitates the closing of the existing access from the service access to the VIP parking lot. An additional access to the VIP parking lot is proposed, with a net loss of 6 parking spaces.
- Potential provision for a sidewalk on the north side of Cyclone Taylor Boulevard. The addition of this sidewalk is beyond the scope of this EA and should be considered at detailed design stage.

Additional design input which should be considered at the detailed design phase includes the following:

- Confirm the corner island radii and truck apron material at protected intersections, based on OC Transpo input and any planned changes to the bus network.
- Re-examine the need for existing or future private approaches, considering any opportunities for access consolidation, and limiting accesses to right-in/right-out using a raised median or channelization where appropriate.
- Note the desire to have sidewalk connections into the Kanata Academy private school site.
- Review all proposed bus stop locations with OC Transpo and revise as necessary based on possible future network changes, particularly relating to the future Kanata LRT extension.
- Consider the provision of a median island at the existing 320 Huntmar farm access, if visibility concerns are identified and if usage of the access is determined to be of concern.

7.2.1.1 Huntmar Drive between Robert Grant Avenue and Maple Grove Road

As discussed in **Chapter 2.0**, current traffic projections identify the need for Huntmar Drive to be widened to four lanes for its entire length from Campeau Drive to Maple Grove Road to accommodate area wide development. However, these projections are based on the conservative assumption that the widening of Huntmar Drive will precede the full build-out of Robert Grant to its ultimate 4-lane arrangement. Should a 4-lane Robert Grant be constructed and operational prior to the implementation of the Recommended Plan, it is expected that this would possibly relieve some of the future north-south travel demand in the area. Given this scenario there may then be the opportunity to modify Huntmar Drive to a 2-lane arrangement for the section of Huntmar Drive between Robert Grant and Maple Grove.

The alternative arrangement of this section of Huntmar Drive would include:

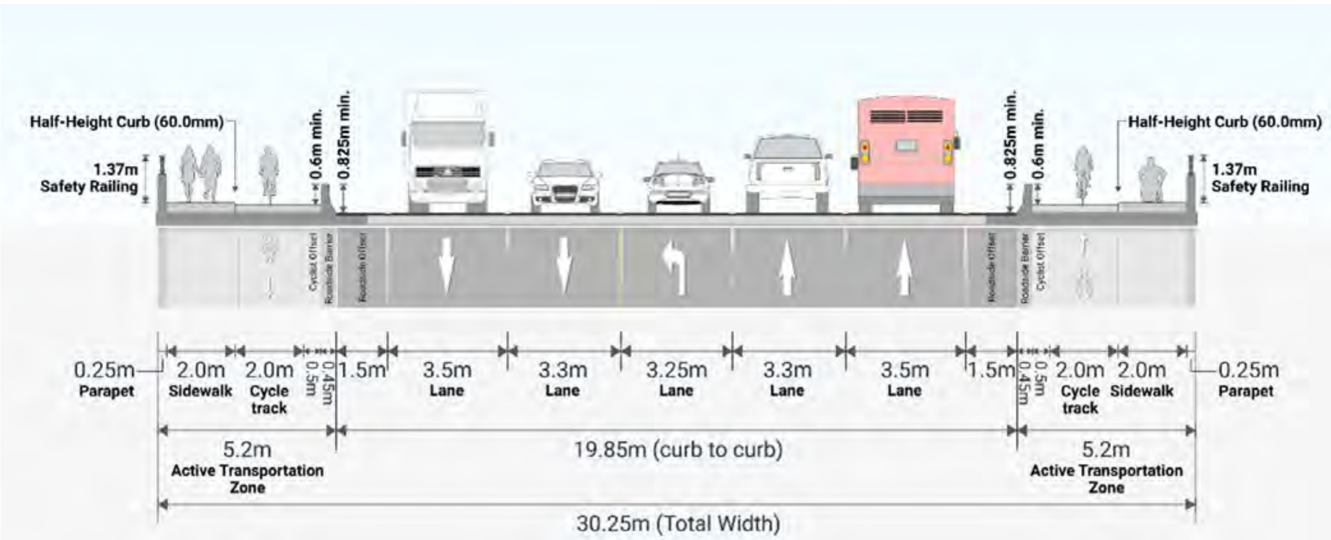
- A single 4.25m through lane in both directions;
- Auxiliary turn lanes at the intersections of Huntmar Drive with Robert Grant Avenue and Maple Grove Road, as necessary;
- 1.50m concrete medians approaching the Robert Grant and Maple Grove intersections, widening midblock to a 4.75m grass-planted median;
- Potential to include a southbound median left-turn lane serving the private approach for the future school at 130 Huntmar;
- A potential east-side private approach for the future school site at 130 Huntmar;
- 2.0m sidewalk and 2.0m cycle track for the full length of the segment;
- 4.5m midblock planting strip positioned between the sidewalk and cycle track, planted with large trees on the east side and small/medium trees on the west (in proximity to the high-voltage hydro line);
- 2.25m inner boulevard for snow storage and separation of cyclists to traffic lanes; and
- Enhanced bus platforms for the stops at the Robert Grant and Maple Grove intersections.

The 2-lane arrangement for the Robert Grant – Maple Grove section of Huntmar is included here as a possible future alternative. The feasibility of this alternative is to be evaluated in a future design phase when a more complete picture of the ultimate area transportation network has emerged. The ROW required to implement the 4-lane design has been protected for in the Recommended Plan.

7.2.2 Huntmar Drive / Highway 417 Crossing

The Recommended Plan for the Huntmar Drive crossing of Highway 417 includes the replacement of the existing two-lane bridge with a five-lane “complete street” bridge (**Figure 7-4**). The new bridge structure will feature two spans of approximately 40m, with a pier in the Highway 417 median. The structure width will be approximately 30m, and the structure foundation will be supported on deep piles to bedrock, given the poor underlying soils in the area. A minimum clearance of 5.0m per MTO will be provided beneath the structure to Highway 417.

Figure 7-4: Recommended Plan for Huntmar Drive Complete Street Bridge Crossing over Highway 417



Features of the new bridge will include:

- Continuous 2.0m cycle track and 2.0m sidewalk on both sides, for the full length of the crossing, connecting to the facilities to the north and south of the bridge;
- Half-height curb delineation between the sidewalk and cycle track on both sides of the roadway*;
- 1.37m pedestrian safety railings on the outside edge of both sidewalks;
- 0.6m minimum roadside barriers** on both sides to separate cyclists from traffic lanes, with a 0.5m buffer to the cycle track and a 1.5m roadside offset;
- 3.5m outer and 3.3m inner traffic through lanes in both directions; and
- A 3.25m southbound left turn lane running the full length of the crossing and tapering on the north crossing approach towards the proposed private access for 319 Huntmar.

*The viability of implementing half-height curbs over the bridge span will need to be re-evaluated at detailed design and in consultation with MTO. It is acknowledged by the City that, at this time, MTO does not endorse the use of half-height curbs on structures within MTO's corridor. During detailed design, the methodology of delineation between cycle track and sidewalk should be confirmed in accordance with the MTO standards, applicable guidelines and best practices applicable at that time.

**The inclusion of concrete barriers shown between the vehicle lanes and the sidewalk/cycle tracks on the Huntmar Bridge will need to be evaluated at detailed design and in consultation with MTO. During detailed design, the implementation of concrete barriers in this location should be assessed in accordance with the MTO standards, applicable guidelines and best practices applicable at that time as well as in consideration of the determined posted speed.

The area of the Highway 417 crossing has very poor underlying soils. Preconsolidation will likely be required to avoid excessive settlement of the new embankments. Alternatively, lightweight fill (i.e.. expanded polystyrene foam) could be used to reduce the loading on underlying soils.

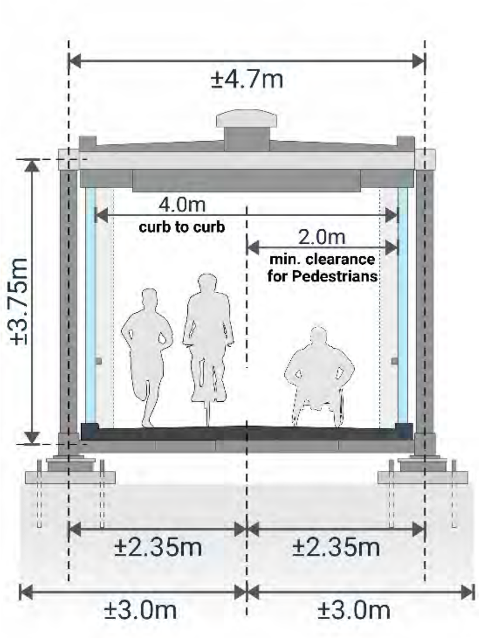
Following consultation with MTO, they have indicated they would retain ownership of the Huntmar Drive bridge over Highway 417 when the new complete street bridge is constructed.

7.2.2.1 Optional Interim Stand-alone Active Transportation Bridge

As identified in previous chapters, the current Huntmar Drive bridge has no active transportation facilities of any kind and presents a significant safety risk to pedestrians and cyclists and a gap in the active transportation network. There is no alternative route to cross Highway 417 within a reasonable distance to the east or west, as such, the active transportation demand on this corridor is currently going unserved. Addressing this deficiency is a foundational element of this EA Study. However, it is acknowledged that the timing of the implementation of the full Recommended Plan is currently unknown and may be some years away as the need to widen Huntmar Drive stems largely from future anticipated development activity. The need for active transportation crossing capacity at this location, however, exists today, and could be addressed in advance of the full implementation of the Recommended Plan for Huntmar Drive.

The Recommended Plan for Huntmar Drive thus includes an optional parallel Active Transportation (AT) bridge crossing on the east side of Huntmar, between Huntmar Drive and the future LRT structure. The bridge is to be served by new multi-use pathway approaches on both sides, from the Cyclone Taylor intersection in the south, and connecting to a proposed AT crossing at Feedmill Creek in the north. The AT bridge would be enclosed and provide approximately four metres of shared space for pedestrians and cyclists (**Figure 7-5**). Rest areas with benches would be positioned at the top of the approach ramps on either side of the bridge structure, with their exact positioning to be determined during detailed design. The Active Transportation bridge would be built in advance of the Huntmar Drive widening, therefore, the MUP approaches will meet the grade of the existing Cyclone Taylor intersection. Huntmar Drive is proposed to have a grade raise of up to 1.5m to accommodate the minimum clearance requirement over Highway 417, therefore, the height of the Active Transportation bridge will not match the level of the new Huntmar complete street bridge. The east edge of the complete street bridge is proposed to have a special fence which will prevent pedestrians from climbing onto the roof of the Active Transportation bridge.

Figure 7-5: Recommended Plan for the Optional Interim Active Transportation Bridge



The MUP approaches to the Active Transportation bridge will need to be reconstructed to meet the grade of the Huntmar widening, once constructed. Short retaining walls will be required between the MUP approaches and Huntmar sidewalk to accommodate the grade difference.

The functional design of the Active Transportation bridge achieves a clearance of 5.5m over Highway 417, above the minimum MTO 5.0m clearance requirement. This is to reduce the risk of accidental strike by heavy vehicles, which could have catastrophic results.

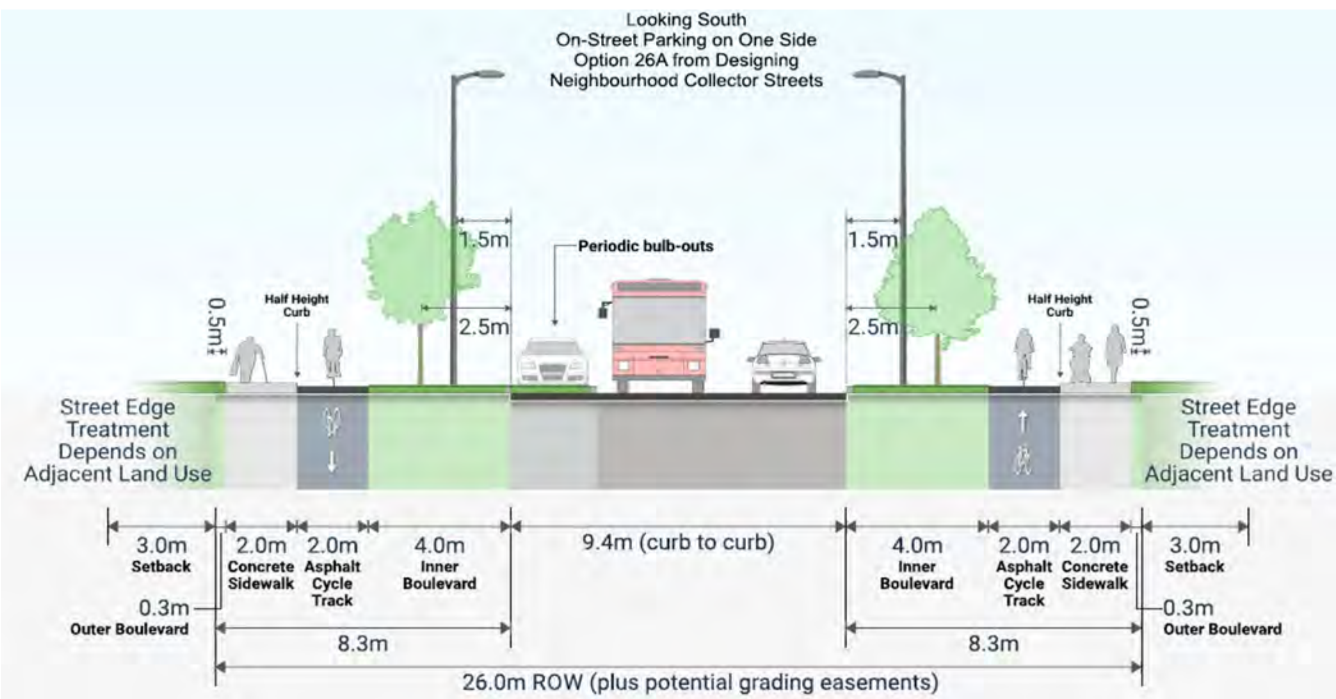
7.2.3 Stittsville Main Street

The Recommended Plan for Stittsville Main Street will result in the extension of the road from its current terminus south of Maple Grove Road as a two-lane “complete street”, to meet the future Robert Grant Avenue at a new roundabout south of Palladium Drive (**Figure 7-6**). Key design features of the street will include:

- Continuous 2.0m cycle track and 2.0m sidewalk on both sides for the full length of the extension.
- Generous 3.5 to 4.0m green boulevard between the road and cycle track, with sufficient space for tree planting.
- Parking bays on alternating sides of the road to supplement street parking on adjacent local streets.
- Chicaning alignment and 7.4m curb-to-curb width for speed management.
- Full size bus stops at regular intervals, compliant with current OC Transpo guidance.

- Benches at bus stops can double as pedestrian rest areas, with the wide boulevard providing ample room to fit additional benches if deemed appropriate during detailed design.
- All way stop intersection at Stittsville Main Street and Maple Grove Road with protected crossings for cyclists.
- Roundabout at Stittsville Main Street and Derreen Avenue with pedestrian crossovers (PXOs) for pedestrians.
- Queuing space and connections for cyclists to connect between the cycle track and intersecting local streets on the opposite side of the road.
- A new PXO across Stittsville Main Street at Culdaff Road.
- Grading coordination with adjacent developments, as the area is to be raised by up to 4m relative to existing ground.

Figure 7-6: Recommended Plan for the Extension of Stittsville Main Street



The ROW width is 26.0m, and the cross section generally conforms to cross-section 26A from the City of Ottawa's Designing Neighbourhood Collector Streets (2019) document.

Figure 7-7 illustrates the proposed design concept for the extension of Stittsville Main Street.

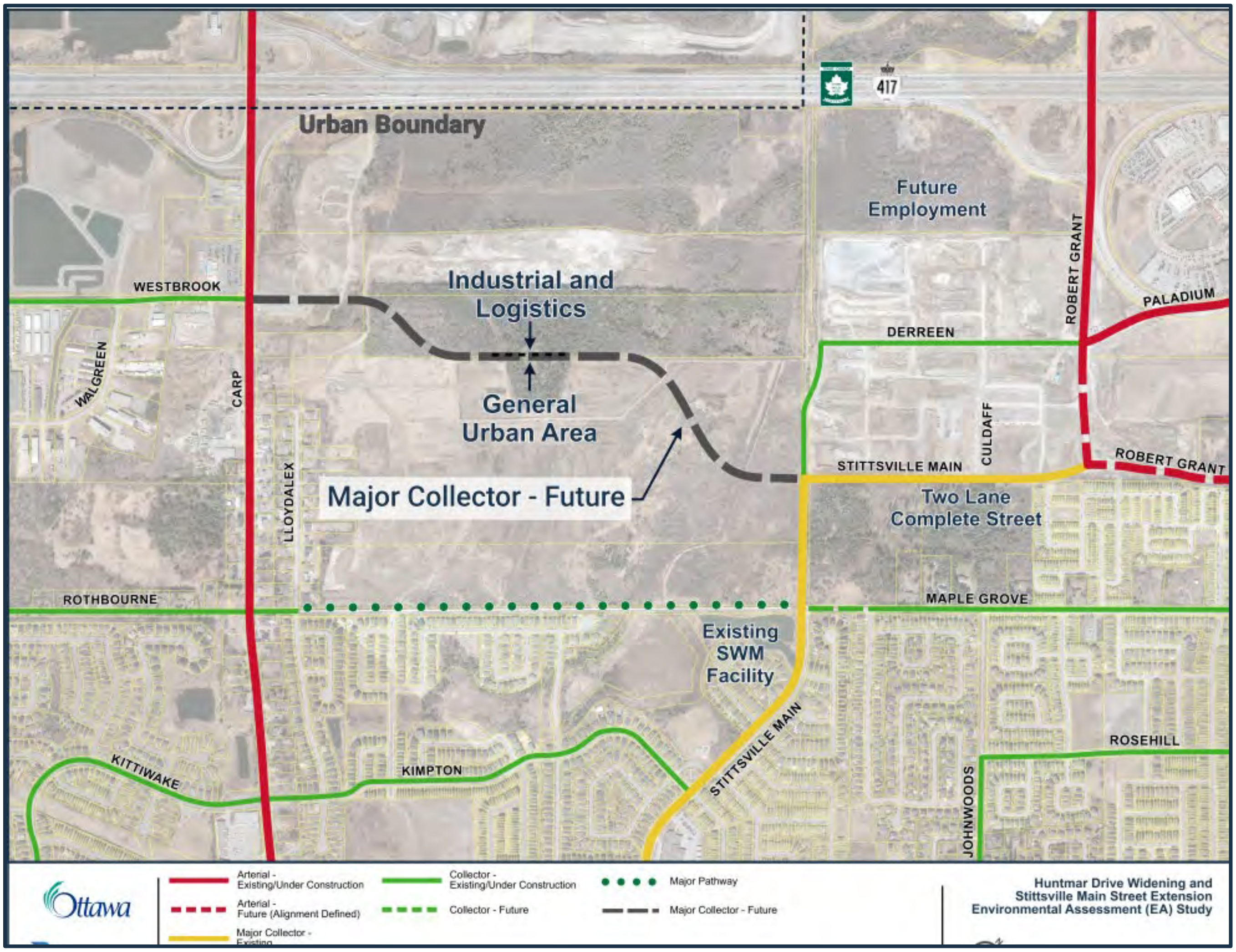
Figure 7-7: Artistic Rendering of Stittsville Main Street Extension

The potential need for grading easements had also been identified, which would be required if the street is constructed prior to adjacent developments. These would allow for embankment fill slopes to be constructed on future development properties to support the street until such time as the development properties are raised to their planned finished grades (which have been coordinated to match the proposed Stittsville Main Street grades).

7.2.3.1 New East-West Major Collector (Stittsville Main Street to Carp Road)

Through this study, it was revealed that there was a need for a future westerly extension of a new east-west Major Collector from Stittsville Main Street to Carp Road. This new connection would support the new industrial and logistics lands as well as general urban lands identified in the Official Plan and help inform the future development applications in this area. General recommendations are made to orient the Industrial and Logistics traffic to Carp Road/Westbrook Road intersection including to the Highway 417 interchange with Carp Road. A planning rationale for the new Major Collector Road has been prepared as well as its proposed alignment, as shown in as a thick grey dashed line in **Figure 7-8**. The alignment was based on additional transportation forecasts and review of natural environment conditions. This future link will extend from the intersection of Stittsville Main Street and Derreen Avenue to the intersection of Carp Road and Westbrook Road. The exact road alignment, property requirements and the associated environmental effects will be determined as part of a future study.

Figure 7-8: Future Westerly Extension to Carp Road



7.3 Municipal Servicing Approach

7.3.1 Huntmar Drive Municipal Servicing Approach

Figure 7-9 and **Figure 7-10** below illustrate a plan for municipal services which are to be installed within the Huntmar Drive ROW, based on analysis completed by the Study Team and input provided by area developers. These services, and other services that are not yet identified, are to be installed by developers as part of the servicing plans for ongoing and future development applications, possibly in advance of the widening of Huntmar Drive itself.

It will be important for the City's development services staff to work with the area landowners and their engineers during the development review process to ensure that the horizontal and vertical alignments of these future municipal services are matched to the geometry of the roadway, to avoid the risk of pre-installed municipal services conflicting with the construction of the future roadway.

The same recommendation is made for any private utilities (gas, hydro, telecom, etc.) that may be proposed for the Huntmar Drive corridor.

Figure 7-9: Planned Future Municipal Services (Huntmar Drive, Hwy. 417 to Palladium)

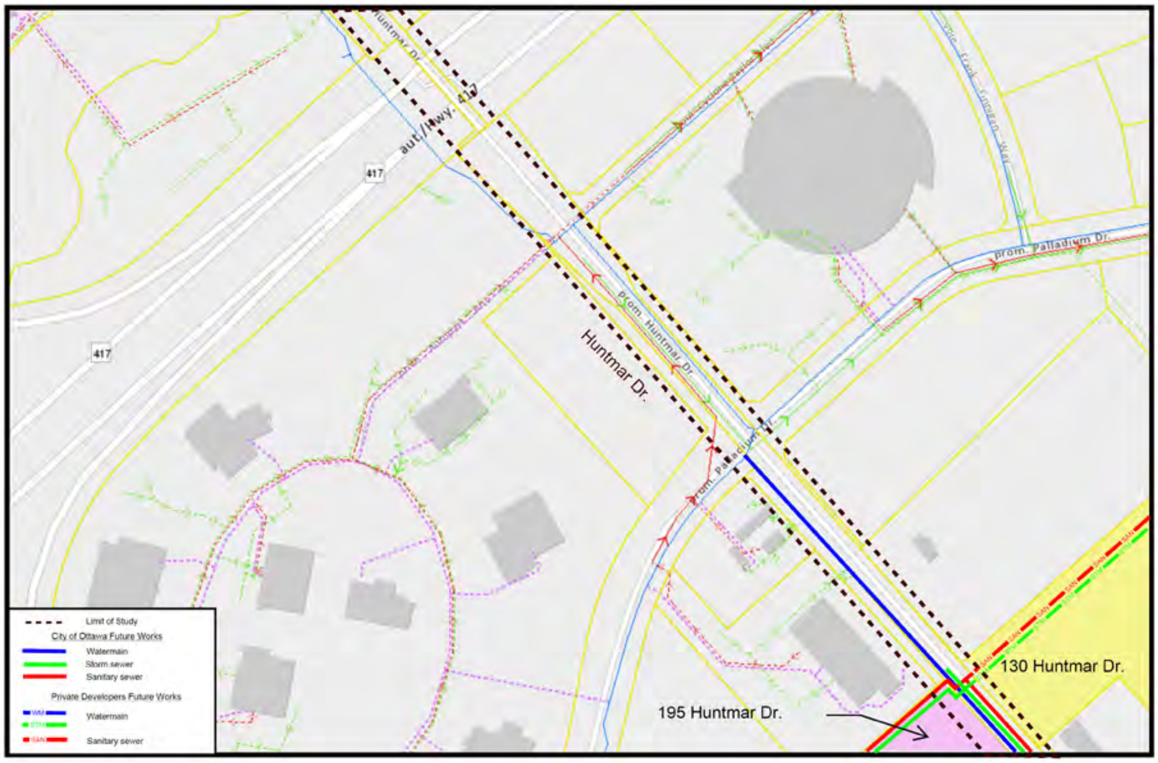
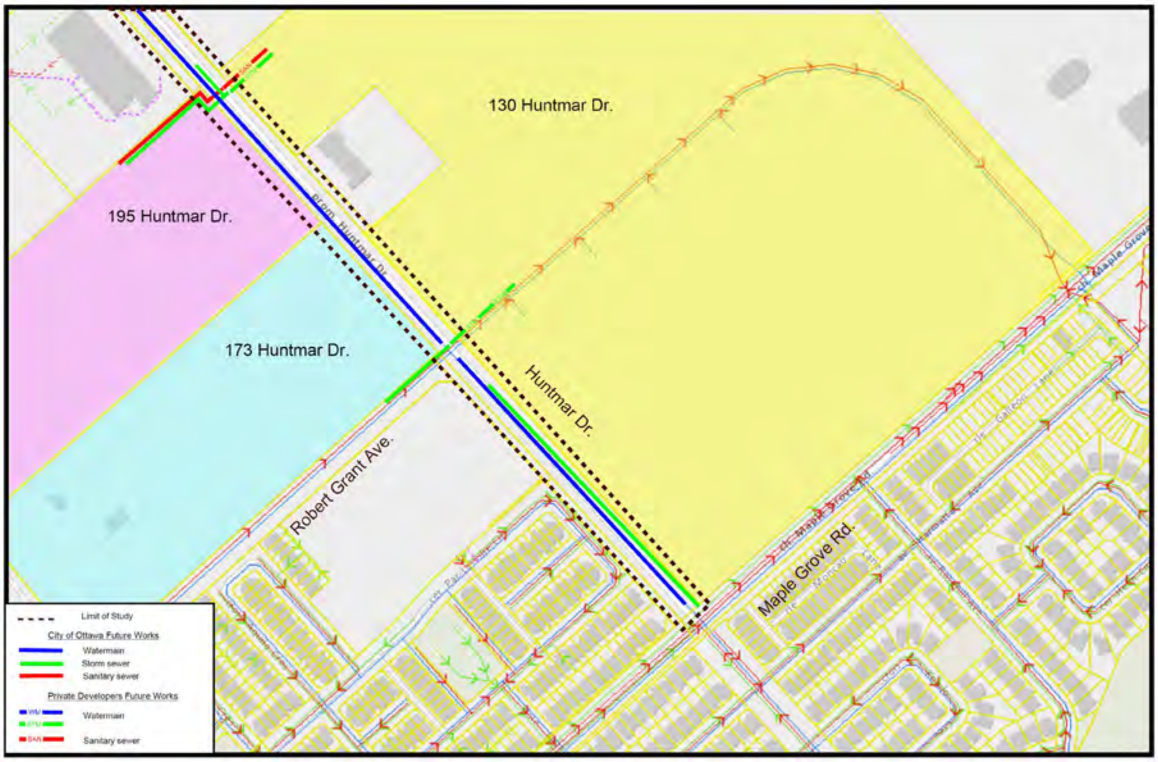


Figure 7-10: Planned Future Municipal Services (Huntmar Drive, Palladium to Maple Grove)



7.3.2 Huntmar Drive Stormwater Management Approach

7.3.2.1 Huntmar Drive from 140 m South of Campeau Drive to Huntmar Drive Bridge High Point

The proposed minor flow from 140m south of Campeau Drive to the bridge approach low point will be captured by a storm sewer system discharging to an oil/grit separator on the east side (Option 1) or on the west side (Option 2) of Huntmar Drive. From the oil/grit separator, the flow will discharge to a swale outletting to Feedmill Creek. A few catch basins in the vicinity of 140m south of Campeau Drive will be relocated. The proposed major overland flow will be conveyed to a spill point on the west side of Huntmar Drive at the bridge approach low point. From the spill point, the flow will then be carried by a ditch outletting to Feedmill Creek.

The proposed minor flow from the bridge high point will be captured by catch basins on both sides of the bridge approach and outlet to the embankments and ultimately drain to Feedmill Creek. The major overland flow will be conveyed to the spill point on the west side of Huntmar Drive. From the spill point, the flow will then be carried by a ditch outletting to Feedmill Creek. The widening of this section of Huntmar Drive is not dependent of future private development taking place.

7.3.2.2 Huntmar Drive Bridge High Point to Palladium Drive

The proposed minor flow from the bridge high point to Cyclone Taylor Boulevard/Autopark Private intersection, will be captured by catch basins located on the bridge approach. The catch basins will outlet to the east embankment. The proposed minor flow from Cyclone Taylor Boulevard/Autopark Private intersection to Palladium Drive and the proposed major flow from the bridge high point to Palladium Drive will be captured by proposed oversized storm sewer system designed to capture the flow from a 100-year storm event. It will discharge the Palladium Drive storm sewer system flowing east and will ultimately outlet to Corel Pond. There is no adequate emergency spill point for the section between Autopark Private/Cyclone Taylor Boulevard to Palladium Drive. During detailed design the City could identify the opportunity to acquire land from 675 Huntmar Drive and construct a swale that would replace the proposed function of the oversized storm sewer and provide an emergency spill point for that section of Huntmar Drive. Should the City acquire 675 Huntmar for purposes of constructing the Kanata LRT Park and Ride, this potential stormwater solution can be considered.

A sizeable area of Palladium Drive minor and major flows discharge to the roadside ditches on the north side of Palladium Drive on the west side of Huntmar Drive. These flows outlet to the roadside ditch fronting 675 Huntmar Drive. From there the flows are conveyed north through a culvert crossing Autopark Private and outletting to a ditch ending some 35m north of Autopark Private. This ditch was originally discharging north to an MTO ditch at Highway 417. The current ditch overflows to Autopark Private Pond. The flows from Palladium Drive will be carried to the MTO ditch through a storm sewer system along the west side of Huntmar Drive. Investigation to determine the flows from Palladium Drive will be required to size the storm sewer system. Options to direct Palladium Drive flow to Corel Pond or to the extended Pond 4 (Pond references are as per KWMSS, 2006; **Figure 3-17**) should be explored. The widening of this section of Huntmar Drive is not dependent of future private development taking place unless Palladium Drive flows are directed to the extended Pond 4. Should the flows be directed to the extended Pond 4, the widening of this section is dependent on the construction of 130 Huntmar Drive storm sewers systems and rights-of way leading to the extended Pond 4.

7.3.2.3 Huntmar Drive from Palladium Drive to Maple Grove Road

The proposed minor flow, from Palladium Dr. to 147m south of Robert Grant Ave. will be captured by storm sewer systems ultimately discharging to the expanded Pond 4. The proposed major overland flow will also be routed to the expanded Pond 4 via ROW. The widening of this section of Huntmar Drive is dependent of the construction of 130 Huntmar Drive storm sewers systems and rights-of way leading to the extended Pond 4.

The proposed minor flow from 147m south of Robert Grant Avenue to Maple Grove Road will be captured by a storm sewer system discharging to Maple Grove Road storm sewer system running east and ultimately discharging to Pond 4. The proposed major overland flow will be directed to Pond 4. The widening of this section of Huntmar Drive is not dependent of future private development taking place.

7.3.3 Stittsville Main Street Municipal Servicing Approach

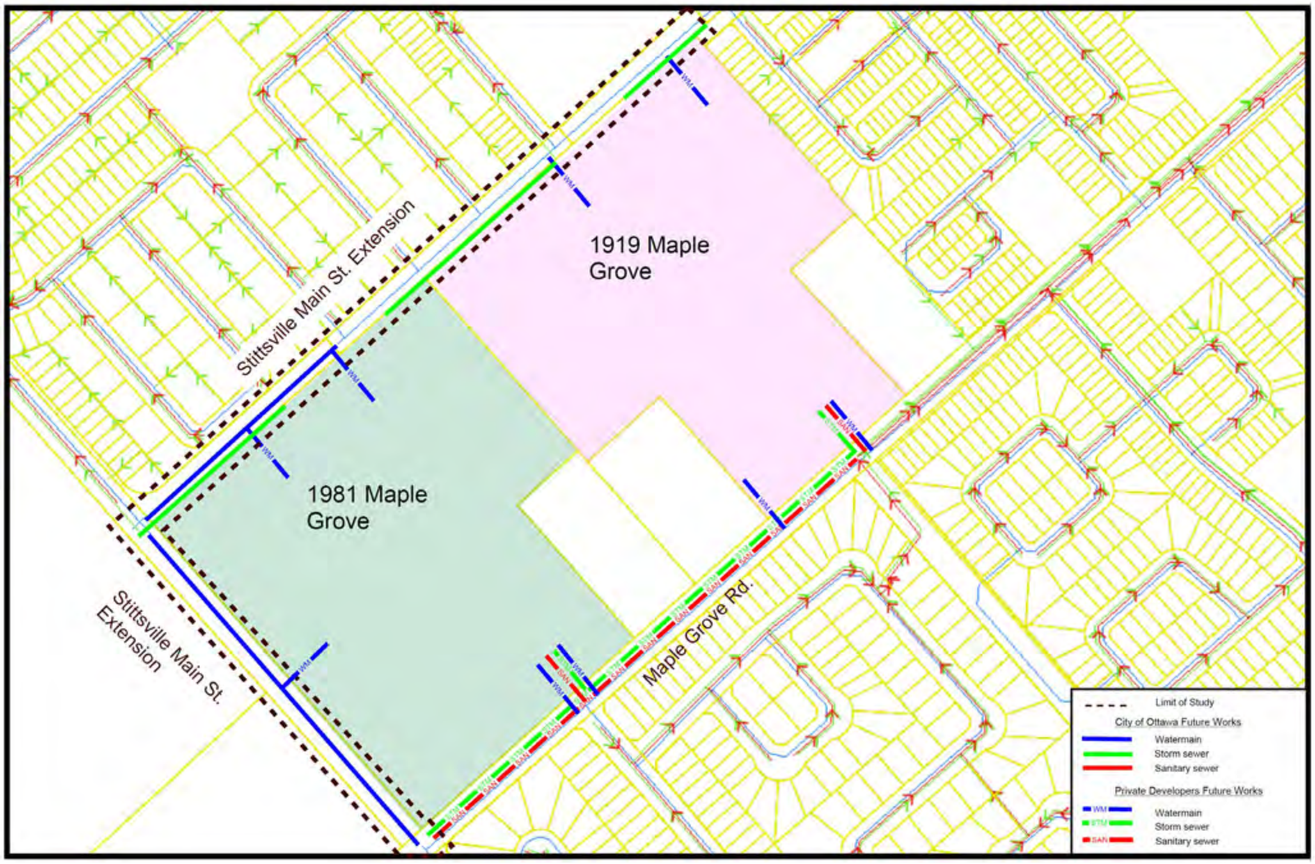
Figure 7-11 below illustrates a plan for municipal services to be installed within the Stittsville Main Street Extension ROW, based on information provided by the City and area developers. These services, and other services that are not yet identified, are to be pre-installed by land developers in a greenfield setting as part of the servicing plans for ongoing and future development applications.

It will be important for the City's development services staff to work with the area landowners and their engineers during the development review process to ensure that the horizontal and vertical alignments of these future municipal services address (are matched to) the curvilinear geometry of the roadway, to avoid the risk of pre-installed municipal services conflicting with the future roadway (and its meandering curb-line) construction.

A portion of watermain that has already been pre-installed will need to be modified as shown in the Recommended Plan (**Section 8.0**), and a portion of the watermain that has been designed but not yet constructed will need to have its alignment adjusted.

The same recommendation is made for any private utilities (gas, hydro, telecom, etc.) that may be proposed for these future road segments.

Figure 7-11: Planned Future Municipal Services (Stittsville Main Street)



7.3.4 Stittsville Main Street Stormwater Management Approach

7.3.4.1 Stittsville Main Street Extension from Derreen Avenue to 150m east of Culdaff Road

The proposed minor flow from the section between Derreen Avenue to 48m east of Culdaff Road will be captured by storm sewer systems discharging to existing storm sewers at Derreen Avenue and Curaglass Road and will ultimately outlet to Pond 7. The proposed major overland flow will be conveyed north by public ROW to Pond 7. During detailed design, the grading design must ensure that overland flow is directed to the local streets and away from the rear yard swales. The implementation of this extension is not dependent of future private developments taking place.

The proposed minor flow from the section between 48m to 150m east of Culdaff Road will be captured by a storm sewer system that will flow east on Robert Grant Avenue and will ultimately outlet to the expanded Pond 4. The proposed major overland flow will be conveyed by public ROW to the extended Pond 4. The implementation of this section of Stittsville Main Street is dependent on the construction of 130 Huntmar Drive storm sewers systems and ROW leading to the extended Pond 4.

7.3.4.2 Stittsville Main Street Extension from Derreen Avenue to Maple Grove Road

The proposed minor flow will be captured by a storm sewer system discharging to a storm sewer on the 1981 Maple Grove Road property that will ultimately outlet to Pond 4. This development is planned for 100-year capture, with major event flow stored underground and released at a controlled rate to Pond 4. The stormwater management approach for this segment of Stittsville Main Street will need to be coordinated and designed accordingly. The emergency overland flow route (i.e. for storms exceeding 100-year flows) is to the north towards Pond 7. The implementation of this section is dependent of the construction of storm sewers, rights of way and a stormwater management facility on the 1981 Maple Grove Road property.

7.4 Corridor Landscaping Strategy

Within the Recommended Plan, integration with the landscape and surrounding natural environment has been considered. Key characteristics include:

- Plantings using native species adjacent to natural areas (Feedmill Creek);
- Additional plantings on the east side of Huntmar between Cyclone Taylor and Palladium, reflecting the 'hub' design priority designation of this segment;
- Additional plantings at the intersection of Robert Grant and Huntmar, to reinforce the transition of the corridor to a residential, community context, creating a light gateway effect;
- Opportunities for placemaking and creation of public realm nodes are included; and
- Pathway connections, seating and shaded rest areas.

7.5 Climate Implications and Design Response

The synthesis of the Recommended Plan includes consideration of climate change. In May of 2022 the City released their *Climate Change Vulnerability & Risk Assessment* (CVRA). The purpose of this report was to identify the top climate risks facing Ottawa. This is the second phase of the Climate Resiliency Strategy. The CVRA report draws on the findings of *Climate Projections for the National Capital Region* (NCC, City of Ottawa June 2020) whereby climate science modelling was used to predict the future climate for the National Capital Region (NCR). In the 2022 report, the results were grouped and identified as climate hazard themes/priority risks and include:

- Extreme heat, drought and humidity;
- Seasonal variability and change;
- Increased volume and intensity of precipitation;

- Extreme weather events; and
- Global climate change.

The CVRA assessed close to 150 potential climate impacts on the City and the community, including impacts on health, community well-being, infrastructure, natural environment and the economy in consideration of each climate hazard theme/priority risk. To support the City's ongoing action on climate change, the Study Team has described the design response to mitigate identified potential impacts applicable to the project as presented in **Table 7-1**.

While it is important to note that the design response might not capture all possibilities, the Recommended Plan also provides the opportunity and flexibility for further refinement to the benefit of mitigating potential climate change-related impacts. Further, during the next phases of the project, during preliminary and detailed design, there are additional opportunities for mitigation for example through landscaping details, stormwater system enhancements and asphalt mix choices. Contemporary maintenance and operation plans and best management practices should be applied at the time of operation and will also mitigate potential climate change-related impacts.

Table 7-1: Climate Considerations and Design Response

Climate Hazard, Priority Risk[1]	Climate Change-Related Potential Impact[1]	Design Response
Extreme Heat, Drought and Humidity Impacts, Vulnerabilities and Consequences	• Decreased use of active transportation systems • Increased health and safety risks for athletes, active recreation participants and active transportation users	• Providing shade places including street trees, shelter structures • Providing rest and shelter areas, especially at transit stops and at the beginning/end of steep gradients (such as at the potential Hwy. 417 Active Transportation (AT) crossing) • consistent, continuous, high-order AT facilities • connections to key destinations i.e. parks, splash pads and/or air conditioned recreational centres that also offer potable water • counteracting the urban heat island effect through tree planting, limiting the width of continuous paved surfaces • Planting plans, tree conservation reports • Frequent AT crossings of major roads to limit unnecessary diversions for AT users, especially to connect major desire lines such as at the proposed Feedmill Creek pathway
	• Decreased use of public transit systems	• Efficient transit system providing more travel capacity, decreased travel times and possibility for new routes • Additional bus stops, contemporary bus shelter design • High quality transfer points, such as between local and rapid transit at the future Palladium LRT station, that minimizes walking distances
	• Damaged / compromised road transportation systems	• Opportunity to utilize contemporary, resilient asphalt mixtures or other paving materials • Complete street cross section including greenspace and landscaping

Climate Hazard, Priority Risk[1]	Climate Change-Related Potential Impact[1]	Design Response
	• Damaged / compromised wastewater collection and treatment systems	• Designed to contemporary standards • Incorporation of future planned piped infrastructure
Seasonal Variability Impacts, Vulnerabilities and Possible Consequences	• Damaged / compromised active transportation systems from increased winter freeze-thaw	• Winter maintenance considered in design i.e., providing snow storage consideration of snow removal activities • Proper sloping/crowning of facilities
	• Damaged / compromised rail and bus transit transportation systems	• Contemporary bus shelter design • Opportunity for winterization of transit facilities, programs for regular snow clearance of transit stop areas
	• Damaged / multi-modal transportation systems (thermal cracking, frost heave, potholes, and rutting)	• Contemporary winter maintenance programs • Designed in consideration of subsurface materials; additional geotechnical investigation • Proper sloping/crowning of facilities
	• Extended road load restrictions	• Appropriate roadway cross section design • Designed in consideration of subsurface materials; additional geotechnical investigation
	• Health and safety risks to users (slips and falls)	• Providing rest areas • Proper sloping/crowning of facilities
	• Damaged / compromised stormwater systems from winter freeze/thaw	• Contemporary design standards • Appropriate pipe and catchbasin sizing • Consideration of network improvements and problem areas

Climate Hazard, Priority Risk[1]	Climate Change-Related Potential Impact[1]	Design Response
Increased Volume and Intensity of Precipitation Impacts, Vulnerabilities and Possible Consequences	• Damaged / compromised active transportation systems • Damaged / compromised road transportation or transit systems (road washout, bridge failures, landslides affecting roads, bridges, etc.) • Increased health and safety risks to users	• Designed in consideration of floodplain mapping • Designed in consideration of subsurface materials; additional geotechnical investigation • Stormwater facilities have been designed to be managed in accordance with municipal/provincial standards • Local topography considered • Low-lying areas avoided • Utilization of City sewer design guidelines, Wet Weather Management Plan • Low impact development solutions part of stormwater management • Results of the geofluvial assessment of Feedmill Creek incorporated into the functional design • Maximization of permeable surfaces, green landscaping boulevards • Future opportunity to explore use of contemporary, resilient/permeable paving surfaces
Extreme Weather Impacts, Vulnerabilities and Possible Consequences	• Damaged / compromised active transportation system • Damaged / compromised road transportation or transit systems	
	• Increased health and safety risks to users	• Complete street cross section including greenspace and landscaping • Tree planting plans • Tree conservation reporting and distinctive tree preservation as well as tree health assessments • Providing shade places • Providing rest areas

Climate Hazard, Priority Risk[1]	Climate Change-Related Potential Impact[1]	Design Response
	• Electricity or communication interruptions / blackouts	• Future opportunity to underground adjacent hydro lines on either corridor, pending updates to the City's and Hydro One undergrounding policies
	• Impacts to traffic signal operations, transit operations, traveler information systems, EV charging, emergency response, etc.	• Appropriate sight lines • Improved emergency vehicle response times to the communities surrounding Stittsville Main Street by finishing their connection to the arterial road network
Global Climate Change Impacts, Vulnerabilities and Possible Consequences	• Increased material costs (e.g. asphalt)	• Conservative project cost-estimating • Avoiding throw-away costs, combining projects within the corridors where possible. • Harmonizing design with Study Area developments • Designing the project based on future conditions
	• Delayed projects	• Comprehensive and holistic planning process considering the projected timing of other nearby projects • Comprehensive consultation with identified stakeholders • Adhering to the municipal class EA process • Identifying future commitments required as part of the EA process • Identifying future permits/approvals as part of the EA process
	• Increased cost of energy	• Designed in consideration of the City's lighting policy

[1]Information taken directly from City of Ottawa *Climate Vulnerability and Risk Assessment*, May 30, 2022

7.6 Description of Project Activities

7.6.1 Preconstruction Phase

A key requirement of the pre-construction phase for both corridors will be the acquisition by the City of the required ROW. The specific property requirements are illustrated in the Recommended Plan (**Section 8.0**) and described in **Section 9.2**. The City will employ its approved process of contacting landowners and working with them towards acquisition, using the standard methods that are available to the City and in accordance with the City's Real Property Acquisition Policy.

This phase includes the completion of preliminary and detailed engineering and landscape designs and preparation of contract drawings and specifications. The phase also involves obtaining all necessary permits as well as approvals from regulatory agencies. Future consideration during the design phase for both corridors should include:

- Confirming existing conditions through detailed survey;
- Confirmation of roadway geometry;
- Confirming approach to project procurement;
- Determination of intersection designs;
- Detailed stormwater management design;
- Landscape materials and tree planting details;
- Confirmation of measurement of cross section elements;
- Street lighting design, frequency and location;
- Traffic plant design;
- Bus stop amenities;
- Accessibility features;
- Finalizing grading requirements;
- Confirmation of geotechnical construction techniques;
- Confirmation of detours for all modes;
- Completion of a separate EA following the Class EA for MTO, as required (**Section 9.4.2.6**)
- Strategy for management of impacted materials (if applicable);
- Obtaining approvals for construction access and working areas;

- Identification of all existing utilities in the area and preparing utility reconstruction/relocations;
- Detailed construction staging and phasing plans;
- Coordination with other projects in the vicinity of the corridor; and
- Development of all mitigation plans and strategies.

7.6.2 Construction Phase

This phase involves all activities related to construction. Physical construction activities for both corridors will include but not be limited to:

- Installation of construction fencing and required protection measures for trees, wildlife and sediment / erosion control;
- Clearing and grubbing of trees or any vegetation within the grading limits for construction of the project;
- Stripping of topsoil within the grading limits;
- Excavation of road surface;
- Management of impacted materials (if applicable);
- Removal of existing asphalt, re-use where possible, and disposal at an approved facility;
- Management of excess soil as per O. Reg. 406/19 On-Site and Excess Soils Regulation;
- Preparing road bed including cutting and filling (potentially salvaging existing granular for re-use);
- Relocation of utility and piped underground infrastructure;
- Installation of storm catch basins and storm sewers as well as ditch drainage and other stormwater management features;
- Pouring concrete curbs;
- Laying granular and application of hot mix asphalt;
- Installing lighting and traffic signals;
- Applying pavement markings and installing traffic signs;
- Implementation of detours for all modes;
- Installing landscaping features including public realm enhancements; and
- Restoration and rehabilitation of any disturbed areas extending beyond the project limits.

7.6.3 Operational Phase

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

- Spring sweeping of the roads and pathways;
- Ditch cleanouts;
- Maintenance of transit stops;
- Snow and ice removal in winter;
- General maintenance to ensure public safety (changing lights, security checkups);
- Landscaping maintenance including grass cutting, tree pruning (optimally in Fall or Winter); and
- Replacement of any landscape materials.

7.6.4 Project Phasing and Prioritization

7.6.4.1 Huntmar Drive

The widening of Huntmar Drive is identified in the 2013 Transportation Master Plan affordable network for implementation 2026-2031. The City is currently conducting a TMP Update, which will result in an updated timeline for project implementation. The inclusion of the optional AT bridge, described in **Section 7.2.2.1**, allows the City flexibility in the implementation and phasing of the Huntmar Drive crossing of Highway 417. Should the timing of the full Huntmar Drive widening be extended further into the future due to capital budget limitations, the immediate and significant need for safe AT facilities in this corridor could be addressed through the construction of this stand-alone AT bridge. However, it should be noted that the AT bridge in itself would come with significant capital, operating, and life cycle cost implications. It would also result in the duplication of active transportation infrastructure in this location, once the full Recommended Plan for Huntmar, including the new complete street bridge, is operational. It would be financially prudent to build just one roadway crossing that accommodates all modes, than have two separate bridges in the same vicinity. One comprehensive project would achieve economies of scale and reduce the number of structures to maintain. Should the implementation of the recommended Huntmar Drive complete street crossing precede the construction of the AT bridge, the AT bridge would not be unnecessary for fulfilling the planning objectives identified in this project. This determination will be made at a future date and will be subject to the City’s future capital budget priorities and affordability.

7.6.4.2 Stittsville Main Street

The extension of Stittsville Main Street is also identified in the 2013 Transportation Master Plan affordable network for implementation 2026-2031. This target is similarly dependent on the progress of the development of the subdivisions surrounding the corridor, to which the need for the extension is tied. There is not a notable opportunity to build this project in sections. The extension should be constructed in its entirety, if possible, in order to address the project needs identified in **Chapter 2.0.**

The implementation of the Stittsville Main/Robert Grant roundabout, which is to be completed by external developers, will not take place until the implementation of Robert Grant Avenue itself; the development of the surrounding subdivisions, including 195 Huntmar, will not be the trigger for implementation of the roundabout.

7.6.5 Construction Staging

Primary tasks associated with construction of the project have been identified above. The varying conditions along both corridors will require that several different construction methods be used to complete the project. Temporary staging areas will be required at multiple locations to support stockpiling of materials and equipment needed to construct the project in an efficient manner.

The contractor selected by the City will be responsible for developing construction plans and designs which meet contractual requirements, which includes defining the means and methods of construction. Reasonable efforts that can be made to limit disruption to the existing road network and transit service should be considered.

The Recommended Plan for Stittsville Main Street shows a new road with tie-ins to existing roads at both ends and will accommodate a currently non-existent path of travel. For this reason, construction staging will not be critical, however any disruption to the existing road network should be considered and efforts should be made to limit it.

7.7 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 either project component. They include standard construction practices and BMPs.

The Project will be designed and implemented with the benefit of contemporary planning, engineering, and environmental management practices. Regard shall be had for the legislation, policies, regulations, guidelines, and best practices of the day. Where possible, mitigation measures will be prescribed in the construction contracts and specifications. Examples of practices that should be employed, based on current standards, are described below. These measures can be considered "built into" the preferred design for the project. They will be updated and refined during the pre-construction, construction, and operation phases of the project, as early as possible.

7.7.1 Erosion and Sediment Control Plan

A detailed plan will be prepared by the Contractor, to manage and mitigate the flow of sediment into storm sewers resulting from project construction including excavation. The plan shall include drawings, standard notes and reports depicting and describing the site conditions (e.g. grades, locations of natural features, soil stockpiles) during a particular phase of construction and based on BMPs. Individual Erosion and Sediment Control (ESC) plans should be generated for each phase of construction to manage and mitigate the flow of sediment into storm sewers resulting from project construction. This plan may include the following twelve (12) elements:

- Preserve as much existing vegetation as possible and mark clearing limits;
- Establish construction access;
- Control flow rates;
- Install sediment controls specific to the site topography;
- Stabilize soils;
- Protect slopes;
- Protect drain inlets;
- Stabilize channels and outlets;
- Control pollutants;
- Control de-watering; and
- Maintain best management practices.

7.7.2 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 or site preparation. In this regard, any floating debris resulting from construction which accumulates on 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 materials, excess materials, construction debris and empty containers are to be stored away from watercourses, the banks of watercourses and steep slopes.

7.7.3 Air Quality, Noise and Vibration

A detailed air quality, noise and vibration assessment was conducted for the Recommended Plan. The full report can be found in **Appendix B**. Analysis found the following results:

- The Recommended Plan will have a negligible impact on local air quality. For future and existing conditions, all products of combustion fall below the MECP's Ambient Air Quality Criteria.
- Resulting from increased roadway traffic volumes, future noise levels in most cases will marginally increase above existing conditions throughout the project limits. However, future conditions noise levels will not exceed the threshold for additional mitigation requirements, and the impacts of the Recommended Plan will not have adverse noise effects on occupants.
- Vibration levels as a result of the proposed project are not expected to exceed the level commonly considered perceptible by most building occupants. Existing and future vibration levels are found to be negligible with respect to the risk of structural damages or even cosmetic damages to building finishes.

Should there be changes in guidelines and best management practices in the future, further noise analysis may be required at detailed design. If future residential developments are proposed within proximity to the project, the requirement for noise attenuation measures will be evaluated at that time and any necessary mitigation will be included as a condition of development approval at the responsibility of those developers.

Varied construction activities throughout both project corridors are expected to create isolated and short-term noise, air quality and vibration impacts on the environment. The construction manager will be required to develop a strategy for mitigating the effects according to BMPs intended to satisfy, as feasible, the fugitive dust limits specified in O.Reg. 419, the noise limits specified in MECP NPC-115 and City of Ottawa By-laws for Noise, and MECP NPC -119 for ground vibration. A list of common mitigation strategies adapted to the current project includes, but is not limited to, the following:

Air emissions BMPs:

- Monitor wind conditions, and plan operations to take advantage of calm wind periods;
- Minimize site storage of granular material in height and extent;
- Locate storage piles in sheltered areas that can be covered;
- Provide movable wind breaks;
- Use water spray and suppression techniques to control fugitive dust; and

- Cover haul trucks and keep access routes to the construction site clean of debris.

Noise and vibration BMPs:

- Limit speeds of heavy vehicles within and approaching the site;
- Provide compacted smooth surfaces, avoiding abrupt steps and ditches;
- Keep equipment properly maintained and functioning as intended by the manufacturer; and
- If required, implement a blast design program prepared by a blast design engineer.

7.7.4 Emergency Response Plan

The preparation of an Emergency Response Plan to be used by the contractor will be needed to allow full emergency service access at all times during the construction period, such that there is a method to access all residential, commercial and other land uses in the event of an emergency. 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.

The Emergency Response Plan for the Huntmar Drive widening shall include specific provisions relating to Palladium Drive as a designated Highway 417 Emergency Detour Route.

7.7.5 Spills Response and Reporting Plan

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

All spills shall be reported to the Ministry of Environment (MOE) Spills Action Centre (1-800-268-6060). Management of Contaminated Materials.

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

7.7.6 Lighting Treatment Plan

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

7.7.7 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 ROW 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. MECP's guideline *Management of Excess Soil – A Guide for Best Management Practices* (MOECC, 2014) as well as Ontario Regulation 406/19: On-Site and Excess Soil Management should be referenced once this management plan is being prepared.

7.7.8 Archaeological Resources

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

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an AA, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33* requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the MCM should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

7.8 Site Specific Mitigation Measures

Once potential effects were predicted as part of this EA study, mitigation measures were identified. Often these mitigation measures were sufficient to reduce potential negative effects to an insignificant or negligible status. Localized site-specific mitigation measures are summarized below.

7.8.1 Property Assessment and Acquisition Process

This EA Study includes a Class C cost estimate for project implementation following the City of Ottawa's Project Delivery Review and Cost Estimating procedure. These costs, as well as costs associated with acquiring property and property rights on which to build or provide construction easements for the construction of the project, will need to be updated prior to project implementation. These will include, in addition to actual property value, the cost of ROW preparation, legal and appraisal services and land survey.

7.8.2 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 construction activities. Businesses, institutions, residents, tenants and other stakeholders including transit service providers and emergency service 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 established by the City including detail on how to communicate the information to the public, information to be disseminated, and at what project stage the communication should take place.

7.8.3 Archaeological Assessment

Areas within and adjacent to the corridor identified as having archaeological potential will be subject to subsequent (Stage 2/3/4) Archaeological Assessment prior to construction should these lands be required to be disturbed through implementation of the Recommended Plan. Subsequent stages of archaeological assessment should be completed as early as possible in the detailed design phase as the results may impact design details and schedules. Indigenous Communities will be involved as required based on best practices and governing municipal, provincial and federal legislation and policies.

7.8.4 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.

7.8.4.1 Traffic and Transit Diversions during Construction

During project construction, traffic diversions will need to be implemented to permit construction work to occur on various project elements. The duration and extent of traffic diversions will vary from location to location and include short-term lane closures and temporary detours. The need for long-term closures of existing roadways is not anticipated based on the current level of design. At least one lane of traffic should be maintained on Huntmar during construction. Additional impacts may arise relating to the replacement of the Huntmar bridge over Highway 417, depending on the chosen construction method. Some traffic disruptions may occur to traffic on Highway 417 itself.

During the detailed design phase, the final detour plans will be closely coordinated with construction staging. Routes for any diversions will be determined in consultation with the City of Ottawa and the contractor completing the works and be communicated to the public in advance of implementation (e.g. through consultation or mobility management plans).

7.8.5 Corridor Drainage and Stormwater Management Plan

The purpose of developing and implementing stormwater management strategies is to provide adequate systems for the Recommended Plan. The purpose of the Corridor Drainage and Stormwater Management Plan is two-fold; it identifies the rate and volume of anticipated stormwater runoff and the means to accommodate it, and the means of achieving Ministry guidelines for water quality of stormwater runoff.

This includes the identification, in the detailed design phase, of the overall stormwater management system requirements, methods of retention, detention and infiltration, and any control mechanisms necessary to achieve runoff quantity and quality targets, while continuing to provide the required flows to downstream areas. Drainage systems and their components are sized and designed in conjunction with the overall project, and retention or detention systems are then incorporated into the design to achieve Ministry guidelines for runoff quantity and quality control. When prepared during the detailed design phase, this plan will consider the opportunity to treat stormwater runoff within the identified ROW prior to further off-site (i.e., outside the ROW) treatment following those measures outlined in the Stormwater Management Approach for Huntmar Drive and Stittsville Main Street outlined in this ESR (**Section 7.3.2** and **Section 7.3.4**).

Surface drainage will generally be via catch basins to a closed storm sewer system. Catchbasin relocations will be required throughout the Huntmar Drive corridor to accommodate the proposed changes. New catchbasins are also expected to be required in areas of pavement widening, to accommodate the increased runoff from the increased impervious area. Curb inlet catchbasins will be strongly preferred for both relocations and new catchbasins to avoid having surface inlets in the wheel path of buses. The placement of new and relocated catchbasins will need to be coordinated with existing utilities to minimize conflicts. Where conflicts are not avoidable, utility relocations may be required and would have to be coordinated with applicable utilities in accordance with the terms of the agreements in place.

7.8.6 Geotechnical Investigations

A detailed geotechnical and hydrogeological program should be completed during detailed design to advise on groundwater and subsurface conditions and potential impacts that will need to be considered in the detailed design of the project. Geotechnical investigations will confirm specific construction methodologies, techniques, mitigation measures, contingency plans and processes in consideration of subsurface findings.

7.8.7 Phase Two Environmental Site Assessment

A Phase One ESA was completed to assist with the evaluation of alternatives and potential impacts that will need to be further considered in the detailed design of this project. The Phase One ESA identified several areas in the Huntmar Drive corridor with some level of risk for contamination (none were found in the Stittsville Main Study Area). Additional ESA work (e.g. Phase Two ESA) may be required to assess the soil and groundwater quality associated with these areas and to assist in the planning and scoping of the construction phase of the project with regard to the cost and approach to the management of materials (soil and/or groundwater during construction).

7.8.8 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. The plan will be prepared by a professional landscape architect. The Landscape Plan will generally be in-keeping with the Corridor Landscape Approach outlined in **Section 7.4** of this ESR. Consideration and consultation with Hydro One will be required given the proximity to the hydro lines located along the west side of Huntmar Drive planned to be retained.

7.8.8.1 Specific Landscaping Direction Provided by City Departments

As a result of consultation, City technical experts provided details to be included as part of the Landscape Plan for the project. Ongoing consultation with relevant City planning/development/forestry departments at the City is required.

Specific guidance provided regarding landscaping for this project includes:

- The width of the internal boulevard has been minimized where possible – while still meeting a 1.5m desired minimum to allow turf grass growth – in order to maximize the width of the external boulevard for street tree planting.
- Rest areas have been prioritized with shade trees. Where possible, trees are positioned to the south/south-west of rest areas, benches, and active transportation facilities in order to maximize the shade cover received by active users.

- Any landscaping elements such as pavers, decorative fixtures, furniture, pavers, tinted concrete, etc. which are considered at detailed design should be approved by relevant City departments in order to maintain regional design consistency according to street designations and standardized design guidance.
  - Avoid the use of tinted concrete in the Stittsville Main/Derreen roundabout, or any other hard surface areas.
  - Avoid the use of pavers outside of design priority areas unless a specific exception has been approved and an external maintenance agreement identified.
- Tree plantings are to be within the boulevard area, where possible. A recommended spacing of 7.5m should be provided between street trees, and trees should be centered in the widest part of the boulevard, although where the option exists for grouping or clustering certain tree species, a tighter spacing can be used. Trees on the west side of Huntmar will require a minimum of 6.0m from the overhead hydro line (and potentially subject to additional approvals by Hydro One). Trees should be located at least 2.5m away from the curb. A minimum boulevard width of 3.0m (and preferably 3.5m) should be provided to support tree growth.
- Large canopy tree species should be used as possible, such as on the east side of Huntmar, although in constrained spaces and close to power lines, such as on the west side, smaller species can be used.
  - Salt tolerant, hardy tree species should be used if planted in close proximity to the roadway.
- Tree planting in medians should be explored where feasible, although a minimum of 4.75m (and ideally 5.0m) is required to support tree growth, and no median of this width has been proposed as part of the Recommended Plan. In general, narrower medians should be left unplanted.
- Soil cells are to be used where trees are planted in constrained or paved areas, to provide suitable soil conditions and volumes for tree growth.
- For key public spaces, such as the north-east corner of the Huntmar/Palladium intersection, a high-quality hardscaping approach should be taken, which could include curb-side planters, benches, and public art. Also consider options for increasing the tree canopy such as a staggered pattern of trees across the public space to achieve maximum canopy cover, or even a ‘mini-arboretum’ including a mix of native tree species.
  - Tree planting at the northwest and southwest corners of the Huntmar/Palladium intersection should aim to create a ‘gateway’ effect for travelers approaching from the west.

- Trees should be planted, where possible, on the embankments of the approaches to the Huntmar/Highway 417 crossing, in the space outside of the guiderail but inside the available ROW. Explore options for tree planting on the north and southwest-side embankments, and on the east-side embankments depending on the timing of the proposed active transportation or Kanata LRT bridges (which will create the need for a retaining wall which would preclude the option of tree planting in these spaces).
- Enhanced landscaping options should be considered for the centre-island of the proposed Stittsville Main/Derreen roundabout. Higher-canopy trees should be used here, to retain appropriate sightlines while maximizing additional canopy coverage.
- Selection of tree species and street tree placement should be done in consultation with Forestry Services to minimize sightline obstruction.
- Relevant City departments should be engaged at detailed design to inform thematic design consistency. Any streetscaping elements, such as pavers, decorative fixtures, furniture, pavers, or tinted concrete should be coordinated based on street designations and established design guidelines.

7.8.9 Ecological Site Assessment

Various potential natural heritage features were identified in the Study Area under present day conditions. An Ecological Site Assessment should be carried out during detailed design and prior to construction to more thoroughly determine the presence, extent or provide an update of natural heritage features including SAR and habitat suitable for SAR, Significant Wildlife Habitat, wildland fire risk and significant woodlands located for the Recommended Plan. Protection afforded to any identified species shall be in accordance with appropriate provincial and federal jurisdiction.

Breeding bird surveys are recommended as per the Marsh Monitoring program which will also help to identify presence of SAR birds. As per the MECP, a set of at least 3 breeding bird surveys should be conducted between the last week of May and the first week of July and separated by a week or more from previous surveys.

A number of species at risk were found to have the potential and/or confirmed present in the Study Area. The SAR in Ontario List (O.Reg. 230/08 under the ESA, 2007) is updated periodically to add newly listed species or revise species status. Prior to construction, the list 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 they leave the area, or until further direction is provided by the MECP. If necessary, permits and/or authorizations will be obtained under the ESA.

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. The Tree Conservation Report will also assist with the completion of this report.

7.8.10 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. 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. This report will also provide an assessment of trees identified for removal. Additional surveys to mark distinctive mature trees may be required. The City's Tree Protection By-law establishes minimum standards for tree protection, as well as compensation requirements for trees authorized for removal. For trees within other publicly owned lands, federal and provincial property owners should be consulted as their criteria and methodology for tree conservation reports differ from the City of Ottawa's.

Together, the Landscape Plan and 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 and the tree protection measures required. The Tree Conservation Report will be prepared during detailed design prior to construction and in accordance with the City of Ottawa Guidelines.

7.8.11 Construction Timing Considerations

All activities related to construction should avoid certain timing windows dependent on the wildlife that is present. Following SAR review and more in-depth surveys conducted prior to detailed design, there may be additional timing restrictions in addition to those listed below to protect sensitive species and/or habitats.

7.8.11.1 Breeding Birds

In order to remain in compliance with the *Migratory Bird Convention Act*, 1994 and *Fish and Wildlife Conservation Act*, 1997, it is recommended that any vegetation removal that may be required take place outside of the breeding bird season for this region (April 1st to August 31st).

In most cases nest searches during the nesting season (April 1st to August 31st) are not recommended within complex habitats, which may occur along the project corridor, as the ability to detect nests is low while the risk of disturbance to active nests is high. Disturbance increases the risk of nest predation and abandonment by adults. Therefore, nest searches are not recommended unless nests are known to be easy to locate without disturbing them. Nests searches may be completed during the nesting period (April 1st to August 31st) by a qualified biologist within 'simple habitats' (Canadian Wildlife Service, 2014). Simple habitats refer to habitats that contain few likely nesting spots or a small community of migratory birds.

Examples of simple habitats include the following:

- an urban park consisting mostly of lawns with a few isolated trees;
- a vacant lot with few possible nest sites;
- a previously cleared area where there is a lag between clearing and construction activities (and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil, for instance); or
- a structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawks, gulls and others)" (Canadian Wildlife Service, 2014)

Similarly, nest searches can also be considered when investigating the following:

- "conspicuous nest structures (such as nests of Great Blue Herons, Bank Swallows, Chimney Swifts);
- cavity nesters in snags (such as woodpeckers, goldeneyes, nuthatches); or
- colonial-breeding species that can often be located from a distance (such as a colony of terns or gulls)" (CWS 2014).

7.8.11.2 Fisheries Resources

Should there be in-water works confirmation of current in-water construction timing windows with MNRF is necessary prior to any construction works. For potential fish relocation work, a License to Collect Fish for Scientific Purposes is required from the MNRF as well. To protect fish spawning activity, there are specific in–water works timing window restrictions. Consultation with MNRF should be continued to provide updated information on the timing restrictions at the time of design.

Changes to the federal *Fisheries Act* implemented in 2019 focused on restoring lost protections and incorporating modern safeguards for fish and fish habitat. Its goal was also to provide enhanced compliance and protection tools to enable cross-agency partnerships and better protection of fisheries in Canada (DFO 2021). The updated *Fisheries Act* includes a prohibition against causing the death of fish or the harmful alteration, disruption, or destruction of fish habitat (Section 35 of the *Act*). Changes resulting from the previous update to the Act in 2012 the *Fisheries Act* still apply. These include how the process is proponent based and any in-water works requires self-assessment. From the self-assessment process, the proposed in-water works are weighed against criteria set out by the DFO. By using these criteria, it can be determined if works can avoid serious harm to fish. If works cannot avoid serious harm to fish and/or works are not included in the criteria listed on the DFO's website, a "Request for Review" will be submitted to DFO. DFO will make a determination regarding serious harm to fish and will outline, if required, approval/authorizations to be obtained from the DFO. Opportunities for habitat enhancements to watercourses should be considered.

7.8.11.3 Turtles

Turtles are actively nesting in June and early July and may be attracted to existing road shoulders or to construction zones with areas of exposed soils or stockpiles of fill. Caution should be taken during the active season (April 1 – October 30) of any given year by thoroughly sweeping the area before works begin to help encourage any turtles within the area to move away. Exclusion fencing will be installed to prevent turtle access to the work area where appropriate (e.g., near water or wetlands). Additional consultation with the MECP may also provide species-specific mitigation, if required.

7.9 Assessment of the Recommended Plan

7.9.1 Assessment Methodology

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 Recommended Plan on the transportation, social, physical and biological environments. The impact analysis involved applying the steps, as presented in **Table 7-2**.

Table 7-2: Impact Assessment Approach

STEP 1	Identify and analyze activities where the project, as detailed in Section 7.0 with existing environmental conditions as detailed in Section 3.0 and 5.0.
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.

7.9.2 Assessment Results

Table 7-3 describes the potential effects, mitigation, residual effects and their significance, and monitoring recommendations for the Recommended Plan. Note that in the “Location” column, “Throughout both Corridors” refers to the Huntmar Drive and Stittsville Main Street corridors.

Project phases are identified as follows: P - Pre-construction/Design; **C** - Construction; **O** - Operation

Table 7-3: Impact Assessment Results

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Social Environment										
Planning Policies	Pre-construction planning and design; Project implementation	•			Throughout both corridors	The project has been developed in accordance with the OP, TMP, and other relevant provincial, federal, and municipal guiding documents including the Kanata West Concept Plan.	Review of changes to policies and guidelines.	None anticipated.	Positive	None required.
Indigenous Land Claims	Pre-construction planning and design; Project Implementation.	•			Throughout both corridors	A large portion of northeastern Ontario is subject to an unresolved land claim with the Algonquins. The agreement-in-Principle (2016) does not identify any lands within the Study Area as subject to these consultations (Algonquins of Ontario, 2016).	Continued engagement and consultation with Indigenous Communities in the subsequent project phases.	None anticipated.	Negligible	None required.
Property Requirements	Acquire temporary access to public and private property to undertake pre-construction surveys and studies.	•			Throughout both corridors	Permission to enter onto private and public property will be required prior to construction to obtain/update additional information on: topographical mapping, geotechnical conditions, environmental conditions, and the natural environment to assist in detailed design and inform permitting/approval requirements.	*Public Communications Plan* Consent to Enter Agreements and permission as required prior to undertaking work. Coordinate investigation schedule with affected property owners to minimize disturbance.	Temporary inconvenience to property owners during surveys and studies.	Insignificant	As per *Public Communications Plan* and requirements negotiated through Consent to Enter Agreements as required.

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Property Requirements	Acquire necessary land requirements for the project.	•			Throughout both corridors	The project requires permanent property acquisitions from private and public landowners, as well as potential easements.	Acquire property as per City of Ottawa Real Property Acquisition policy and according to future land transfers and land leases. Cost, cost-sharing and requirement for compensation to be determined in negotiation with affected landowners. As per *Property Assessment and Acquisition Process.*	None anticipated.	Insignificant	As per *Property Assessment and Acquisition Process*.
Property Requirements	Acquire necessary land requirements for the project.	•			8555 Campeau Drive	The Recommended Plan does not require any property from the Tanger Outlets property at 8555 Campeau Drive and will not impact the property's existing landscaped areas or street furnishings on the west side of Huntmar. There will be some impact to the existing flowerbed at the foot of the "Tanger Outlets" sign, however the sign itself should not be impacted, unless grading easements are needed (as shown by the Functional Design in Chapter 8.0).	Should grading easements be required, effort will be taken at the detailed design phase to minimize or eliminate this impact. Exact impacts to the flowerbed and proposed replacement landscaping will also be determined at this time. *Public Communications Plan* *Landscape Plan*	None anticipated.	Negligible	None required.
Business Establishments	Pre-construction planning and design; construction of roadway, grading and excavation for all associated infrastructure.	•	•		Throughout corridor	Possibility for some road detours and temporary closures during construction.	BMPs during detailed design phase and *Public Communications Plan*, *Construction and Traffic Management Plan* to keep residents, businesses, employees and employers up to date.	Potential for some temporary reduction in revenue for some businesses.	Insignificant	As per *Public Communications Plan*. Monitor complaints during construction.

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Landscape and Visual Environment	Pre-construction planning and design; detailed design for roadway and associated landscape design; project operation.	•		•	Huntmar corridor. Huntmar Drive at Palladium Hub.	Enhanced landscaping and public realm elements will improve visual environment for the Huntmar corridor.	The section of Huntmar between Cyclone Taylor Boulevard and Palladium Drive is subject to additional landscaping and visual design standards as a result of the Palladium hub designation (as per OP Section 4.6.1). Relevant City departments should be engaged at detailed design to inform thematic design consistency. Any streetscaping elements, such as pavers, decorative fixtures, furniture, or tinted concrete should be coordinated based on street designations and established design guidelines. *Landscape Plan* to be completed during detailed design in consideration of landscaping strategy as outlined in **Section 7.4** and in consultation with adjacent landowners and relevant City departments. Selection of tree species and street tree placement should be done in consultation with Forestry Services to minimize sightline obstruction.	Overall improvement to existing landscape and views.	Positive	As per *Landscape Plan.*
Landscaping	Pre-construction planning and design; detailed design for roadway and associated landscape design; project operation.	•		•	Hydro One line along the west of the Huntmar Drive.	The project has been planned to avoid direct impacts to the existing high-voltage power line to the west of the corridor so that existing poles can be maintained in place. However, landscaping in the boulevards may impact clearance requirements.	*Landscape Plan* should be completed in consultation with Hydro One for the areas adjacent to the existing hydro line, meeting clearance requirements and limit long-term maintenance costs.	None anticipated.	Negligible	As per *Landscape Plan*.

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Community Safety	Project Operation			•	Throughout both corridors. Stittsville Main Street extension.	New and improved sidewalks, cycle tracks and multi-use pathways. Protected intersections that incorporate design features of separated cycling and pedestrian crossings. New active transportation facilities to improve crossing over Highway 417 Additional crossing opportunities to reduce the spacing between existing intersections and improve connectivity to adjacent land uses and major destinations. The extension of Stittsville Main Street also includes traffic calming design elements including periodic, alternative side parking bay bulb-outs. Added community parking.	None identified.	Improved community safety. Added community parking.	Positive	None Required.

Archaeological Resources	Pre-construction planning and design; project construction, grading and excavation for all associated infrastructure.	•	•		Areas identified as having archaeological potential.	Construction in undisturbed areas identified as having archaeological potential may disturb intact archaeological resources.	For City/Provincial lands: Conduct subsequent Archaeological Assessment (Stage 2, 3, 4) in identified areas in conformance with MCM Standards and Guidelines for Consultant Archaeologists (2011). Archaeological Assessment must be undertaken by a licensed archaeologist. These subsequent assessments should be completed as early as possible in the detailed design process so that study recommendations can be incorporated into the project details. These reports will be circulated to MCM and interested Indigenous Communities. Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the *Ontario Heritage Act*. The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33* requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the MCM should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage*	None anticipated.	Insignificant	Additional work, if needed, as per *Archaeological Assessment* recommendations.

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
							Act. If any artefacts of Indigenous interest are encountered contact: Algonquins of Ontario Consultation Office, 31 Riverside Drive, Suite 101. Pembroke, Ontario K8A 8R6. Tel: 613-735-3759 Fax: 613-735-6307 E-mail: algonquins@tanakiwin.com			

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
Cultural Heritage Resources (including Built Heritage Resources and Cultural Heritage Landscapes)	Pre-construction planning and design.	•			Identified Cultural Heritage Resources: 173 Huntmar (designated under *Section 29,* Part IV of the *Ontario Heritage Act (OHA)*; 1837 Maple Grove Road (listed on the Heritage Register under *Section 27* of the *OHA)*; and one potential built heritage resource 210 Huntmar Drive.	Cultural heritage value or interest for these three properties are in the structures themselves. Based on the preliminary findings of the Cultural Heritage Report, no direct adverse impacts are anticipated should project activities be limited to the Stittsville Main Steet study area and the Huntmar Drive ROW and 6.4m on either side.	No direct or indirect adverse impacts are anticipated; the structures are not anticipated to be impacted by the project. Should the design extend beyond the existing footprint presented for the Recommended Plan, re-evaluation of potential impact should be completed by a qualified professional.	None anticipated.	Negligible	None Required.
Air quality	Construction of roadways, grading and excavation for all associated infrastructure.		•		Throughout both corridors	Dust and equipment exhausts will diminish air quality during the construction period.	As per *Public Communications Plan* to inform residents of planned construction works. 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. These can include but are not limited to: • Monitor wind and air quality conditions and plan operations to take advantage of calm wind periods • Minimize site storage of granular material and height and extent • Locate storage piles in sheltered areas that can be covered • Provide movable windbreaks • Use water spray and suppression techniques to fugitive dust • Cover haul trucks and keep access routes to the construction site clean of debris	Dust may be an irritant to adjacent residents, business owners and pedestrians.	Insignificant	As per *Public Communications Plan*.

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	Project operation.			•	Throughout both corridors	Products of combustion are anticipated to fall below the MECP's Ambient Air Quality Criteria (AAQC). Over time, pollutant concentrations are expected to improve with vehicle environmental controls and newer engine technologies.	None required.	Pollutant concentrations predicted below AAQC and overall improvement.	Positive	None Required.
Noise	Construction of roadways, grading and excavation for all associated infrastructure.		•		Throughout both corridors	Noise levels produced by stationary and moving construction equipment will be occasionally disruptive to adjacent landowners and residents.	As per *Public Communications Plan*, inform residents of planned construction works. Contractor to adhere to the City By-laws (2017-255) and MECP NPC-115. Noise BMPs may include but are not limited to: • Limiting speeds of heavy vehicles within and approaching the site • Providing compacted smooth surfaces, avoiding abrupt steps and ditches • Keeping equipment properly maintained and functioning as intended by the manufacturer • If required, implementing a blast design program prepared by a blast design engineer • Compliance with MECP NPC-115 and NPC-118. • Contractor to have construction noise complaint process detailed, and action plan to address noise related complaints where warranted.	Temporary increase in noise from construction	Insignificant	As per *Public Communications Plan*. Monitor complaints during construction.

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Noise	Project operation.			•	Identified existing sensitive receivers along both corridors	Future noise levels in most cases will marginally increase above existing conditions throughout the project limits. However, noise levels at all receptors fall below 60 dBA, and should not experience an increase greater than 5 dBA due to the project undertaking.	Proposed study area developments include some properties that will have rear yards fronting on to the study corridor. As condition of development, these properties will need to include rear yard noise screens to mitigate sound impacts from the road as condition of their approval. Assuming that other existing noise walls in the study area are maintained, no further mitigation will be required.	None anticipated.	Negligible	None required.
Vibration	Construction of roadways, grading and excavation for all associated infrastructure.		•		Throughout both corridors	Construction activities near residential and business uses may cause noticeable vibrations.	As per *Public Communications Plan*, inform residents of planned construction works. Vibration BMPs to be implemented by contractor. Compliance with MECP NPC-119. Construction vibration complaint process is detailed with an action plan to address vibration-related complaints where warranted.	Temporary vibrations from construction activities may be noticeable.	Insignificant	As per *Public Communications Plan*. Monitor complaints during construction.
Vibration	Project operation.			•	Throughout both corridors	Vibration levels as a result of the proposed project are not expected to exceed the level commonly considered perceptible by most building occupants. Furthermore, existing and future vibration levels are found to be negligible.	None required.	Vibration levels below recommended perceptible threshold.	Negligible	None required.

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: Extreme Weather Events	Pre-construction planning and design.	•			Throughout both corridors.	Increasing variability in temperature extremes. Increasing frequency of high-intensity and duration of weather extremes (i.e. wet weather, dry periods, wind storms). Increase in maximum daily precipitation and annual precipitation. Faster and earlier thawing and risk of flooding. Increase in freeze-thaw conditions.	Use of the latest available design guidelines and standards and incorporate climate resiliency and risk assessment goals. *Corridor Drainage and Stormwater Management Plan* to consider accommodation of flash storm events and regard for Wet Weather Infrastructure Management Plan or best practices at the time of construction. *Landscape Plan* to include mitigating use of trees for moderating temperatures and providing wind break where possible. Refer to Section 7.5 (Climate Implications and Design Responses) for additional details regarding climate-related design considerations.	Potential for short-term flooding. Disruptions to corridor for additional maintenance, as required.	Insignificant	As per *Corridor Drainage and Stormwater Management Plan* and *Landscape Plan*.
Climate Change: Extreme Weather Events	Project operation.			•	Throughout both corridors.	Increased frequency of high intensity and duration of wind and storm events may result in greater frequency of disruptions to service (i.e. temporary closure for maintenance, loss of power at traffic signals).	*Emergency Response Plan* In accordance with City's Maintenance Program.	Temporary disruptions to corridor function during and immediately following extreme weather events.	Insignificant	As per *Emergency Response Plan*.
Climate Change: Corridor user safety and comfort	Pre-construction planning and design.	•			Throughout both corridors.	Increased risk to public safety for users during extreme storm events. Reduced user comfort during periods of extreme temperature and extreme weather events (precipitation, heat days, high wind).	*Landscape Plan* to consider possible mitigating effects to improve corridor user comfort through tree planting, landscaping design and of additional sheltering elements. Corridors to include adequate rest areas. *Corridor Stormwater Management Plan* Refer to Section 7.5 (Climate Implications and Design Responses) for additional details regarding climate-related design response.	Temporary discomfort to corridor user. Reduction in use of sustainable transportation modes.	Insignificant	As per *Landscape Plan* and *Stormwater Management Plan*.

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Climate Change: Extreme snow and ice events	Project operation.			•	Throughout both corridors.	Increased frequency and duration of extreme snow and ice events may increase risk to corridor users (i.e., pedestrians and cyclists). Increased requirement for application 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 the time of operation.	Iced surfaces may result in accidents to corridor users.	Insignificant	As per City policies and procedures.
Waste Management	Pre-construction planning and design. Construction of roadway, grading and excavation for all associated infrastructure.	•	•		Throughout both corridors.	Construction of the project has the potential to produce a large amount of construction related waste.	Design to consider opportunities to employ waste-reduction methods, where possible. Contractor to develop *Construction Waste Management Plan* to the extent possible, reuse material on-site prior to the consideration for new materials or shipment off-site.	Generation of excess waste materials for disposal off-site.	Insignificant	As per *Construction Waste Management Plan.*
Transportation Environment										
Pedestrian and Cycling Network	Construction of roadways, grading and excavation for all associated infrastructure.		•		Throughout Huntmar corridor; Maple Grove MUP.	Construction may result in detours and disruptions for pedestrians and cyclists, particularly on existing higher-order active transportation facilities such as the Maple Grove Multi-Use Path.	Key pedestrian and cycling routes should be maintained. Accessibility Design Standards (City of Ottawa, 2015) or newer must be applied. Contractor to implement a *Construction and Traffic Management Plan* to minimize the effects on active users, ensure roadway safety. A *Public Communications Plan* should be developed to inform residents of construction schedule and active transportation detours. Construction fencing to demarcate the work area for safety.	Temporary inconvenience to pedestrians and cyclists.	Insignificant	As per *Public Communications Plan* and *Construction and Traffic Management Plans*. Monitor complaints during construction.
Pedestrian and Cycling Network and Safety	Operation of pedestrian and cycling infrastructure.			•	Throughout both corridors.	Improved multi-modal connections throughout the corridor and crossing Highway 417. Connections with major employment centres and with the future LRT station on the Kanata	BMPs during detailed design phase. Regard for contemporary pathway and protected intersection design, following the Protected Intersection Design Guide (City of Ottawa, 2021). Accessibility Design Standards will be applied. A *Landscape Plan* will be implemented	Pedestrians and cyclists will be provided a safer, more accessible multi-modal transportation environment.	Positive	None required.

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
						extension of the Confederation Line. Improved overall active transportation network connectivity, including through a tie-in to the planned Kanata LRT pathway and proposed PXO at Feedmill Creek. Increased active transportation modal split due to higher order pedestrian and cyclist facilities. Connection across the 417 for pedestrians and cyclists where one does not exist. Improved safety through implementation of Crime Prevention Through Environmental Design (CPTED) review.	to include pedestrian and cycling amenities. Review of design following Crime Prevention Through Environmental Design (CPTED) principles/guidelines.			
Road and Transit Network	Pre-construction planning and design.	•			Huntmar Drive Robert Grant Avenue to Maple Grove.	Potential network deficiency.	At the detailed design phase, review existing and projected traffic conditions to confirm network needs remain the same as presented in the Recommended Plan.	None	Negligible	None required.

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Road and Transit Network	Construction of roadway, grading and excavation for all associated infrastructure.		•		Throughout Huntmar corridor.	Possibility for road detours and temporary closures during construction of Huntmar widening, which may interfere with on-street transit operations, create delays and detours for transit riders. Construction will result in some direct and indirect disruptions to traffic.	Contractor to implement a *Construction and Traffic Management Plan* including *Transit Operations* to minimize the effects on traffic flow and transit operations. A *Public Communications Plan* should be developed in consultation with OC Transpo to inform residents of construction schedule and changes, and to inform residents and businesses of construction schedules and changes. A public notification program should be implemented by the City and OC Transpo for any temporarily detoured transit routes/stops. Contractor to ensure road safety for all corridor users. *Traffic Management Plan* *Emergency Response Plan*	Temporary inconvenience to transit riders. Increased traffic on alternate routes during construction. Possible peak hour delays during construction. Possible isolated delays to emergency response.	Insignificant	As per *Public Communications Plan* and *Construction* and *Traffic Management Plans* including *Transit Operations*. Monitor complaints during construction.
Road and Transit Network: Community Connectivity	Operation of Stittsville Main Street extension			•	Stittsville Main Street extension.	The road extension will create an efficient and desirable multi-modal connection to higher order road/transit networks for the communities surrounding the Stittsville Main Street corridor.	Design standards to be reviewed at time of detailed design. Where efficiencies or improvements can be made to road design, BMPs of the time to be incorporated.	Improved local and regional transportation connectivity. Improved connections between communities.	Positive	None required.

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		P	C	O						
Transit Network	Project operation.			•	Throughout both corridors.	Modifications to both corridors will improve general traffic efficiency, improve overall transit network connectivity, accessibility, and efficiency. The project will provide an enhanced level of access to future LRT stations on the Kanata extension of the Confederation Line.	Design standards to be reviewed at time of detailed designs, BMPs incorporated at time of implementation.	Improved transit travel times, ridership. Improved local and regional transit connectivity.	Positive	None required.
Road Network: Emergency Detour Route (EDR)	Pre-construction planning and design; construction of roadway, grading and excavation for all associated infrastructure.	•	•		Huntmar/ Palladium intersection.	Palladium Drive is identified as an EDR for Ontario Highway 417. If the EDR is needed during construction of the Palladium/Huntmar intersection, this could cause delays/disruptions to emergency vehicles.	Design and construction timing/phasing should consider the Palladium EDR designation. Consultation with relevant City of Ottawa staff and provincial agencies. *Public Communications Plan* *Emergency Response Plan*	None	Insignificant	As per *Public Communications Plan* and *Emergency Response Plan*.
Road Network: Truck Routes	Pre-construction planning and design.	•			Throughout both corridors	Potential for inconsistency with City truck route.	Truck Route Designation Policy to be reviewed at the time of detailed design. Determination of a need for a truck route designation to be determined by Traffic Services. Consult with Asset Management for input with respect to structural pavement requirements.	None	Negligible	None Required.

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Road Network	Pre-construction planning and design.	•			Westbound Highway 417	The implementation of the new structures across the Highway 417 have the potential to impact sightlines of overhead signs for highway drivers.	Preliminary review indicates that sightlines should not be impacted. Potential impacts to sightlines should be reviewed and confirmed to not be impacted during detailed design. Ongoing consultation with MTO.	None	Negligible	As per consultation with MTO.
Road Network: Access	Pre-construction planning and design; construction of roadway, grading and excavation for all associated infrastructure.		•		Throughout Huntmar corridor	Potential for construction activities to limit or otherwise impact access to private properties and businesses, as well as various institutional uses including schools, police services facilities, and fire services facilities.	BMPs during detailed design phase and *Public Communications Plan*, Construction and *Traffic Management Plan* to keep residents, businesses, employees and employers up to date.	Potential for some temporary disruption to traffic access throughout the Huntmar corridors.	Insignificant	As per *Public Communications Plan*. Monitor complaints during construction.
Biological Environment										
Vegetation	Pre-construction planning and design. Project construction, grading and excavation for all associated infrastructure.	•	•		Throughout both corridors.	Clearing and grubbing activities will remove/alter existing corridor vegetation. Loss of terrestrial vegetation due to construction activities may cause fragmentation of wildlife corridors and habitats. Accidental spills related to construction activities may have negative impacts on the remaining terrestrial environment.	*Ecological Site Assessment* prior to construction to identify existing wildlife corridors and habitats. Protection of identified features and individual specimens with exclusion fencing. *Tree Conservation Report and Landscape Plan*. Minimize vegetation clearing to the extent possible. Replacements to be with native varieties and/or salt tolerant species as appropriate. *Spills Response and Reporting Plan.* *Erosion and Sediment Control Plan* to be implemented prior to vegetation removal.	Localized loss of terrestrial vegetation.	Insignificant	As per *Ecological Site Assessment, Tree Conservation Report, Landscape Plan* and *Erosion and Sediment Control Plan*.

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Vegetation	Pre-construction planning and design. Project construction, grading and excavation for all associated infrastructure.	•	•		Large diameter trees were inventoried throughout the study area.	Potential loss of Large Diameter and Distinctive Trees.	*Ecological Site Assessment* to update inventory in the study area. Project design should consider options for retention and protection of large diameter and mature trees wherever possible. One distinctive tree, located on private property under 1ha in size, is located within 50m of the ROW, and will require a Distinctive Tree Permit if removal is required. *Tree Conservation Report and Landscape Plan* should be completed at the detailed design stage to determine impacts to trees associated with the project.	None anticipated.	Insignificant	As per *Ecological Site Assessment, Tree Conservation Report and Landscape Plan.*
Significant Valleyland	Pre-construction planning and design. Project construction, grading and excavation for all associated infrastructure.	•	•		Feedmill Creek on the west side of Huntmar Drive is recognized as significant valleyland.	Potential loss of significant valleyland.	*Landscape Plan and Ecological Site Assessment* to confirm areas of significant valleyland. Consultation with MVCA to determine permitting requirements. Contractor to complete an *Environmental Protection Plan* and follow direction provided in the *Landscape Plan* to minimize disturbance.	Limited loss of significant valleyland.	Insignificant	As per consultation with MVCA. *Landscape Plan, Ecological Site Assessment,* and *Environmental Protection Plan*.

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Significant Woodlands	Pre-construction planning and design. Project construction, grading and excavation for all associated infrastructure.	•	•		One significant woodland is located north of Maple Grove Road, along the Stittsville Main Street Extension corridor, and is associated with UNA 32.	This feature has been reduced in size due to clearing for development by others. The remaining woodland is located on properties slated for future development. Potential loss of significant woodland.	*Landscape Plan* and *Ecological Site Assessment* to confirm areas of significant woodland within 30m (urban area criteria) that may remain following planned development, based on the evaluation criteria for significant woodlands 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 distinctive mature trees may be required. The Natural Heritage Reference Manual (MNR, 2010) should be consulted to determine these buffer widths. Consultation with MNRF and City of Ottawa Natural Systems and Forestry Services staff to confirm buffer width and any other additional requirements. Any remnants of this feature that are retained following development by others should be protected, where feasible, from additional impacts. Contractor to complete an *Environmental Protection Plan* and follow direction provided in the *Landscape Plan* to minimize disturbance.	Limited loss of significant woodland.	Insignificant	As per consultation with MNRF and City of Ottawa Natural Systems and Forestry Services staff. *Landscape Plan, Ecological Site Assessment, Tree Conservation Report* and *Environmental Protection Plan*.

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Wildlife	Pre-construction planning and design. Construction of roadway, grading and excavation for all associated infrastructure.	•	•		Throughout both corridors; particularly at Feedmill Creek crossing.	Impact to wildlife movement due to construction activities. Temporary localized disruption of wildlife habitat. General construction activities may disturb migratory birds or their habitat.	*Ecological Site Assessment* including targeted surveys to be conducted prior to construction. Delineation of construction area to limit disturbance. As per the City's Protocol for Wildlife Protection during Construction Guide (2015). In accordance with described *Construction Timing Considerations.* To reduce the possibility of contravention of the 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 active construction area at any time, 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. 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 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. Fencing must be installed in the spring, prior to the turtle nesting season, be maintained throughout works, and checked on a daily basis.	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.

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Wildlife Movement	Pre-construction planning and design. Project construction, grading and excavation for all associated infrastructure. Project operation.	•	•	•	Feedmill Creek	Widening Huntmar Drive will require a culvert sized appropriately for the new road width. Feedmill Creek enhancements by others to improve wildlife movements/connectivity.	It was determined that eco-passage for fish could be maintained, however, providing enhanced crossing for small mammals would be unsuccessful due to the length of the culvert required to maintain water passage under widened Huntmar Drive. This conclusion is strictly based on research, however, and does not mean that small mammals or other critters may not successfully use the crossing from time to time. *The detailed design of the eco-crossings to be confirmed through Ecological Site Assessment work.* *Wildlife exclusion fencing to be integrated with the eco-crossings as determined through Ecological Site Assessment work.* Implementation of wildlife warning signs and other traffic signs as part of the wildlife collision prevention program and detection systems, if appropriate.	Improved fish passage.	Positive	As per detailed design recommendations.

Aquatic Habitat	Pre-construction planning and design. Construction of roadway, grading and excavation for all associated infrastructure.	•	•		Several waterways located in the study area. Feedmill Creek.	Increased sedimentation during construction could impact fish habitat. Input of deleterious substances and water quality: via spills/leaks during construction and operational phase	Consult with regulatory agencies such as DFO, MNRF and MVCA regarding details of construction methodology and proposed mitigation measures. Mitigation measures proposed to reduce/eliminate potential effects to surface water resources, will also help reduce/eliminate potential effects to aquatic habitat such as: • Store all stockpiled material away from watercourses. • Remove all stockpiled material following construction. • Construction fencing at work areas near watercourses to limit the area of disturbance from encroaching on watercourses. • Minimize vegetation clearing around watercourses as much as possible, necessary to accommodate construction. • Preference for construction during low-flow periods. • Ensure machinery is in good working condition, free of fluid leaks. Inspections should be conducted daily to ensure this. • Refueling of equipment should be conducted away from slopes and at least 30m away from any surface water. Designated refueling area should be implemented for the site. Contractor to complete an *Erosion and Sediment Control Plan, Emergency Response Plan and Environmental Protection Plan.* Avoid in-water work to the extent possible. If in-water works are required: • Complete Fisheries Self-Assessment • Follow current in-water construction timing restrictions provided by MNRF. Consultation with MVCA to determine if headwater drainage features should be assessed through *Ecological Site Assessment*. Any alteration or	Potential localized and temporary reduction in water quality and aquatic environment. Potential temporary disturbance to overwintering turtles.	Insignificant	As per *Erosion and Sediment Control Plan, Emergency Response Plan, Environmental Protection Plan* and results of *Ecological Site Assessment*.

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							interference with a headwater drainage feature or other surface water feature may require a permit from MVCA and restrictions may apply. Open aquatic features with permanent water are present within the study area. There is potential for all watercourses to provide habitat for wintering turtle individuals. Caution should be given to construction activities which may create changes in water levels for these features, which can result in temporary or permanent habitat loss and lead to direct turtle mortalities if occurring during the overwintering period.			
Wildlife	Pre-construction planning and design. Project operation	•		•	Huntmar/Highway 417 Active Transportation Bridge	Wildlife collisions with project infrastructure resulting from extensive use of glass in the external architecture of the proposed active transportation bridge over the Highway 417.	Follow City of Ottawa guidelines for bird-safe design. The guidelines were drafted in compliance with the CSA A460:19 approved by City Council on November 25, 2020 and last revised in December 2022.	Accidental avian injury/mortality.	Insignificant	As per *City of Ottawa Bird -Safe Design Guidelines*.
Wildlife	Pre-construction planning and design. Project operation	•		•	Throughout both corridors. Feedmill Creek.	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.	Change to wildlife behaviour.	Insignificant	As per *Ecological Site Assessment and Lighting Treatment Plan*.

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		P	C	O						
Species at Risk	Pre-construction surveys and investigations. Project Construction grading and excavation for all associated infrastructure.	•	•		Throughout both corridors.	Several Species at Risk have potential to occur within the Study Area, including the Tri-coloured Bat confirmed within the study area. Species at Risk habitat may be affected during construction.	Conduct an *Ecological Site Assessment* to confirm presence of SAR. Targeted surveys may be required. Protection afforded to any identified SAR or SAR habitat shall be in accordance with appropriate federal/provincial jurisdiction. Avoid habitats of identified SAR where possible. Construction Timing Considerations - mitigation measures outlining timing window restrictions on construction will also help protect Species at Risk. Preventative measures (e.g. covering excavated soils) should be employed to deter opportunistic species such as Bank Swallow and Common Nighthawk from nesting on stockpiled materials within construction areas. All on-site staff should undergo environmental awareness training to be able to identify the potential SAR that could be encountered. 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. Additional considerations to avoid contravention of the MBCA will also need to be considered. Consultation with MECP, CWS and ECCC, to identify any permits/approvals required. If necessary, permits or authorizations to be obtained under the ESA.	Potential for short-term localized disturbance to SAR.	Insignificant	*Ecological Site Assessment* and in consultation with agencies.

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		P	C	O						
Species at Risk: Butternut	Pre-construction surveys and investigations. Project Construction grading and excavation for all associated infrastructure.	•	•		Butternuts confirmed located adjacent to the Huntmar Drive ROW.	Butternut trees may be impacted by the construction of the project.	Ecological Site Assessment prior to construction to identify existing Butternut trees, reconfirm trees previously identified are still present. Butternut Health Assessment should be completed as part of Ecological Site Assessment to determine requirements for permitting, protection, and compensation. *Tree Conservation Report, and Landscape Plan*. Protection of identified features and individual specimens with exclusion fencing. Minimize vegetation clearing to the extent possible. Compensation Butternut plantings. *Spills Response and Reporting Plan*. *Erosion and Sediment Control Plan* to be implemented prior to vegetation removal. Consultation with MECP to identify any permits/approvals required. If necessary, permits to be obtained under the ESA. Butternut is also listed as an Endangered species on Schedule 1 of SARA, consideration should be given to whether SARA permits may be required from ECCC should direct or indirect impacts be anticipated to Butternut individuals.	Potential for loss of Butternut trees.	Insignificant	As per *Ecological Site Assessment, Landscape Plan, and Tree Conservation Report* and in consultation with agencies.

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Significant Wildlife Habitat (SWH) - Confirmed	Pre-construction planning and design. Project construction, grading and excavation for all associated infrastructure.	•	•		Confirmed SWH for special concern and rare wildlife species includes forest bird breeding habitat for Wood Thrush, located in the remaining fragments of the Maple Grove UNA, and for Monarch in fallow forb-dominant fields throughout the study area, where Milkweed was observed.	Potential loss of habitat, impacts to special concern species. Planned development in UNA 32 North of Maple Grove will disturb/remove most of the woodlot by others.	During detailed design phase of the project consultation with MNRF and an *Ecological Site Assessment* should be completed to re-confirm SWH (special concern and rare wildlife species habitat). Confirmed SWH within 30m of the project may require mitigation measures. Mitigation measures should follow the advice provided in the Significant Wildlife Habitat Mitigation Support Tool (SWHMist) (MNRF, 2014). *Tree Conservation Report and Landscape Plan*. Minimize vegetation clearing to the extent possible. Replacements to be with native varieties and/or salt tolerant species as appropriate.	None anticipated.	Insignificant	As per *Ecological Site Assessment, Tree Conservation Report and Landscape Plan.* Advice in the SWHMist (MNRF 2014) and consultation with MNRF.
Significant Wildlife Habitat (SWH) - Candidate	Pre-construction planning and design. Project construction, grading and excavation for all associated infrastructure.	•	•		Locations identified and within 120m (for rural areas) and 30m (in the urban area) of candidate SWH including Feedmill Creek, Tanger Outlets SWMP, gravel shoulders of existing roads and Maple Grove UNA.	Potential loss of habitat, impacts to special concern species. Planned development in UNA 32 North of Maple Grove will disturb/remove most of the woodlot by others.	During detailed design phase of the project consultation with MNRF and *Ecological Site Assessment* should be completed to confirm candidate SWH. Candidate SWH within 30m (in the urban area) of the project may require mitigation measures. Mitigation measures should follow the advice provided in the Significant Wildlife Habitat Mitigation Support Tool (SWHMist) (MNRF, 2014). *Tree Conservation Report and Landscape Plan.* Minimize vegetation clearing to the extent possible. Replacements to be with native varieties and/or salt tolerant species as appropriate.	None anticipated.	Insignificant	As per *Ecological Site Assessment, Tree Conservation Report and Landscape Plan.* Advice in the SWHMist (MNRF 2014) and consultation with MNRF.

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Physical Environment										
Geotechnical Conditions	Pre-construction surveys and investigations.	•			Throughout both corridors.	More detailed geotechnical and hydrogeological information is required in order to confirm engineering methods and requirements.	*Geotechnical Investigations* to be completed during detailed design to specify construction specifications.	None anticipated.	Negligible	As per detailed *Geotechnical Investigations.*
Geotechnical Considerations: Grade Raise Restrictions	Pre-construction investigations and excavation during construction	•	•		Throughout Huntmar corridor.	Sensitive subsurface conditions may cause settlement. Groundwater inflows.	Grade raise restrictions may be required along the Huntmar alignment where deep silty clay deposits are expected. Restrictions will depend on the proposed embankment material, the capacity of the underlying silty clay to accept additional load, and the effects of groundwater lowering caused by any construction. If grade raises in excess of the yield capacity of the underlying soils are required, they can likely be accommodated, but would require special construction measures (such as pre-loading, the use of lightweight fill, etc.). *Geotechnical Investigations* and *Wastewater Management Plan* required to inform engineering methods.	None anticipated.	Insignificant	As per detailed *Geotechnical Investigations.*
Groundwater	Pre-construction planning and design; project construction	•	•		Throughout both corridors.	Excavations deeper than about 1 to 3 m in many locations could extend below the groundwater level.	Inflows into excavations below the groundwater table may require registration on the Environmental Activity and Sector Registry (EASR) or a Permit to Take Water (PTTW) for construction dewatering. The need for an EASR or PTTW would need to be assessed based on the detailed results of future *Geotechnical investigations* and the proposed size and depth of any excavations and should be confirmed in the design phase. *Wastewater Management Plan*	None Anticipated.	Insignificant	As per *Geotechnical Investigations*.

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Groundwater: Private Wells	Pre-construction planning and design; project construction and project operation.	•	•	•	Locations of identified private water wells on both sides of the Huntmar corridor, particularly between Palladium and Maple Grove; and south-east of the Stittsville Main Street corridor, adjacent to Maple Grove.	Construction of the project may impact water quality and quantity for nearby residents.	During detailed design, recommendations will be made for monitoring during *Geotechnical Investigations.* Ongoing consultations with residents during preliminary and detailed design. *Public Communication Plan.*	None anticipated.	Negligible	As per *Geotechnical Investigations* and *Public Communication Plan.*
Potentially Contaminated Land	Pre-construction planning and design; project construction, grading and excavation for all associated infrastructure.	•	•		Areas of potential environmental concern (APEC) and places determined to have historical Potentially Contaminating Activities (PCAs) within the Huntmar corridor.	Construction activities may disturb subsurface contaminants.	Conduct a *Phase Two Environmental Site Assessment* during detailed design, as early as possible to better define APECs and extent of PCAs and assist in the planning and scoping of construction and approach to the management of materials (soil and/or groundwater) during construction.	Management and removal of contaminated materials, if required.	Insignificant	As per *Phase Two Environmental Site Assessment.*
Potentially Contaminated Land	Pre-construction planning and design; project construction, grading and excavation for all associated infrastructure.	•	•		Throughout Huntmar corridor.	Years of historical salt application on existing roadways may have caused shallow impacts to soil adjacent to the roadway.	Salt related impacts should be considered in the event that excess soil excavated at the Site is proposed for off-site reuse outside of a public road allowance. Conduct a *Phase II Environmental Site Assessment* during the next phases of the project.	None anticipated.	Negligible	As per *Phase Two Environmental Site Assessment.*
Excess Soils	Pre-construction planning and design; project construction, grading and excavation for all associated infrastructure.	•	•		Throughout corridor.	Past regulations regarding excess soil management have been made contemporary and responsible re-use/disposal of excess soils will be required and are subject to new rules.	The project should be carried out in accordance with O. Reg. 406/19 regarding excess soils and the MECP's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014). *Erosion and Sediment Control Plan, Phase Two Environmental Site Assessment.* Consideration for re-use of soils on-site for bridge approaches, landscape berms, etc. to consider reuse of corridor soils ahead of non-native soils. Excess Soil Management Plan to be developed at the detailed design stage.	None anticipated.	Negligible	As per *Erosion and Sediment Control Plan* and *Phase Two Environmental 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
Utilities	Pre-construction planning and design. Construction of roadways, new infrastructure installation and decommissioning of some existing services.	•	•		Throughout Huntmar corridor.	Existing utilities (gas main, hydro poles and ducts, telecommunication) will need adjustment/relocation to accommodate new roadway cross-sections. Potential disruptions to services during construction.	Construction to be coordinated with utility companies to minimize impact and reduce duplication in construction activities. Utility locates completed prior to excavations. *Emergency Response Plan*	Potential for short-term and/or unintentional service disruptions.	Insignificant	Monitor complaints during construction.
Utilities: Hydro One	Pre-construction planning and design; construction of roadway, grading and excavation for all associated infrastructure.	•	•		West side of Huntmar corridor.	Pedestrian/cycling facilities on the west side of the widened Huntmar corridor to be located within Hydro One corridor, in close proximity to existing high-voltage above-ground hydro infrastructure. The project has been planned to avoid direct impacts to the existing high-voltage power line to the west of the corridor so that existing poles can be maintained in place. The Recommended Plan has been designed in consideration of input received by Hydro One for other projects.	The project is not anticipated to result in a Hydro One station expansion or transmission line replacement and/or relocation and therefore, it is not anticipated that a Class Environmental Assessment for Minor Transmission Facilities will not be required. This should be reconfirmed during the next phases of the project. The City of Ottawa should contact Hydro One by sending an email to: secondarylanduse@hydroone.com to discuss subsequent design phase and project implementation. Hydro One will need to be consulted at the detailed design phase as there may be a need for place fill adjacent to some poles impacting anchors.	None anticipated.	Negligible	As per Hydro One guidance.

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
Piped Infrastructure: Watermain	Pre-construction planning and design.	•			Stittsville Main Street corridor.	Portions of a watermain installed and planned to be installed by others is in conflict with the Recommended Plan.	Design and construction modifications will need to be made as shown in the Recommended Plan (Section 8.0), and a portion of the watermain that has been designed but not yet constructed will need to have its alignment adjusted to align with the Recommended Plan. Ongoing consultation with relevant City departments and developers.	Potential for short-term and/or unintentional service disruptions.	Insignificant	As per consultation with City departments and developers.
Piped Infrastructure: Watermain	Pre-construction planning and design.	•			Stittsville Main Street from Curaglass Walk to 50m west of Maestro.	Proposed curb line for Recommended Plan results in a valve box located under a grassed surface, which may not be accessible during winter months. Hydrant is in conflict with cycle track connection.	Relocate the valve box during construction to ensure it's accessible in all 4 seasons. Relocate hydrant to be clear of cycle track connection. Ongoing consultation with relevant City departments. Utility locates completed prior to excavations.	Potential for short-term and/or unintentional service disruptions.	Insignificant	As per consultation with City departments.
Stormwater Management	Pre-construction planning and design; construction of the roadways	•	•		Stittsville Main Street Extension from Derreen Avenue to 150m east of Culdaff Road	Overland flows could flood residential backyards located on the north side.	During detailed design, prepare *Corridor Drainage and Stormwater Management Plan* to ensure the grade of the sidewalk and boulevard direct overland flows away from rear yards and houses, and towards the intended stormwater infrastructure.	None anticipated.	Negligible	N/A
Stormwater Management	Pre-construction planning and design; Construction of the roadway and operation of new stormwater management system for the roadway.	•	•	•	Throughout corridor	*Corridor Drainage and Stormwater Management Plan* to identify overall system requirements, methods of retention, detention, and infiltration and any control methods necessary to achieve runoff quality and quantity targets. Project construction may cause temporary disruption to services.	*Corridor Drainage and Stormwater Management Plan.* Apply the climate resiliency lens and ensure that climate resiliency is considered in the selection of design criteria.	Improved/new SWM infrastructure. Temporary service disruptions.	Insignificant	*As per Corridor Drainage and Stormwater Management Plan.*

Environmental Value	Project Activity	Project Phase			Location	Analysis of Potential Environmental Effect	Mitigation Measures Built-In Mitigation Measures	Potential Residual Effect	Level of Significance after Mitigation	Monitoring Recommendation
		P	C	O						
Stormwater Management	Operation of stormwater management infrastructure.			•	Throughout both corridors	Increase of impervious surface areas to accommodate new design and increase in need to accommodate stormwater including during high storm events.	A *Corridor Drainage and Stormwater Management Plan* and requirements of Environmental Compliance Approval (ECA).	New SWM infrastructure.	Insignificant	As per *Corridor Drainage and Stormwater Management Plan*. Maintenance requirements as per ECA and City policy.

7.10 Stakeholder Consultation

7.10.1 Third Round of Consultation Group Meetings

The third and final round of consultation group meetings were held on Tuesday, December 6th, 2022 (Agency) and Thursday, January 19th, 2023 (Business, Public). These meetings were held virtually via MS Teams. A presentation was provided followed by discussion. The Study Team, including members from the City of Ottawa and the consultant team, were available to discuss the study and answer questions at each of the consultation group meetings. Input received at these meetings included discussion on the following topics:

- Discussion of future considerations associated with Huntmar Drive Widening involved:
  - preliminary costing of lane reductions south of Maple Grove.
  - additional investigation of signalized protected intersection at 130 Huntmar access.
  - potential access options for a future district park.
  - considerations for future Palladium LRT station park-and-ride.
  - requests for limiting the number of signalized intersections.
- The issue was raised regarding snow accumulation in proposed parking bays potentially hindering public transport operations in the Stittsville Main Street Extension portion. The resolution of an approximate 20 cm curb-to-curb width expansion in the non-parking bays was presented to accommodate these changes.
- Discussion of updates needed in response to the new Official Plan. None is expected to affect this Study.
- Concerns raised regarding Stittsville Main designation and the east-west traffic corridors being planned as lower-tier roadways.
- Discussion of potential road designation changes of Huntmar (south of Robert Grant), and of Maple Grove in response to proposed works. It was determined the changes will be explored at a later date pending the Transportation Master Plan (TMP) updates and the pace of area development.
- Discussion of land acquisition from commercial properties for the following:
  - Canadian Tire Centre – Study Team will share materials with CTC representatives and organize meeting for discussion.
  - RioCan Tanger Outlets – Study Team will share materials with Rio Can representatives and discuss potential impacts if needed.
- Discussion of provisions of access to 320 Huntmar relating to future transportation access and potential developments at this address.

- Discussion of considerations for cyclists in terms of safety and accessibility via placement of street trees, use of roundabouts and availability of cycle tracks.
- Possibility of raised intersections on Stittsville Main was determined to be hindering for City Fire Services and OC Transpo.
- Discussion of timing and specifications of the proposed Active Transportation (AT) bridge over Hwy 417.

For a full account of discussion from these consultation group meetings refer to **Appendix A**.

7.10.2 Public Consultation Event #2

The second Public Consultation Event (PCE) for the Huntmar Drive and Stittsville Main Street EA Study was held on Tuesday, January 31st, 2023, between 6:00 pm and 8:00 pm. It was conducted virtually via the Zoom video conferencing platform. A live presentation was provided and was followed by an open question and answer period, which was administered by City staff. Fully accessible versions of the consultation materials – including the presentation slide deck, detailed information boards, and draft concept design roll plans were made available on the project website at Ottawa.ca/huntmardrivestittsvillemain (English) and Ottawa.ca/promenadehuntmarstittsvillemain (French). Feedback on the project was requested via an online survey, which was available between January 31 and February 23, 2023.

The consultation event included a series of display boards presenting the work completed to date focusing on:

1. The evaluation of alternative designs;
2. The functional design of the Recommended Plan;
3. Preliminary impact assessment;
4. Implementation and staging plans; and
5. Next steps.

The material presented on the display boards for the online public consultation event included:

- Introduction
- Land Acknowledgement
- Study Objectives and Study Area
- Environmental Assessment Process, Consultation and Schedule
- What We've Heard so Far
- Need and Opportunity, Recommended Solutions
- Complete Street Approach

- Urban Design and Placemaking
- Key Design Considerations, Accessibility in the Design
- Project Benefits
- Huntmar Draft Recommended Plan
- Huntmar Active Transportation Bridge - Draft Recommended Plan
- Stittsville Main Street – Draft Recommended Plan
- Future Westerly Connection to Carp Road
- Elements of the Recommended Plan
- Project Impacts and Mitigation Measures
- Property Acquisition Processes
- Implementation and Phasing
- Next Steps

Notification of the consultation period occurred through several means. An email reminder was sent to the general project mailing list on January 20th, 2023. The Study Team notified attendees present at each of the BCG and PCG meetings of the date, time, and virtual platform of the second PCE and encouraged them to share this information. Buckslips were mailed out to the residents within and surrounding the Project Limits approximately bounded by Richardson Side Road, Terry Fox, Hazeldean and Carp Road. Advertisements were also placed in citywide newspapers, specifically the English language Ottawa Citizen and the French language LeDroit in both their January 21st and 28th editions.

During this round of consultation Indigenous Communities were sent emails providing an update on the Study and offering the opportunity to discuss further. These emails were sent February 21st, 2023. No responses were received.

To assist with obtaining feedback on the materials presented, a comment-questionnaire was provided on the study's website. Alternatively, emails could be submitted, or the City project manager could be contacted to arrange other means of providing feedback. A total of 7 responses to the survey and emails from 4 individuals were received.

For a full record of all comments received during this round of consultation, refer to **Appendix A**.

7.11 Transportation Committee and Council

The Recommended Plan was presented for approval to the City of Ottawa Transportation Committee on April 27, 2023 and to the full Council on May 10, 2023. The staff report and supporting documents were posted on the City's website prior to the meetings with the recommendation that the Transportation Committee recommend that Council:

1. *Approve the functional design for the Huntmar Drive Widening and Stittsville Main Street Extension Environmental Assessment Study, as described in this report; and,*
2. *Direct Transportation Planning staff to finalize the Environmental Study Report and proceed with its posting for the 30-day public review period in accordance with the Ontario Municipal Class Environmental Assessment process.*

No delegations were made to Transportation Committee or Council, the project was passed with full consent.

The vote record and supporting documentation is provided in **Appendix A**.

7.12 Public Review Period

Following Notice of Completion, a third mandatory point of contact will occur once the final ESR is placed on the public record for a period of at least 30 calendar days.

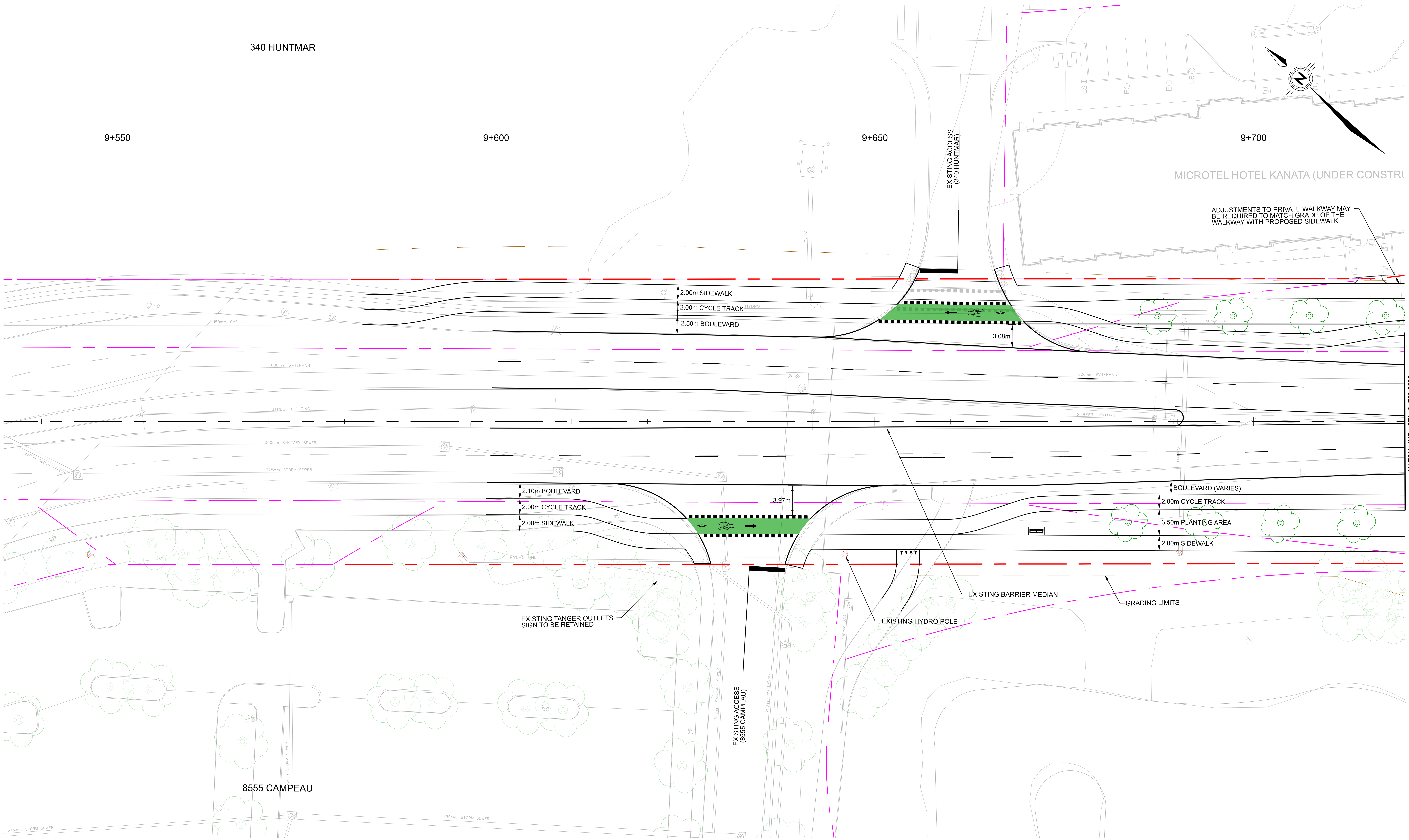
In accordance with the provisions of the Municipal Class EA for Schedule C projects, the study results are documented in this ESR which is available for a 30-day public comment period. This Notice will be posted in local newspapers and on the project website accordingly, and all persons identified on the study's stakeholder list including Indigenous Communities will be notified.

If concerns regarding this project cannot be resolved in discussion with the City, a person/party may request that the Minister of the Environment, Conservation and Parks make an order to change the project status and require a higher level of assessment under an individual Environmental Assessment process (referred to as a Section 16 Order). Information on how to file a Section 16 requested can be found by accessing: https://www.ontario.ca/page/class-environmental-assessments-section-16-order

8.0 RECOMMENDED PLAN (FUNCTIONAL DESIGN)

A Functional Design illustrated on the following series of plates has been prepared for the Recommended Plan. This design illustrates:

- The functional geometric design of the two complete streets and associated intersections and active transportation facilities;
- Proposed areas for landscaping and environmental mitigation; and
- The associated property envelope.



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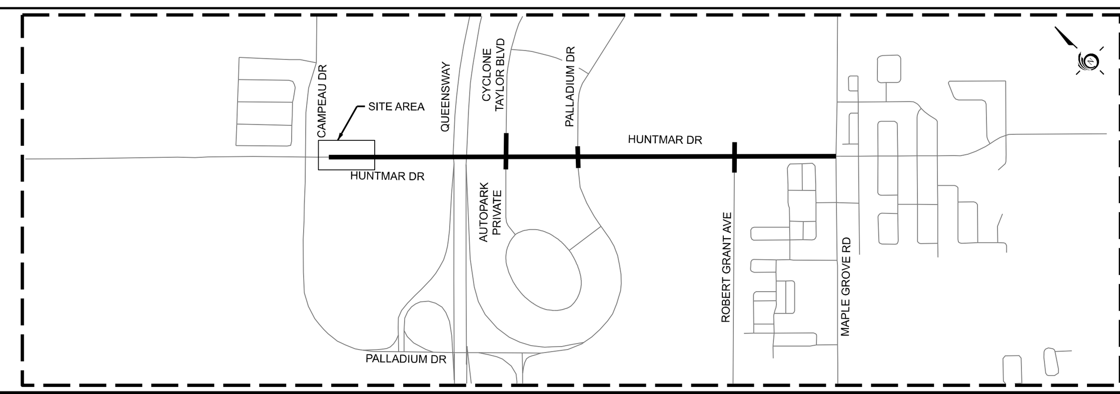

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED ROW
- GRADING LIMITS
- PROPOSED GUIDE RAIL
- EXISTING HYDRO POLE
- PROPOSED BENCH
- EXISTING TREE
- PROPOSED TREE

PARSONS

Date: 14 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
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Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
LIMIT OF CONTRACT to STA 9+720

Drawings No.:	Revision	Sheet No.
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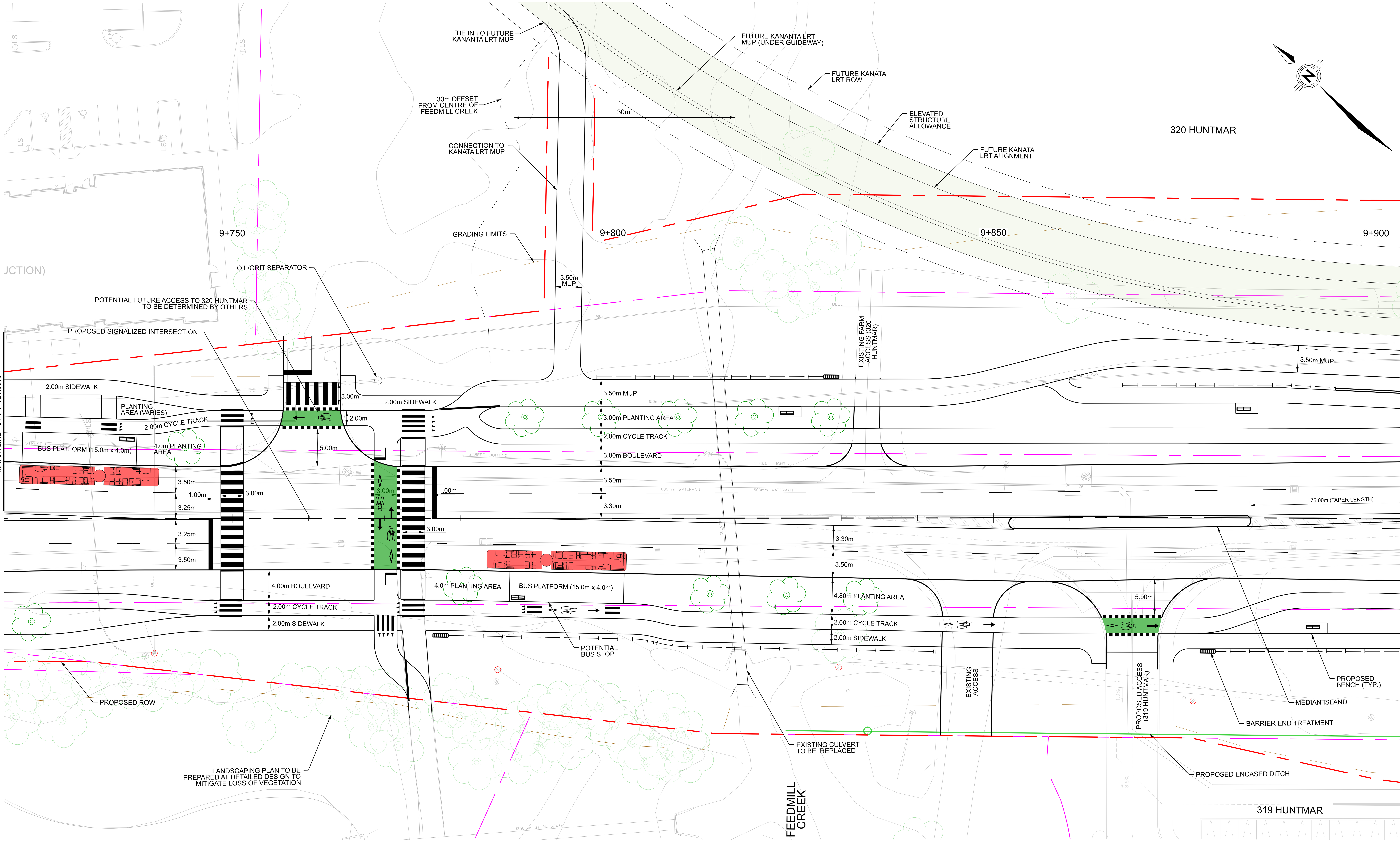

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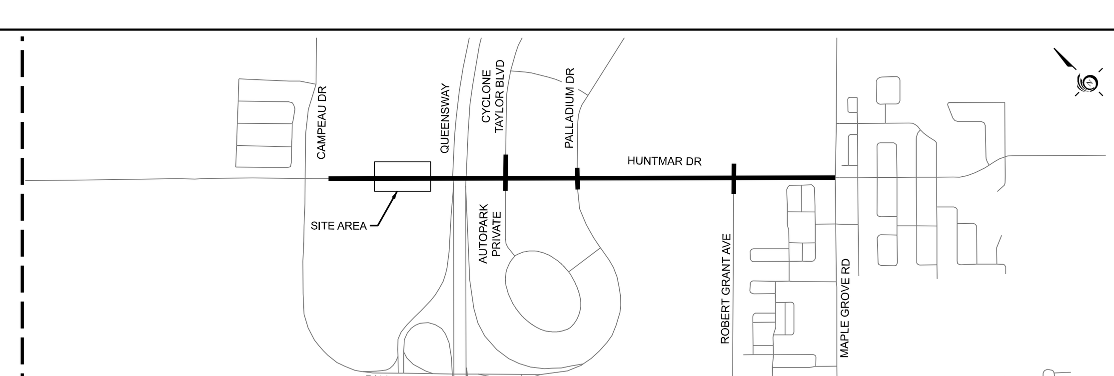

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GRADING LIMITS	EXISTING TREE
PROPOSED GUIDE RAIL	PROPOSED TREE

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HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA 9+720 to STA 9+905

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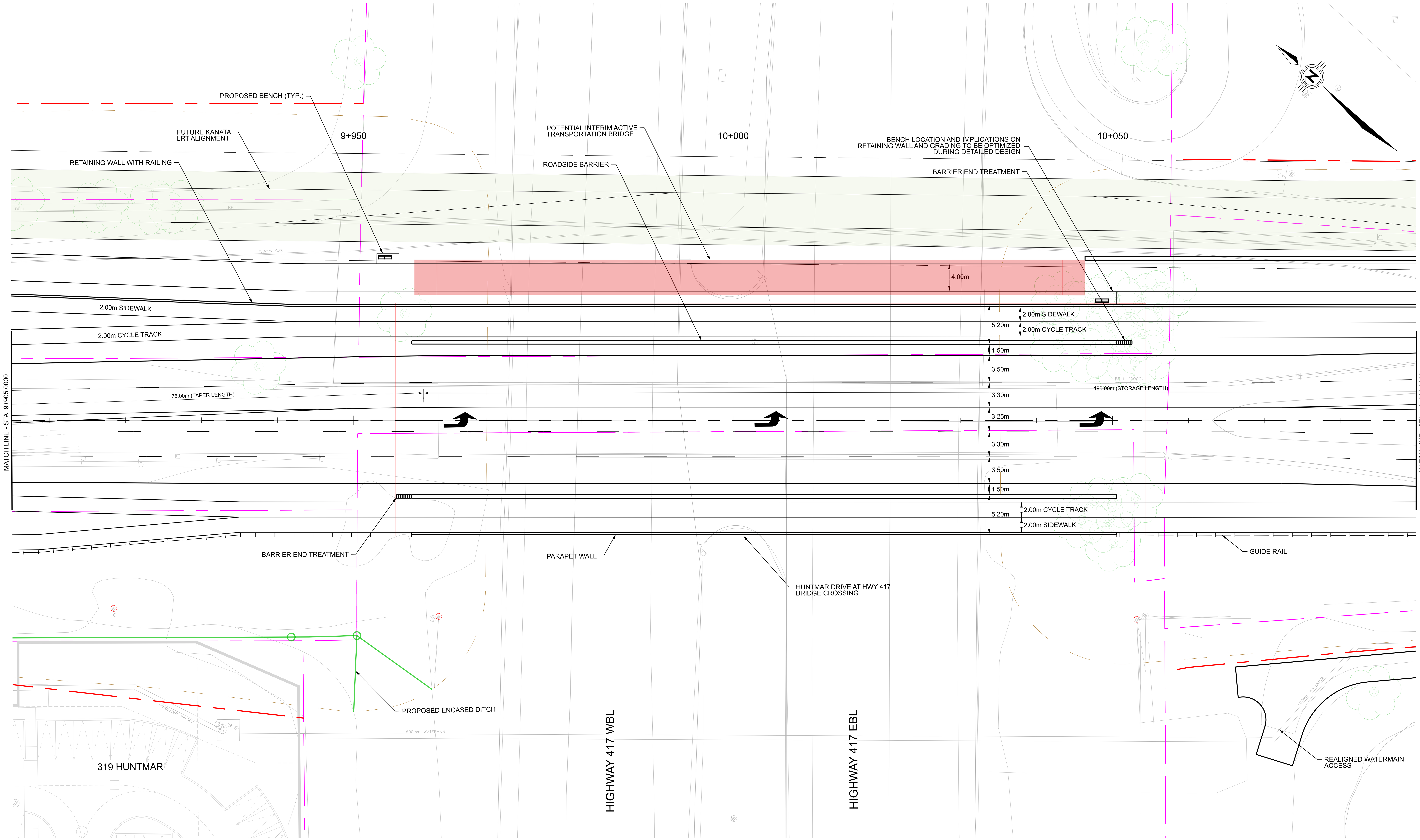

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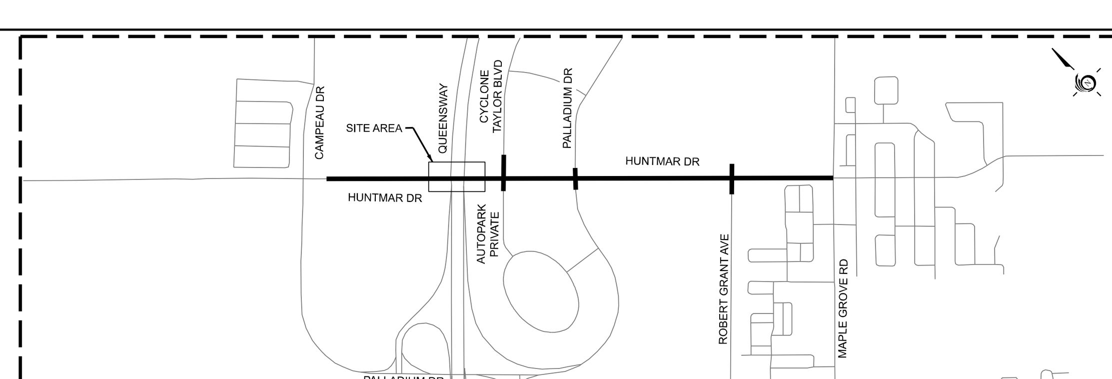

LEGEND

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HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA. 9+905 to STA 10+090

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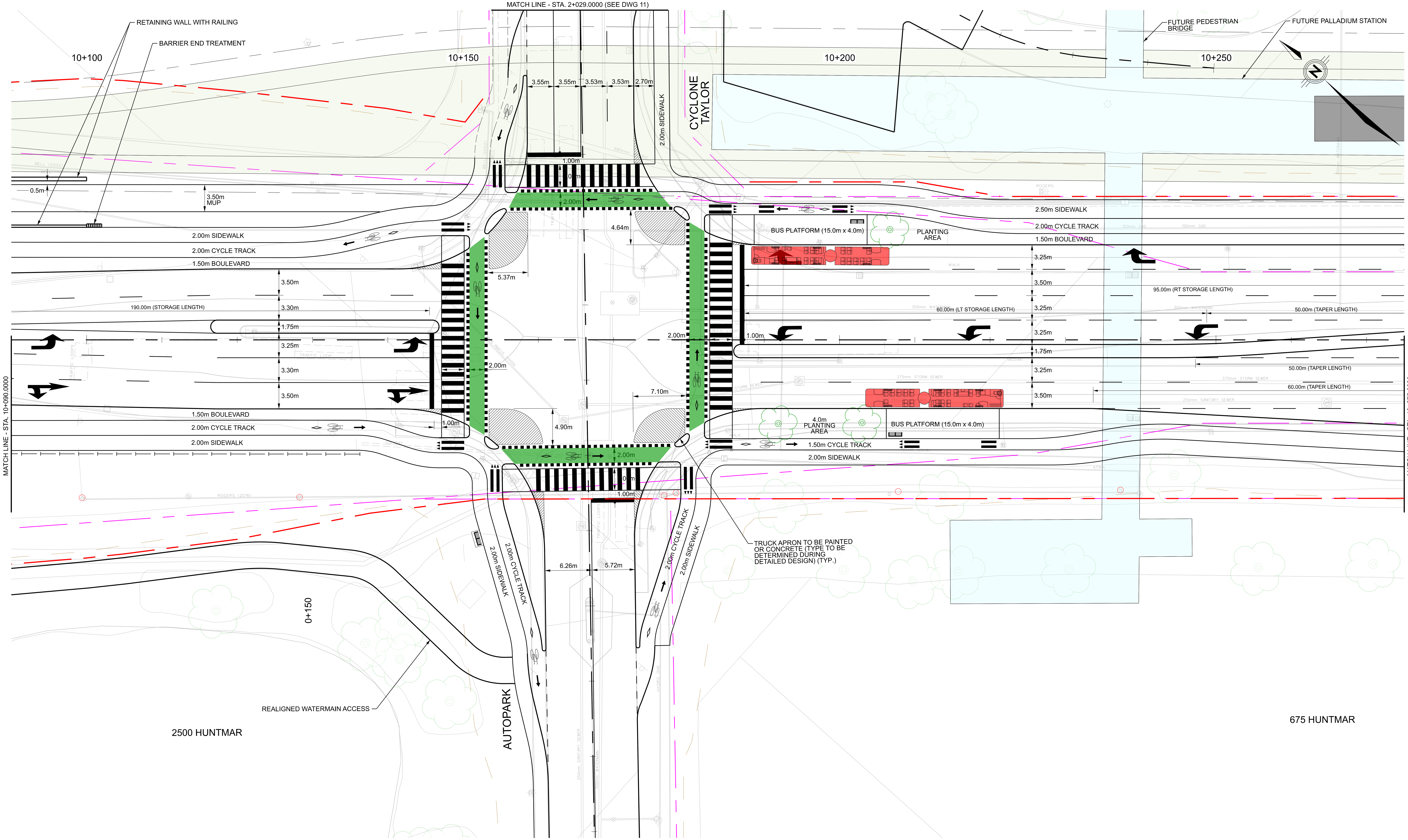

KEY PLAN

CAMPEAU DR
QUEENSWAY
CYCLONE TAYLOR BLVD
PALLADIUM DR
HUNTMAR DR
HUNTMAR DR
AUTOPARK PRIVATE
SITE AREA
ROBERT GRANT AVE
MAPLE GROVE RD
PALLADIUM DR

LEGEND

EXISTING PROPERTY LINE	EXISTING HYDRO POLE
PROPOSED ROW	PROPOSED BENCH
GRADING LIMITS	EXISTING TREE
PROPOSED GUIDE RAIL	PROPOSED TREE

PARSONS

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HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA. 10+090 to STA 10+275

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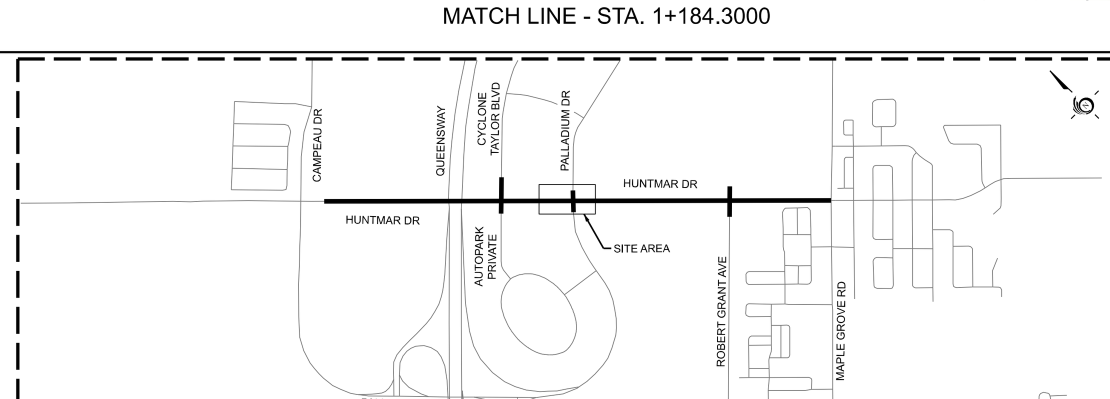

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EXISTING PROPERTY LINE

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HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA. 10+275 to STA 10+460

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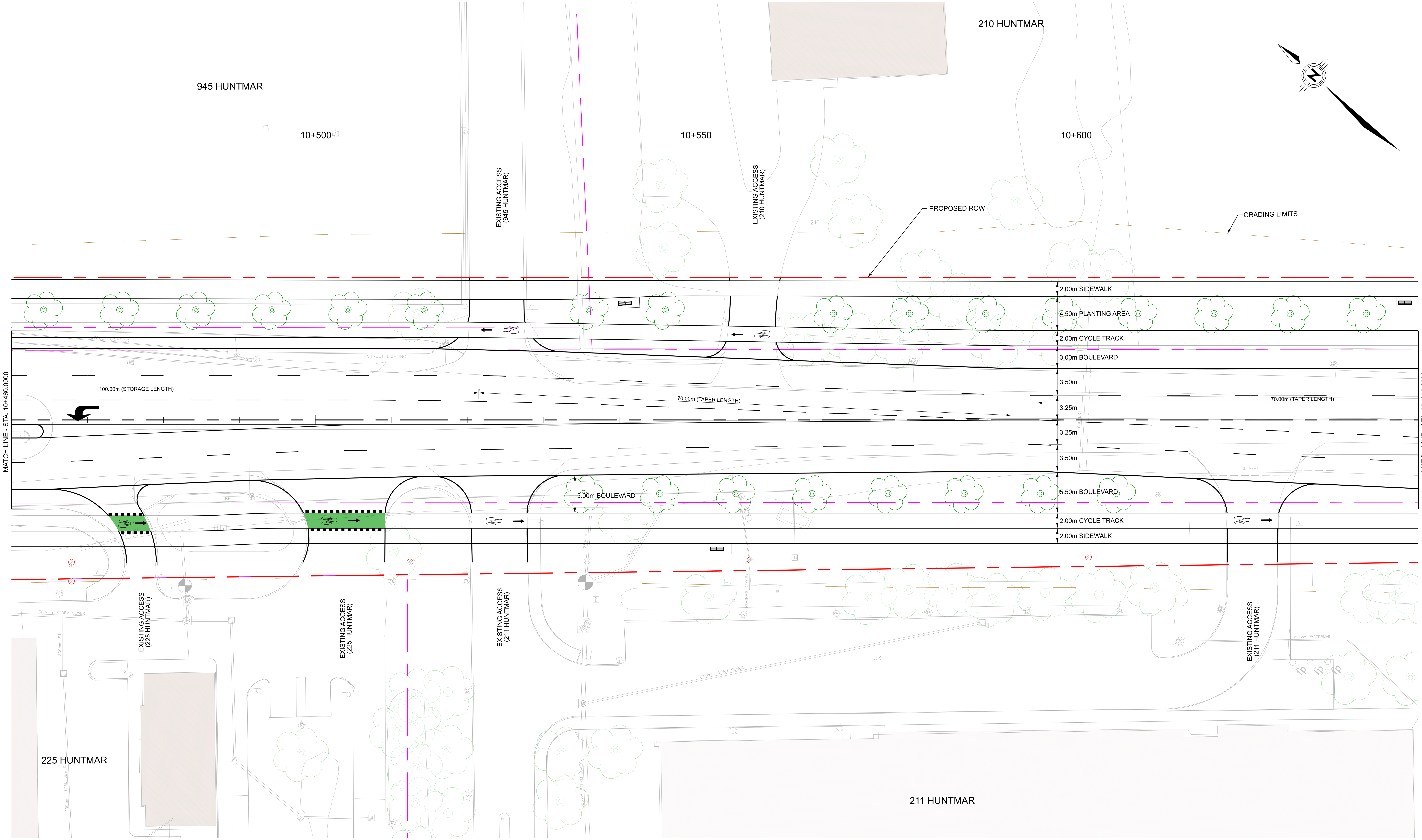

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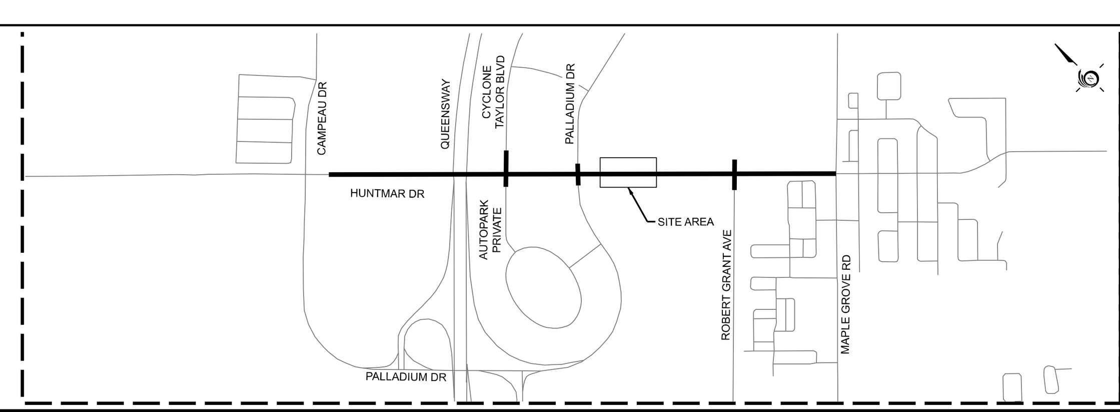

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PROPOSED ROW	PROPOSED BENCH
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HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA. 10+460 to STA 10+645

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Revision 00
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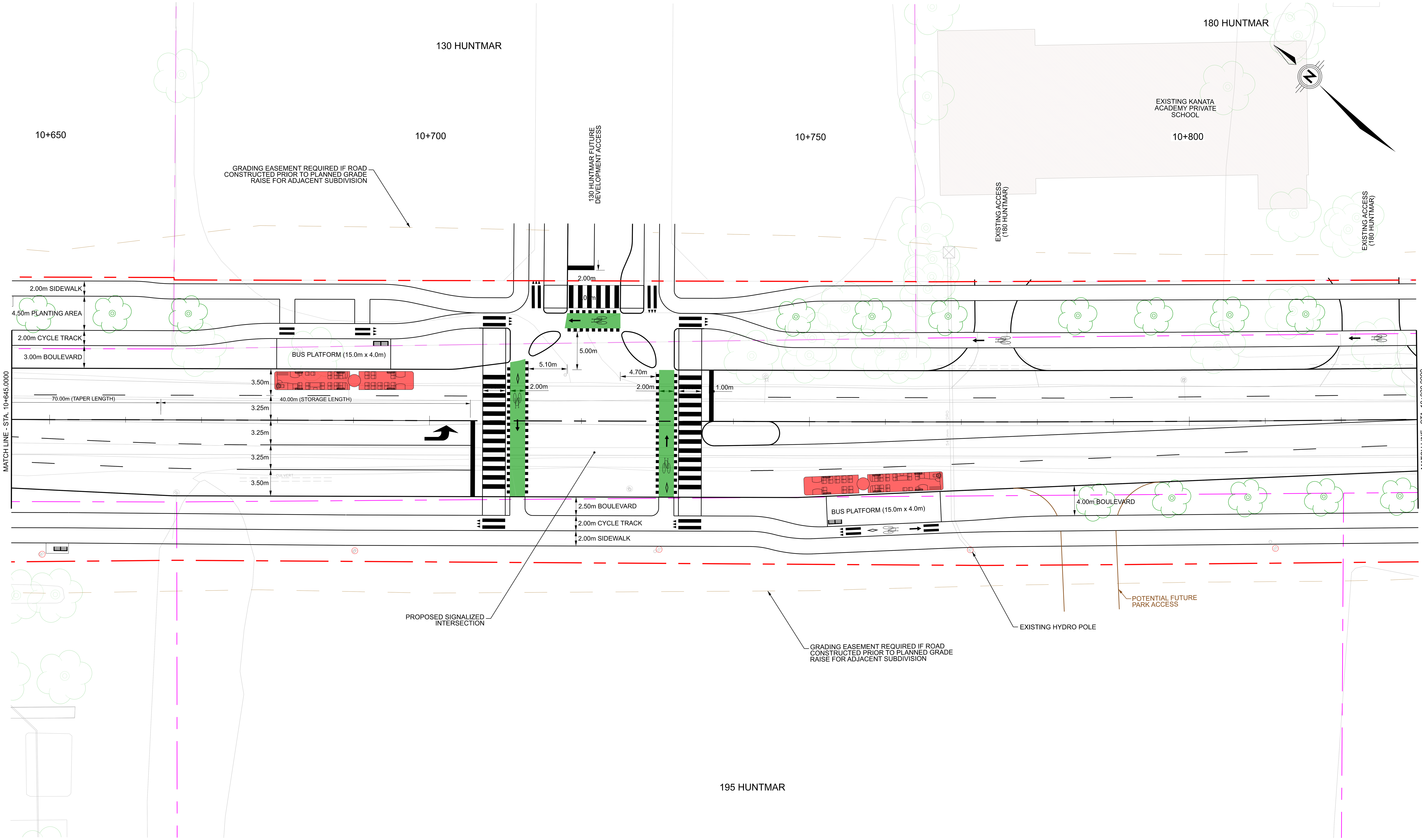

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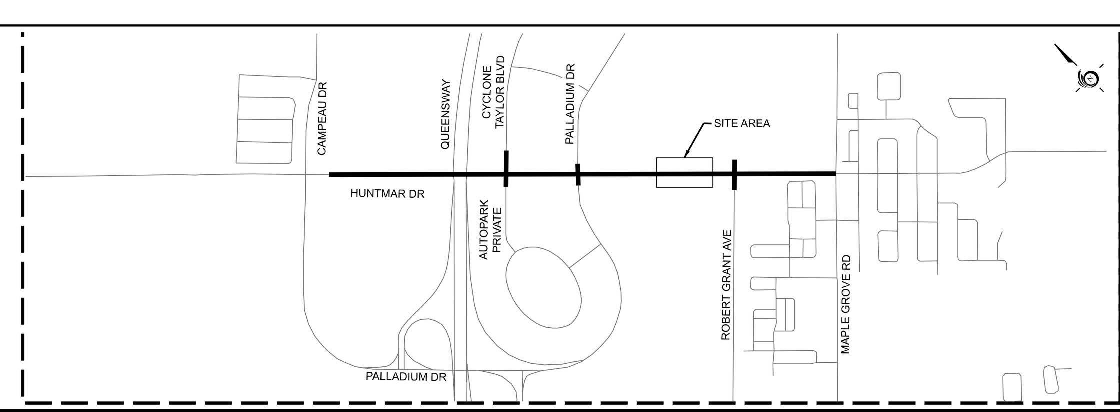

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GRADING LIMITS	EXISTING TREE
PROPOSED GUIDE RAIL	PROPOSED TREE

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HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA. 10+645 to STA 10+830

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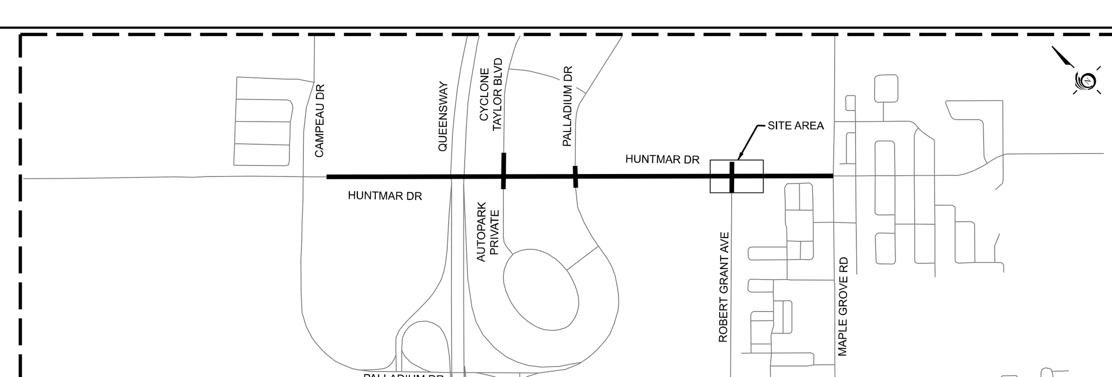

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HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA. 10+830 to STA 11+015

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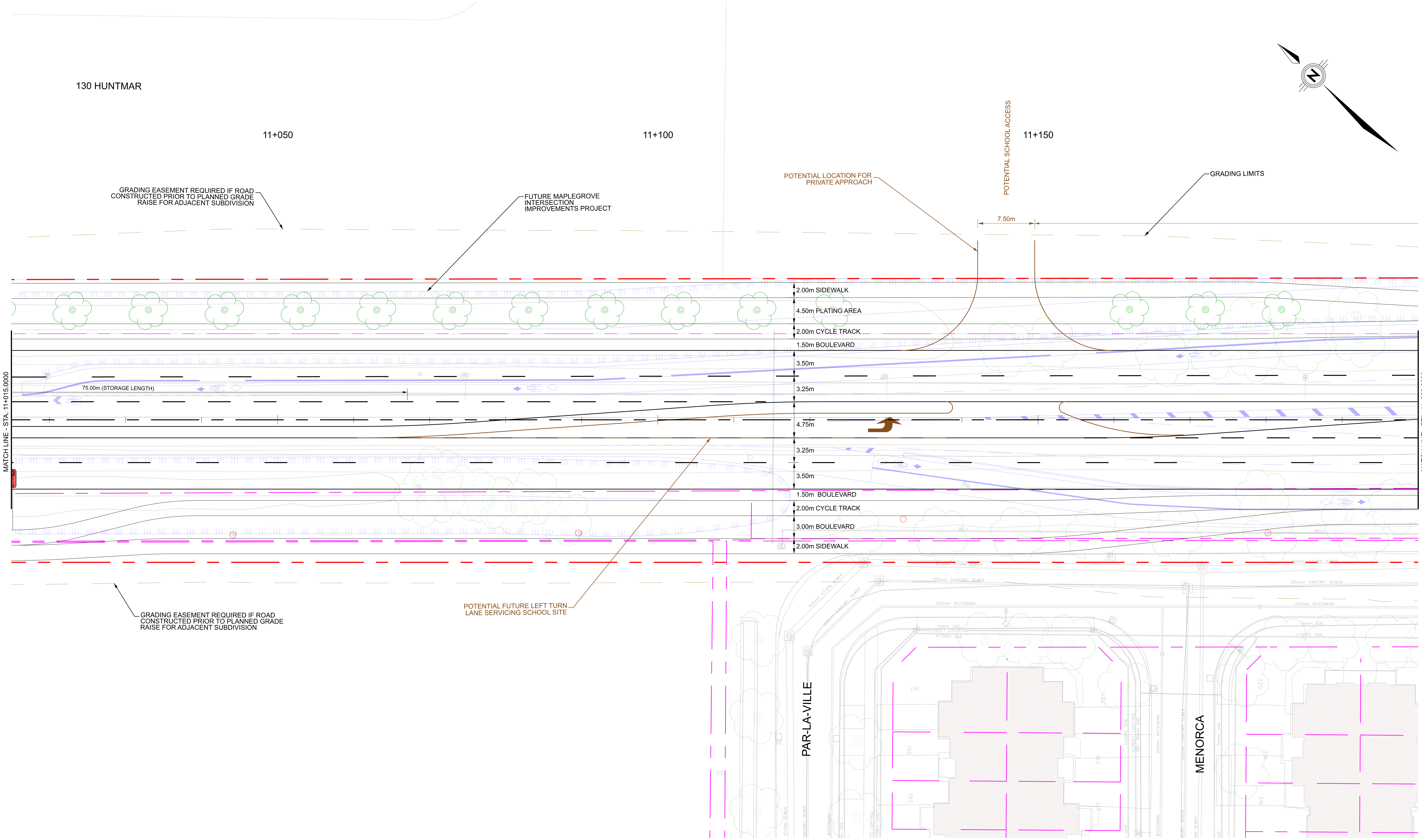

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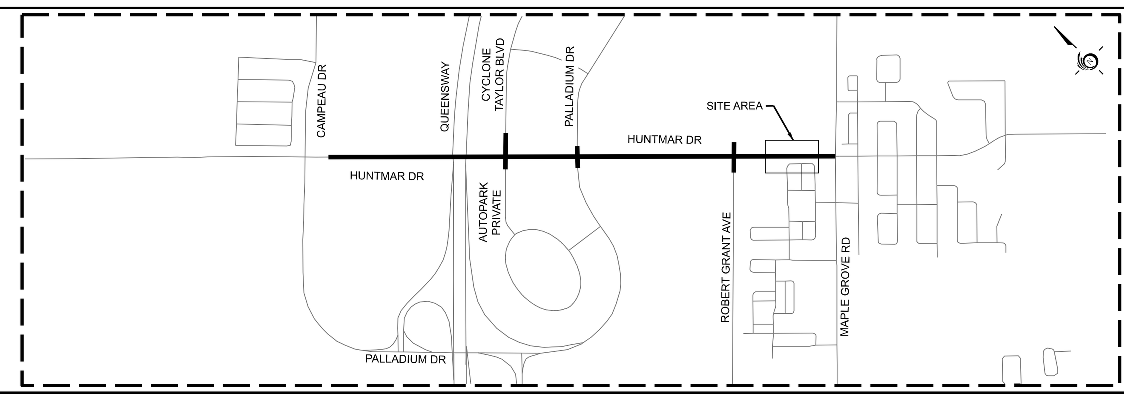

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HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA. 11+015 to STA 11+200

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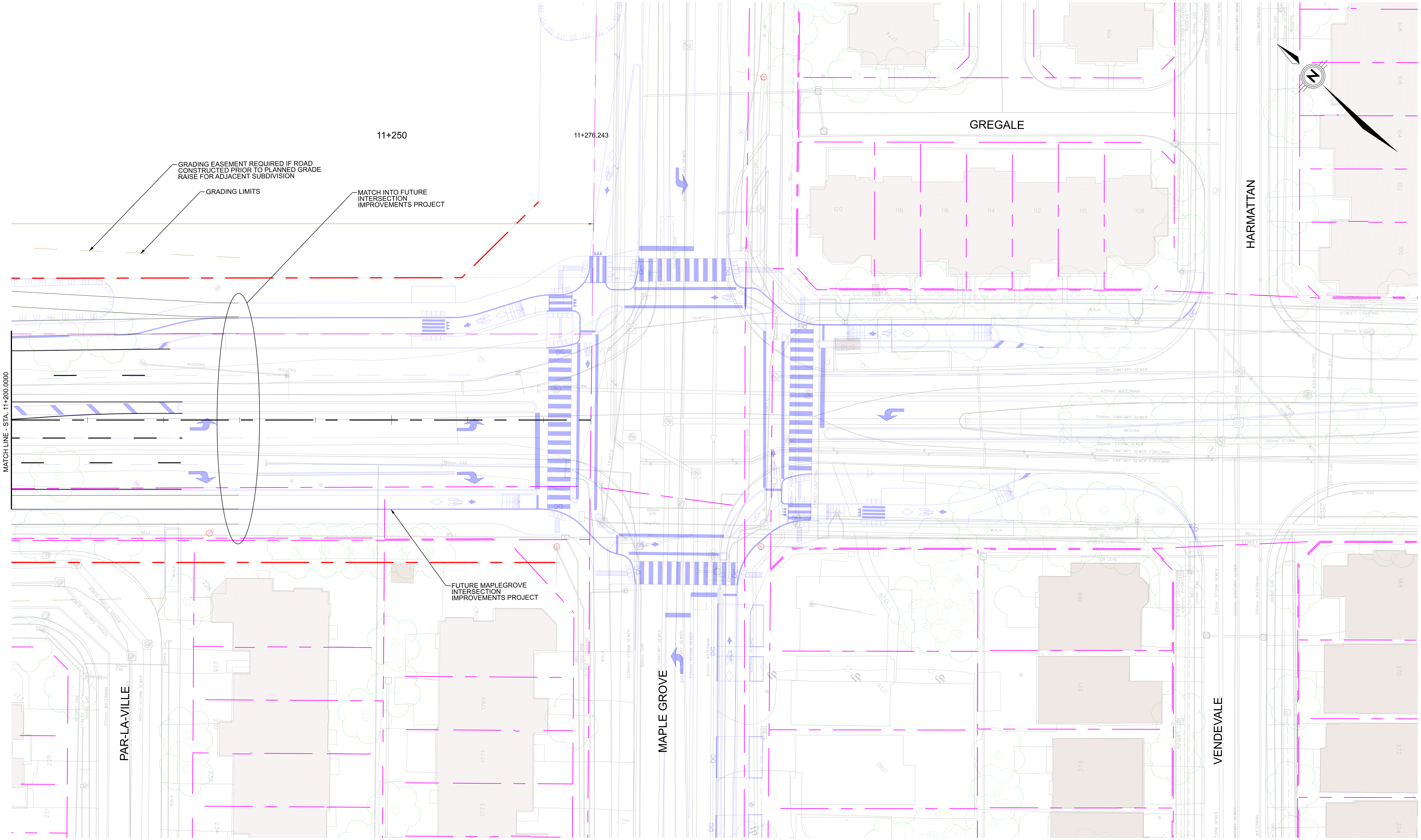

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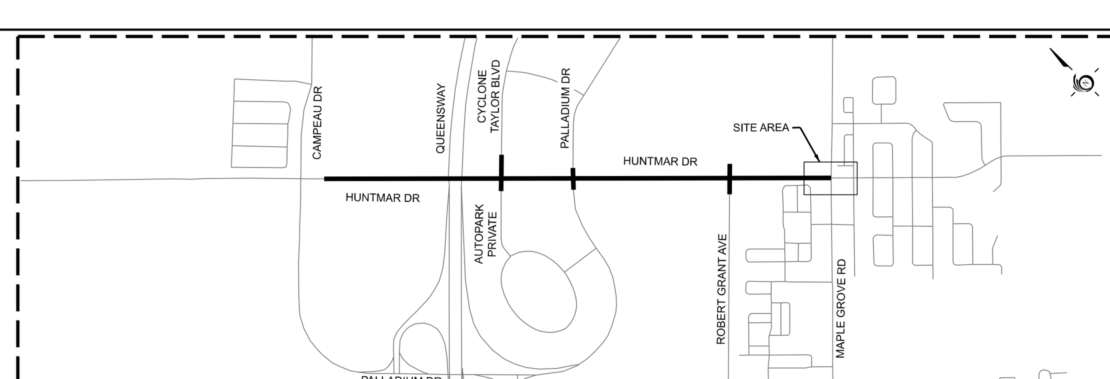

LEGEND

EXISTING PROPERTY LINE	EXISTING HYDRO POLE
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GRADING LIMITS	EXISTING TREE
PROPOSED GUIDE RAIL	PROPOSED TREE

PARSONS

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Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA. 11+200 to LIMIT OF CONTRACT

Drawings No.:	Revision	Sheet No.
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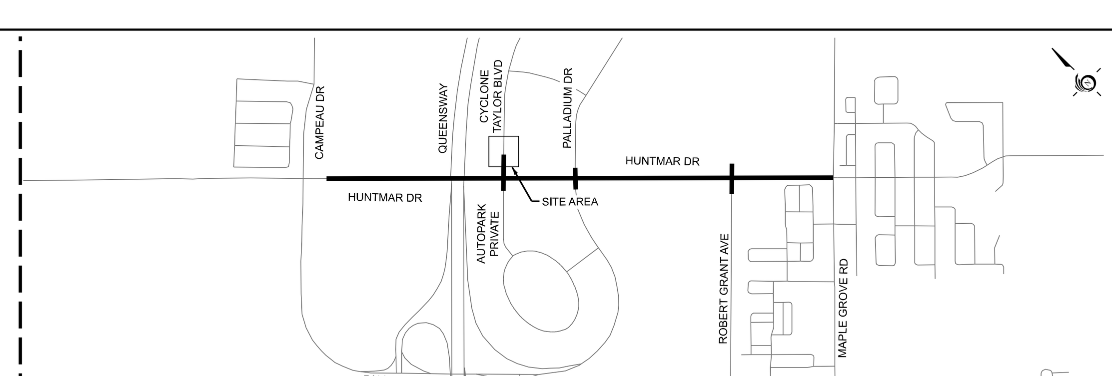


LEGEND

EXISTING PROPERTY LINE
PROPOSED ROW
GRADING LIMITS
PROPOSED GUIDE RAIL
EXISTING HYDRO POLE
PROPOSED BENCH
EXISTING TREE
PROPOSED TREE

PARSONS

Date: 14 March 2023
Designed By:
Drawn By:
Project Manager:
Dicipline Engineer:
Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20
CAD File Name: 477917-HUNTMAR SHEETS.DGN
Plot Date:

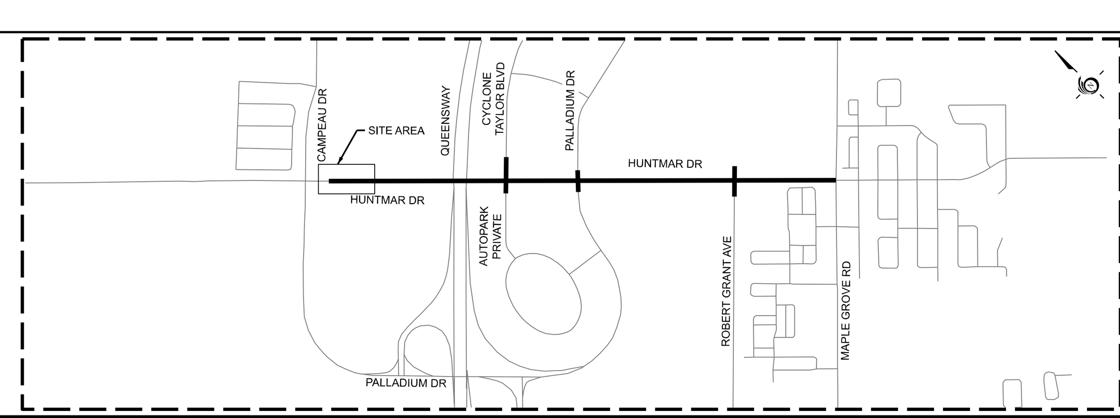
Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA 0+229 TO LIMIT OF CONTRACT

Drawings No.:
Revision 00
Sheet No. 11

KEY PLAN



LEGEND

EXISTING PROPERTY LINE	EXISTING HYDRO POLE
PROPOSED ROW	PROPOSED BENCH
GRADING LIMITS	EXISTING TREE
PROPOSED GUIDE RAIL	PROPOSED TREE

PARSONS

Date: 14 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-HUNTMAR SHEETS.DGN		Plot Date:

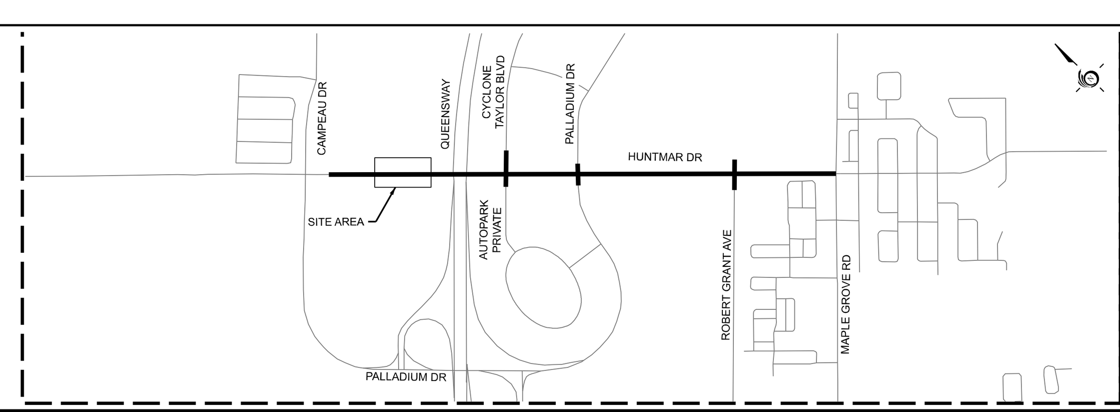
Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
LIMIT OF CONTRACT to STA 9+720

Drawings No.:	Revision	Sheet No.
	00	12

KEY PLAN



LEGEND

EXISTING PROPERTY LINE
PROPOSED ROW
GRADING LIMITS
PROPOSED GUIDE RAIL
EXISTING HYDRO POLE
PROPOSED BENCH
EXISTING TREE
PROPOSED TREE

PARSONS

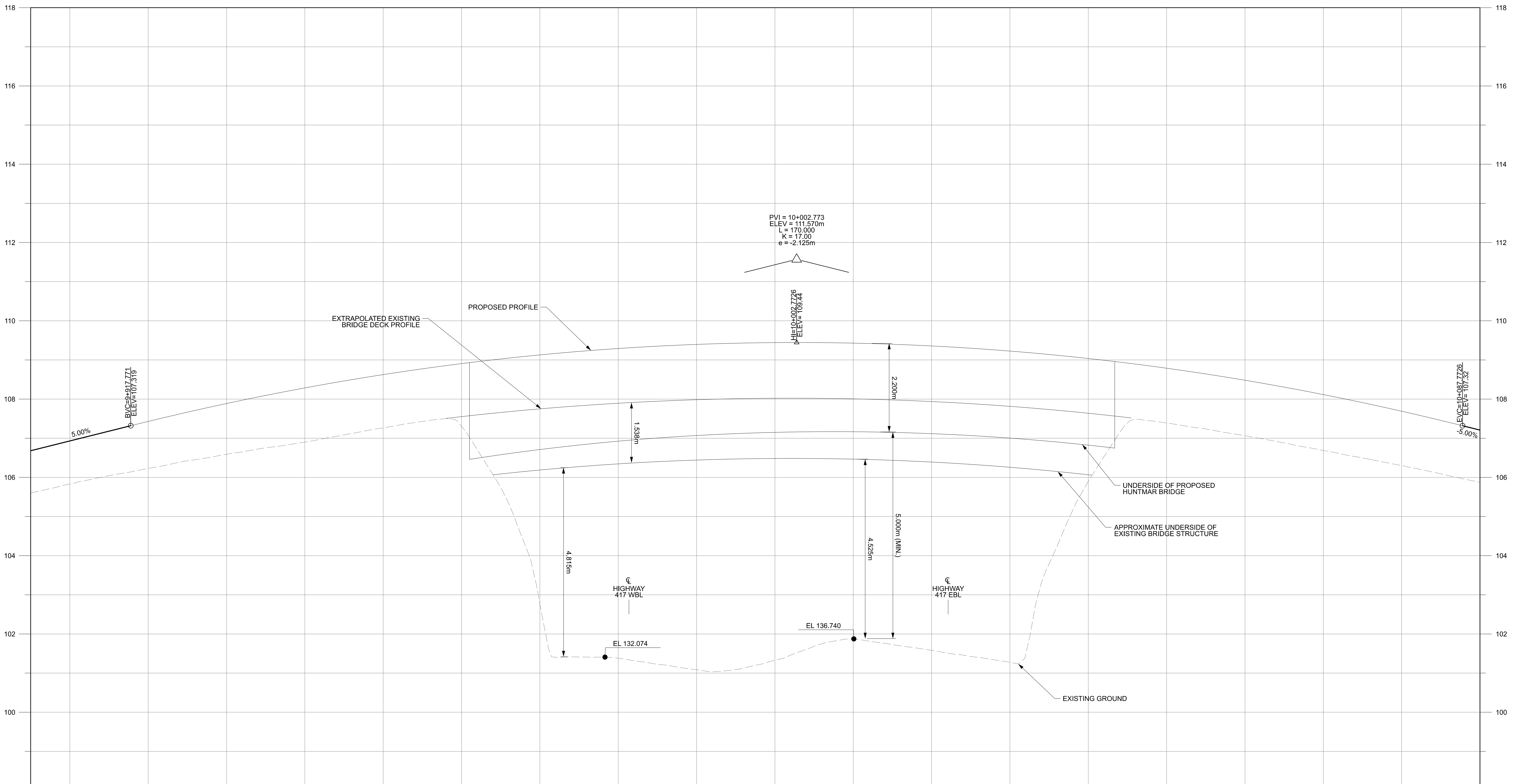
Date: 14 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-HUNTMAR SHEETS.DGN	Plot Date:	

Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

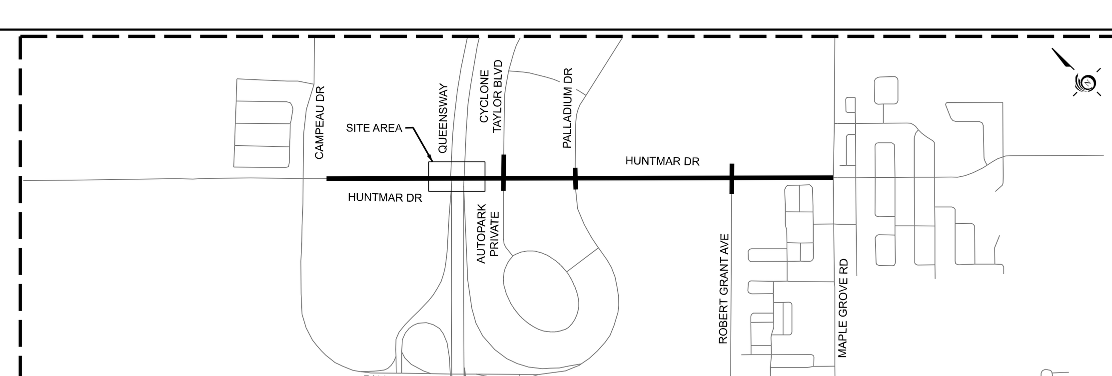
HUNTMAR DRIVE
STA 9+720 to STA 9+905

Drawings No.:	Revision	Sheet No.
	00	13



STATION	℄ PROFILE (proposed)	Existing
		105.601
9+910	106.953	105.845
9+920	107.451	106.245
9+930	107.906	106.606
9+940	108.302	106.915
9+950	108.639	107.279
9+960	108.918	107.199
9+970	109.137	102.298
9+980	109.298	101.368
9+990	109.400	101.073
10+000	109.443	101.349
10+010	109.428	101.868
10+020	109.353	101.569
10+030	109.220	101.258
10+040	109.028	106.037
10+050	108.777	107.377
10+060	108.467	107.047
10+070	108.098	106.672
10+080	107.671	106.284
	107.208	

KEY PLAN



LEGEND

- EXISTING PROPERTY LINE
- PROPOSED ROW
- GRADING LIMITS
- PROPOSED GUIDE RAIL
- EXISTING HYDRO POLE
- PROPOSED BENCH
- EXISTING TREE
- PROPOSED TREE

PARSONS

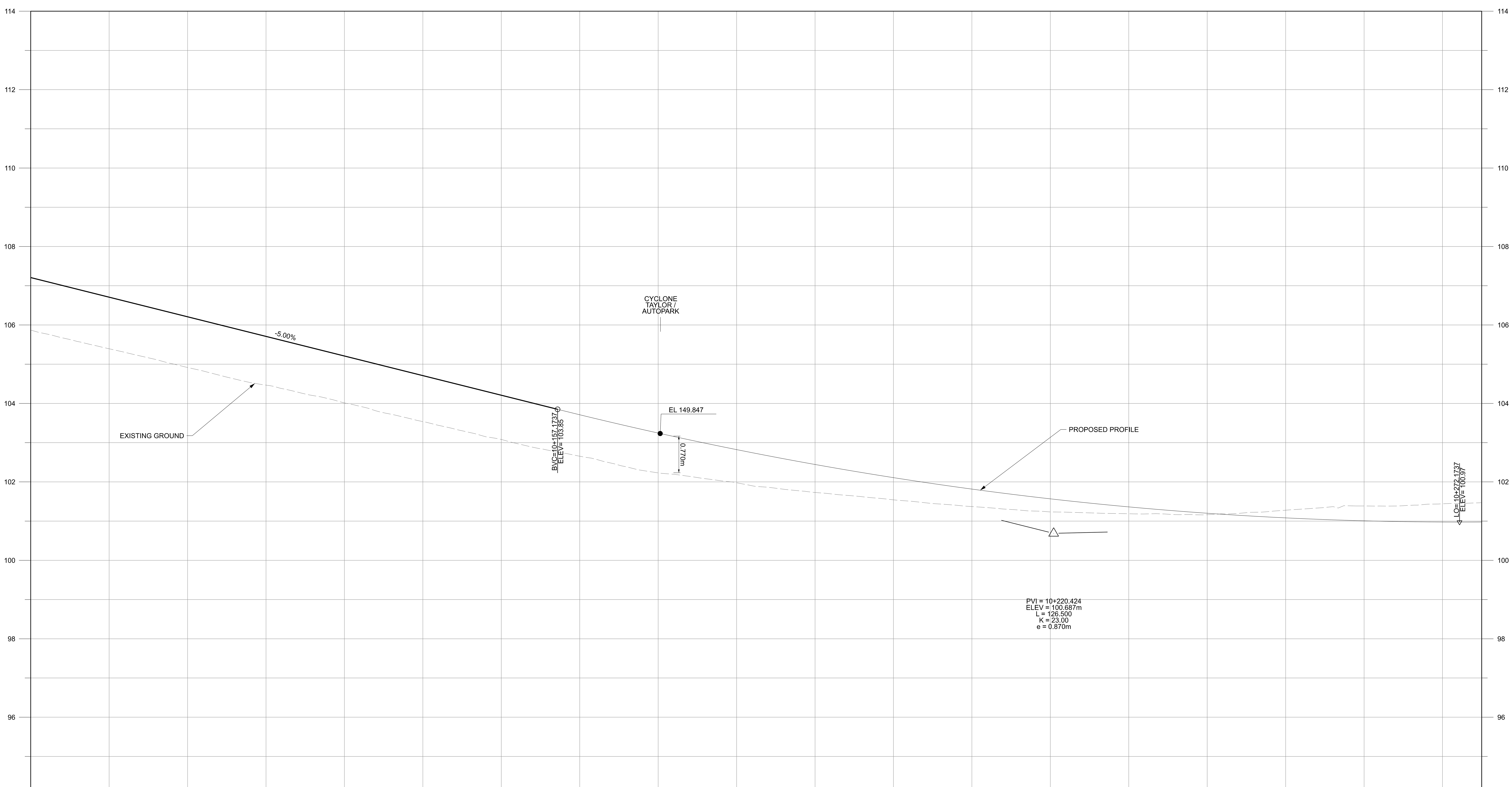
Date: 14 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-HUNTMAR SHEETS.DGN		Plot Date:

Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

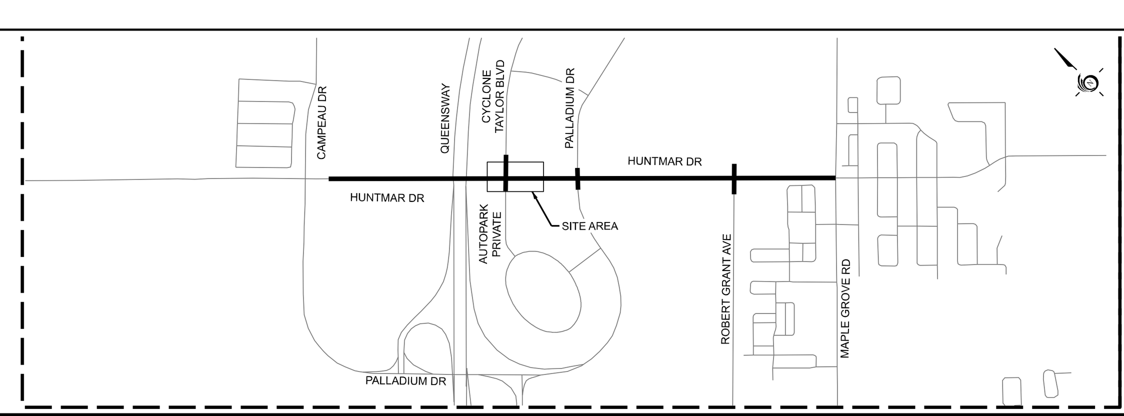
HUNTMAR DRIVE
STA 10+905 to STA 10+090

Drawings No.: | Revision 00 | Sheet No. 14



℄ PROFILE	STATION
107.187 / 105.845	
106.687 / 105.373	10+100
106.187 / 104.896	10+110
105.687 / 104.455	10+120
105.187 / 103.995	10+130
104.687 / 103.519	10+140
104.187 / 103.058	10+150
103.689 / 102.638	10+160
103.225 / 102.217	10+170
102.804 / 101.961	10+180
102.427 / 101.723	10+190
102.094 / 101.532	10+200
101.803 / 101.365	10+210
101.557 / 101.233	10+220
101.353 / 101.184	10+230
101.194 / 101.168	10+240
101.078 / 101.265	10+250
101.005 / 101.385	10+260
100.975 / 101.445	10+270
100.977	

KEY PLAN



LEGEND

- EXISTING PROPERTY LINE
- PROPOSED ROW
- GRADING LIMITS
- PROPOSED GUIDE RAIL
- EXISTING HYDRO POLE
- PROPOSED BENCH
- EXISTING TREE
- PROPOSED TREE

PARSONS

Date: 14 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-HUNTMAR SHEETS.DGN	Plot Date:	

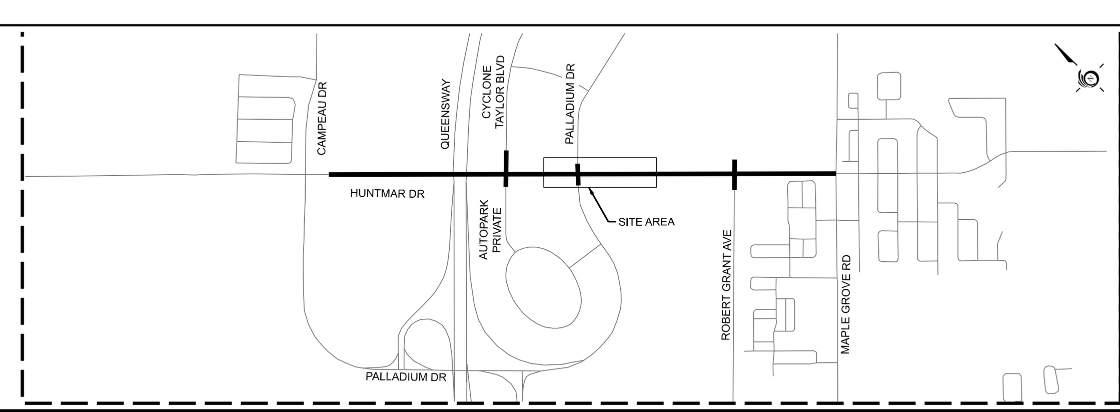
Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA 10+090 to STA 10+275

Drawings No.:	Revision	Sheet No.
	00	15

KEY PLAN



LEGEND

EXISTING PROPERTY LINE	EXISTING HYDRO POLE
PROPOSED ROW	PROPOSED BENCH
GRADING LIMITS	EXISTING TREE
PROPOSED GUIDE RAIL	PROPOSED TREE

PARSONS

Date: 14 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-HUNTMAR SHEETS.DGN	Plot Date:	

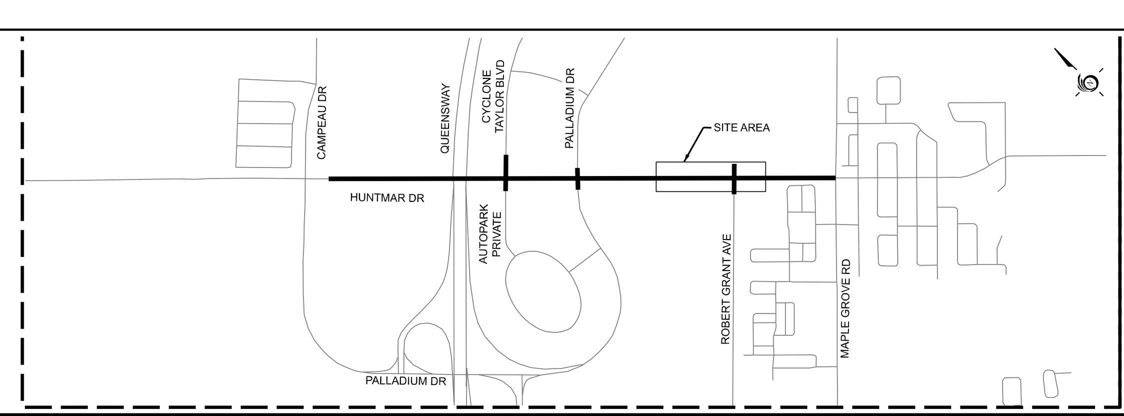
Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA 10+275 to STA 10+645

Drawings No.:	Revision	Sheet No.
	00	16

KEY PLAN



LEGEND

EXISTING PROPERTY LINE
PROPOSED ROW
GRADING LIMITS
PROPOSED GUIDE RAIL
EXISTING HYDRO POLE
PROPOSED BENCH
EXISTING TREE
PROPOSED TREE

PARSONS

Date: 14 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-HUNTMAR SHEETS.DGN		Plot Date:

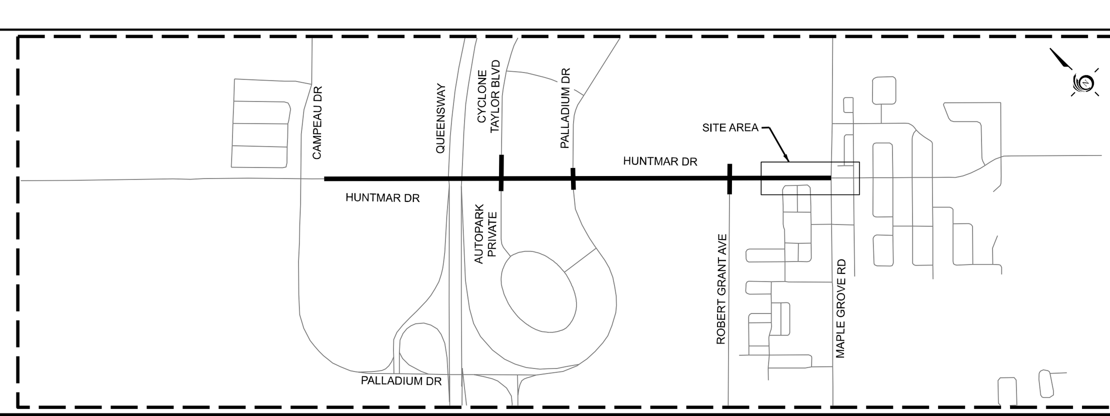
Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA 10+645 to STA 11+015

Drawings No.: | Revision 00 | Sheet No. 17

KEY PLAN



LEGEND

EXISTING PROPERTY LINE
PROPOSED ROW
GRADING LIMITS
PROPOSED GUIDE RAIL
EXISTING HYDRO POLE
PROPOSED BENCH
EXISTING TREE
PROPOSED TREE

PARSONS

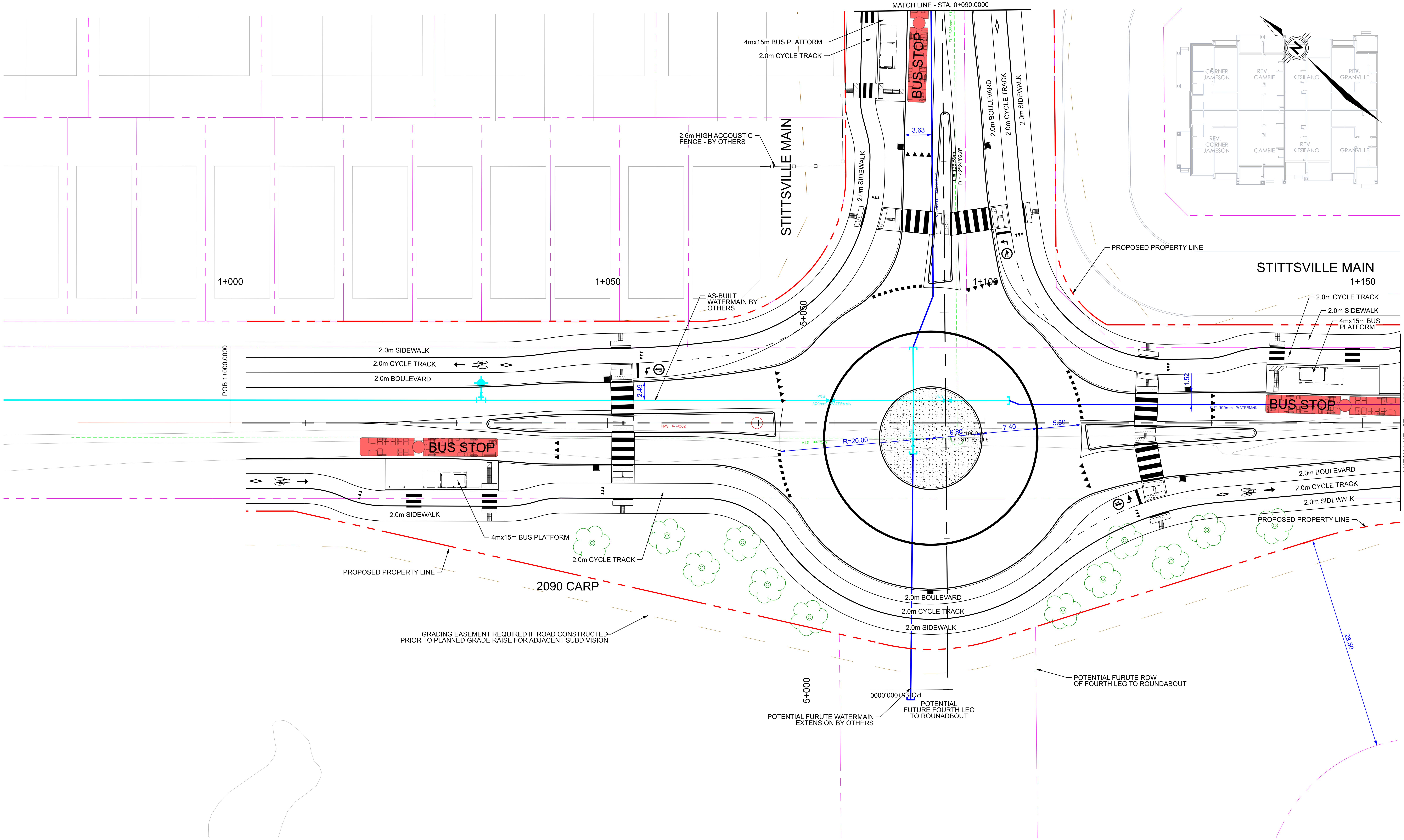
Date: 14 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-HUNTMAR SHEETS.DGN		Plot Date:

Ottawa

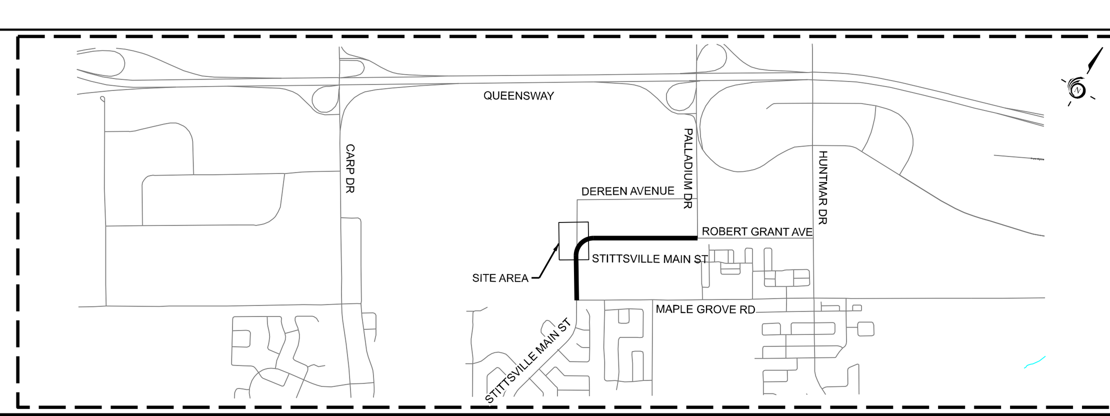
HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

HUNTMAR DRIVE
STA 11+015 to LIMIT OF CONTRACT

Drawings No.:	Revision	Sheet No.
	00	18



KEY PLAN



LEGEND

	EXISTING PROPERTY LINE
	PROPOSED ROW
	GRADING LIMITS
	PROPOSED GUIDE RAIL
	EXISTING HYDRO POLE
	PROPOSED BENCH
	EXISTING TREE
	PROPOSED TREE

PARSONS

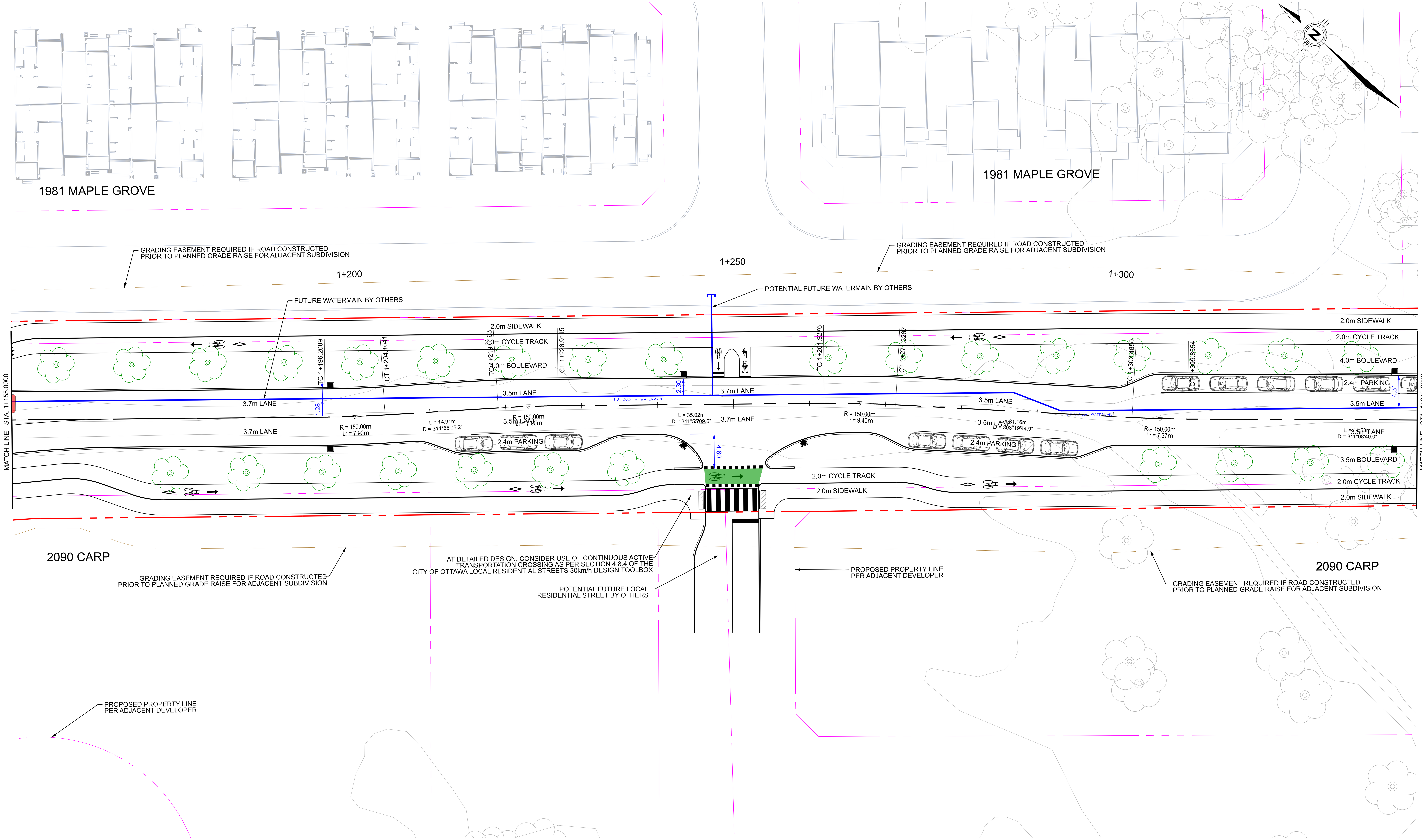
Date: 15 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-STITTSVILLE MAIN SHEETS.DGN		Plot Date:

Ottawa

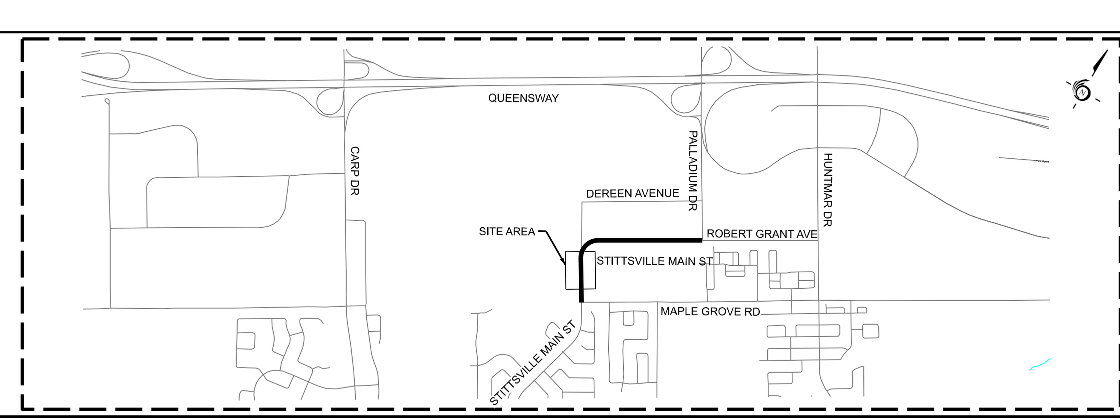
HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

STITTSVILLE MAIN STREET
LIMIT OF CONTRACT to STA 1+155

Drawings No.: | Revision 00 | Sheet No. 01



KEY PLAN



LEGEND

EXISTING PROPERTY LINE	EXISTING HYDRO POLE
PROPOSED ROW	PROPOSED BENCH
GRADING LIMITS	EXISTING TREE
PROPOSED GUIDE RAIL	PROPOSED TREE

PARSONS

Date: 15 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-STITTSVILLE MAIN SHEETS.DGN		Plot Date:

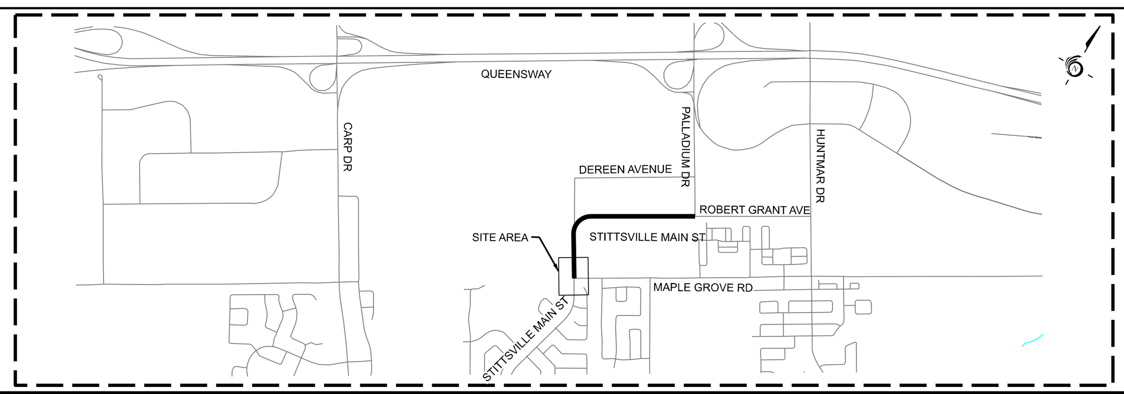
Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

STITTSVILLE MAIN STREET
STA 1+155 to STA 1+340

Drawings No.:	Revision	Sheet No.
	00	02

KEY PLAN



LEGEND

EXISTING PROPERTY LINE	EXISTING HYDRO POLE
PROPOSED ROW	PROPOSED BENCH
GRADING LIMITS	EXISTING TREE
PROPOSED GUIDE RAIL	PROPOSED TREE

PARSONS

Date: 15 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-STITTSVILLE MAIN SHEETS.DGN		Plot Date:

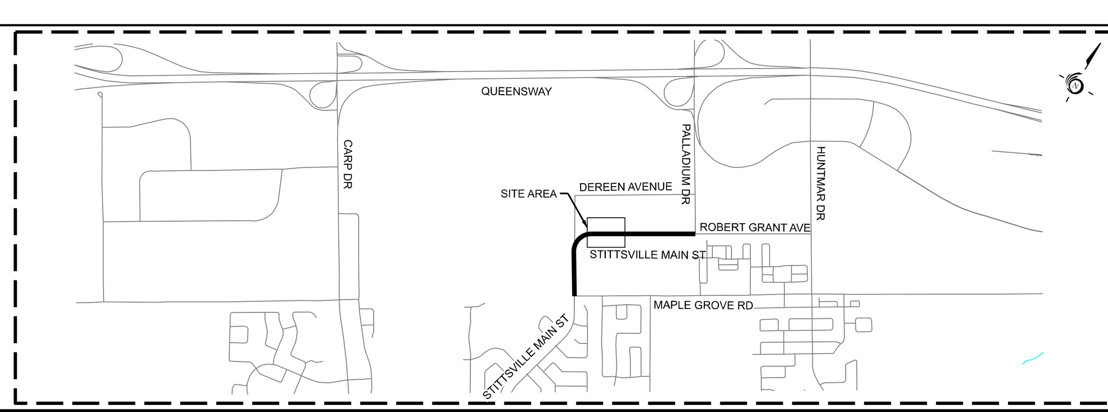
Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

STITTSVILLE MAIN STREET
STA 1+340 TO LIMIT OF CONTRACT

Drawings No.:	Revision	Sheet No.
	00	03

KEY PLAN



LEGEND

EXISTING PROPERTY LINE	EXISTING HYDRO POLE
PROPOSED ROW	PROPOSED BENCH
GRADING LIMITS	EXISTING TREE
PROPOSED GUIDE RAIL	PROPOSED TREE

PARSONS

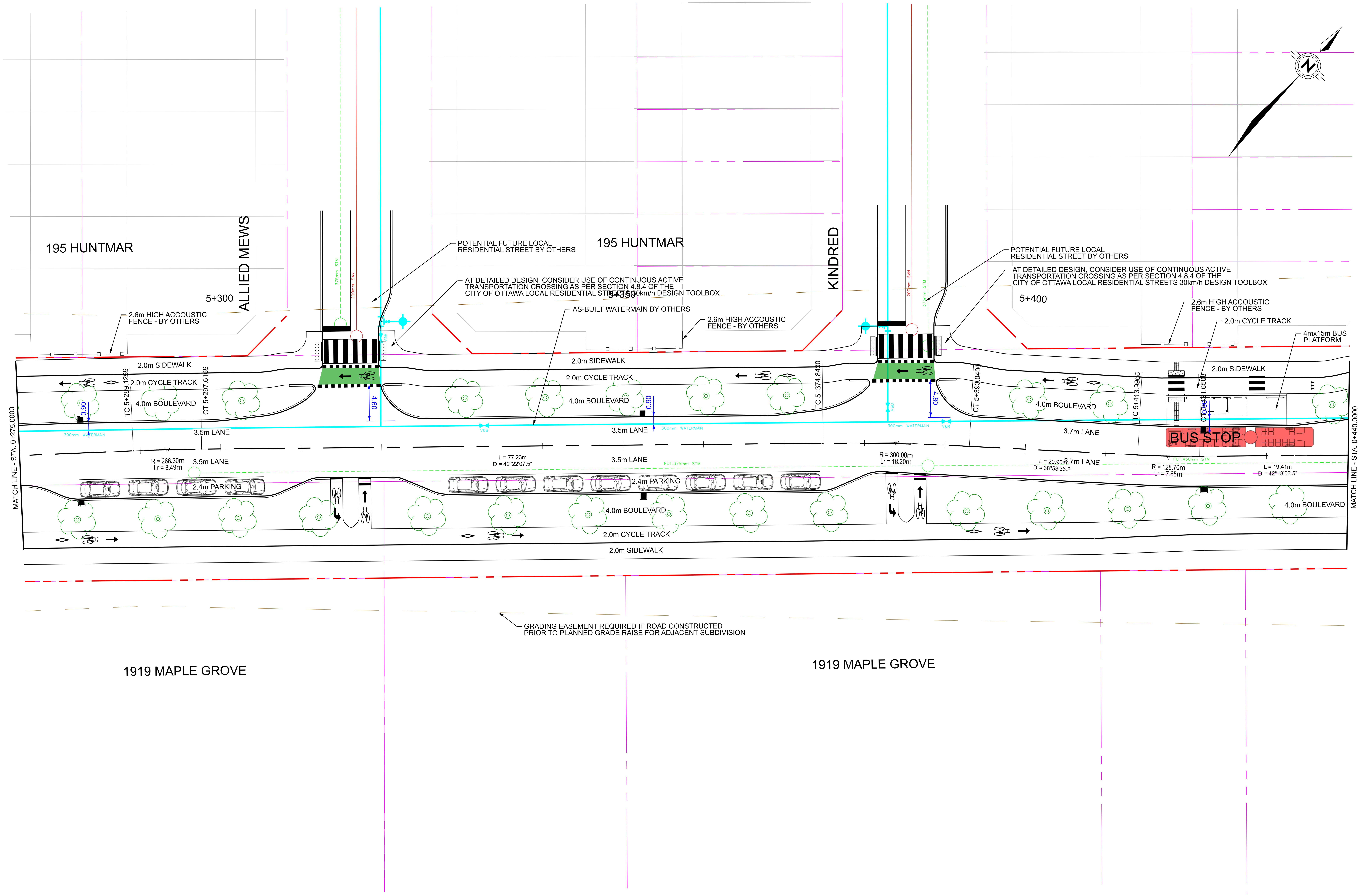
Date: 15 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-STITTSVILLE MAIN SHEETS.DGN	Plot Date:	

Ottawa

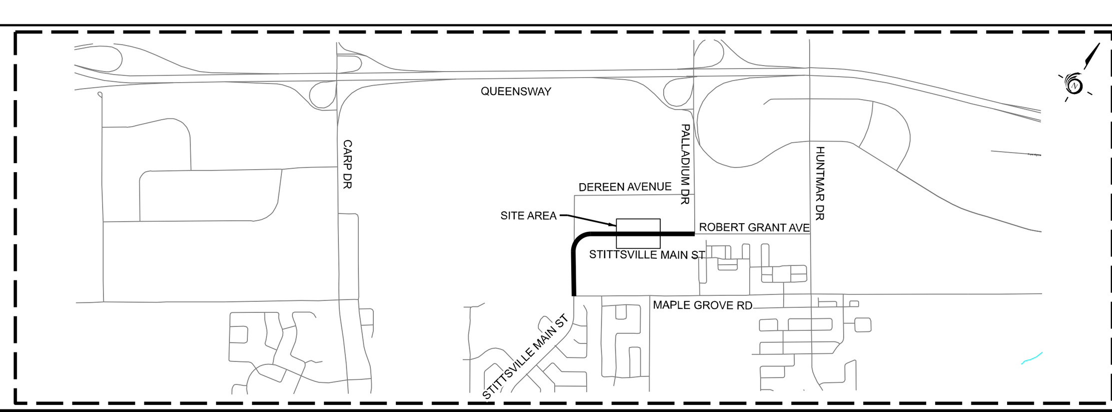
HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

STITTSVILLE MAIN STREET
STA 0+090 TO STA 0+275

Drawings No.:	Revision	Sheet No.
	00	04



KEY PLAN



LEGEND

EXISTING PROPERTY LINE	EXISTING HYDRO POLE
PROPOSED ROW	PROPOSED BENCH
GRADING LIMITS	EXISTING TREE
PROPOSED GUIDE RAIL	PROPOSED TREE

PARSONS

Ottawa

Date: 15 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:

Scale: HORIZONTAL 0m 2.5 5 10 20

CAD File Name: 477917-STITTSVILLE MAIN SHEETS.DGN

Plot Date:

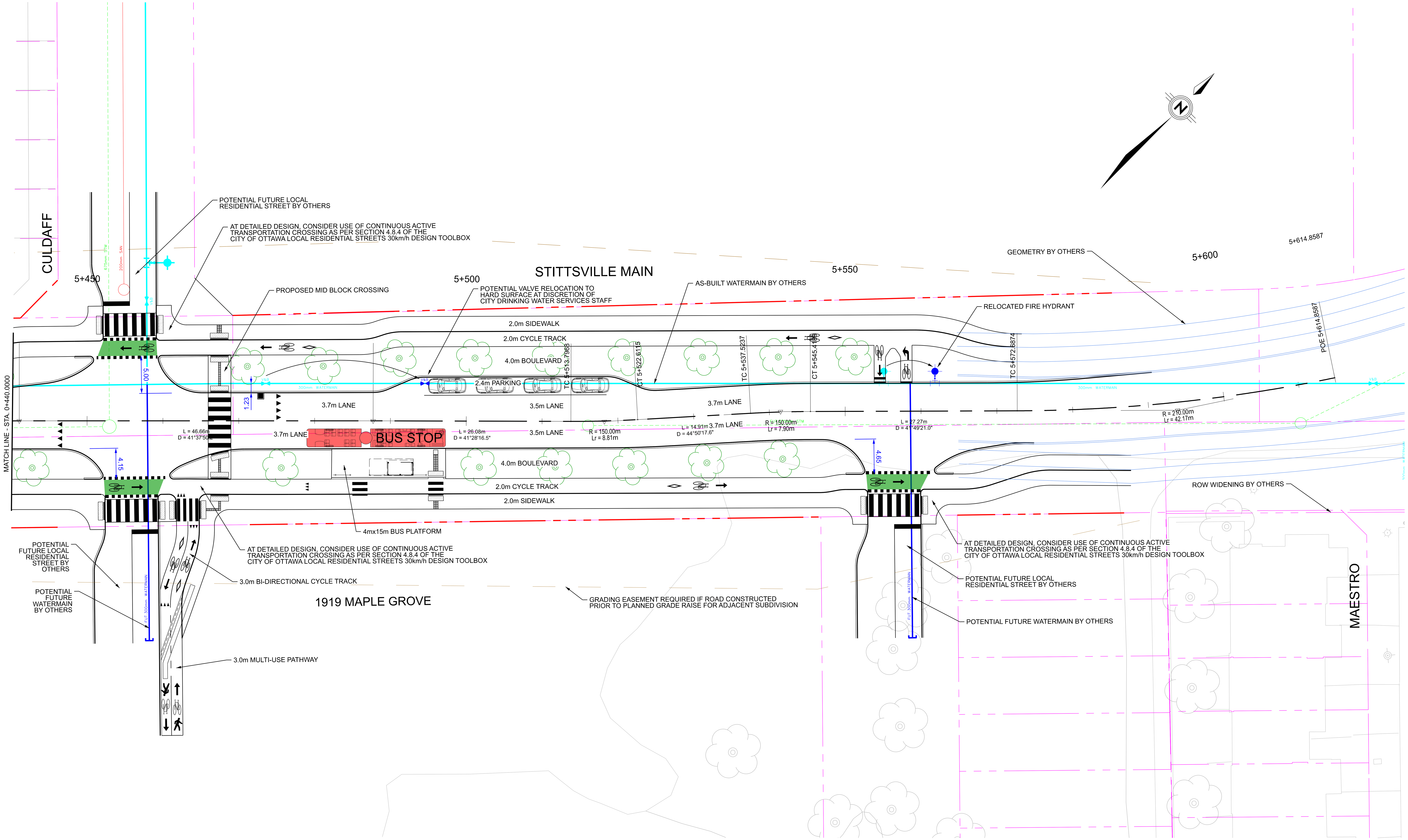
HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

STITTSVILLE MAIN STREET
STA 0+275 TO STA 0+440

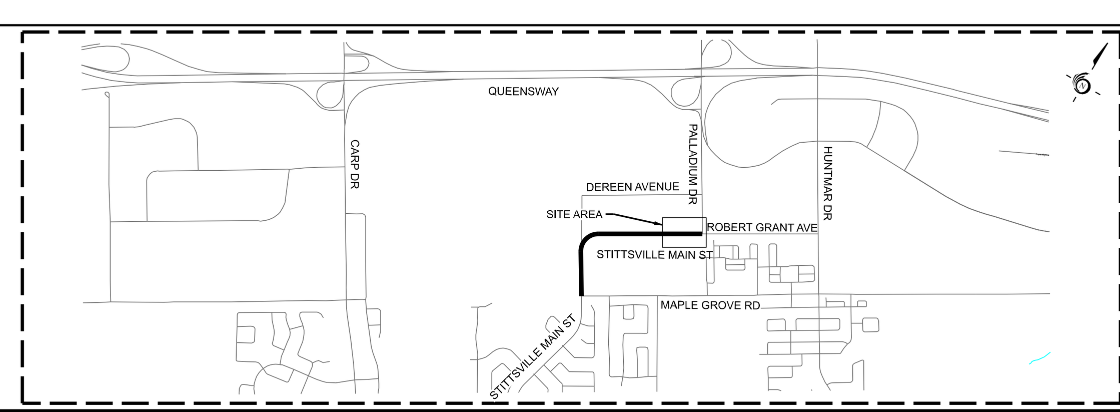
Drawings No.:

Revision 00

Sheet No. 05



KEY PLAN



LEGEND

- EXISTING PROPERTY LINE
- PROPOSED ROW
- GRADING LIMITS
- PROPOSED GUIDE RAIL
- EXISTING HYDRO POLE
- PROPOSED BENCH
- EXISTING TREE
- PROPOSED TREE

PARSONS

Date: 15 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-STITTSVILLE MAIN SHEETS.DGN	Plot Date:	

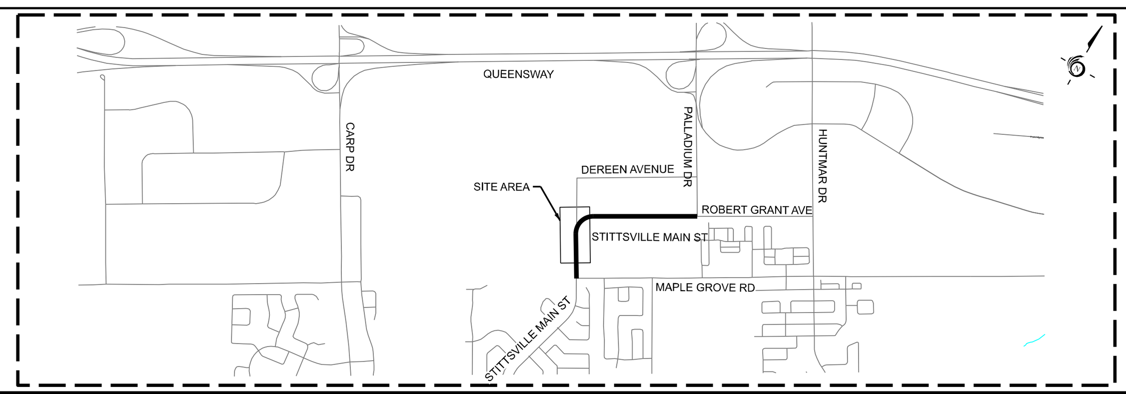
Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

STITTSVILLE MAIN STREET
STA 0+440 TO LIMIT OF CONTRACT

Drawings No.:	Revision	Sheet No.
	00	06

KEY PLAN



LEGEND

EXISTING PROPERTY LINE
PROPOSED ROW
GRADING LIMITS
PROPOSED GUIDE RAIL
EXISTING HYDRO POLE
PROPOSED BENCH
EXISTING TREE
PROPOSED TREE

PARSONS

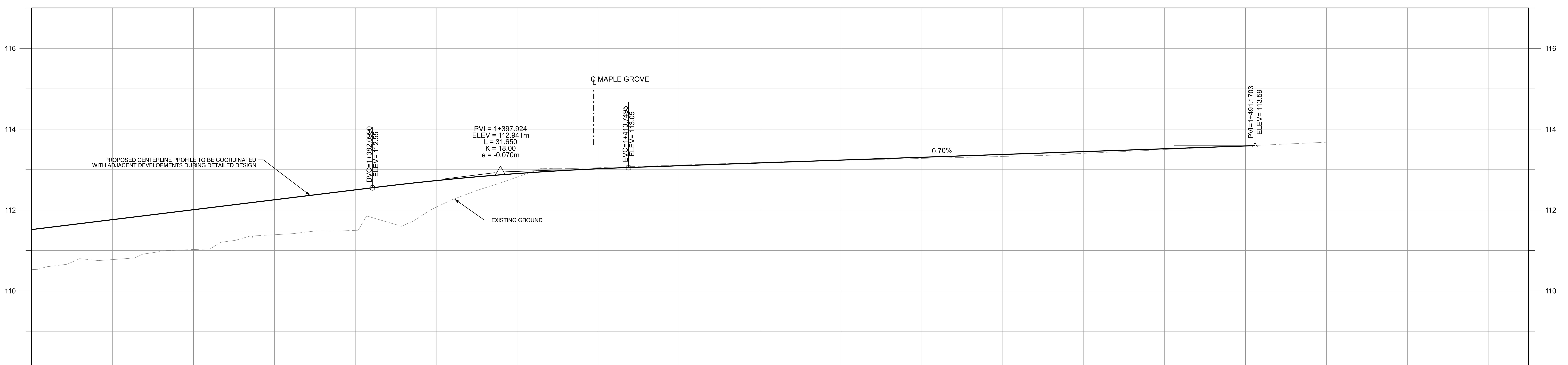
Date: 15 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-STITTSVILLE MAIN SHEETS.DGN		Plot Date:

Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

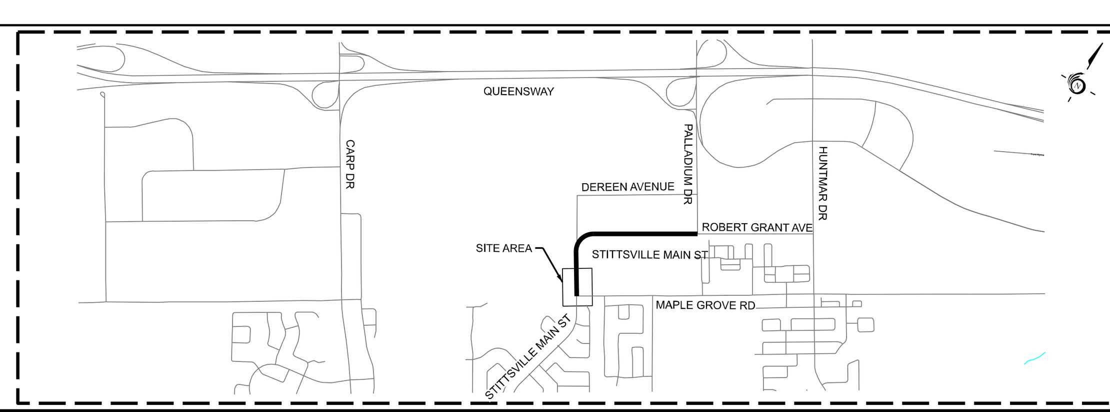
STITTSVILLE MAIN STREET
LIMIT OF CONTRACT to STA 1+340

Drawings No.:	Revision	Sheet No.
	00	07



STATION	℄ PROFILE	
		110.526
1+350	**111.763**	*110.775*
1+360	**112.009**	*111.023*
1+370	**112.255**	*111.390*
1+380	**112.501**	*111.498*
1+390	**112.729**	*112.072*
1+400	**112.903**	*112.816*
1+410	**113.022**	*113.048*
1+420	**113.096**	*113.114*
1+430	**113.166**	*113.180*
1+440	**113.236**	*113.232*
1+450	**113.306**	*113.277*
1+460	**113.376**	*113.325*
1+470	**113.446**	*113.403*
1+480	**113.516**	*113.497*
1+490	**113.586**	*113.587*
1+491		
	113.594	*113.678*
	113.594	

KEY PLAN



LEGEND

- EXISTING PROPERTY LINE
- PROPOSED ROW
- GRADING LIMITS
- PROPOSED GUIDE RAIL
- EXISTING HYDRO POLE
- PROPOSED BENCH
- EXISTING TREE
- PROPOSED TREE

PARSONS

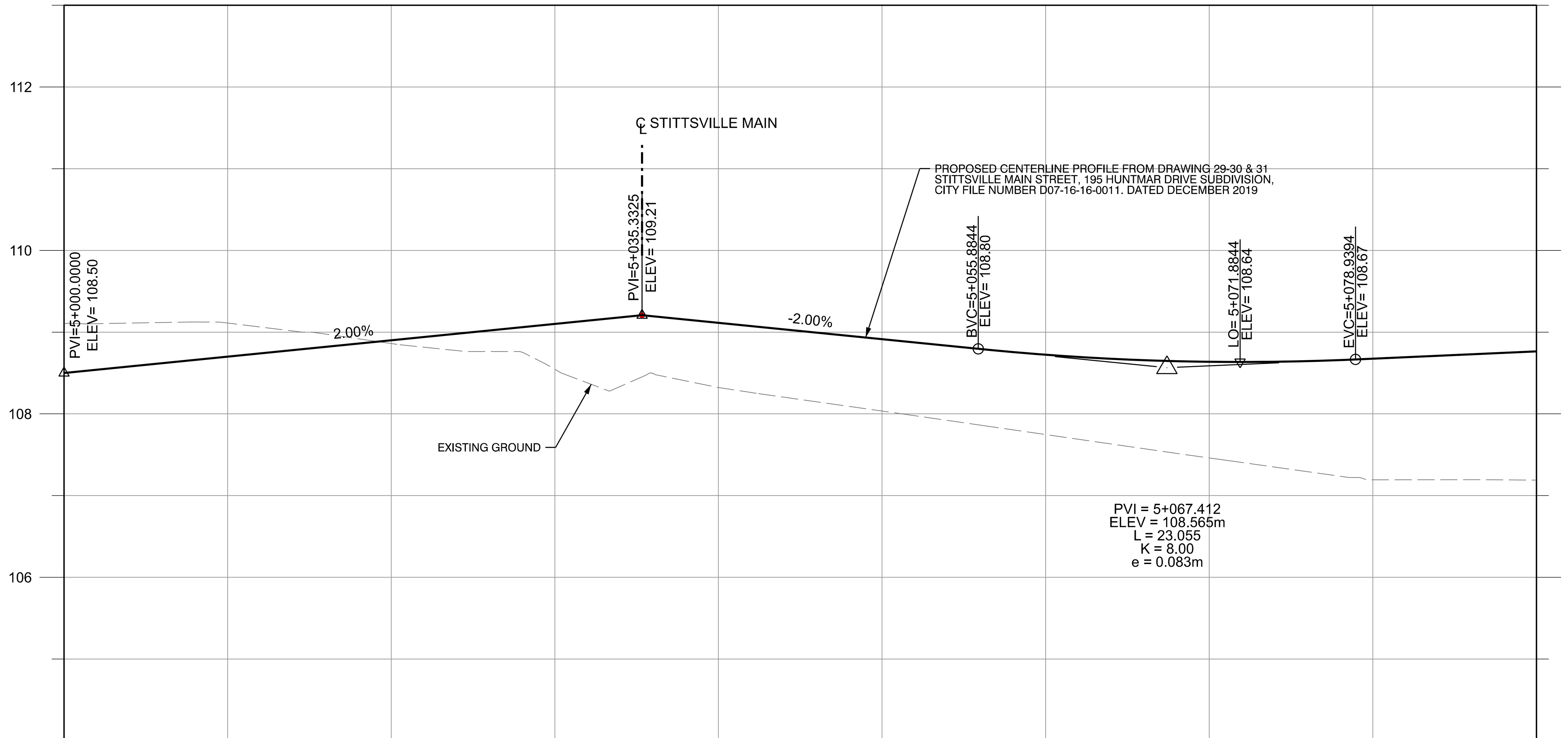
Date: 15 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-STITTSVILLE MAIN SHEETS.DGN	Plot Date:	

Ottawa

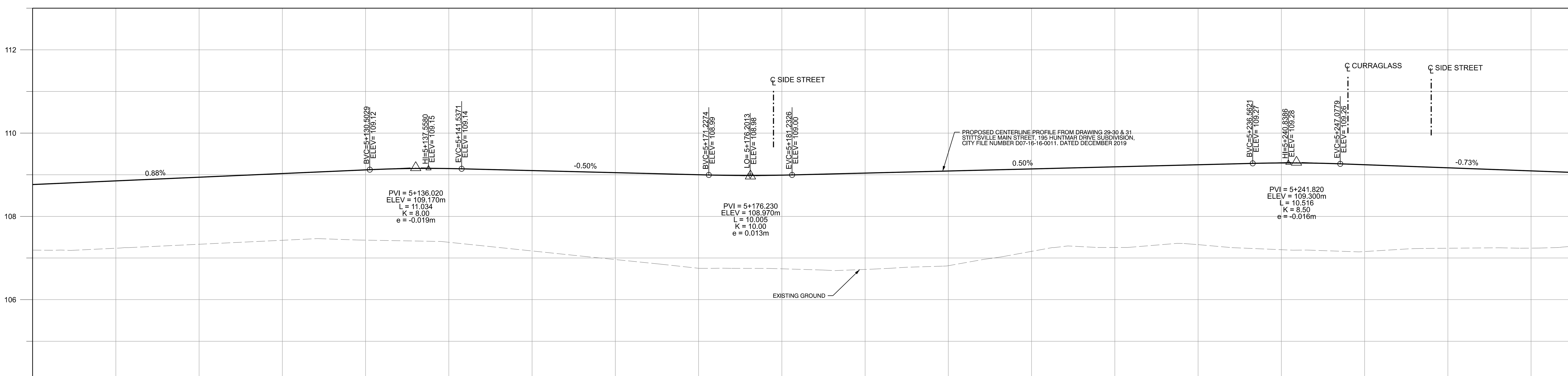
HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

STITTSVILLE MAIN STREET
STA 1+340 to LIMIT OF CONTRACT

Drawings No.:	Revision	Sheet No.
	00	08

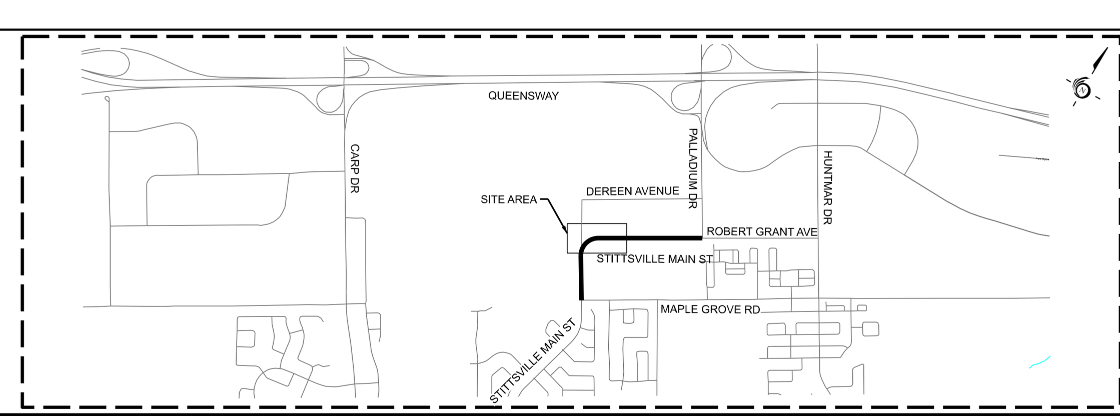


℄ PROFILE	109.103	108.700 109.112	108.900 108.862	109.100 108.545	109.113 108.322	108.913 108.034	108.724 107.745	108.638 107.462	108.676 107.193	108.764
STATION		5+010	5+020	5+030	5+040	5+050	5+060	5+070	5+080	



℄ PROFILE	107.190	108.852 107.236	108.941 107.330	109.029 107.426	109.117 107.430	109.149 107.377	109.100 107.169	109.051 106.966	109.001 106.754	108.990 106.740	109.039 106.726	109.090 106.816	109.140 107.161	109.190 107.253	109.241 107.322	109.284 107.200	109.240 107.156	109.167 107.238	109.093 107.237	109.056
STATION		5+100	5+110	5+120	5+130	5+140	5+150	5+160	5+170	5+180	5+190	5+200	5+210	5+220	5+230	5+240	5+250	5+260	5+270	

KEY PLAN



LEGEND

EXISTING PROPERTY LINE
PROPOSED ROW
GRADING LIMITS
PROPOSED GUIDE RAIL
EXISTING HYDRO POLE
PROPOSED BENCH
EXISTING TREE
PROPOSED TREE

PARSONS

Date: 15 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-STITTSVILLE MAIN SHEETS.DGN	Plot Date:	

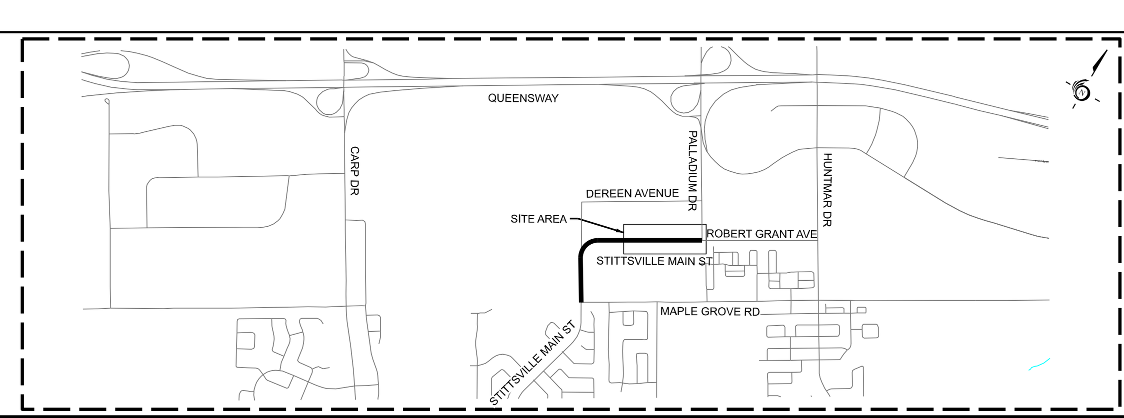
Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

STITTSVILLE MAIN STREET
STA 5+000 to STA 5+275

Drawings No.: | Revision 00 | Sheet No. 09

KEY PLAN



LEGEND

EXISTING PROPERTY LINE
PROPOSED ROW
GRADING LIMITS
PROPOSED GUIDE RAIL
EXISTING HYDRO POLE
PROPOSED BENCH
EXISTING TREE
PROPOSED TREE

PARSONS

Date: 15 March 2023	Designed By:	Drawn By:
Project Manager:	Dicipline Engineer:	Checked By:
Scale: HORIZONTAL 0m 2.5 5 10 20		
CAD File Name: 477917-STITTSVILLE MAIN SHEETS.DGN	Plot Date:	

Ottawa

HUNTMAR DRIVE WIDENING AND STITTSVILLE MAIN STREET EXTENSION ENVIRONMENTAL ASSESSMENT (EA) STUDY

STITTSVILLE MAIN STREET
STA 5+275 to LIMIT OF CONTRACT

Drawings No.:	Revision	Sheet No.
	00	10

9.0 IMPLEMENTATION AND APPROVALS

9.1 Project Costs

Detailed costing of the project has been carried out based on the Recommended Plan. Project costs were developed in accordance with the Council-approved Project Delivery Review and Cost Estimating process for implementing capital projects. The estimated cost for design, construction, property, public art, and contingencies in 2023 dollars is approximately $110M for Huntmar Drive widening (including a new complete street bridge with cycle tracks and sidewalks), $20.5M for Stittsville Main Street extension and $24M for the optional, stand-alone active transportation bridge (Class C estimate). Funding will be subject to the City's future capital budget priorities.

The study also examined how the project could be implemented in sections, as described in **Section 7.6.4**.

9.2 Property Acquisition

The land requirements as shown on the Recommended Plan (**Section 8.0**) represent the minimum footprint needed to widen Huntmar Drive, reconstruct the Huntmar Drive crossing of Highway 417, and extend Stittsville Main Street. The Recommended Plan includes ROW for the transportation facilities as well as preliminary grading limits. The required grading limits have been estimated through the output of a CAD terrain model, plus a 3.0m contingency. There may be opportunities during detailed design to further minimize land acquisition and impact on property. Additional land requirements in the form of easements or permanent takings may be required by Hydro Ottawa that will be confirmed during detailed design. The majority of land required is from private landowners and developers, and in some cases, required property may already be owned by the City. Implementation of the project will require approximately 1.60ha of private property.

9.3 Future Consultation

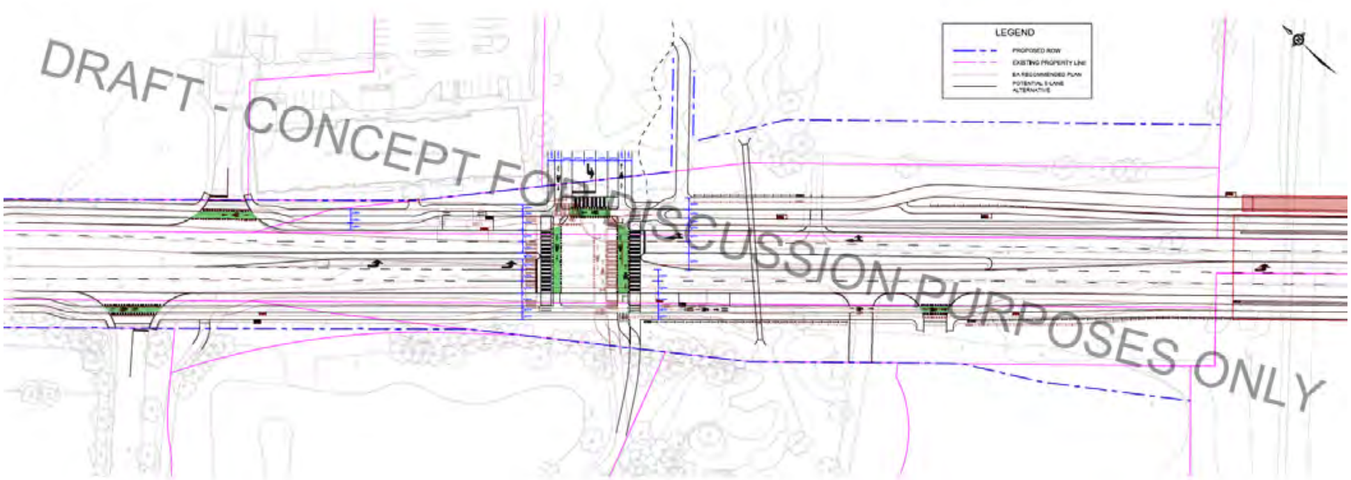
Consultation throughout the study was undertaken with a broad range of internal and external stakeholders. Additional discussions with individual landowners were specific to individual property impacts and due to the functional nature of the design at the EA level, will require additional consultation at the detailed design stage.

9.3.1 320 Huntmar Drive

The Recommended Plan for the proposed private property private approach access to a future development site at 320 Huntmar Drive is as shown on the Functional Design that is introduced in **Section 8.0**. However, it is noted that the 2022 OP allows for notable densification at this location. During the EA study consultation process, the landowner expressed a need for the private approach location to be potentially converted to a full municipal street. A higher capacity intersection, including auxiliary turn lanes, would be needed to accommodate a larger scale of development, were it to materialize.

The study team communicated with the owners, developers and planners representing the 320 Huntmar Drive property throughout the course of the study. A draft concept plan was presented by the EA study team, demonstrating that a higher capacity intersection would also work as a private approach access to the property from Huntmar Drive (shown by **Figure 9-1**). However, this was not illustrated as part of the Recommended Plan, as plans for the development site are not yet known. The final recommended configuration of the access should be determined as part of the development application process, which will inform a future detailed design phase for the roadway. The justification and requirement for a higher capacity intersection will have to be demonstrated through the transportation impact assessment studies and other applicable requirements of development approval. Further consultation with 320 Huntmar Drive is recommended during the next phases of the project. It is anticipated that the geometric design may evolve should that arrangement advance to detailed design. The geometric arrangement and associated implications of the concept shown on Figure 9-1 is considered approved as part of this EA.

Figure 9-1: Draft Concept Plan for an alternative intersection design at 320 Huntmar Drive



9.4 Future Approvals

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

9.4.1 Federal

9.4.1.1 Fisheries Act

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

9.4.1.2 Species at Risk Act

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

During subsequent stages of the project, an updated species at risk assessment will determine the need for a permit. The permit application will need to include justification for any required removals as well as a mitigation/recovery plan.

9.4.2 Provincial

9.4.2.1 Environmental Compliance Approval

Activities regulated under the *Environmental Protection Act* (EPA), R.S.O. 1990 and the *Ontario Water Resources Act*, R.S.O. 1990 (OWRA) must be carried out in accordance with those Acts. An Environmental Compliance Approval (ECA) is required for activities that fall under the EPA, Section 9 (activities that may discharge, or from which may be discharged, a contaminant into the natural environment other than water, which includes most industrial processes or modifications to industrial processes and equipment), EPA, Section 27 (Waste Management System or Waste Disposal Site), and or OWRA, Section 53 (sewage works). Due to the air quality impact and noise generated by construction activities, approvals may be necessary before construction begins.

9.4.2.2 Permit to Take Water

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

9.4.2.3 Ontario Endangered Species Act

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

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

During subsequent stages of the project, an updated species at risk assessment will determine the need for a permit. The permit application will need to include justification for any required removals as well as a mitigation/recovery plan.

9.4.2.4 Ontario Heritage Act

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

Archaeological concerns have not been addressed until reports have been entered into the Ontario Public Register of Archaeological Reports where those reports recommend that:

- the archaeological assessment of the project area is complete and
- all archaeological sites identified by the assessment are either of no further cultural heritage value or interest (as per Section 48(3) of the *Ontario Heritage Act*) or that mitigation of impacts has been accomplished through excavation or an avoidance and protection strategy.

9.4.2.5 Conservation Authorities Act

Ontario Regulation 153/06 Development, Interference, with Wetlands and Alterations to Shorelines and Water Courses Regulation under the *Conservation Authorities Act* allows Conservation Authorities, specifically Mississippi Valley Conservation Authority (MVCA), to regulate and restrict activities within floodplains, waterways, wetlands, beaches, and hazard lands. The intent of this regulation with respect to natural heritage features is to 1) prevent the destruction of natural heritage features and functions, 2) to prevent pollution of associated water systems, and 3) to promote restoration of natural heritage systems. Permits under the Regulation are authorized by conservation authorities after review of proposed works and evaluation of potential impacts and mitigation measures. Conservation authorities provide mapping that delineates areas that are subject to regulation within their respective areas of jurisdiction or watershed. A permit to construct the project is required prior to initiation of development (which includes construction, site grading and the placement or removal of fill) within the Conservation Authority regulated area. Regulation limits should be reviewed during the next phases of the project and necessary documents should be submitted to MVCA prior to construction to confirm requirements and obtain required permissions.

9.4.2.6 MTO Class EA for Crossing Over Highway 417

It is recognized that the design information required to confidently confirm whether a separate EA is required, that would follow the Class EA for MTO Facilities, will not be available until the preliminary and detailed design for the Project is undertaken. At that time, the City will coordinate with MTO and determine if there are any additional EA requirements. The limits of MTO interest include the Huntmar Drive crossing of the Highway 417. Design elements such as the inclusion of the half-height curbs and the roadside barrier on the bridge should also be re-evaluated in consultation with MTO. Following consultation with MTO, they have indicated they would retain ownership of the Huntmar Drive bridge over Highway 417 when the new complete street bridge is constructed.

9.4.3 Municipal

9.4.3.1 Road Modification Approval

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

9.4.3.2 Road Cut Permits

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

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

9.4.3.3 Temporary Encroachment Permits

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

Examples of encroachments include:

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

9.4.3.4 Noise By-Law Exemption

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

9.4.3.5 Tree Protection By-Law

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

9.4.4 Monitoring

Monitoring is important to verify the accuracy of predicted effects. Monitoring measures may also determine what effects actually occurred with project implementation and may result in the modification of mitigation measures to improve their effectiveness. Identified monitoring plans from **Section 7.0** will be developed and reviewed by the appropriate agencies prior to implementation. Construction and post construction monitoring will be required.

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

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

9.5 Modifying the Recommended Plan

This report is based on a functional design level of detail for the Huntmar Drive Widening and Stittsville Main Street Extension EA Study. The functional design forms the basis of subsequent Preliminary and Detailed Designs which will result in a project that can be implemented with design details and mitigation measures confirmed. Nonetheless, the functional design provides a sufficient level of detail to assess the environmental effects of the Recommended Plan contained within the Study Area.

It is possible that some aspects of the Recommended Plan may be subject to change as detailed designs are developed, or as environmental conditions change, following the submission of the Notice of Completion. Changes may arise in terms of Study Area conditions, new technologies or mitigation measures, new design standards or guidelines, or the identification of previously unknown information. There are potentially two categories of possible changes to the Recommended Plan which may occur during detailed design:

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

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

9.5.1 Changes that are Consistent with the Recommended Plan

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

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

This would include the changes to design during the detailed design process described in **Section 7.0**, as well as adjustments to property acquisition requirements described in **Section 9.2**. Should the changes to the Recommended Plan match the descriptions contained in **Section 7.0** and **Section 9.2** or satisfy the above noted points, an addendum would not be required as the changes would be considered consistent with the Recommended Plan. In such cases, no action on behalf of the proponent is required.

9.5.2 Procedure for Addressing Changes that are Inconsistent with the Recommended Plan

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

9.6 Lapse of Time

Should more than 10 years in time lapse between either of the dates noted below to the proposed commencement of construction for the project:

i. the date of filing the Notice of Completion for the ESR; or

ii. Ministerial denial of a Section 16 Order,

then an Addendum to the ESR must be issued and a "Notice of Addendum" must be completed. 10 Years is calculated as follows: beginning from the date of the Minister's or delegate's decision of any Section 16 Order requests or at the end of the public comment period following the posting of the Notice of Completion where there is no Section 16 Order request.

For both circumstances, i) or ii) above, the Notice of Filing Addendum will be subject to a 30-day public comment period, and if no Section 16 Order is received, the project may proceed to implementation as documented in the Environmental Study Report and associated addendum(s).

10.0 CONCLUSION REGARDING THE PROJECT

The Huntmar Drive Widening and Stittsville Main Street Extension project has the potential to change the surrounding environments. The purpose of this EA is to guide and predict these changes and recommend measures to minimize or eliminate any negative effects and enhance or broaden the positive effects.

In this study, the existing conditions were documented, alternative solutions and designs were identified and evaluated, and a Recommended Plan of the preferred designs was developed. Throughout the process, the study benefited from extensive public and agency consultation including meetings with an Agency, a Business, and a Public Consultation Group, two open houses, as well as individual stakeholder meetings. Considering the feedback received through consultation efforts, the Study Team was able to identify impacts, avoid, minimize, or mitigate potential negative impacts for the environment, users of the infrastructure, and residents, landowners and developers immediately adjacent to the proposed project. This study process, and stakeholder involvement culminated in the City of Ottawa Transportation Committee recommendation and subsequent Council approval of the Recommended Plan.

During the construction phase, the overall corridor will be an active construction site. Traffic disruptions, noise, dust, and visual interruptions will be inevitable. Ongoing communications by the City of Ottawa with the affected public will go a long way in alleviating potential concerns and ensuring timely information about the project is shared. Following the construction phase, there will be many positive effects such as more efficient traffic flow, increased transit capacity and reliability, community connectivity, improved pedestrian and cycling facilities and corridor enhancements in the form of landscaping, rest areas and public realm elements. The recommended improvements will encourage increased use of sustainable modes of transportation and improve road safety and alleviate congestion through the corridor. The Recommended Plan was developed in consideration of planned area developments. The project will also provide the opportunity to improve the visual environment though landscaping, public art, and other space programming opportunities. While the project has the potential to have effects on the human and biophysical environments as a result of the project and construction, these effects can be largely mitigated with prescribed design features, sound environmental management, and continued community engagement. Through incorporating the mitigation measures recommended by this study, no significant adverse environmental effects are expected to result.

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