VMC
Schedule ‘C’ Municipal Class Environmental Assessment Study for the Extension of Interchange Way

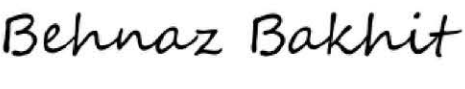
Environmental Study Report (ESR)

FINAL

July 2025

DOWNTOWN vaughan METROPOLITAN CENTRE

Signatures and Disclaimers

Prepared by	Reviewed by
Behnaz Bakhit, MES (Pl.) Environmental Planner  Christine Vazz, MCIP, RPP Senior Environmental Planner 	Brett Sears, MCIP, RPP Senior Project Manager 

Client

Manager, Development Engineering (VMC), Policy Planning & Special Programs	Musa Deo, P. Eng., PTOE, PMP 
Development Engineering Lead (VMC)	James Norris, P. Eng. 

Executive Summary

Introduction

The City of Vaughan (the City) retained WSP Canada Inc. (WSP) to carry out the Schedule 'C' Municipal Class Environmental Assessment (MCEA) Study for the proposed extension of Interchange Way (from Commerce Street to Creditstone Road) in the City of Vaughan. Through this process, the study team has completed and evaluated alternative designs and selected a preferred design, examined impacts on the social, cultural and natural environments and identified measures to mitigate those impacts, all in consultation with regulatory agencies, Indigenous communities, landowners, and the public. Phases 1 and 2 of the Environmental Assessment (EA) process have been completed through the City's 2012 Transportation Master Plan (TMP). Phases 3 and 4 of the EA process have been completed as part of the MCEA Studies.

This Environmental Study Report (ESR) documents the Schedule 'C' planning process used for the:

1) Identification of the problems and opportunities (Municipal Class EA Phase 1);

2) Consideration and evaluation of alternative solutions and the selection of the preferred alternative solution (Municipal Class EA Phase 2);

3) Consideration and evaluation of design alternatives and the selection of the preliminary preferred design alternative (Municipal Class EA Phase 3); and

4) This ESR also documents the consultation work and technical studies that were completed as part of this EA Study to satisfy Municipal Class EA Phase 4.

Problem and Opportunity Statement

The Vaughan Metropolitan Centre (VMC) vision is to accommodate mobility needs, supportive policies and a phasing strategy to 2051 with a focus on street connectivity, accessibility and support for multi-modal mobility, and integration of Transportation Demand Management (TDM) (for example, walking, cycling, micromobility, transit, ride share) with parking management. The TMP will enhance the sustainable and multi-modal transportation system with a network that supports all users and all modes of transportation. The transportation system will be accessible and promote connectivity,

leveraging existing rapid transit infrastructure and service within and to and from the broader area. The VMC TMP will identify long-term strategies, policies, and infrastructure needs to support population and employment growth to 2051.

Existing Conditions

Section 4.0 of the ESR provides an overview of the existing conditions of the study area. The description of existing conditions is separated into the following subsections:

- Multi-modal Transportation Infrastructure;
- Natural Environment;
- Arborist and Tree Preservation;
- Landscaping;
- Archaeological and Cultural Heritage Resources;
- Drainage and Stormwater Management;
- Hydrogeology and Source Water Protection;
- Geotechnical Assessment;
- Contamination Overview Study;
- Socio-economic Environment; and
- Utilities.

The VMC and surrounding area are within the Humber River watershed, and Black Creek Subwatershed. Thirteen (13) species were identified as having 'moderate' to 'high' potential to be present or to use habitat in the Study Area based on habitat suitability. Based on the SAR Screening, there is potential suitable habitat within the Project Boundary and within the Study Area for 11 species designated threatened or endangered under the *Endangered Species Act* (ESA).

The existing character of the broader Study Area is predominately industrial and commercial. There are no notable naturalized woodlots or ecologically significant areas as the surrounding land uses are built-up and consist of mostly industrial buildings, vacant lands, and parking lots.

Based on the Stage 1 Archaeological Assessment (AA), it has been determined that the areas identified as retaining archaeological potential must be subject to a Stage 2 AA. In 2023, additional lands were added to the overall project area, and it was determined based on this Stage 1 archaeological assessment that a Stage 2 archaeological assessment is

recommended for the portions of the study area determined to retain archaeological potential. No built heritage resources (BHR) and cultural heritage landscapes (CHL) were identified within the Project study area.

Regarding existing drainage and stormwater management conditions of the Site, for the areas west of Jane Street, stormwater management measures currently exist in the form of existing ponds (Interchange Pond and the Toromont Pond). However, the areas east of Jane Street and south of Highway 7 have no existing stormwater management measures in place. Roadway runoff is generally captured by existing catch basins and conveyed through existing storm sewer networks. A slight adjustment of the Interchange Way alignment is proposed east of Jane Street for the preferred alternative. This new slightly shifted alignment of Interchange Way will not produce any significant changes compared with the initial proposed alignment.

Based on the proposed design, three out of the four ROW catchments have an increase in impervious area (Catchments 105, 200 and 300) while the last catchment (100) has the same impervious area as existing conditions. Table 8-2 includes the impervious area comparison between existing and proposed conditions for each catchment. Increase in impervious areas and flows, as a result of the proposed design, is proposed to be addressed through the retrofit of the Interchange Pond for the ROW catchment areas within the study limits west of Jane Street and the SWM Strategy of the SEQ for the ROW east of Jane Street.

Based on review of the Ministry of Environment, Conservation, and Parks (MECP) water well records and site visit as the majority of the land use is commercial and industrial and no private water wells were observed during the site visit, a door-to-door water well survey will not be required in areas where construction dewatering is anticipated for proposed works during the detailed design phase of the project.

During the Phase One Environmental Site Assessment (ESA), thirty-seven (37) Potentially Contaminating Activities (PCAs) were identified to be present on the Subject Property and within the Study Area. WSP has identified seven (7) Areas of Potential Environmental Concern (APECs) with the potential to impact soil and groundwater conditions at the Site. It is recommended that a Phase Two ESA be completed for the Site.

The existing pedestrian network within the wider VMC area has sidewalks on most major and minor roadways, excluding the industrial areas in the southeast quadrant. There are existing cycling facilities located within the VMC area, with the highest order facilities

introduced as part of the recently re-designed corridors. Within the Interchange Way and Millway Avenue MCEA Study Area there are currently no designated cycling facilities.

As part of the Air Quality Impact Assessment, seven (7) sensitive receptors have been identified within the Study Area of the Project including condominiums, townhouses, and hotels.

Consultation

An extensive Consultation Plan was implemented for the extension of Interchange Way and Millway Avenue to ensure meaningful consultation with internal and external stakeholders as well as reviewing agencies.

Various methods were undertaken to achieve the objectives of the consultation program, including:

- Notices of Study Commencement (November 26, 2020), Public Information Centre #1 (February 9, 2023), and Public Information Centre #2 (November 21, 2023), as well as Study Completion (July 31, 2025);
- Two Public Information Centres (PICs) during Phase 2 and 3 of the Study;
  - PIC #1 was held on February 16, 2023, at Vaughan Studios & Event Space (200 Apple Mill Road, 3rd Floor, Vaughan, Ontario)
  - PIC #2 was held on December 5, 2023, at Vaughan Studios & Event Space (200 Apple Mill Road, Ground Floor Atrium, Vaughan, Ontario)
- Distribution of notices to the public, agencies, stakeholders, and Indigenous communities via mail, website, email, bulk mailout and postings in the newspaper;
  - As per the direction of the MECP, City of Vaughan consulted with nine (9) Indigenous communities who had been identified as potentially affected by the proposed project. The identified Indigenous communities were sent the Project Notices via email for each consultation milestone of the Class EA Study. The Stage 1 Archaeology Report as well as the Stage 1 Archaeology Report for additional lands were also circulated to the identified Indigenous communities prior to sending the report to Ministry of Citizenship and Multiculturalism (MCM). One comment was received from the Mississauga of the Credit First Nation and indicated that they will review the report and provide comments later.
- Meetings with members of the Technical Advisory Committee (TAC) and Landowners Group (LOG);

- A TAC was established from interested representatives of regulatory and/or approving agencies on the study mailing list. Separate meetings were held with approving authorities as required to review project impacts, mitigation measures and approval requirements.
- Individual meetings were held with landowners group (LOG) at key project milestones to address the owners' concerns which were considered during the evaluation of solutions and mitigation measures.

- A Notice of Project Update was issued to provide details on the slight changes to the Interchange Way preferred alignment. The Notice of Project Update was sent via mail on March 25, 2025 to the impacted landowners within the study area.
- The Notice of Completion was issued to announce the completion of the Class EA study and notify interested parties of the 30-day comment period for the Interchange Way Environmental Study Report (ESR), which was made available on the City of Vaughan's project website (www.vaughan.ca/VMCTMP).
- Online surveys.

Alternative Solutions

The following alternative solutions were originally identified to address the problems and opportunities identified in the Problem and Opportunity Statement:

- Alternative modes of travel: support modal shift by providing viable transportation alternatives such as the provision of all ages and abilities pedestrian and cycling facilities, provide more bicycle parking, subsidized transit passes, complementary parking requirements, and micromobility options such as bike share and scooter share.
- Alternative routes: utilize routes parallel to Interchange Way.
- Trip-making behaviour: create a culture of walking and cycling, and car-free days (social marketing techniques).
- Alternative work arrangements: flexible work schedules outside of working hours to spread out travel demand over time.
- Integrating Transportation Demand Management (TDM) monitoring strategies in new developments: incorporate data tracking, identify effectiveness of TDM measures, and inform developers.
- Additional road network improvements: including the Colossus Drive extension and Millway Avenue extension.

Design Alternatives

Phase 3 of the Municipal Class EA process involved the following activities:

- Development of Preliminary Design Alternatives;
- Consideration of feedback received at Public Information Centre #1 and refine Design Alternatives;
- Identification of evaluation criteria and weighting for evaluation of alternatives;
- Evaluation of Alternatives;
- Consideration feedback received at Public Information Centre #2; and
- Selection of the Technically Preferred Alternative.

In evaluating the Design Alternatives, several key factors and design elements were considered. The design alternatives were evaluated according to their relative advantages and disadvantages and provided a score for each evaluation criteria. A score of 3 would be given for minimal to no impacts, 2 would have moderate impacts and 1 would have significant impacts. The following key factors were included in the evaluation of Design Alternatives:

- Natural Environment;
- Socio-economic Environment;
- Cultural Environment;
- Transportation; and
- Constructability and Cost.

The results of the evaluation determined that Option 2 is the preferred option since it improves the socio-economic aspects/criteria by balancing the impacts of the proposed works between the north and south properties, as compared to Option 1 and 3, east of Jane Street. However, after PIC #2 and the selection of the preferred alignment (Option 2), slight modifications were made to the preferred alternative alignment for Interchange Way within the southeast quadrant and the alignment shifted approximately 5 meters south of Option 2. The modified preferred alternative alignment for Interchange Way is shown in Figure E-1.

The modified alternative alignment for Interchange Way includes widening of Interchange Way from two to four lanes, extension of Interchange Way east of Jane Street to Creditstone Road. Interchange Way will be classified as a Major Collector Road, with multi-modal

transportation prioritized through the accommodation of transit and pedestrian/cycling infrastructure.

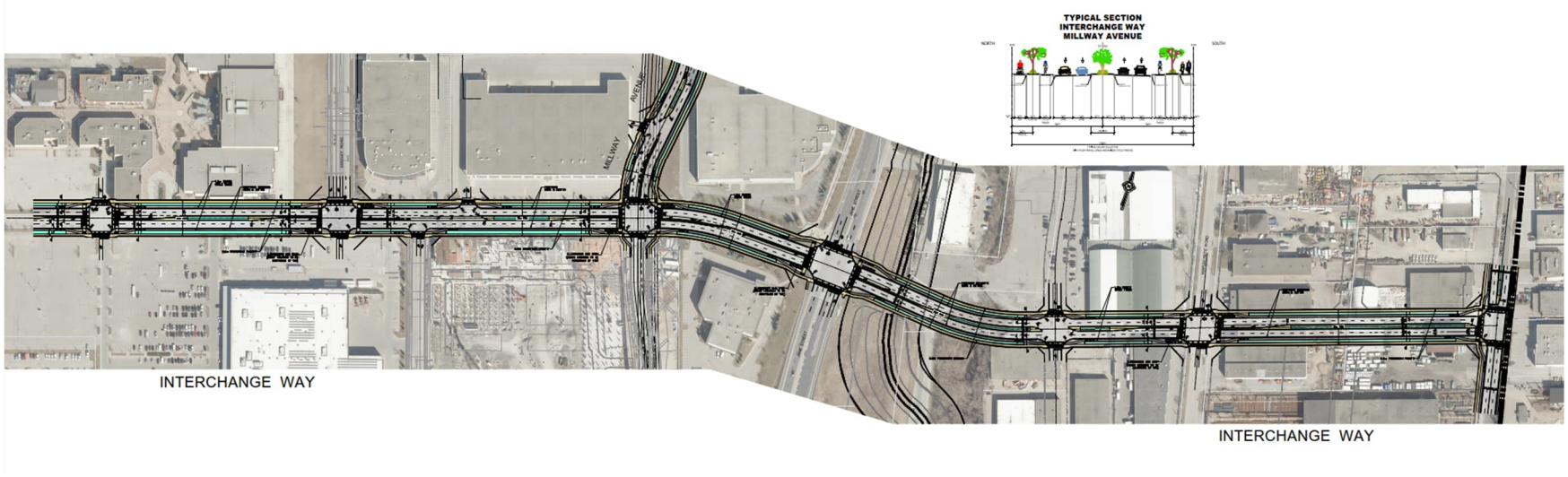


Figure E-1: Modified Preferred Alternative Alignment Interchange Way (Option 2)

Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work

Mitigation of negative effects is applied throughout the MCEA process, including development of alternatives to avoid constraints, and selection of the Technically Preferred Plan by identifying the alternative that has the least overall effects on the environment. Some negative effects cannot be completely avoided; therefore, additional mitigating measures are identified to avoid or minimize effects. A complete list of mitigation measures to be implemented during detailed design can be found in Table 9-2.

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1.1 Purpose

The City of Vaughan (the City) retained WSP Canada Inc. (WSP) to carry out the Schedule 'C' Municipal Class Environmental Assessment Study for the proposed extension of Interchange way (from Commerce Street to Creditstone Road) in the City of Vaughan. Through this process, the study team has completed and evaluated alternative designs and selected a preferred design, examined impacts on the social, cultural and natural environments and identified measures to mitigate those impacts, all in consultation with regulatory agencies and the public. Phases 1 and 2 of the EA process have been completed through the City's 2012 Transportation Master Plan (TMP). Phases 3 and 4 of the EA process have been completed as part of the Municipal Class Environmental Assessment (MCEA) Studies.

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The Notice of Completion was issued to announce the completion of the Class EA study and notify interested parties of the 30-day comment period for the Interchange Way

Environmental Study Report (ESR), which was made available on the City of Vaughan's project website (www.vaughan.ca/VMCTMP).

Documentation for the interrelated Schedule 'C' project for the Millway Avenue is the subject of a separate Environmental Study Report (ESR).

1.2 Project Background

The City of Vaughan has completed the Schedule 'C' Municipal Class Environmental Assessment (MCEA) Study for the proposed extension of Interchange Way (from Commerce Street to Creditstone Road). The Vaughan Metropolitan Centre (VMC) is at the top of the hierarchy of centres identified in the Official Plan and will be a major focus for intensification for a wide range of residential, office, retail, cultural and civic uses, including the tallest buildings and most intense concentration of development in the city. The VMC is planned to become the City's downtown, centered on the subway station at Highway 7 and Millway Avenue. Its concentration of the highest densities and widest mix of uses in the City will enable the VMC to evolve into a multi-faceted and dynamic place.

The Vaughan Metropolitan Centre (VMC) Secondary Plan area Transportation Master Plan was first developed as part of the city-wide Transportation Master Plan (A New Path 2012) over 10 years ago. Since that time, the transportation in the City and its downtown have evolved; including the opening of the Vaughan Metropolitan Centre Station, VMC Bus Terminal and Highway 7 Viva Rapid Transit, all of which anchor the VMC. Phases 1 and 2 of the environmental assessment (EA) process for the Interchange Way extension have been completed through the City's 2012 Transportation Master Plan (TMP).

The City is now updating the VMC Transportation Master Plan (TMP) to confirm and update transportation needs, supportive policies and a phasing strategy from 2041 to 2051 with a focus on street connectivity, accessibility and support for multi-modal mobility (for example, walking, cycling, transit, ride share).

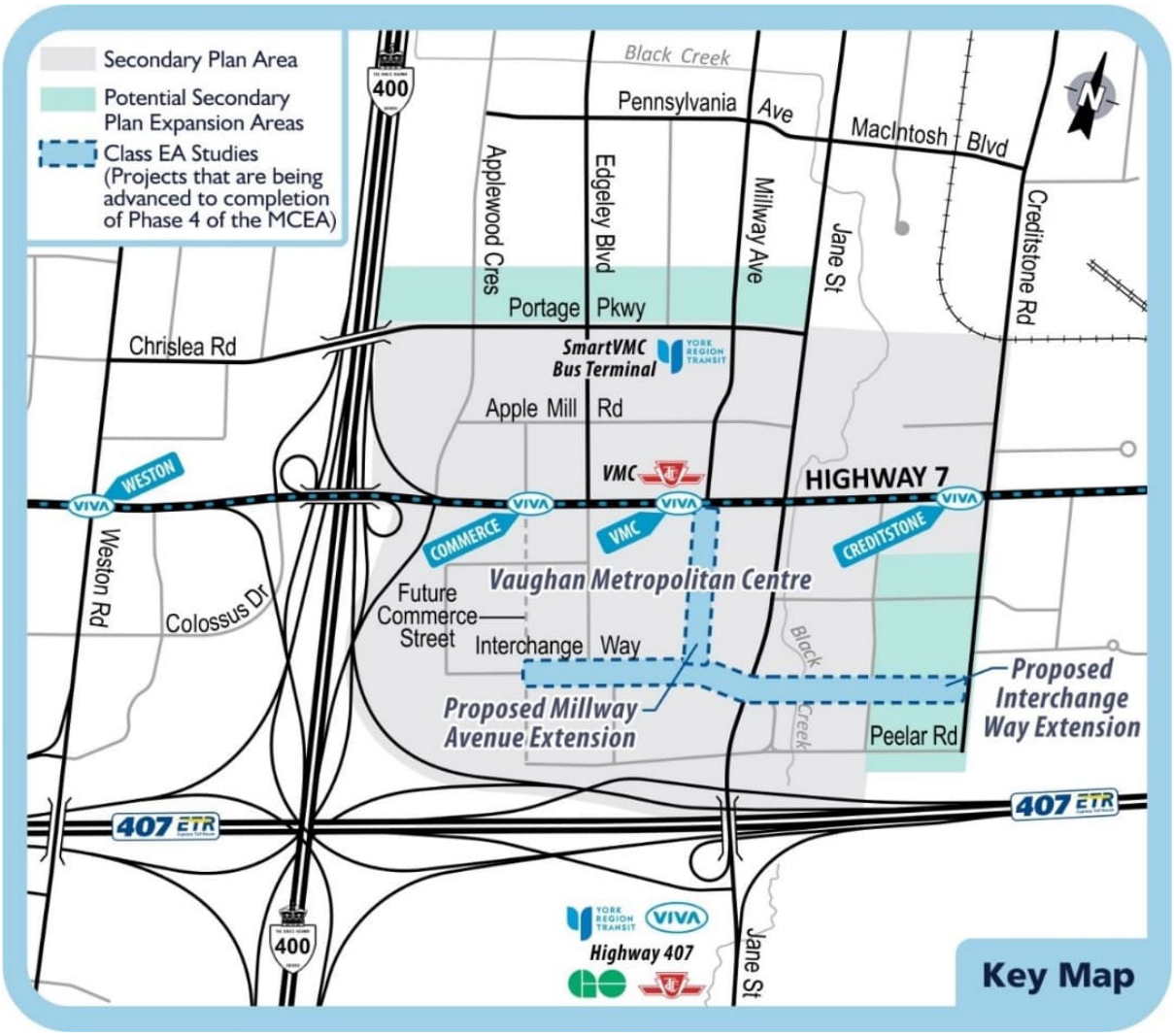
The planning and design for improvements and extension of Interchange Way have been advanced through these Studies. These transportation studies are being carried out concurrently and in support of the Vaughan Metropolitan Centre Secondary Plan (VMCSP) Update.

1.3 Study Area and Project Location

The study limits for the Schedule 'C' Class Environmental Assessment Study for the extension of Interchange Way is bound by Creditstone Road to the east and Commerce Street to the west. Interchange Way is an east-west Municipal Special Collector corridor with a two-lane cross-section, running north-south from Highway 7 connecting east-west from Commerce Street to Jane Street. The posted speed limit is 50 km/h throughout the VMC study area. A proposed extension of Interchange Way to Creditstone Road will be considered under the EA Study.

The study area has been identified as an Urban Growth Centre and an emerging downtown for the City of Vaughan, which is planned to provide a mixed-use centre with a concentration of high-density housing and employment areas. The study area is presented in Figure 1-1.

Figure 1-1: Study Area



1.4 Municipal Class EA Schedule Process

Municipal infrastructure projects are subject to the *Ontario Environmental Assessment Act* (EA Act). The Municipal Class EA (October 2000, as amended in 2007, 2011, 2015 and 2023) is an approved self-assessment process under the EA Act that applies to municipal infrastructure projects including roads, water and wastewater.

The Municipal Class EA outlines a planning process to consider the environmental and technical advantages and disadvantages of alternatives in order to determine a preferred

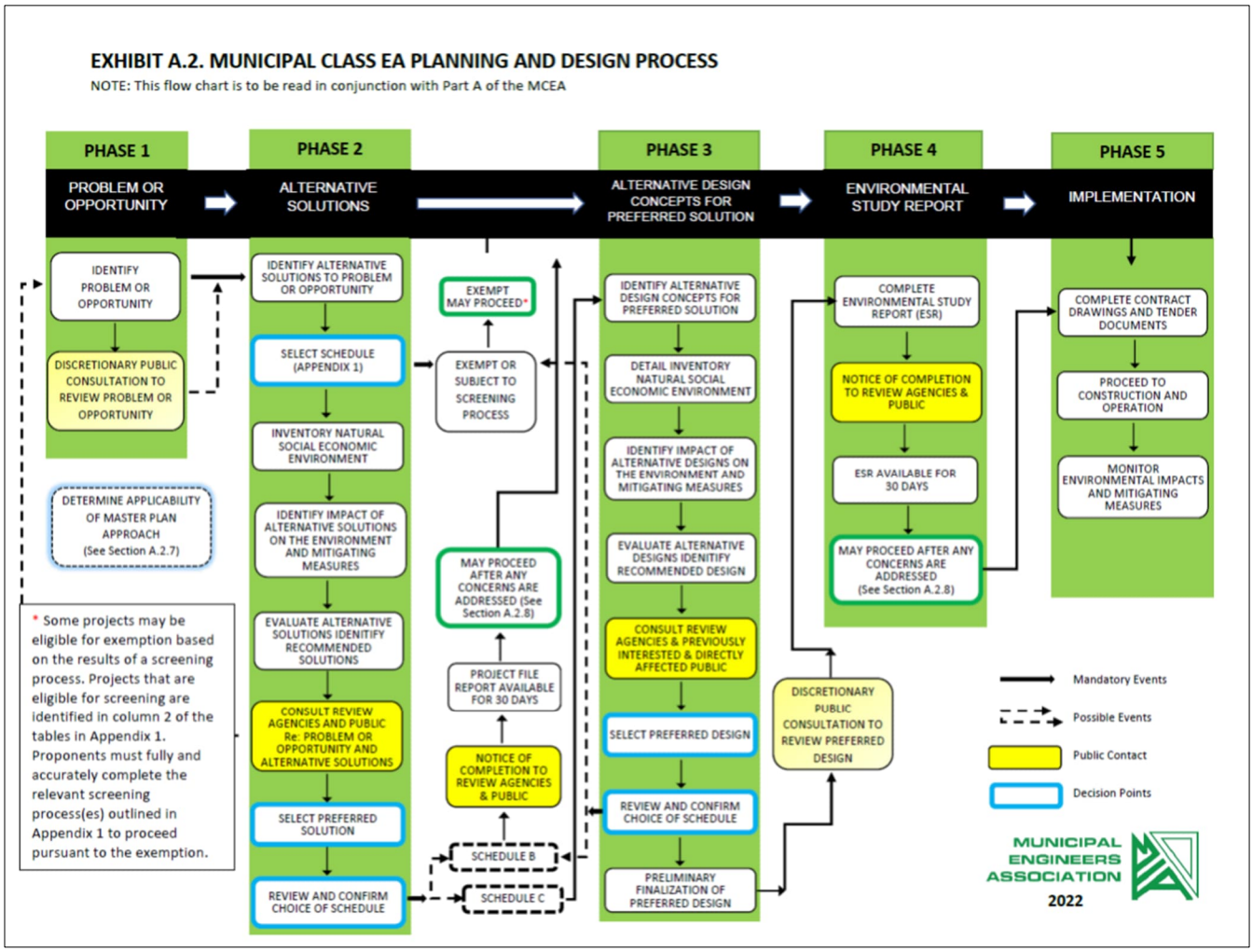
solution for addressing problems and opportunities. The project commenced prior to the amendments to the Ontario EA Act that resulted in the updated MCEA Schedule and requirements. During the course of the project the MCEA requirements were restructured to allow exemptions for Schedule A and A+. The types of projects and activities are intended to be categorized based on the magnitude of their anticipated environmental impact. In specific cases, however, a project may have a greater environmental impact than indicated by the Schedule. The classification of the various undertakings in the approved class of undertakings outlined in the MCEA 2023 are:

- Exempt From Environmental Assessment Act (EAA) requirements.
- Eligible for exemption based on the results of the screening process(es) in MCEA Appendix 1.
  - Exemption eligible examples: Various maintenance, operation, rehabilitation, and other small projects that are limited in scale and have minimal adverse environmental effects are exempt from the EAA. Previously these projects were classified as Schedule A or A+ but are now classified as exempt.
- Proceed through Schedule B or C despite being eligible for screening.
- Schedule B projects, the proponent may, at its discretion, decide to carry out the process for a Schedule C project.
  - Schedule B: Includes projects that have the potential for adverse environmental effects. This includes improvements and minor expansions of existing facilities. These projects area approved subject to a screening process which includes consulting with stakeholders who may be directly affected and relevant review agencies.
- Schedule C projects, the proponent may decide to carry out an individual EA. Proponents of exempt projects may decide to carry out an EA like process outside of the EAA regime.
  - Schedule C: Includes the construction of new facilities and major expansions to existing facilities. These undertakings have the potential for significant environmental effects.

The extension of Interchange Way Class EA has been identified as a Schedule 'C' project under the MCEA (Figure 1-2). Environmental Study Report (i.e. this report) is required for Schedule 'C' projects to document the decision-making process.

As illustrated in Figure 1-2 the Municipal Class EA document outlines the planning and design process. Schedule 'C' projects are required to follow Phases 1 through 4 of this process.

Figure 1-2: Municipal Class EA Process



1.5 Environmental Study Report

This Environmental Study Report (ESR) documents the process followed to develop the Preferred Plan and the environmentally significant aspects of the planning, design, and construction of the proposed works. The ESR describes the problem being addressed; the existing social, natural cultural environmental considerations, planning, and design alternatives that were considered; a description of the recommended alternative and its

environmental effects and proposed mitigation measures; and commitments to further work, consultation / engagement, and monitoring associated with the implementation of the project.

As required by the MCEA, this ESR is being made available to stakeholders, regulatory agencies, Indigenous communities, and the public for a 30 calendar-day comment period. A Notice of Completion was placed on City of Vaughan's project website, and letters were mailed / emailed to notify government agencies, Indigenous communities, landowners, interested groups and members of the public on the study mailing list. During the comment period, parties with outstanding issues are encouraged to bring their project concerns to the attention of the City of Vaughan for resolution. This ESR has been placed on the public record on the project website (www.vaughan.ca/VMCTMP).

1.5.1 Section 16 Order

The Class EA process includes an appeal provision. The Minister of the Environment, Conservation and Parks has the authority and discretion to make an Order under Section 16 of the *Environmental Assessment Act*.

A Section 16 Order may require that the proponent of a project going through a Class Environmental Assessment (Class EA) process, such as the MCEA:

1) Submit an application for approval of the project before they proceed. This is generally referred to as an Individual Environmental Assessment (individual EA).

2) Meet further conditions in addition to the conditions in the Class EA. This could include conditions for: further study, monitoring and/or consultation.

The minister can also refer a matter in relation to a Section 16(6) Order request to mediation.

Before making an Order, the minister must consider the factors set out in Section 16(5) of the Environmental Assessment Act. If a Section 16 Order request is made, the project proponent cannot proceed with the project until the minister makes a decision on the request. If the minister makes a Section 16 Order, the proponent may only proceed with the project if they follow the conditions in the Order.

Note, Section 16 Order requests were previously known as Part II Order requests.

Reasons for Requesting an Order

A concerned party may ask the minister to make a Section 16(6) Order if:

- They have outstanding concerns that a project going through a Class EA process may have a potential adverse impact on constitutionally protected Aboriginal and treaty rights;
- They believe that an Order may prevent, mitigate or remedy this impact.

A Section 16(6) Order request cannot be made to simply delay or stop the planning and implementation of a project that is going through a Class EA process. Prior to making a Section 16(6) Order request, the concerned party should first try to resolve any concerns directly with the project proponent, in this case, City of Vaughan.

Timing for an Order Request

During the 30-day public comment period, anyone can review the documentation, submit any comments or concerns to the proponent, and request a Section 16(6) Order.

To request a Section 16 Order for a project, on the grounds that an Order may prevent, mitigate or remedy potential adverse impacts on constitutionally protected, Aboriginal and treaty rights, a concerned party must make the request before the public comment period is complete.

How to make a request

To submit a Section 16(6) Order request, the following information must be provided:

- name, address and email address;
- project name;
- proponent name;
- what kind of Order is being requested i.e., a request for additional conditions or a request for an individual environmental assessment;
- details about the concerns about potential adverse impacts on constitutionally protected Aboriginal or treaty rights and how the proposed Order may prevent, mitigate or remedy the identified adverse impacts;
- whether the concerned party belongs to, represents or has spoken with an Indigenous community whose constitutionally protected Aboriginal or treaty rights may be adversely impacted by the proposed project;

- whether the concerned party has raised their concerns with the proponent, the proponent's response (if any) and why the concerns could not be resolved with the proponent; and
- any other information to support the request.

Section 16 Order requests are made to the Minister of Environment, Conservation and Parks and the Director of Environmental Assessment Branch:

Minister
Ministry of the Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
Minister.mecp@ontario.ca

Director
Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5
enviropermissions@ontario.ca

There is no appeal of the minister's decision with respect to a Section 16 Order. If the request for a Section 16(6) Order is denied by the minister, the proponent can proceed with the project. If the minister makes an Order, the proponent may only proceed with the project if they follow the conditions in the Order.

The above discussion is intended as an overview of the process only. For more information and specific instruction, please visit:

https://www.ontario.ca/page/class-environmental-assessments-section-16-order.

2 Planning Context

This chapter reviews the planning and policy framework applicable to the extension of Interchange way Class EA Study. The planning and policy framework guides infrastructure planning, land use planning, and strategic investment decisions to support Provincial, Regional and City objectives in growth and transportation.

The identification of the study area problems and opportunities considered this policy framework, to ensure that the final recommendations are consistent with Provincial, Regional and City policies and objectives.

2.1 Province of Ontario

2.1.1 A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)

A Place to Grow: Growth Plan for the Greater Golden Horseshoe ("Growth Plan"), 2019, was prepared and approved under the Places to Grow Act (2005), a legal framework that implements the Province's vision for managing growth within the Greater Golden Horseshoe (GGH). Amendment 1 to the Growth Plan 2019 was approved by Council to take effect in August 2020.

The GGH is a dynamic and diverse area, and one of the fastest growing regions in North America. By 2051, this area is forecast to grow to, at a minimum, 14.8 million people and 7 million jobs, with Region of York accounting for 2 million people and approximately 1 million jobs. Section 2.2.3 of the Growth Plan identifies 25 Urban Growth Centres as strategic focal points for growth and intensification. Specifically, the intent of the Urban Growth Centres will:

- be focal areas for investment in regional public service facilities, as well as commercial, recreational, cultural, and entertainment uses;
- accommodate and support the transit network at the regional scale and provide connection points for inter- and intra-regional transit;
- serve as high-density major employment centres that will attract provincially, nationally, or internationally significant employment uses; and

- accommodate significant population and employment growth.

The 2020 Amended Growth Plan identifies the VMC study area as an Urban Growth Centre under Schedule 4. The VMC area is to achieve a minimum density target of 200 residents and jobs combined per hectare by 2031 or earlier. It is anticipated that, as the VMC redevelops and intensifies, surrounding employment lands will also be the focus of redevelopment and intensification with increased employment growth.

2.1.2 Provincial Policy Statement

The Provincial Policy Statement ("PPS"), 2020, is issued under the Planning Act and supports the planning of land uses across the Province. The PPS provides policy direction for the use and management of land and infrastructure, while protecting the environment and resources, as well as to ensure opportunities for employment and residential development. Sections of the PPS that are applicable to the planning of transportation infrastructure include:

Part IV Vision for Ontario's Land Use Planning System – The development of land should be optimized to promote efficient use of land, resources and public investment in infrastructure and public service facilities. These land use patterns promote mixed uses including residential, employment, recreation, parks and open space. The supporting transportation infrastructure is to provide choices and promote increased use of active transportation as well as transit before other modes of travel. This is in support of building livable and healthy communities.

Part V Policies – Specifically, Section 1.6.7 outlines the policies for infrastructure and public service facilities under transportation systems. The policies state that "Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs." A multimodal transportation system is to provide connectivity within and among the transportation systems. Furthermore, land use patterns should be planned to minimize the length and number of vehicle trips, as well as to support existing and future active transportation and transit services.

2.2 York Region

2.2.1 York Region Official Plan

The 2022 York Region Official Plan (OP) was adopted by York Region Council in June 2022, and approved by the Minister of Municipal Affairs and Housing in November 2022. The OP provides a long-term strategic policy framework for guiding growth and development in York Region, while providing the opportunities for more detailed planning by local municipalities.

Specific York Region Official Plan objectives and policies that guide transportation planning decisions are reflected in Chapter 2, 4, and 6. Chapter 2, "The Foundation for Complete Communities", provides policies intended to help create well-designed complete communities that integrates greenspace, trails, pedestrian, and transit networks, and that offer a variety of housing, transportation, accessible human services, and employment options. Chapter 4, "An Urbanizing Region", provides the foundation for vibrant cities and complete communities. It recognizes that the Vaughan Metropolitan Centre is one of the four Regional Centres that is strategically located and connected along Regional Corridors to enhance the mobility of people and goods. Chapter 6, "Servicing Our Communities" includes policies that coordinates the provision of services with the city and community building policies of the OP, as well as policies that support the long-term vision of Transportation.

The York Region Official Plan provides a strong policy foundation for the future transportation network by establishing a number of key policies that guide the more detailed policies and recommended actions of the TMP. These include:

- Make efficient use of existing and future transportation infrastructure;
- Promote walking, cycling, transit use and a carpool through Comprehensive Transportation Demand Management and Sustainable Mobility Measures; and
- Reduce automobile trips towards more sustainable modes of transportation will improve travel options, enhance air quality, and protect York Region's natural heritage.

2.2.2 York Region Transportation Master Plan

The York Region Transportation Master Plan ("YRTMP"), 2022, builds on the Regional Official Plan and sets out the infrastructure and policy requirements required to build and maintain the transportation system. This includes planning and policies for additional road and transit infrastructure, and a system of sidewalks and trails to facilitate active transportation. The

TMP is a fundamental planning / policy document addressing the capacity of the current transportation network and maintaining the quality of life for Region residents and businesses while accommodating the dramatic growth that is forecast by the Growth Plan.

The following Plan objectives include:

1) Makes the best use of infrastructure and services;
2) Encourage all types of travel;
3) Provide a resilient and adaptable transportation network;
4) Enhance partnerships;
5) Actively engage and share information; and
6) Align project costs.

The VMC is recognized as a Mobility Hub in the YRTMP, as defined in the Metrolinx Regional Transportation Plan. Some of the policies and recommendations in the YRTMP state that the Region will implement the Rapid Transit network (which has since been constructed along Highway 7) and continue to improve and expand the services outside the rapid network. It states that the Region will support local municipalities for mitigating barriers in the major collector road network for new and existing development areas. The YRTMP states that it will continue to collaborate with local municipalities as they develop and implement their active transportation plans and work with local municipalities to proactively review ways to make existing communities more complete through interventions addressing both land use and transportation systems.

In addition to the vivaNext Rapid Corridor along Highway 7 through the VMC study area, Jane Street is also identified in the Regional Viva Network Expansion Plan, with curbside stations being constructed between Steeles Avenue and Major Mackenzie Drive. The Rapid transit along Jane Street is intended to provide a service connection with the TTC Line 1 Subway Extension.

2.3 City of Vaughan

2.3.1 City of Vaughan Official Plan

The City of Vaughan Official Plan ("VOP") 2010 is part of an overall Growth Management Strategy, initiated and passed by Council and partially approved by the Ontario Municipal Board, which will shape the future of the City and guide its continued transformation into a

vibrant, beautiful and sustainable City. The overall Growth Management Strategy consists of three main components:

- Vision 2020 – the City's Strategic Plan;
- Green Directions – the City's Sustainability Master Plan; and
- A Plan for Transformation – the City's new Official Plan.

The main principles of Vaughan's Vision for Transformation and the resultant policies are summarized through eight key themes, identified below. These applicable goals have become the goals of the Official Plan:

- Strong and Diverse Communities;
- A Robust and Prominent Agricultural System;
- A Diverse Economy;
- A Vibrant and Thriving Downtown;
- Moving Around without a Car;
- Design Excellence and Memorable Places;
- A Green and Sustainable City; and
- Directing Growth to Appropriate Locations.

With respect to the goal of a vibrant and thriving downtown, the Province identified the VMC as a provincially designated Urban Growth Centre. The VMC is envisioned to become the City of Vaughan's downtown – the highest density node within the City and a focus for civic activities, business, shopping, entertainment and living. The VMC can accommodate a significant amount of Vaughan's planned residential and employment growth and it is an appropriate location for major Institutional uses. Through planning, design, programming, and investment, the VMC will be the focus of Vaughan's identity.

The VMC will comprise distinct development precincts including residential neighbourhoods, office districts, employment areas and mixed-use areas, all linked by a robust system of parks, public squares and open spaces, including Edgeley Pond and the Black Creek system, and a fine-grain grid pattern of streets. The Official Plan Schedule 1 Urban Structure is provided in Figure 2-1 and key aspects are summarized below:

- The Vaughan Metropolitan Centre is identified as an intensification area.

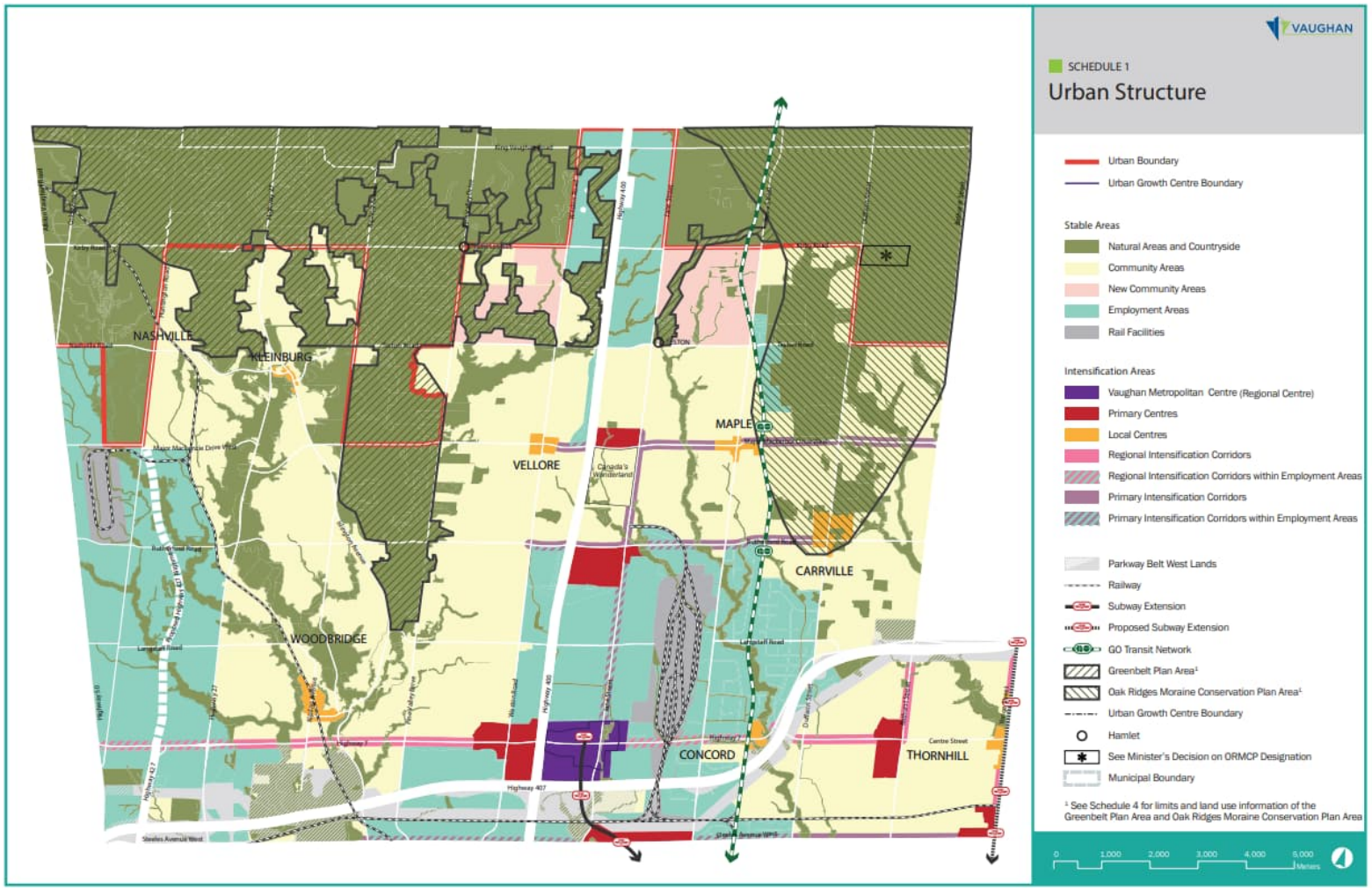
- Regional Intensification Corridors, which are Regional Roads that have been identified for major higher-order transit investments, such as Viva Rapid Transit on Highway 7, will link the VMC with other intensification areas in Vaughan and across York Region.

The VOP 2010 provides direction in transforming the transportation network within the City. The OP notes the following transportation policies applicable to the VMC TMP Study:

- To establish a comprehensive transportation network that allows a full range of mobility options, including walking, cycling and transit;
- Developed as a pedestrian-friendly and transit-oriented place, providing a variety of housing options and diverse employment opportunities;
- A transit-modal split of 50% during peak periods is targeted for the VMC study area and Regional Intensification Corridors by 2031;
- Land-use planning decisions within Intensification Areas should maximize the use of existing and planned transit infrastructure, taking into account potential impacts on nearby neighbourhoods; and
- To consider the coordination of central bicycle parking facilities, which may also include supporting amenities such as lockers, showers and changing facilities, in the VMC.

At the time of this ESR, the City of Vaughan has committed to an Official Plan Review. The Official Plan Review is intended to build on the comprehensive policy structure established by the VOP 2010. The resulting Plan will take into consideration the changing Provincial policy regime and the evolving circumstances and issues that will influence planning in the Greater Golden Horseshoe to 2041 and beyond. The intent is to produce a 'made in Vaughan' response to the future, prepared with public input and consultation on the desired long-term vision. The Official Plan is a key component of the City's overall growth management strategy to 2051.

Figure 2-1: VOP 2010 - Schedule 1 Urban Structure



2.3.2 City of Vaughan Transportation Master Plan

The Vaughan Transportation Plan (VTP) 2023 is the City of Vaughan's long-range Transportation Master Plan (TMP) which replaces the TMP completed in 2012. The VTP incorporates the updated planning context which influences the city and provides baseline transportation conditions today through to 2051. It provides direction for future transportation projects, policies, initiatives, studies, and decisions that will direct transportation changes in the City to create a network supportive of all users.

The vision set out by the VTP is to provide the city with high-quality, competitive, sustainable and attractive mobility choices. There have been four pillars established to support this vision which include:

1) Provide choices by letting people choose how they will travel through providing multiple attractive options instead of being limited to driving to their destination.
2) Move more people and goods through improving sustainability and maximizing infrastructure to be used effectively and flexibly for people and goods.
3) Be equitable by developing a transportation system that serves everyone, regardless of age, ability, background, and income level, and
4) Promote good health by minimizing pollution and greenhouse gases from vehicles and building safe infrastructure for vulnerable users.

The VMC has been identified as an Urban Growth Centre in the Ontario government's Growth Plan for the Greater Golden Horseshoe, which means the area will be planned to "accommodate and support the transit network at the regional scale and provide connection points for inter- and intra-regional transit." Additionally, the Growth Plan identifies priority transit corridors that connect the VMC to other regional growth areas. It has also been forecasted that the VMC will be subject to high population growth. This means the VMC will need to support the City's growing population while playing an important role in connecting other intensification areas in both the Region and the City.

2.3.3 Vaughan Metropolitan Centre Transportation Master Plan

The VMC Transportation Master Plan was an appendix to the City's 2012 TMP and established the need and justification for the Interchange Way extension. The 2012 VMC TMP includes identifying appropriate population and employment projections and necessary road network improvements for the 2031 planning horizon. This involves

classification of roadway segments and identification of required rights-of-way, identification of Transportation Demand Management (TDM) programs, transit and cycling initiatives. The transportation plan also addresses the needs of the 2021 planning horizon and developed an implementation strategy for the necessary improvements.

At the time of the writing of this ESR, the VMC TMP is being updated for the 2051 planning horizon and is considering new population and employment growth goals that exceed those planned in the 2012 VMC TMP.

2.4 Adjacent Planning Projects

The Weston 7 Transportation Master Plan will identify and recommend a long-range transportation plan for the Weston 7 Secondary Plan area that accommodates many forms of transportation, including walking, cycling, transit and driving. Once complete, the Transportation Master Plan will identify a transportation network and outline an implementation strategy for future projects that will address connectivity, growth, accessibility and mobility for all modes of transportation for the Weston 7 area. By 2031, the City is expected to accommodate approximately 167,300 new residents and 103,900 new jobs, largely in areas of the City that are already built up.

To effectively plan for the long term future of Weston 7, the City of Vaughan has initiated a Secondary Plan Process. The first step in this process is a three stage study that will create a strategy to define all the elements needed for successful growth: new roads and active transportation routes, new open spaces and parks, policies to establish height and density of new development, and hard and soft infrastructure requirements.

The Weston 7 Secondary Plan is currently at the end of phase two, which includes developing the draft Secondary Plan and engaging in public consultation. The Plan will soon be moving into phase 3, which includes navigating the secondary plan through the approvals process, a statutory public meeting, a recommendation report to the Committee of the Whole and Council adoption.

Black Creek Renewal Municipal Class Environmental Assessment Study

The VMC Black Creek Renewal Municipal Class Environmental Assessment (EA) Study, which is intended to establish the alignment and form of Black Creek through the south-east quadrant of the VMC Secondary Plan Area, initially started in 2012. Early in the process, it

became apparent there were a number of conflicting interests in the size, alignment and configuration of a reconstructed and renewed Black Creek valley corridor between the landowners and review agencies.

This study identified a range of alternative solutions to reduce flooding and flood damages, improve water quality and limit stream bank erosion in Black Creek. The preferred solution to address flooding was determined to be the reconstruction and renewal of Black Creek between the Edgeley Pond (north of Highway 7) and Highway 407.

The Vaughan Metropolitan Centre (VMC) Black Creek Renewal Municipal Class Environmental Assessment (EA) Study will consider different potential alignments and physical forms for Black Creek within the study area and establish a plan for the renewal of Black Creek that will be compatible with the proposed land uses within the study area.

Now that the EA study is complete, the City has progressed to the design and construction phase of the Black Creek Renewal Project. Given the complexity of this project, design and construction activities have been separated into three components:

- Construction of Edgeley Pond and Park.
- Replacement of the culvert under Highway 7 at Jane Street
- Renewal of the Black Creek channel between Highway 7 and Highway 407.

Portage Parkway Municipal Class Environmental Assessment Study

This Study outlines the Portage Parkway Widening and Easterly Extension to Creditstone Road as a strategic improvement and key element in support of the Vaughan Metropolitan Centre (VMC).

The study provides for comprehensive planning and design and pro-actively facilitates the logical and orderly staged implementation and construction of two road projects in the Portage Parkway corridor in step with the transformation of the VMC – the City's downtown. The Portage Parkway Widening and Easterly Extension to West of Black Creek (Part A) as more broadly part of the emerging street network, facilitates and supports imminent and emerging projects and initiatives in the vicinity of the Mobility Hub at the VMC Subway station and York Region Transit Terminal – capitalizing on significant regional and local transit infrastructure. The Portage Parkway Extension from West of Black Creek to Creditstone Road (Part B) project necessitating the crossing of the Black Creek channel is

part of the anticipated relative longer term transformation of the VMC west of the Black Creek.

The City's 2012 Transportation Master Plan, the Vaughan Metropolitan Centre (VMC) Secondary Plan, and supporting focused area transportation plans and studies identified the Portage Parkway Widening and Easterly Extension to Creditstone Road as a strategic network improvement to support development within the VMC.

The preferred design alternative for the Portage Parkway widening as a multi-modal street including the following key elements:

- Extend Portage Parkway from West of Black Creek to Creditstone Road establishing new street right-of-way with
  - Active transportation facilities (cycle tracks and sidewalks)
  - 4 general purpose lanes (2 in each direction) with wider curb lanes facilitating transit vehicles and trucks
  - Signalized intersections at the future Maplecrete Road extension and Creditstone Road
- Portage Parkway crossing of the Black Creek channel with provision and opportunity for accommodating under passage for north-south active transportation linkages and facilities.

Highway 407 Transitway

The Ministry of Transportation (MTO) is undertaking a planning and preliminary design study for the 23 km central segment along Highway 407 through York Region, stretching from east of Highway 400 to Kennedy Road (407 Transitway). The 407 Transitway is intended to be a bus rapid transit (BRT) and has the potential to be converted to light rail transit (LRT) in the future. The transitway is planned to be constructed on a separate right-of-way that is parallel to Highway 407 from Burlington to Highway 35/115, which includes stations, parking, and access connections.

Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe identifies a proposed higher-order transit link providing east-west access across the GTHA from Burlington to Oshawa. Its proposed route follows the 407 Transitway.

2.5 Planned Municipal Infrastructure

Keele Street area

The City of Vaughan is undertaking important municipal infrastructure improvements in Keele Street, including a new multi-use pathway and new streetlighting on the east side of Keele Street, from Teston Road to Kirby Road.

These improvements are part of the City's 2012 Pedestrian and Cycling Infrastructure Implementation network and will further enhance the overall connectivity of the active transportation network within the city as well as provide safe pedestrian and cyclist access to the North Maple Regional Park.

3 Identification/Description of the Problems and Opportunities

3.1 Transportation and Traffic Operations

Opportunities and constraints identified for the road network are mainly focused on high average vehicular delays, funneling of traffic through the central corridor (Jane St), as well as intersection delays on Hwy 7 and Jane St.

Key Challenge: The amount of traffic generated by recent existing development causes major delays and queue spills, which is expected to substantially increase as a result of future development.

Multiple challenges in traffic operation are summarized below:

- Hwy 7 and Millway Ave causes queues to back-up resulting in high delays for the southbound traffic on Millway Ave.
- Intersections along Hwy 7 (particularly Jane St) – the funnelling of east-west traffic through one central corridor which is also the sole continuous arterial across the study area and has access to Hwy 400.
- Limited crossing opportunities over Highway 400, placing additional stress on the operation of Highway 7 and Portage Parkway overpasses.
- Higher than acceptable delays for vehicles at Highway 400 off-ramps;
- Long queues for SB traffic on Millway Avenue at the intersection of Highway 7 and Millway Avenue;
- Vulnerable E-W movement within VMC, as Highway 7 is the sole East-West arterial roadway across VMC;
- Long delays (Level of Service (LOS) F) on Northbound Left turn movement in the intersection of Highway 7 and Jane Street, and long queues for Westbound right turn movement;

- Limited crossing opportunities over Highway 400, placing additional stress on the operation of Highway 7 and Portage Parkway overpasses; and
- Hwy 7 & Jane St intersection, average delay of 244 seconds on northbound left movement (LOS F) and queue of up to 213 metres for westbound right.

These network constraints for vehicular movement can conflict with pedestrian and cycling network. For instance, a long vehicular queue can obstruct pedestrian crossings.

3.2 Need and Justification

Transportation planning direction for the VMC was first set out in 2012, in a Vaughan-wide TMP and VMC TMP that was included as an appendix to the City-wide TMP. Since then, various improvements and policy changes to the VMC TMP study area were introduced, calling for a review of the transportation directives for the area. Examples of improvements include the opening of the Vaughan Metropolitan Centre subway station, VMC Bus Terminal, and Highway 7 Viva Rapid Transit.

During the Phases 1 and 2 of the MCEA, the VMC's existing and future conditions of the study area assessed to confirm transportation needs; identified a preferred transportation option based on an evaluation of preliminary options; used a multimodal level of service approach to evaluate network connection and infrastructure; undertook a complete mobility review of the future development scenarios for the VMC and support implementation of a public realm vision, based on building complete streets; and finally developed an implementation plan, including recommendations to prioritize transportation infrastructure improvements, policies and programs.

Subsequent to confirming the need and justification for the improvements required in the VMC transportation network, the Millway Avenue EA study followed Phases 3 and 4 of the MCEA process, with the following objectives:

- Confirmed the need for the extension of Millway Avenue, based on the Preferred Transportation Option;
- Developed design alternatives for the proposed extension;
- Identified the preferred design alternative for the extension Millway Avenue; and
- Documented the decision-making process in an Environmental Study Report.

3.3 Problem/Opportunity Statement

The VMC vision is to accommodate mobility needs, supportive policies and a phasing strategy to 2051 with a focus on street connectivity, accessibility and support for multi-modal mobility, and integration of Transportation Demand Management (TDM) (for example, walking, cycling, micromobility, transit, ride share) with parking management. The TMP will enhance the sustainable and multi-modal transportation system with a network that supports all users and all modes of transportation. The transportation system will be accessible and promote connectivity, leveraging existing rapid transit infrastructure and service within and to and from the broader area.

The vision for VMC's transportation future integrates four key principles:

The VMC TMP will identify long-term strategies, policies, and infrastructure needs to support population and employment growth to 2051.

4 Existing Conditions

4.1 Multi-modal Transportation Infrastructure

The proposed Interchange Way extension was included in the City's 2012 Transportation Master Plan – Appendix A: Focus Area Studies, Appendix A1. Vaughan Metropolitan Centre. That document addressed Phases 1 and 2 of the EA process to present the problem / opportunity statement and consider different area-wide alternatives. The extension of Interchange Way was included in the preferred alternative in the TMP. This Environmental Assessment relies on the previous analyses and then addresses the remaining phases of the EA process.

Presently, Interchange Way only exists between Commerce Street and Jane Street. East of Jane Street, Interchange Way becomes Peelar Road. This section summarizes multi-modal transportation in the vicinity of the existing east-west portion of Interchange Way.

4.1.1 Pedestrian

Pedestrian sidewalks are provided on both sides of Interchange Way.

4.1.2 Cycling

No specific provision for cyclists has been made on Interchange Way. There are no dedicated cycling facilities or signage related to a bike route.

4.1.3 Transit

Transit presently does not operate on Interchange Way. The nearest transit stops are on Jane Street at the Interchange Way intersection.

4.1.4 Vehicular Traffic

Interchange Way is a two-lane collector road under the jurisdiction of the City of Vaughan. It is used by vehicular traffic accessing primarily commercial properties, as well as residential properties that are recently constructed or actively under construction.

4.2 Natural Environment

4.2.1 Fish and Fish Habitat

The VMC and surrounding area are within the Humber River watershed, and Black Creek Subwatershed. A review of available background information provided fish community data for Black Creek, identifying a total of eight species including Brook Stickleback, Common Carp, Common Shiner, Creek Chub, Golden Shiner, Hornyhead Chub, Pumpkinseed and White Sucker. No SAR or their critical habitat was identified on Fisheries and Oceans Canada (DFO) Aquatic SAR mapping (DFO, 2024).

Black Creek travels southward along the east side of Jane Street before curving slightly east around the Paradise Banquet Hall and flowing south through the right-of-way. This following section provides a description of the fish habitat 120 m upstream and downstream of the right of way based on background data and field investigations conducted on October 28, 2021.

Upstream Reach

The upstream reach of Black Creek consisted of a wide, well-defined watercourse. The majority of the creek consisted of flats, with a few pools and runs. The substrate throughout the reach was mostly sandy, with small amounts of gravel, silt, and detritus present. Riparian trees provided 50% shading to the stream. A large amount of garbage is found throughout the creek, a 4 m wide pile has built up at the culvert. The water was moderately turbid and WSP ecologists observed two fish measuring < 5cm; however, they could not be identified to species.

The left bank had a moderate slope and is separated from a commercial business parking lot by a small riparian zone measuring approximately 7 m wide. Gabion is present at the crest of the bank at the culvert. The right bank had a steep slope and is separated from the Vaughan Iceplex parking lot by a 5 m wide riparian zone. Concrete barriers run the length of the site on the crest of slope. 1.10 m diameter CSP culvert outlets into the stream approximately 90 m upstream of the culvert.

Downstream Reach

The downstream reach of Black Creek consisted of a wide, well-defined stream. The culvert flow outlets into a deep pool at the base of a gabion wall. A gabion-reinforced waterfall with a drop of 0.6 m is present approximately 80m downstream of the culvert, providing a barrier to fish movement. The substrate throughout the flats was mostly sandy, with small amounts of silt. The substrate through the runs and riffles was mostly cobble with smaller amounts of boulder, gravel, and sand. Riparian trees provided 70% shading to the stream. The water was turbid, and no fish were observed in the downstream reach.

The left bank had a moderate slope and is separated from Peelar Road by a 20 m riparian zone and a 10 m wide strip of manicured lawn which lines Peelar Road for the extent of the reach. A 5 m tall gabion wall armours the culvert extends 20 m past the culvert along the left bank. The right bank had a steep slope and is separated from the Vaughan Iceplex parking lot and commercial businesses by a 5 m wide riparian zone. A 5 m tall gabion wall armours the culvert extends 20 m past the culvert along the right bank. A complete Natural Environment Report can be found in Appendix A.

4.2.2 Terrestrial Ecosystem

The Study Area is situated within Ecoregion 7E, the Lake Erie-Lake Ontario Ecoregion, which extends from Windsor and Sarnia east to the Niagara Peninsula and Toronto, with shoreline on Lakes Huron, Erie, and Ontario. This ecoregion supports the largest remnants of tall-grass prairie in the province. Characteristic mammals such as White-tailed Deer, Northern Raccoon, Striped Skunk, and Virginia Opossum inhabit this ecoregion. Characteristics birds include Green Heron, Virginia Rail, Cooper's Hawk, Eastern Kingbird, Willow Flycatcher, Brown Thrasher, Yellow Warbler, Common Yellowthroat, Northern Cardinal, and Savannah Sparrow, with Wild Turkey having been re-introduced into this ecoregion. A complete Natural Environment Report can be found in Appendix A.

4.2.2.1 Vegetation Communities and Botanical Inventory

A total of 44 plants were documented during the botanical inventory. Of these, 36 were identified to species while eight were identified to genus only. Toronto and Region Conservation Authority (TRCA) provides a local rank for each species which identifies none (0%) of the recorded species as Regional Species of Conservation Concern, and two species (6%) as Urban Species of Conservation Concern, Freeman's Maple and Pennsylvania Smartweed. Based on the Ontario Exotic Status as provided by Natural Heritage Information

Centre (NHIC), 20 (56%) of the plant species recorded in the Study Area are considered exotic in Ontario. The percentage of all plants inventoried by WSP was almost 44% native (16 species). This percentage is typical for plant communities along roads and in developed areas in Southern Ontario.

The field work completed in 2021 identified most of the Study Area as composed of mostly highly disturbed areas identifying three Ecological Land Classification (ELC) polygons; Cultural Meadow, Cultural Woodland which contains a Reed-canary Grass Mineral Meadow Marsh within the Black Creek corridor.

4.2.2.2 Incidental Wildlife

Species observed during the general wildlife survey included Raccoon (*Procyon lotor*), European Starling, White-throated Sparrow, Northern Cardinal, and Ring-billed Gull. A wasp nest was also observed during the general wildlife survey visit.

4.2.2.3 Species at Risk

For the purposes of this report, the term SAR refers to those species listed as Endangered (END), Threatened (THR) and Special Concern (SC), listed on the Species at Risk in Ontario (SARO) List (Ontario Regulation 230/08), and protected under the ESA (2007).

The following 13 SAR have 'moderate' to 'high' potential to be present or to use habitat in the Study Area based on habitat suitability:

- Unisexual Ambystoma (Jefferson Salamander dependent population) (Ambystoma sp. DU 2), (Endangered)
- Bank Swallow (*Riparia riparia*), (Threatened)
- Barn Swallow (*Hirundo rustica*), (Special Concern)
- Bobolink (*Dolichonyx oryzivorus*), (Threatened)
- Chimney Swift (*Chaetura pelagica*), (Threatened)
- Red-headed Woodpecker (*Melanerpes erythrocephalus*), (Endangered)
- Wood Thrush (*Hylocichla mustelina*), (Special Concern)
- Eastern Small-footed Myotis (*Myotis leibii*), (Endangered)
- Little Brown Myotis (*Myotis lucifugus*), (Endangered)
- Northern Myotis (*Myotis septentrionalis*), (Endangered)
- Tricolored Bat (*Perimyotis subflavus*), (Endangered)
- Eastern Prickly-pear Cactus (*Opuntia cespitosa*), (Endangered)
- Purple Twayblade (*Liparis liliifolia*), (Threatened)

These species are each discussed in detail in the Natural Environment Report in Appendix A.

4.2.2.4 Significant Wildlife Habitat

A screening to review the potential for significant wildlife habitat (SWH) was completed. The presence of potential candidate SWH within and adjacent to the site was determined based on the Significant Wildlife Habitat Criteria Schedule for Ecoregion 7E.

4.3 Arborist and Tree Prevention Plan

A tree inventory within the Study Area was conducted on October 28 and November 4, 2021. A total of 333 trees were inventoried and assessed as part of this report. Of the 333 trees, 274 (82%) have a Diameter at Breast Height (DBH) of <20 cm, and 59 (18%) have a DBH or diameter at base height of ≥ 20 cm. The health of the trees ranged between good and poor; with a majority observed to be in good condition.

A majority of vegetation found on site is immature to semi-mature and characterized by native and non-native deciduous and coniferous trees, the majority of which have been planted. All inventoried trees within the subject property will require removal to accommodate the proposed road improvements and expansion. Most of the trees in the area are located within the right-of-way.

Due to the slight modifications to the preferred alternative design for Interchange Way, additional inventory and assessment of trees located south of the Site Boundary noted will be required. The majority of tree data collected remains accurate and relevant to the anticipated impacts of the project.

The complete Arborist Report can be found in Appendix B.

4.4 Landscaping

The existing character of the broader Study Area is predominately industrial and commercial. The landscape along Interchange Way from Commerce Street to Jane Street consists mainly of street tree and shrub plantings in median/turning lane. There are no notable naturalized woodlots or ecologically significant areas as the surrounding land uses are built-up and consist of mostly industrial buildings, vacant lands, and parking lots.

The character of the landscape east of Jane Street is also mainly industrial, except for Black Creek. Black Creek consists of a variety of tree species, some of which are invasive. Based on the Tree Preservation Charts prepared by WSP for the field works conducted on October 28thand November 4th, 2021, the plant community surrounding Black Creek are comprised of invasive species such as Manitoba Maple, Common Buckthorn, and Russian Olive, and native species such as Black Cherry, Canada Poplar, and Green Ash. Other species include Crack Willow and the general Hawthorn species. There may be impacts to higher quality vegetation types, including species which are candidates of potential significance. Along Interchange Way, the plant communities are primarily comprised of Elm, Maple, Spruce, Oak, Linden, Lilac, and Honey-Locust species.

Streetscape and landscape design considerations are described further in the Landscape Memo found in Appendix C.

4.5 Archaeological and Cultural Heritage Resources

4.5.1 Archaeological Resources

A Stage 1 Archaeological Assessment (AA) was completed in 2021 and entered into the register in January 2022 as part of the Schedule 'C' Municipal Class EA for the extensions of Interchange Way, from Highway 400 to Creditstone Road, and Millway Avenue from Highway 7 to Interchange Way. The current study area is centered on the intersection of Jane Street and Highway 7. Covering an area of approximately 208 hectares (ha), it ranges from Highway 400 in the west to Creditstone Road to the east, Portage Parkway in the north and Highway 407 in the south. The assessment was carried out in accordance with the Ministry of Citizenship and Multiculturalism's (MCM) Standards and Guidelines for Consultant Archaeologists (MCM, 2011). The resultant archaeological recommendations have been made based on the results of background historic research, an understanding of the geography and natural environment of the study area, and the property inspection to confirm the presence and/or absence of indicators of archaeological potential as outlined in Standards and Guidelines for Consultant Archaeologists. With the exception of three small areas, the study area was confirmed to have been significantly previously disturbed with potential for the presence of archaeological resources removed. Based on the results of the Stage 1 archaeological assessment, it has been determined that the areas identified as retaining archaeological potential must be subject to Stage 2 archaeological assessment.

The results are shown in Figure 4-1. The Stage 1 Archaeological Assessment Report can be found in Appendix D.

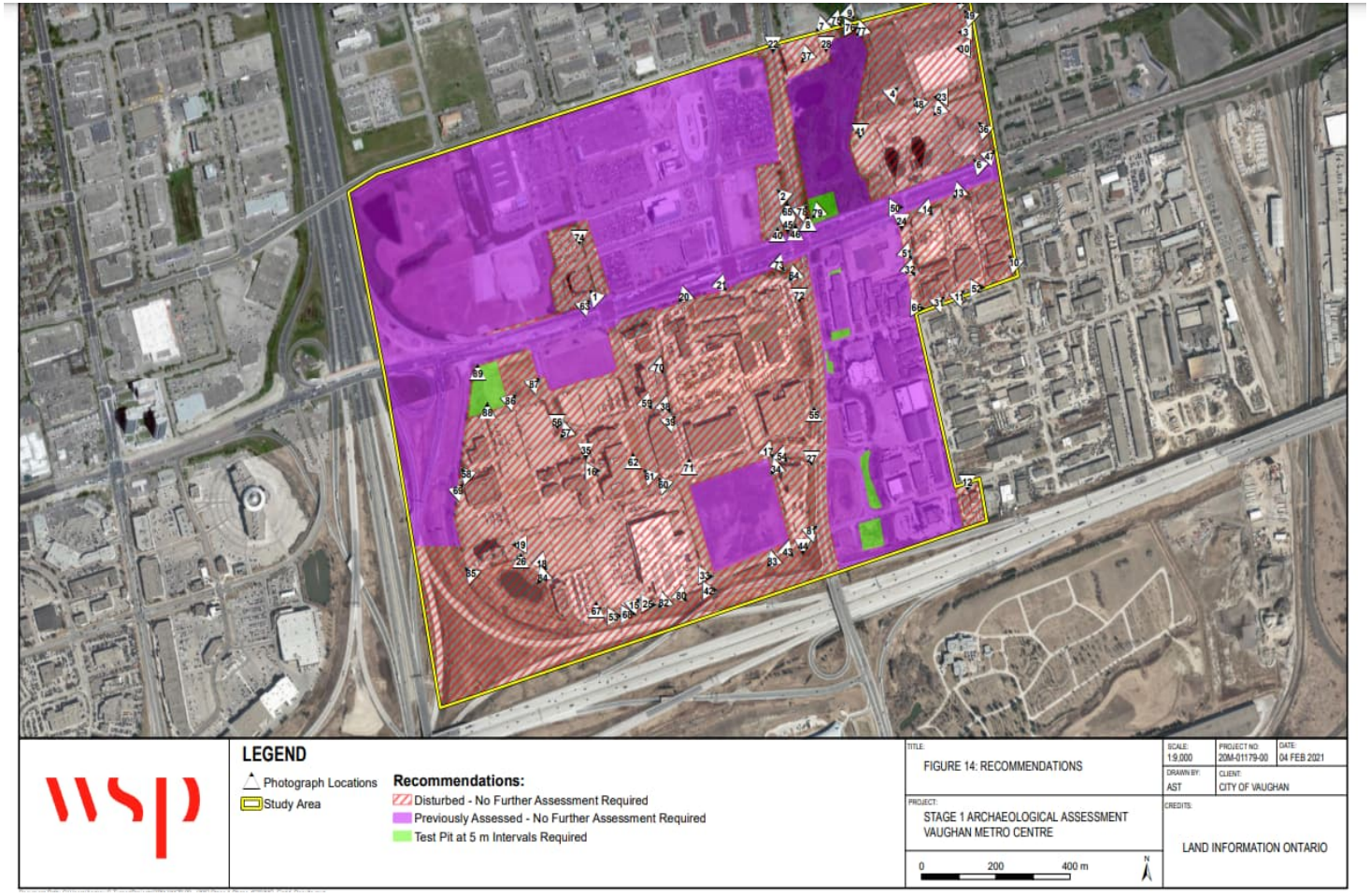


Figure 4-1: Stage 1 Archaeological Assessment Map

In 2023, additional lands were added to the overall project area, and this Stage 1 archaeological assessment was undertaken to assess those additional areas. A property inspection was conducted on November 23, 2023, to better understand the current conditions of the study area. The boundaries of the assessment correspond to new limits provided by the Client at the outset of the assessment. Based on the results of the Stage 1 archaeological assessment, a Stage 2 archaeological assessment is recommended for the portions of the study area determined to retain archaeological potential.

A Stage 1 Archaeological Assessment report for the additional lands can be found in Appendix D.

4.5.2 Cultural and Built Heritage Resources

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment was carried out and completed in March 2022 in support of the Class EA Study and is included in Appendix E.

This Cultural Heritage Report identified existing and potential built heritage resources (BHR) and cultural heritage landscapes (CHL) within the Project study area and the results of a property visit undertaken to confirm existing conditions, a preliminary impact assessment to identify negative impacts to BHRs and CHLs, preliminary mitigation recommendations, and determination of whether a Cultural Heritage Evaluation Report (CHER) or Heritage Impact Assessment (HIA) is required for all or parts of the study area to be impacted. The report was carried out for the entire Project study area and encompasses the broadest area that might be affected, which consists of all immediately adjacent properties (properties that border the MCEA Study boundary). A property visit was conducted on September 15, 2021, and did not identify any BHRs or CHLs in the Project study area. The complete Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment can be found in Appendix E.

4.6 Drainage and Stormwater Management

A field investigation of the study area and existing drainage features were conducted by WSP on September 20, 2022.

Under existing conditions, for the areas west of Jane Street, stormwater management measures currently exist in the form of existing ponds (Interchange Pond and Toromont

Pond). However, the areas east of Jane Street and south of Highway 7 have no existing stormwater management measures in place. Roadway runoff is generally captured by existing catch basins and conveyed through existing storm sewer networks.

The following drainage conditions were observed:

- Based on visual inspection the sidewalks and grassed areas within the right of way (ROW) of Interchange Way is draining towards the road.
- Maplecrete Road is quite flat.
  The low point of Creditstone Road was observed to be at where it intersects with Peelar Road.

The existing Black Creek Tributary crossing located west of Jane Street was inspected. The following was observed:

- Upstream end
  - Gabion collapsing, garbage present
  - Steep slope unable to inspect
  - From what could be observed from above little flow going through
- Downstream end
  - Gabion wall, lots of trees
  - Steep slope unable to inspect
  - From what could be observed from above standing water is present.

Under existing conditions, runoff from all roadways included in this study gets captured by catch basins and conveyed through storm sewers. Interchange Way consists of one lane in either direction while Millway Avenue consists of two lanes in either direction.

The land areas east of Jane Street and south of Highway 7 drains in a south westerly direction towards the main branch of Black Creek. The majority of land south of Highway 7 and west of Jane Street drains to the southwest, towards an existing pond called the Interchange Pond. There is a development south of Highway 7 and west of Jane Street that has its own SWM pond and any runoff from the development gets conveyed to the Toromont SWM pond instead of the Interchange Pond.

The complete Drainage and Stormwater Management Report can be found in Appendix F.

4.7 Hydrogeology and Source Water Protection Review

A Hydrogeological Assessment was completed in May 2025 in support of this EA Study and can be reviewed in Appendix G. The objective of the hydrogeological assessment study was to evaluates potential ways which proposed works may affect groundwater and surface water resources, or where existing conditions are important considerations when planning and designing the proposed works.

This project will be required to be assessed during the design stage when detailed construction information becomes available, to address the potential impacts of any construction dewatering on groundwater and/or surface water resources.

Based on review of the MECP water well records and site visit, it is interpreted that all properties in the Study Area have municipal water and wastewater servicing. As the majority of the land use is commercial and industrial and no private water wells were observed during the site visit, a door-to-door water well survey will not be required in areas where construction dewatering is anticipated for proposed works during the detailed design phase of the project. All identified well records are shown on Figure 4-2. The complete Hydrogeological Report can be found in Appendix G.

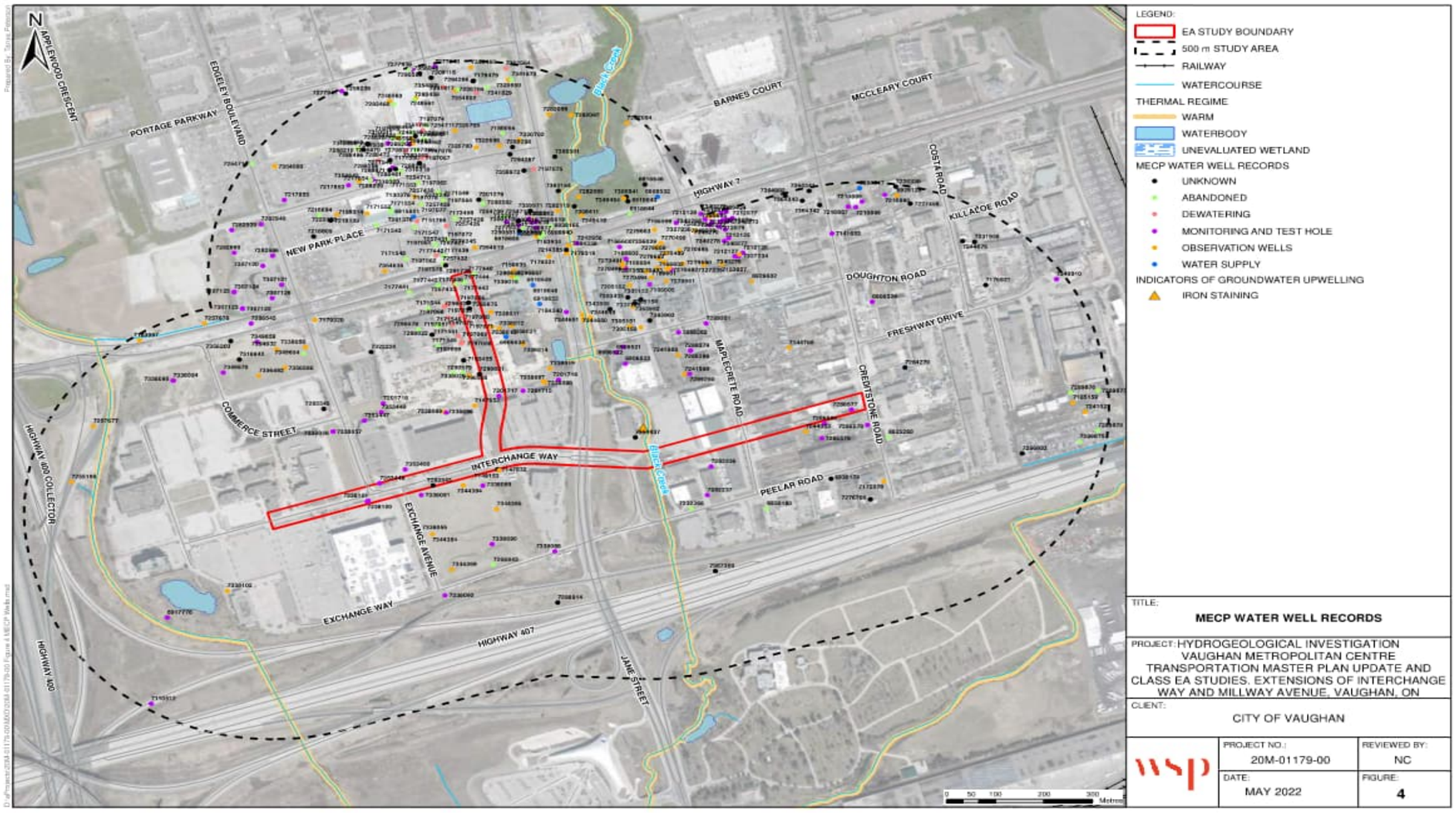


Figure 4-2: MECP Water Well Records in the Study Area

4.8 Geotechnical Assessment

A Geotechnical Investigation and Pavement Design Report was prepared in May 2025 in support of this EA Study and can be reviewed in Appendix H. The purpose of the investigation was to obtain information on the general subsurface soil and groundwater conditions at the site by means of a limited number of boreholes.

Based on the results of the geotechnical field investigation, the pavement layer thickness encountered within the project limits are summarized in Table 4-1.

Table 4-1: Existing Pavement Structure

BOREHOLE/COREHOLE NO.	ASPHALT THICKNESS (MM)	CONCRETE THICKNESS (MM)	GRANULAR BASE/ SUBBASE THICKNESS (MM)	TOTAL PAVEMENT STRUCTURE THICKNESS (MM)
Proposed Rehabilitation of Interchange Way (Interchange Way to Jane Street)				
BH-INT-01	140	-	550	690
BH-INT-02	130	-	550	680
BH-INT-03	140	-	550	690
BH-INT-04W	150	-	550	700
Range	130 - 150	-	-	680 – 700
Average	140	-	550	690
Proposed New Construction of Interchange Way (Peelar Road to Creditstone Road)				
BH-INT-06	60	-	250	310
BH-INT-07W	90	-	350	440
BH-INT-08	20	-	600	620
BH-INT-09	150	-	500	650
Range	20 - 150	-	250 - 600	270 - 750
Average	80	-	425	505

Laboratory moisture content testing indicates a moisture content range between 4% and 9%, with an average of 6% in the granular base/subbase materials within the project limits.

Based on the findings from our investigation, the recommended rehabilitation strategy for Interchange Way is Option 2: Full depth reconstruction. This option will address all the granular surface distresses and expose the subgrade material, which may identify soft areas that require improvement as follows:

- Remove the existing asphalt and underlying materials to a depth 650 mm below the finished grade;
- Proof-roll the exposed subgrade, repair soft-spots with Granular 'A' and re-grade as necessary;
- Place 350 mm, or more as required of OPSS 1010 Granular B Type II followed by placing a minimum of 150 mm of OPSS 1010 Granular A. All granular materials should be placed in lift thicknesses of 150 mm or less and compacted to a minimum of 100 percent Standard Proctor Maximum Dry Density (SPMDD);
- Place three lifts of hot-mix asphalt with 100 mm of SP 19.0 Cat B (PGAC 64-28) binder course in two lifts and 50 mm of SP 12.5 Cat B (PGAC 64-28) surface course in one lift;
- A light tack coat between the exposed concrete base and hot-mix asphalt courses; and
- The surface of the completed pavement should be provided with a minimum centre-to-edge cross-fall of 2 percent.

The new granular base/subbase materials should be placed in layers not exceeding 150mm (compacted thickness) and should be compacted to 100% of their respective SPMDD. The grading of the material should be conformed to current Ontario Provincial Standard Specifications.

It is recommended that geotechnical testing and inspections be carried out during construction operations to confirm construction is in accordance with the project specifications. Testing and inspections should include proof-rolling inspections on the subgrade prior to placing granular materials, compaction testing, monitoring of asphalt placement, etc.

The pavement strategy assumes that the exposed subgrade has been adequately prepared. If localized soft areas are encountered, it may be necessary to sub-excavate and replace with additional granular fill. It is recommended that qualified geotechnical personnel be retained to complete an inspection of the subgrade and placement of new granular during

construction prior to placement of any hot-mix asphalt. Soft areas should be repaired by sub-excavating a minimum depth of 300 mm and installing 300 mm Granular B Type I, compacted to 100% of the SPMDD. If necessary, geogrid may require strengthening soft soils.

4.9 Contamination Overview Study

A Contamination Overview Study (COS) was prepared in May 2025 in support of this EA Study and can be reviewed in Appendix I. The objective of the COS was to identify actual and potential sources of environmental liabilities, associated with the current and historical operations of the properties present within 250 metres from the Site boundary.

The scope of the COS work included the following tasks:

- Review of historical environmental reports related to the Study Area;
- Review of historical aerial photographs available from the Regional Municipality of York website and/or National Air Photo Library for the Study Area. Aerial photographs were used to assist in the determination of the first developed use in the Study Area, identify structures and buildings, and provide information with respect to land use over time;
- Review of topographic, physiographic, and geological maps for the Study Area. These sources were reviewed to obtain information regarding the stratigraphy of the underlying soil and to assist in identifying areas of potential environmental concern, such as above ground tanks (ASTs), pipelines and cemeteries and the potential for the migration of subsurface contaminants;
- Review of available information available from the Technical Standards and Safety Authority (TSSA) for selected properties in the Study Area;
- Review of database information from EcoLog Environmental Risk Information Services (ERIS) Ltd. The comprehensive database provides information with respect to above and underground storage tanks, waste disposal sites, polychlorinated biphenyl storage, compliance, convictions and spills, incidents recorded in the National Pollutant Release Inventory, the Inventory of Coal Gasification Plants, notices and instruments including Records of Site Condition (RSCs), and landfill information;
- Review of the water well records available through the Ontario Ministry of the Environment, Conservation and Parks (MECP);

- Review of available historical fire insurance plans (FIPs), to confirm the development history of the Study Area. This information was used to assess the historical occupants in the Study Area, the historical presence of underground storage tanks and general development;
- Conduct a windshield site reconnaissance and visually inspect the Study Area to assess current conditions of the Study Area and to evaluate the potential for impacts to soil and ground water. Photographs were taken to support pertinent observations; and
- Prepare a COS report documenting the findings, conclusions and recommendations.

On September 24, 2021, WSP staff visited the Study Area and conducted the Site reconnaissance. During the Phase One ESA, thirty-seven (37) Potentially Contaminating Activities (PCAs) were identified to be present on the Subject Property and within the Study Area. WSP has identified seven (7) Areas of Potential Environmental Concern (APECs) with the potential to impact soil and groundwater conditions at the Site. These APECs correspond to locations where potential contamination may be present and have been categorized by assessing the overall relative potential for contamination. The APEC locations are summarized below (Table 4-2) and included in Figure 4-3.

Table 4-2: Summary of Areas of Potential Environmental Concern

APEC ID	LOCATION OF APEC ON THE SITE	POTENTIALLY CONTAMINATING ACTIVITIES	COPC	MEDIA POTENTIALLY IMPACTED
APEC 1A	7540 Jane Street	19. Electronic and Computer Equipment Manufacturing	Metals, arsenic, VOCs	Soil and Groundwater
APEC 1B	7540 Jane Street	39. Paints Manufacturing, Processing and Bulk Storage	Metals, antimony, chromium VI, mercury, selenium, VOCs, PAHs	Soil and Groundwater
APEC 1C	7540 Jane Street	57. Vehicles and Associated Parts Manufacturing	Metals, chromium VI, VOCs, PHCs	Soil and Groundwater
APEC 2	31 Maplecrete Road	28. Gasoline and Associated Products Storage in Fixed Tanks	PHCs, BTEX	Soil and Groundwater

APEC ID	LOCATION OF APEC ON THE SITE	POTENTIALLY CONTAMINATING ACTIVITIES	COPC	MEDIA POTENTIALLY IMPACTED
APEC 3	33 Maplecrete Road	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Metals, PHCs, BTEX	Soil and Groundwater
APEC 4A	35 Maplecrete Road	34. Metal Fabrication	Metals, VOCs	Soil and Groundwater
APEC 4B	35 Maplecrete Road	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Metals, PHCs, BTEX	Soil and Groundwater
APEC 5	66 Creditstone Road	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Metals, PHCs, BTEX	Soil and Groundwater
APEC 6	69 Maplecrete Road	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Metals, PHCs, BTEX	Soil and Groundwater
APEC 7A	3131 Highway 7	28. Gasoline and Associated Products Storage in Fixed Tanks	PHCs, BTEX	Soil and Groundwater
APEC 7B	3131 Highway 7	33. Metal treatment, coating, plating and finishing	Metals, cyanide, antimony, chromium VI,	Soil and Groundwater

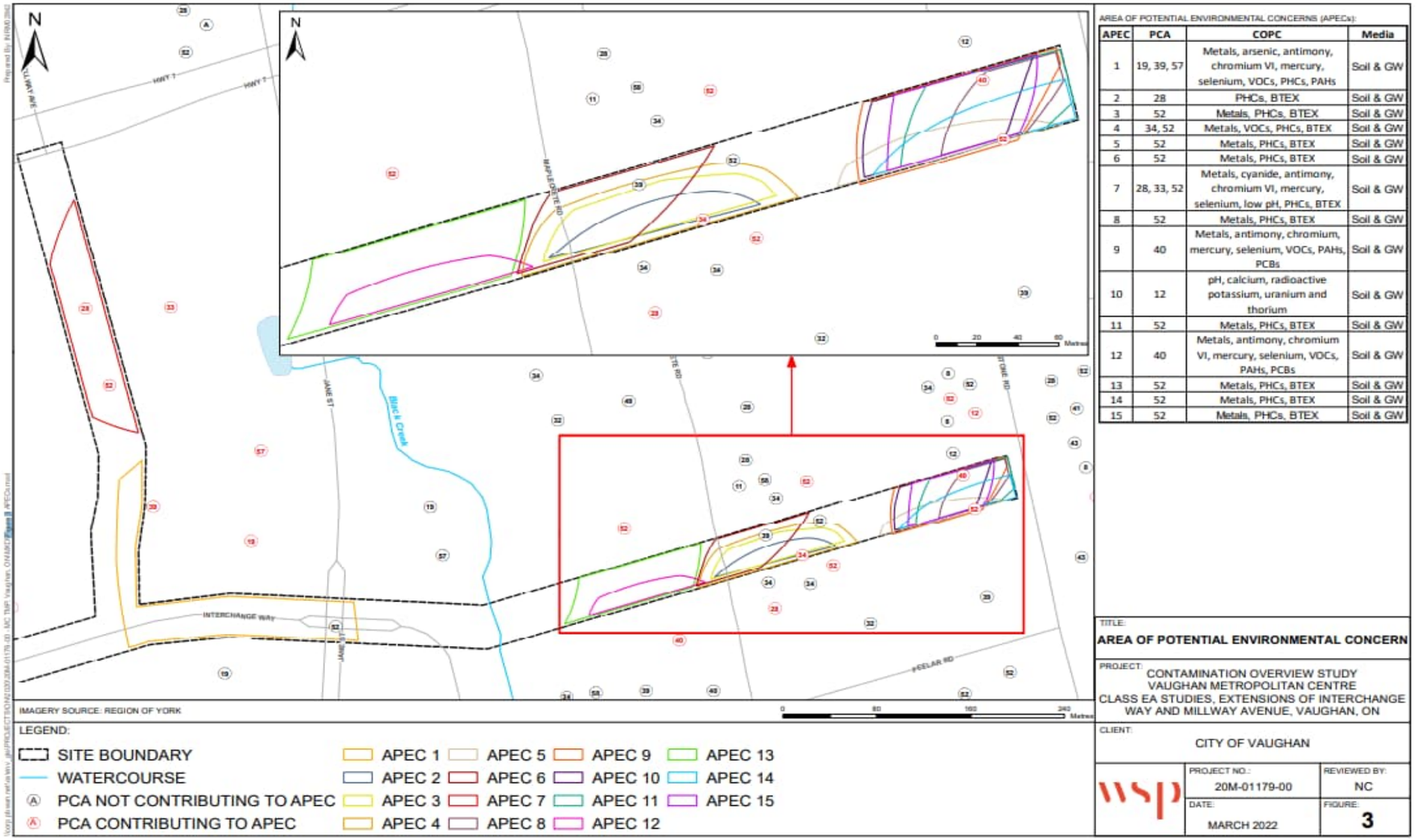
APEC ID	LOCATION OF APEC ON THE SITE	POTENTIALLY CONTAMINATING ACTIVITIES	COPC	MEDIA POTENTIALLY IMPACTED
			mercury, selenium, low pH	
APEC 7C	3131 Highway 7	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Metals, PHCs, BTEX	Soil and Groundwater
APEC 8	95 Creditstone Road	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Metals, PHCs, BTEX	Soil and Groundwater
APEC 9	90 Creditstone Road	40. Pesticides (including Herbicides, Fungicides and Antifouling Agents) Manufacturing, Processing, Bulk Storage and Large Scale Applications	Metals, antimony, chromium, mercury, selenium, VOCs, PAHs, PCBs	Soil and Groundwater
APEC 10	100 Creditstone Road	12. Concrete, Cement and Lime Manufacturing	pH, calcium, radioactive potassium, uranium and thorium	Soil and Groundwater
APEC 11	85 Creditstone Road	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Metals, PHCs, BTEX	Soil and Groundwater

APEC ID	LOCATION OF APEC ON THE SITE	POTENTIALLY CONTAMINATING ACTIVITIES	COPC	MEDIA POTENTIALLY IMPACTED
APEC 12	96 Maplecrete Road	40. Pesticides (including Herbicides, Fungicides and Antifouling Agents) Manufacturing, Processing, Bulk Storage and Large Scale Applications	Metals, antimony, chromium VI, mercury, selenium, VOCs, PAHs, PCBs	Soil and Groundwater
APEC 13	7551 Jane Street	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Metals, PHCs, BTEX	Soil and Groundwater
APEC 14	71 Creditstone Road	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Metals, PHCs, BTEX	Soil and Groundwater
APEC 15	120 Creditstone Road	52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Metals, PHCs, BTEX	Soil and Groundwater

Note: COPC = Contaminant of Potential Contaminant Concern
PHC = petroleum hydrocarbons
VOC = volatile organic compounds
PAH = polycyclic aromatic hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, and xylenes

Based on the above information, WSP recommends that a Phase Two ESA be completed for the Site, to characterize soil and groundwater conditions that may impact soil management

and disposal, dewatering and other aspects related to extension of Interchange Way for the Vaughan Metropolitan Centre.



APEC	PCA	COPC	Media
1	19, 39, 57	Metals, arsenic, antimony, chromium VI, mercury, selenium, VOCs, PHCs, PAHs	Soil & GW
2	28	PHCs, BTEX	Soil & GW
3	52	Metals, PHCs, BTEX	Soil & GW
4	34, 52	Metals, VOCs, PHCs, BTEX	Soil & GW
5	52	Metals, PHCs, BTEX	Soil & GW
6	52	Metals, PHCs, BTEX	Soil & GW
7	28, 33, 52	Metals, cyanide, antimony, chromium VI, mercury, selenium, low pH, PHCs, BTEX	Soil & GW
8	52	Metals, PHCs, BTEX	Soil & GW
9	40	Metals, antimony, chromium, mercury, selenium, VOCs, PAHs, PCBs	Soil & GW
10	12	pH, calcium, radioactive potassium, uranium and thorium	Soil & GW
11	52	Metals, PHCs, BTEX	Soil & GW
12	40	Metals, antimony, chromium VI, mercury, selenium, VOCs, PAHs, PCBs	Soil & GW
13	52	Metals, PHCs, BTEX	Soil & GW
14	52	Metals, PHCs, BTEX	Soil & GW
15	52	Metals, PHCs, BTEX	Soil & GW

Figure 4-3: Areas of Potential Environmental Concern (APEC) Locations within the Study Area

4.10 Socio-Economic Environment

The study area is located in the Peel Plain physiographic region which covers approximately 300 square miles over the central areas of the Regional Municipalities of York, Peel, and Halton.

The City of Vaughan is located between the Great Lakes – St. Lawrence Lowlands and Carolinian floristic regions, which both fall under the Mixed Wood Plains Ecozone and the Lake Erie-Lake Ontario Ecoregion (7E). The Mixed Wood Plains Ecozone is predominately covered by deciduous and mixed deciduous forest, with smaller amounts of meadow, thickets, and wetland communities.

Existing Land Use

The VMC sits in the center of a major regional industrial area and transportation network. It is bounded by Highway 407 to the south and Highway 400 to the west. The MacMillan Rail Yard and employment lands sits to the east of the VMC, bounding it and separating it from the Concord West community. A Primary Intensification area is also located on the west side of Highway 400.

The Black Creek is located within the VMC and is a tributary of the Humber River and part of its watershed, connecting the Toronto area with Lake Simcoe to the north, and the Trent-Severn waterway to the northeast. Black Creek has been largely urbanized and travels north-south through the study area parallel to the east side of Jane Street. The banks of the river are lined with mature trees that obscure views to the waterway. This area is a potential focal point of the VMC as the VMC Streetscape and Open Space Plan aims to integrate the design and restoration of the Black Creek area as an integral part of the green public infrastructure.

The existing pedestrian network within the wider VMC area has sidewalks on most major and minor roadways, excluding the industrial areas in the southeast quadrant. Highway 7, New Park Place, Apple Mill Road, and Millway Avenue (between Portage Parkway and Highway 7) have all been re-designed to provide active transportation facilities and improved conditions for pedestrians. Along the existing segment of Interchange Way, west of the intersection with Jane Street, the available sidewalks appear to be 1.8 metres wide and are separated from traffic by green space. For 200 metres west of the intersection with the (north-south) Interchange Way the sidewalks are adjacent to the street and appear to

be 1.8 metres wide. The westernmost blocks have a sidewalk on the south side of Interchange Way only. The remainder of the study area does not have existing sidewalks or pedestrian connections.

There are multiple existing cycling facilities located within the VMC area, with the highest order facilities introduced as part of the recently re-designed corridors.

The provisions for cyclists turning left (left-turn bicycle boxes) are available at the intersections along the recently resurfaced-corridors and are listed below:

East and west approaches of intersections located east of Applewood Crescent along Highway 7; and
All the approaches of Millway Avenue and Apple Mill Road intersection.

Within the Interchange Way and Millway Avenue MCEA Study Area there are currently no designated cycling facilities.

4.10.1 Noise

A noise assessment is typically carried out on representative Noise Sensitive Areas (NSAs) (private homes and multi-unit buildings with an outdoor living area) within 500m to the study area in accordance with the Ministry of Transportation (MTO)/Ministry of the Environment, Conservation and Parks (MECP) Noise Protocol. The noise assessment would compare the potential increase in noise level with and without the proposed infrastructure improvements. Based on an initial review of the study area associated with Interchange Way, there are no NSAs located within 500 m of the study area as the entire area is primarily industrial land uses (and any new residential development will be subject to carrying out their own noise impact study as part of development application). Therefore, a noise impact assessment is not expected to be required.

4.10.2 Air Quality

As outlined in the MECP Protocol, sensitive and critical receptors within a 300 m radius of the Project were identified in the Air Quality Impact Assessment. Sensitive receptors are residences and critical receptors include hospitals, retirement homes, childcare centres and other similar institutional buildings. Seven (7) sensitive receptors have been identified within the Study Area of the Project including condominiums, townhouses, and hotels. The location of sensitive receptors is shown in Figure 4-4.

- Residences:
  - Three (3) hotels are located within 300 m of the Study Area,
  - One (1) group of townhouses are located within 300 m of the Study Area, and;
  - A total of three (3) condominium properties are located within 300 m of the Study Area.

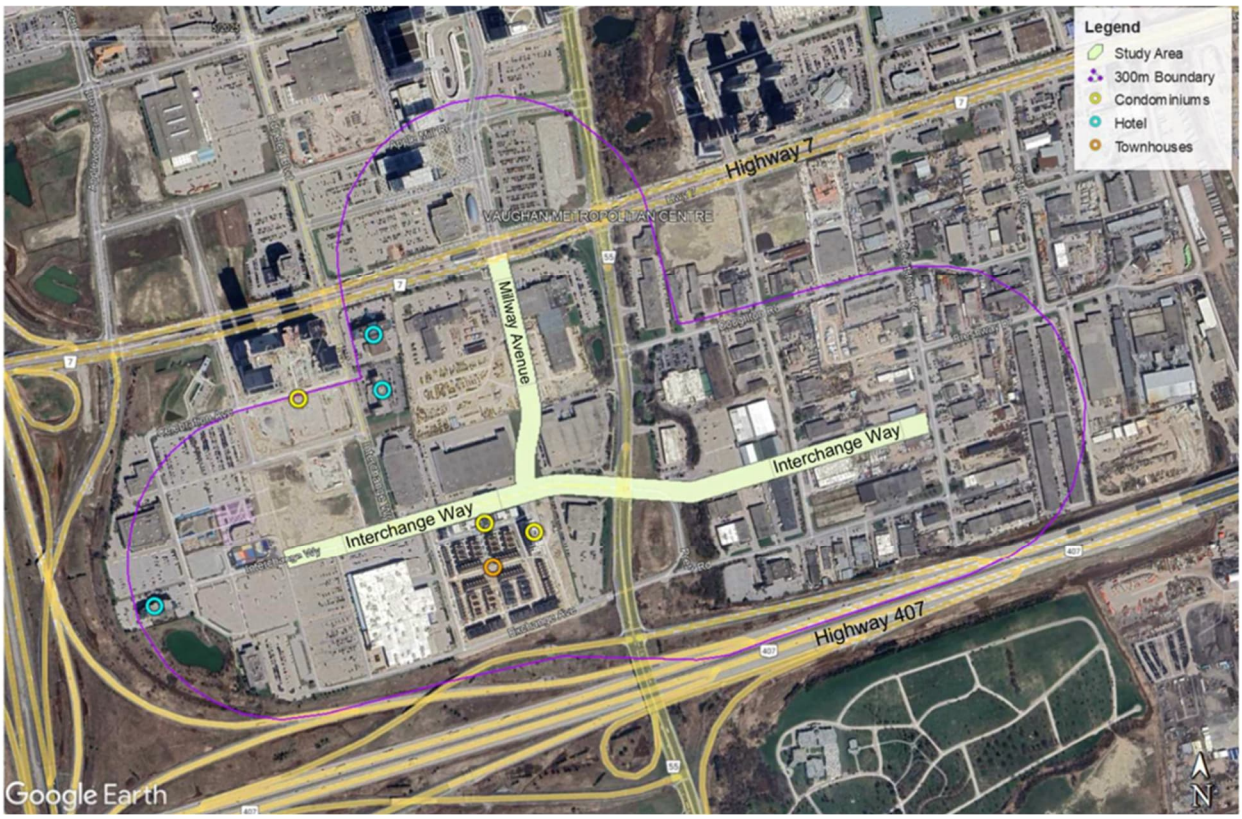


Figure 4-4: Location of Surrounding Sensitive Receptors

Existing air quality conditions indicate that concentrations of NOx (annual) and benzo(a)pyrene (24-hour) are above the applicable air quality thresholds in the Project area. These contaminants often exceed air quality thresholds in urban areas in proximity to highways. Highway 400, Highway 7, and Highway 407 span around the Project location on the west, north, and south sides, respectively. Roadways typically only have a localized influence on air quality and predicted concentrations decline within a very short distance from the road edge.

The complete Air Quality Impact Assessment Report can be found in Appendix J.

4.11 Utilities

There are existing private utility companies (hydro, gas, telecom, TV) with buried plant along the existing section of Interchange Way west of Jane Street. East of Jane Street the road does not exist and there are numerous private properties. These properties are serviced by utilities.

5 Consultation

An extensive Consultation Plan was implemented for the extension of Interchange Way to ensure meaningful consultation with internal and external stakeholders as well as reviewing agencies. The Consultation Plan, organized around key study phases, included public information centres, stakeholder engagement and participation of technical review/regulatory agencies at study milestones.

The Consultation Plan was led by the WSP project team and included City of Vaughan staff. The City's website and printed media provided information on the study's progress and notice of key study milestones.

The Plan identified stakeholders and reviewing agencies based on a precursory review of study area characteristics and potential impacts of the project. A mailing list was developed to notify potentially interested parties of opportunities for review and comment. Details regarding the timing and content of each notice are provided in relevant sections of this report. Copies of correspondence in response to each notice are included in Appendix K.

To inform the general public of the study, the notices at key phases of the project were advertised by the City of Vaughan in the local newspapers, and a hard copy of the notices were mailed by WSP to approximately 2,300 property owners witin the catchment area idenitifed by the City of Vaughan, and over 300 agency representatives, landowners, businesses, and Indigenous communities on the study mailing list. The final mailing list of reviewing agencies is provided in Appendix K.

To gather public input on the study, two (2) Public Information Centres were held. All comments received from the agencies and members of the public were summarized in the following sections.

Additionally, individual meetings were held with landowners at key project milestones. These meetings addressed the owners' concerns which were considered during the evaluation of solutions and mitigation measures.

A Technical Agencies Committee (TAC) was established from interested representatives of regulatory and/or approving agencies on the study mailing list. Separate meetings were held with approving authorities as required to review project impacts, mitigation measures

and approval requirements. Meetings with agencies, stakeholders and the public are summarized in relevant sections of this report. Corresponding meeting notes and copies of correspondence are included in Appendix K.

5.1 Study Notifications

The following sections describe the public consultation efforts completed, summary of comments from the public throughout the study and how they were addressed by the Project Team. All study notification materials are provided in Appendix K.

5.1.1 Notice of Study Commencement

A Notice of Study Commencement for the project was issued to provide notification of the Study's initiation and provide details on how to participate. The project website (www.vaughan.ca/VMCTMP) went live prior to the Notice of Study Commencement and the Notice was published on the website.

The Notice was published in the *Vaughan Citizen* and *the Thornhill Liberal* newspapers on November 26, 2020. The City of Vaughan published the Notice of Study Commencement on the Study webpage on November 26, 2020. The Notice was also sent via bulk mail to property owners and business owners within and adjacent the study area on November 26, 2020.

An email with the Notice of Commencement was sent out on November 27, 2020, to the project contact list. The contact list included agencies (Technical Agencies, existing Landowners' Group, Vaughan Ratepayers' Associations, Indigenous Communities).

The Notice of Study Commencement and the Streamlined EA Project Information Form to the Ministry of the Environment, Conservation and Parks' (MECP) "Streamlined EAs" email address via email on November 27, 2020.

The project contact list and Notice of Study Commencement can be found in Appendix K.

Table 5-1 summarizes the main concerns and interests expressed by the comments received from the agency, stakeholders and general public for the Notice of Study Commencement. Correspondence can be found in Appendix K.

Table 5-1: Summary of Study Commencement Comments and Project Team Responses

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
Agency Comments		
Hydro One Networks Inc.	On December 1, 2020, a representative from Hydro One Networks Inc. confirmed that based on a preliminary assessment, there are no existing Hydro One Transmission assets in the subject area.	Comment noted.
Infrastructure Ontario	On December 2, 2020, a representative from Infrastructure Ontario confirmed a list of properties owned by the Minister of Government and Consumer Services that are within/adjacent to the study area.	Comment noted.
Toronto and Region Conservation Authority (TRCA)	On December 2, 2020, a representative from TRCA requested to be added to the study mailing list.	The project team added this contact to the study mailing list.
Ministry of Transportation (MTO)	On December 9, 2020, a representative from MTO requested to be added to the study mailing list.	The project team added this contact to the study mailing list.
Ministry of the Environment, Conservation and Park (MECP)	On December 11, 2020, a representative from MECP requested clarification on the study approach, if the Interchange Way and Millway Avenue projects will have separate Environmental Study Reports (ESRs), and if reconstruction or widening is being considered for Interchange Way	The project team responded with clarifications for each submitted question.

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
	from Commerce Street to Creditstone Rd.	
Ministry of Citizenship and Multiculturalism (MCM, formerly Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI))	On December 15, 2020, a representative from MHSTCI providing guidance for how to incorporate the consideration of cultural heritage in the VMC TMP Update and Class EA studies.	Comment noted.
Toronto and Region Conservation Authority (TRCA)	On December 15, 2020, two representatives from TRCA requested to be added to the Technical Advisor Committee (TAC).	The project team responded by confirming that the two contacts will be included on the TAC list and shared appreciation for their participation.
York Catholic District School Board (YCDSB)	On January 6, 2021, a representative from YCDSB requested to be added to the study mailing list.	The project team added this contact to the study mailing list.
Toronto and Region Conservation Authority (TRCA)	On December 10, 2020, a representative from TRCA provided notice of their interest in the study, and provided an overview of TRCA's commenting roles, areas of interest, submission requirements, and review fees.	Comment noted.
Ministry of the Environment, Conservation and Park (MECP)	On December 29, 2020, a representative from MECP provided guidance on "Areas of Interest" and confirmed the delegation of procedural aspects of rights-based consultation from MECP to the proponent.	Comment noted.

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
Zayo Group on behalf of Utility Circulation	On December 21, 2020, a representative from Zayo Group Utility Circulations confirmed that the group does not have existing plants in the study area.	Comment noted.
Landowners Comments		
Landowners Group	On November 27, 2020, a requested to be included in the study mailing list.	The project team added this contact to the study mailing list.
Landowners Group	On December 7, 2020, provided support of the TMP update but requested consideration in the provision of private roads with public access easements and the range of new road widths within the VMC.	Comment noted.
Landowners Group	On December 7, 2020, a developer requested that the study considered the VMC Secondary Plan's road network's full range for right-of-way widths and possibility of Private Roads where feasible and appropriate.	The project team responded with appreciation for their feedback and shared a link to the project feedback survey.
Summary of Public Comments		
N/A	N/A	N/A

5.1.2 Notice of Public Information Centre #1

A Notice of Public Information Centre (PIC) #1 for the project was issued to provide notification of the first PIC and provide details on how to participate. The Notice of PIC #1 was published on the project website (www.vaughan.ca/VMCTMP).

The Notice was published in the *Vaughan Citizen* and *the Thornhill Liberal* newspapers on Thursday February 2, 2023. The Notice was also sent via bulk mail to property owners

within the defined catchment area, businesses and condominium corporations via mail on February 1, 2023.

An email with the Notice of PIC #1 was sent out via email on February 9, 2023 to Technical Advisory Committee (TAC), Landowners Group (LOG), Elected Officials, Indigenous Peoples, Ratepayer Association, and Interested parties. WSP distributed the Notice of PIC #1 to the Ministry of the Environment, Conservation and Parks (MECP) Central Region via email on February 9, 2023. Potentially impacted property owners requested to be added to the contact list, community groups, and conservation authorities.

The project contact list and Notice of PIC #1 can be found in Appendix K.

5.1.3 Notice of Public Information Centre #2

A Notice of Public Information Centre (PIC) #2 for the project was issued to provide notification of the second PIC and provide details on how to participate. The Notice of PIC #2 was published on the project website (www.vaughan.ca/VMCTMP).

The Notice was also sent via bulk mail to property owners, businesses and condominium corporations within the defined catchment area via mail on November 21, 2023.

An email with the Notice PIC #2 was sent out on November 21, 2023 to Technical Advisory Committee (TAC), Landowners Group (LOG), Elected Officials, Indigenous Peoples, Ratepayer Association, and Interested parties.

The project contact list and Notice of PIC #2 can be found in Appendix K.

5.1.4 Notice of Study Completion

The Notice of Completion was issued to announce the completion of the Class EA study and notify interested parties of the 30-day comment period for the Interchange Way Environmental Study Report (ESR), which was made available on the City of Vaughan's project website (www.vaughan.ca/VMCTMP). As a courtesy, the report was shared with both external and internal agencies three (3) weeks prior to the start of the 30-day public comment period, allowing them early access before the public filing

5.2 Meetings

The list of technical agencies was assembled based on previous Class Environmental Assessment studies and Ministry of the Environment, Conservation and Parks' (MECP) Government Review Team (GRT) list.

5.2.1 Technical Advisory Committee Meetings

The project team met virtually with the Technical Advisory Committee (TAC) members on February 24, 2021, after the study commenced. The meeting was held to provide an introduction to the project, present the key milestones, gather preliminary feedback from TAC members and followed by a question-and-answer period. The Meeting Minutes for this TAC meeting #1 are provided in Appendix L.

The project team met virtually with the Technical Advisory Committee (TAC) members on December 8, 2022, prior to PIC #1. The PIC displays were presented to the committee followed by a question-and-answer period. The Meeting Minutes for this TAC meeting #2 are provided in Appendix L.

The project team met virtually with the Technical Advisory Committee (TAC) members on November 9, 2023, prior to PIC #2. The PIC displays were presented to the committee followed by a question-and-answer period. The Meeting Minutes for this TAC meeting #3 are provided in Appendix L.

5.2.2 Landowners Group

The project team met virtually with the Landowners Group (LOG) members on December 13, 2022, prior to PIC #1 to provide an update to the project, present the key milestones, gather preliminary feedback from LOG members. The PIC displays were presented to the LOG followed by a question-and-answer period. The Meeting Minutes for this LOG meeting #1 are provided in Appendix L.

The project team met virtually with the Landowners Group (LOG) members on November 16, 2023, prior to PIC #2. The PIC displays were presented to the LOG followed by a question-and-answer period. The Meeting Minutes for this LOG meeting #2 are provided in Appendix L.

5.3 Public Information Centres

5.3.1 Public Information Centre #1

The purpose of the Public Information Centre (PIC) #1 was to:

- Outline the City of Vaughan EA study purpose, study area, challenges and opportunities statement;
- Outline the Municipal Class EA process and study timeline;
- Outline the existing conditions – transportation (Future (2051) Population and employment)
- Provide an overview of Environmental Studies and preliminary alternative concepts for Interchange Way and Millway Avenue;
- Provide to the public and to stakeholders the opportunity to share information; and,
- Collect feedback on the presented materials.

The PIC #1 was held as a drop-in style open house format in the Vaughan Studios & Event Space. Representatives of the project team from the City of Vaughan and WSP were present to answer questions and discuss the project one-on-one with the PIC attendees. The PIC display materials were uploaded to the project website before the PIC.

Date:	February 16, 2023
Location:	Vaughan Studios & Event Space
Address:	200 Apple Mill Road, 3rd Floor, Vaughan, Ontario
Time:	5:00 P.M. to 7:00 P.M.

Fifteen (15) people attended the PIC. Two (2) attendees submitted comment sheets at the PIC. A copy of all individual comments can be found in Appendix K. During the PIC #1 event, attendees participated by viewing the display panel presentation and engaging in discussions with representatives from WSP and City of Vaughan. The formal comment period was from February 16, 2023 – March 24, 2023.

A summary report for PIC #1, including a copy of the display boards, the presentation, and the summary of comments received, is provided in Appendix M.

Table 5-2 summarizes the main concerns and interests expressed by the comments received from agencies, stakeholders, and general public during and following PIC #1 and how they were addressed.

Table 5-2: Summary of PIC #1 Comments and Project Team Responses

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
Agency Comments		
Metrolinx	On December 21, 2022, a representative from Metrolinx confirmed their receipt of the PIC #1 slide deck and that they had no comments.	Comment noted.
Ministry of Transportation (MTO)	On March 21, 2023, a representative from MTO confirmed that they have no comments at that time.	Comment noted.
Landowners Comments		
Landowners Group	On December 19, 2022, a representative submitted preferences with the road width and orientation of the Millway extension, to eliminate the connection for the east/west road between Hwy 7 and Doughton Rd to Jane, and to have a traffic signal at the Jane and Doughton Rd intersection.	The project team confirmed that the presented Millway Avenue Extension alignments were preliminary options and that additional feedback is welcomed.
Landowners Group	A few landowners requested CAD files for the road alignment options.	The project team responded that CAD files are not being shared at that time and suggested to use the blown-up PDFs to help inform any feedback.
Landowners Group	On December 14, 2022, The project team received a call requesting	The project team responded via phone and email providing

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
	clarifications on the materials presented.	clarifications on vehicular access to the stakeholder's property.
Landowners Group	A few landowners submitted their preferred option for Interchange Way.	The project team responded with appreciation for their insight provided. Their submitted preferred option was noted
Landowners Group	On December 13, 2022, a landowner requested clarification on the evaluation of the left turn lane off of Jane St to Interchange Way, that the cross sections for Interchange Way will align with those occurring alongside their development nearby, multi-modal Level of Service (LOS), and opportunities to get involved in the VMC Sub Committee meetings.	The project team provided responses to each question, confirming consideration of the existing NB left turn restriction at the intersection of Jane and Interchange Way in the study, cross section designs, multi-modal LOS, and indicated where additional information on the VMC Sub Committee can be located.
Landowners Group	On January 31, 2023, a representative inquired about the date of PIC #1.	The project team responded providing information on PIC #1 and where additional information on the event can be found.
Landowners Group	On March 23, 2023, a landowner submitted their preferred option for Interchange Way, and inquired about access spacing and feasibility, left-turn lanes on the Interchange Way Extension, curve/tangent configurations, collaboration opportunities with the City and landowners regarding lot size changes and during the detail design phase, and expected timelines of the study.	The project team responded with appreciation for their insight provided and addressed their questions.
Landowners Group	On March 23, 2023, a representative requested	The project team responded with appreciation for their insight

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
	collaboration with their client to assess vehicular movement needs at Jane Street and Interchange Way and consideration of all modes of movement at the future intersection of Commerce Street and Interchange Way.	provided and expressed acknowledgment of their comments.
Landowners Group	On March 24, 2023, a landowner provided a comment on the proposed ROW width.	The project team responded requesting clarification and provided insight on the reasoning for the proposed ROW width.
Landowners Group	On March 30, 2023, a landowner provided a recommendation on the design of Interchange Way.	The project team responded with appreciation for their insight provided and offered the opportunity to organize a meeting to discuss concerns.
Summary of Public Comments		
Stakeholder #1	On February 16, 2023, a comment was submitted via a comment form at PIC #1 stating their preferred option for Interchange Way.	The project team responded with appreciation for their insight provided. Their submitted preferred option was noted.
Stakeholder #2	On February 16, 2023, a comment was submitted via a comment form at PIC #1 expressing agreeance with the alternative solutions display board and provided a comment regarding congestion and noise on Highway 7.	The project team responded with appreciation for their insight provided and acknowledgement of concerns regarding congestion and noise on Highway 7.
Stakeholder #3	On February 2, 2023, a comment was submitted via the project webpage suggesting the installation of screens in local residential buildings to communicate public transit schedules and requested the consideration of express shuttles	The project team responded with appreciation for their insight provided and noted their comment.

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
	between VMC and Rutherford GO station.	
Stakeholder #4	On March 2, 2023, a comment was submitted via the project webpage requesting consideration of additional and improved public transit routes from Kleinburg to Highway 400, as well as to York University from VMC.	The project team responded with appreciation for their insight provided and noted their comment.

5.3.2 Public Information Centre #2

The purpose of the Public Information Centre (PIC) #2 was to:

- Outline and review of overall study purpose
- Outline and overview the PIC #1;
- Outline the existing natural environmental conditions;
- Review the evaluation criteria and methodology for the alternative designs for Interchange Way and Millway Avenue;
- Present the alternative designs and outline the summary of evaluation of alternative designs;
- Present the Preferred Alternative for Interchange Way and Millway Avenue;
- Provide the public and the stakeholders the opportunity to comment on the preferred alternative and share information; and
- Collect feedback on the presented materials.

The PIC #2 was held as a drop-in style open house format in the Vaughan Studios & Event Space located in Vaughan, Ontario. Representatives of the project team from the City of Vaughan and WSP were present to answer questions and discuss the project one-on-one with the PIC attendees. The PIC display materials were uploaded to the project website on December 4, 2023.

Date:	December 5, 2023
Location:	Vaughan Studios & Event Space
Address:	200 Apple Mill Road, Main Floor, Vaughan, Ontario
Time:	5:00 P.M. to 7:00 P.M.

A total of fifty (50) people attended the PIC#2. Four (4) attendees submitted comment sheets at the PIC. A copy of all individual comments can be found in Appendix K. During the PIC #2 event, attendees participated by viewing the display panel presentation and engaging in discussions with representatives from WSP and City of Vaughan. The formal comment period was from December 5, 2023, to January 31, 2024.

A summary report for PIC #2, including a copy of the display boards, the presentation, and the summary of comments received, is provided in Appendix M.

Table 5-3 summarizes the main concerns and interests expressed by the comments received from agencies, stakeholders and general public during and following PIC #2 and how they were addressed.

Table 5-3: Summary of PIC #2 Comments and Project Team Responses

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
Agency Comments		
Ministry of Citizenship and Multiculturalism (MCM)	On November 14, 2023, a representative from MCM provided guidance on steps to undertake if previously undocumented archaeological resources are discovered in the study and requested the Stage 1 Archaeological Assessment (AA) Project Information Form (PIF) number.	The project team responded with appreciation for their insight provided and provided the Stage 1 AA PIF number.
Ministry of Natural Resources and Forestry (MNRF)	On November 15, 2023, a representative from MNRF provided guidance on resources to be reviewed relating to natural	The project team responded with appreciation for their insight and provided information on future

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
	heritage, natural hazards, petroleum wells, fish and wildlife conservation, and the Public Lands Act.	consultation activities and other ongoing work.
407 ETR	On November 14, 2023, a representative from 407 ETR confirmed that they have no comments or concerns to be submitted at the time.	The project team noted their comment.
Metrolinx	On November 16, 2023, a representative from Metrolinx requested to be removed from the project mailing list.	The project team removed the stakeholder from the mailing list.
Infrastructure Ontario (IO)	On November 14, 2023, a representative from IO noted that it appears that all proposed alignments for the Interchange Way extension will include road improvements over lands that are managed by IO, on behalf of MOI and that a portion of these lands will be sold to the City of Vaughan to accommodate the Black Creek Realignment which is currently in negotiations. It was recommended that the remainder of the MOI-owned lands be transferred to the Region of York.	The project team responded with appreciation for their insight provided.
York Region Transit (YRT)	On December 5, 2023, a representative from YRT confirmed that they have no comment on the road alignment options for Millway Avenue and Interchange Way and that they support the proposed curbside lane width.	The project team responded with appreciation for their insight and provided information on future consultation activities and other ongoing work.

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
Toronto and Region Conservation Authority (TRCA)	On January 15, 2024, a representative from TRCA requested that the project team submit stormwater management reports and watercourse crossing studies when available. TRCA also provided insight on how the draft PIC #2 slides should be modified to better address stormwater management and flood plain studies relevant to this project, rehabilitation works to the Black Creek, and natural heritage and watercourse impacts in the evaluation for Interchange Way.	The project team responded with appreciation for their insight provided and addressed their comments/concerns regarding water resources, planning ecology, and other general notes.
TTC	On November 27, 2023, a representative from the TTC noted that upon high level of review of the proposed work, that there is a potential conflict on TTC's Toronto-York Spadina Subway Extension (TYSSE) subway infrastructure.	The project team responded with appreciation for their insight and provided information on future consultation activities and other ongoing work.
TTC	On February 12, 2024, a representative from the TTC confirmed that they have no concerns but noted that a TTC structure existing in the area of construction and care must be taken not to disturb or damage the existing subway structure.	The project team responded with appreciation for their insight provided and noted their comments about the potential conflict of proposed work on the TTC's subway infrastructure.
Landowners Comments		
Landowners Group	A few landowners requested CAD files for the Interchange Way and Millway Avenue Draft Preferred Alternatives.	The project team provided a copy of the requested CAD files.

AGENCY / PARTICIPANT	COMMENT RECEIVED	PROJECT TEAM RESPONSE / ACTION TAKEN
Landowners Group	A few landowners submitted a letter stating their support for the reduction of the road ROW width and provided rationale.	The project team responded by noting that the open comment period has ended but that their submitted comment will be reviewed.
Landowners Group	A few landowners provided insight for their preferred road alignment option for the Interchange Way extension.	The project team responded with appreciation for their insight provided and noted their preferred alternative design options.
Landowners Group	On January 30, 2024, a landowner confirmed their support for the presented preferred alternative design options for both Millway Avenue and Interchange Way, but noted concerns about the proposed ROW width.	The project team responded with appreciation for their insight provided and noted their preferred alternative design options.
Summary of Public Comments		
Stakeholder #1	On December 5, 2023, A few comments were submitted via a comment form at PIC #2 expressing general satisfaction with the project.	The project team responded with appreciation for their insight and provided information on future consultation activities and other ongoing work.
Stakeholder #2	On December 5, 2023, a comment was submitted via a comment form at PIC #2 recommending the implementation of a roundabout instead of traffic signals at the new intersections to reduce traffic congestion.	The project team responded with appreciation for their insight and provided information on future consultation activities and other ongoing work.
Stakeholder #3	On December 5, 2023, a comment was submitted via a comment form at PIC #2 noting dissatisfaction with parking available in the area.	The project team noted their comment.

5.4 Online Engagement Tool

Feedback during the engagement activities hosted through pre-consultation phase demonstrated a significant level of interest in the VMC study area. The feedback gathered through the public input surveys establishes a clear understanding of the study area and sets the context of the studies going forward.

The online Survey Monkey was launched at the Study commencement and made available on the City's website in November 2020. The following key responses relating to the project include congestion and lack of public parking were the primary transportation challenges associated with travelling to or around the VMC; walking, biking and public transport in the VMC are expected to increase in the future compared to existing travel patterns; and access to public transport and highways were the primary reason that make the VMC a desirable place to live.

The first PIC for the City of Vaughan project provided the project team with a strong sense of existing conditions and confirmed transportation needs, provided supportive policies and outlined a phasing strategy for transportation improvements over the next 30 years.

The Survey Monkey and Have your Survey (HYS) were launched and made available on the City's website from February 2, 2023, and February 9, 2023, respectively. The survey was closed on March 24, 2023. The survey results are included in Appendix M.

The key common themes were received from the online survey included cycle tracks along all major roadways (and collectors); wide sidewalks; underground connection from YMCA Community Centre to TTC subway and YRT bus terminal; better protected bike lanes/cycle tracks with physical barriers to cars, improved winter clean-up, and enhanced drop-off zones; shuttle service to aid in convenient mobility between the various developments in the area and transportation hubs; connect to Barrie GO Train line at Highway 7; the Viva BRT on Highway 7, create a drop-off zone at the Vaughan Metropolitan subway station, remove YRT bus stops from Highway 7 road and move to the middle bus lane. The Survey Monkey for second PIC was launched and made available on the City's website from December 5, 2023. The survey was closed on January 31, 2024. Sentiments expressed through the survey include the desire for considering walking and biking more and a reduction in the number of vehicular travel lanes on these two streets. The survey results are included in Appendix M.

5.5 Indigenous Communities

As part of this EA, City of Vaughan undertook interest-based engagement with Indigenous Communities that may be affected by the project. As per the direction of the MECP, City of Vaughan consulted with the following Indigenous Peoples who had been identified as potentially affected by the proposed project:

- Mississaugas of the Credit First Nation
- Huron-Wendat Nation
- Six Nations of the Grand River
- Haudenosaunee Confederacy Chiefs Council c/o Haudenosaunee Development Institute (HDI)
- Beausoleil First Nation
- Chippewas of Georgina Island
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island
- Toronto-York Region Metis Council

The Indigenous Communities above were sent the Project Notices via email for each consultation milestone of the Class EA Study. The Stage 1 Archaeology Report was also circulated to the above Indigenous Communities prior to sending the report to Ministry of Citizenship and Multiculturalism. One comment was received from the Mississauga of the Credit First Nation and indicated that they will review the report and provide comments later. All the notification materials and correspondence can be found in Appendix K.

5.6 Notice of Project Update - Modification to Interchane Way Preferred Alignment

Following the PIC #2 and the selection of the Interchange Way preferred alignment, slight modifications were made to the preferred alignment for Interchange Way within the southeast quadrant.

The City prepared presentations for individual landowner meetings in the southeast quadrant for the Interchange Way EA to discuss the modifications made to the Interchange Way preferred alternative and how this effect their properties.

A Notice of Project Update was issued to provide details on the slight changes to the Interchange Way preferred alignment. The Notice of Project Update was sent via mail on March 25, 2025 to the impacted landowners within the study area.

Notice of Project Update can be found in Appendix K.

6 Identification and Analysis of Alternative Solutions

Phase 2 of the Environmental Assessment (EA) process for the Interchange Way extension has been completed through the City's 2012 Transportation Master Plan (TMP). The ESR builds upon the TMP work by identifying reasonable and feasible solutions to the problem and opportunities (outlined in Section 3 of the ESR). These solutions were reviewed based on their ability to resolve the issues.

6.1 Description of Alternative Solutions

The following alternative solutions were identified to address the problems and opportunities identified in Section 3:

- Alternative modes of travel: support modal shift by providing viable transportation alternatives such as the provision of all ages and abilities pedestrian and cycling facilities, provide more bicycle parking, subsidized transit passes, complementary parking requirements, and micromobility options such as bike share and scooter share.
- Alternative routes: utilize routes parallel to Interchange Way.
- Trip-making behaviour: create a culture of walking and cycling, and car-free days (social marketing techniques).
- Alternative work arrangements: flexible work schedules outside of working hours to spread out travel demand over time.
- Integrating Transportation Demand Management (TDM) monitoring strategies in new developments: incorporate data tracking, identify effectiveness of TDM measures, and inform developers.
- Additional road network improvements: including Colossus Drive and Millway Avenue.

6.2 Confirm Preferred Alternative Solution

In conclusion, based on the review of the alternative solutions, a combination of solutions will be needed to meet future demand for Interchange Way. This ESR focuses on the additional road network (and associated walking and cycling infrastructure) improvements for Interchange Way as recommended through the TMP.

7 Alternative Designs

Phase 3 of the Municipal Class EA process involves the assessment and evaluation of design alternatives. Having established the need for the project (Section 3) and selected a Preferred Alternative Solution (Section 6) this next phase involved the development and evaluation of design alternatives for the study area.

Phase 3 for this Class EA study involved the following activities:

- Development of Preliminary Design Alternatives;
- Consideration of feedback received at Public Information Centre #1 and refine Design Alternatives;
- Identification of evaluation criteria and weighting for evaluation of Alternatives;
- Evaluation of Alternatives;
- Consideration of feedback received at Public Information Centre #2; and
- Selection of the Technically Preferred Alternative.

7.1 Development of Design Alternatives

Public Information Centre (PIC) #1 in February 2023 presented the below Preliminary Design Alternatives for public input. These alternatives are shown in Figures 7-1 to 7-3.

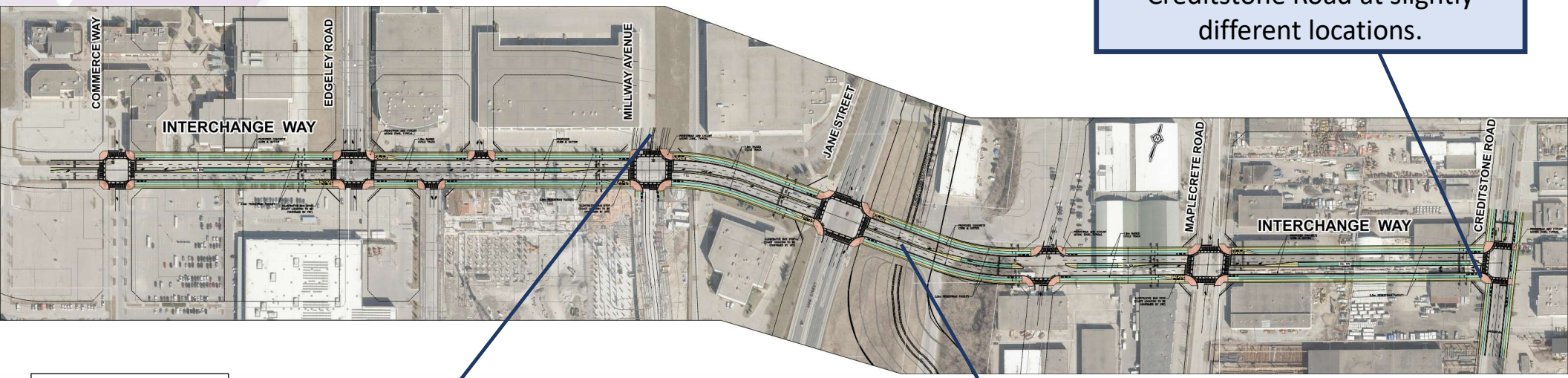
- Option 1: West of Jane St widened and East of Jane St extension aligned more toward the north
- Option 2: West of Jane St widened and East of Jane St extension centred between north and south
- Option 3: West of Jane St widened and East of Jane St extension aligned more toward the south

The input received from PIC #1 did not result in updates to the Design Alternatives, therefore the same alternatives were carried forward for evaluation.

Figure 7-1: Interchange Way Design Alternatives (Option 1)

West of Jane Street all options are the same as the options follow the existing road alignment.

All options intersect with Creditstone Road at slightly different locations.



LEGEND

- Concrete Median
- Pedestrian Facility
- Raised Planter / Boulevard
- Pedestrian and Cyclist Mixing Zone
- Grass or Concrete Buffer
- Cycling Facilities

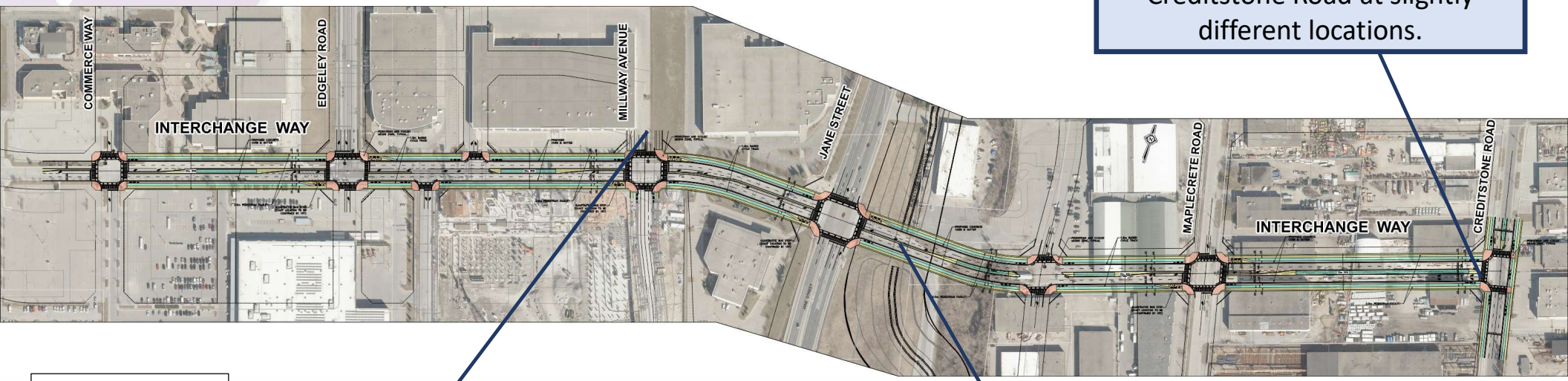
To be determined as part of the Millway Avenue Extension EA

Planning and design of road structure crossing of Black Creek Channel in co-ordination with Black Creek Renewal.

Figure 7-2: Interchange Way Design Alternatives (Option 2)

West of Jane Street all options are the same as the options follow the existing road alignment.

All options intersect with Creditstone Road at slightly different locations.



LEGEND

- Concrete Median
- Pedestrian Facility
- Raised Planter / Boulevard
- Pedestrian and Cyclist Mixing Zone
- Grass or Concrete Buffer
- Cycling Facilities

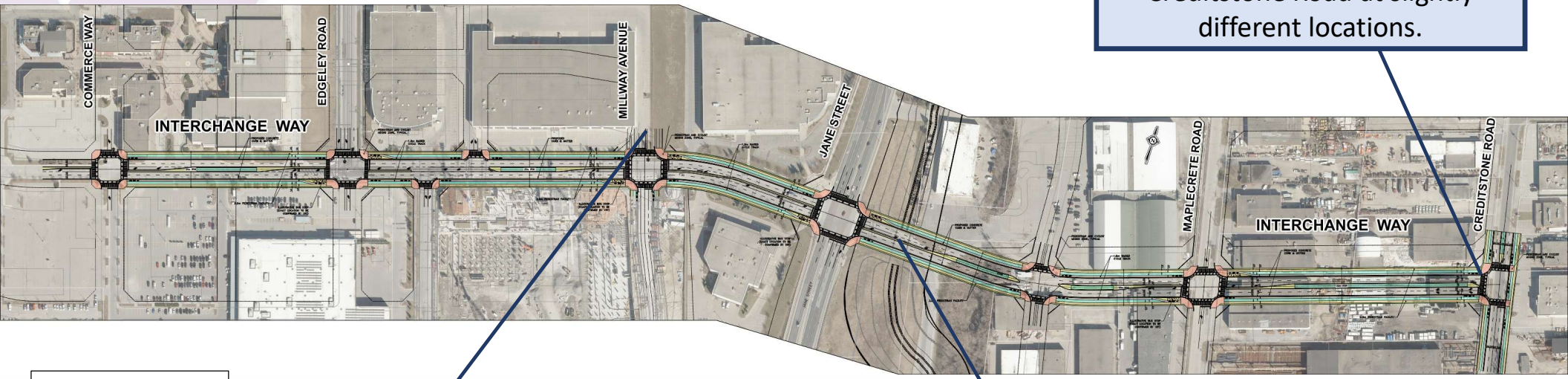
To be determined as part of the Millway Avenue Extension EA

Planning and design of road structure crossing of Black Creek Channel in co-ordination with Black Creek Renewal.

Figure 7-3: Interchange Way Design Alternatives (Option 3)

West of Jane Street all options are the same as the options follow the existing road alignment.

All options intersect with Creditstone Road at slightly different locations.



LEGEND

- Concrete Median
- Pedestrian Facility
- Raised Planter / Boulevard
- Pedestrian and Cyclist Mixing Zone
- Grass or Concrete Buffer
- Cycling Facilities

To be determined as part of the Millway Avenue Extension EA

Planning and design of road structure crossing of Black Creek Channel in co-ordination with Black Creek Renewal.

7.2 Evaluation Criteria

In evaluating the Design Alternatives presented in Section 7.1, several key factors and design elements were considered. The evaluation criteria and their weightings are outlined in Table 7-1.

A detailed assessment of each alternative was completed based on the described evaluation components. The design alternatives were evaluated according to their relative advantages and disadvantages and provided a score for each evaluation criteria. A score of 3 would be given for minimal to no impacts, 2 would have moderate impacts and 1 would have significant impacts.

Table 7-1: Criteria Evaluating Alternative Solutions

FACTOR/INDICATOR	EVALUATION CRITERIA

Natural Environment	▪ Vegetation and Natural Heritage Features
	▪ Wildlife and Species of Concern
	  ▪ Impacts to wildlife habitats and movement corridors
	▪ Watercourses
	  ▪ Impacts to watercourses, fish and fish habitat, including the Black Creek
	▪ Groundwater
	▪ Stormwater Management
	  ▪ Impacts to stormwater run-off (water quantity)
	▪ Air Quality & Greenhouse Gas Emissions
	  ▪ Impacts to local sustainability and greenhouse gases.
	  ▪ Impacts to air quality through exhaust and dust
	▪ Potentially Contaminated Lands
	▪ Floodplain

Socio-Economic Environment	▪ Property
	  ▪ Property requirements
	  ▪ Property access - impacts to private driveways and maintaining access are also important as changes to access will impact properties being affected and potentially adjacent properties.
	▪ Noise and Nuisance
	  ▪ Impacts to Noise Sensitive Areas (NSAs)
	▪ Compliance with Federal, Provincial, Regional and City Policies and Guidelines
	▪ Ability to Provide Streetscape Amenities and Landscape Elements

FACTOR/INDICATOR	EVALUATION CRITERIA
	▪ Future Public Park(s) and/or Facilities as Identified in the VMC Secondary Plan
Cultural Environment	▪ Built Heritage Resources and Cultural Heritage landscapes ▪ Archeological Resources

Transportation	▪ Promotion of Comfortable Cycling and Walking Routes
	  ▪ Opportunities for transportation choices other than vehicle use
	  ▪ Address the challenges associated with new growth in the City,
	  ▪ Provide a multi-modal vision of "sustainable mobility" that can accommodate vehicles, transit, cyclists and pedestrians in a healthy community
	  ▪ Considerations for the City Active Transportation Plan
	▪ Safety for All Modes of Travel
	▪ Accessible Network for All Ages and Abilities
	▪ Provide Equitable, Safe and Reliable Access to High Quality, Efficient
	▪ Transit
	▪ Road Capacity and/or Traffic Flow
	▪ Network Resiliency for Emergency Services
	  ▪ Potential to improve response time/accessibility for emergency vehicles due to changes in travel time.
	▪ Protect for Future Transportation Trends
	  ▪ Promotes autonomous vehicles
	  ▪ Promotes micromobility
	  ▪ Promotes drone technology

Constructability and Cost	▪ Construction Costs ▪ Existing Utilities ▪ Construction Phasing ▪ Constructability Complexity ▪ Construction of soil conditions, geometrics etc.

7.3 Summary of Evaluation of Alternative Designs

Table 7-2 summarizes the evaluation that took place on the design alternatives. The detailed evaluation table can be found in Appendix N.

Table 7-2: Summary of Evaluation of Alternatives

Most Preferred 3 2 1 Least Preferred

Factor/Indicator	Alternative Design - Do Nothing	Interchange Way Alternative Design - Option 1	Interchange Way Alternative Design - Option 2	Interchange Way Alternative Design - Option 3
Natural Environment				
Evaluation (scoring out of 24)	23	17	17	17
Summary	Do Nothing option is preferred from a natural environment perspective since it does not have any additional environmental impacts, although it would have an increase of air emissions likely with congestion in the study area expected with population growth.	Options 1, 2, and 3 are equally weighted. There are no environmental impacts between the three options that would make one more acceptable over another.		
Socio-Economic Environment				
Evaluation (scoring out of 15)	10	12	13	12
Summary	Do Nothing option does not support the Socio-Economic aspects/criteria and does not satisfy the Phases 1 and 2 Needs and Justification requirements as identified in the 2012 VMC Transportation Master Plan to advance extension of Interchange Way as part of the broader planned street network within the VMC.	Option 1 does not support the Socio-Economic aspects and it creates more adverse impacts to the development potential of the northern properties in comparison to the southern properties, east of Jane Street.	Option 2 is preferred from a socio-economic perspective as it balances the impacts between the north and south properties, as compared to options 1 and 3, east of Jane Street.	Option 3 does not support the Socio-Economic aspects and it creates more adverse impacts to the development potential of the southern properties in comparison to the northern properties , east of Jane Street.
Cultural Environment				
Evaluation (scoring out of 6)	6	5	5	5
Summary	Do Nothing is preferred from a cultural environment perspective since it does not impact archaeological resources or built or cultural resources.	Options 1, 2, and 3 all require Stage 2 archaeological assessments.		

Most Preferred 3 2 1 Least Preferred

Factor/Indicator	Alternative Design - Do Nothing	Interchange Way Alternative Design - Option 1	Interchange Way Alternative Design - Option 2	Interchange Way Alternative Design - Option 3
Transportation				
Evaluation (scoring out of 21)	7	21	21	21
Summary	Do Nothing option does not improve these transportation aspects, increases traffic and emergency response times.	Options 1, 2, and 3 are equally weighted from a transportation perspective as they all improve safety, cycling, future transportation trends, network resiliency.		
Constructability and Cost				
Evaluation (scoring out of 12)	12	8	8	8
Summary	Do Nothing is preferred from constructability and cost perspective since it has no additional costs or construction.	Options 1,2,3 are all equal in constructability and cost comparison.		
Overall Evaluation (scoring out of 78)	58 ✗ Do Not Carry Forward	63 ✗ Do Not Carry Forward	64 ✓ Carry Forward	63 ✗ Do Not Carry Forward
	Do Nothing does not satisfy the Phases 1 and 2 Needs and Justification requirements as identified in the 2012 VMC Transportation Master Plan to accommodate mobility needs, with a focus on street connectivity, accessibility and support for multi-modal mobility, and integration of Transportation Demand Management (TDM).	Option 1 is not preferred since it more adversely impacts the development potential of the northern properties in comparison to the southern properties, east of Jane Street.	Option 2 is the preferred alternative as it balances the impacts between the north and south properties, as compared to options 1 and 3, east of Jane Street.	Option 3 is not preferred since it more adversely impacts the development potential of the southern properties in comparison to the northern properties, east of Jane Street.

8 Description of Preferred Design

Based on the evaluation outlined in Table 7-2 and stakeholder and public feedback, the Preferred Alternative for Interchange Way was selected as Option 2 and is described in further detail in this section as the Recommended Plan for this project.

Following the PIC #2 and the selection of the Interchange Way preferred alignment, slight modifications were made to the preferred alignment for Interchange Way within the southeast quadrant. The changes include:

- Shifting the north-south alignment approximately 130 meters west of Maplecrete Road.
- Maintaining an acceptable intersection angle.
- Shifting the alignment approximately 5 meters south of Option 2.
- Maintaining a straight alignment for majority of the segment.

These modifications provide more equitable development opportunities for all adjacent properties, no net loss of parkland in the southeast quadrant, no adverse impacts on the school site and they do not impact the overall scoring of the evaluation of alternatives. No changes to the Millway Avenue preferred alignment were made. The modified preferred alternative alignment (Option 2) for Interchange Way is shown in Figure 8-1.

The Preferred Design includes widening of Interchange Way from two to four lanes, and the extension of Interchange Way east of Jane Street to Creditstone Road. Interchange Way will be classified as a Major Collector Road, with multi-modal transportation prioritized through the accommodation of transit and pedestrian/cycling infrastructure.

The improvements will include the following features:

- Widening of the Interchange Way from two to four lanes with a centre median/turning lane barrier.
- New raised cycle tracks on both sides along Interchange Way.
- Sidewalks on both sides along Interchange Way.
- Decorative paving at intersections at Interchange Way.

- Re-alignment of Black Creek completed under a separate project (Black Creek Renewal Project).
- New Hwy 400 / Interchange Way overpass completed under a separate project (Colossus Drive extension)
- Drainage and stormwater management improvements including potential Low Impact Development (LID) measures.
- Illumination improvements and relocation of impacted utilities.
- Potential for decorative paving at intersections and transit stops, to respect broader VMC character.

LINE PAINTING NOTE:

a. ALKYD PAINTS MAY BE USED ON BASE COURSE ASPHALT ONLY AND MUST BE MAINTAINED (INCLUDING REPAINTING) PRIOR TO PLACEMENT OF TOP COURSE ASPHALT.

b. FOR TOP/FINAL COURSE ASPHALT, "PERMANENT DURABLE PAVEMENT MARKINGS" (AS PER YORK REGION STD. E106) SHALL BE USED

HATCHING	SOLID WHITE 2.5m X 6.5m	PARKING LIMIT	

PAVEMENT MARKING LEGEND

No.	DESCRIPTION	DATE	BY	APPROVED

REVISIONS

APPROVED

APPROVED AS TO FORM IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF STANTEC CONSULTING LTD., CONSULTING ENGINEERS, AS TO DESIGN AND SPECIFICATION

Director of Engineering　　Date

VAUGHAN

MC TMP - ENVIRONMENTAL ASSESSMENT
INTERCHANGE WAY AND MILLWAY AVENUE

CITY FILE No. ##########

PRELIMINARY CONCEPT DESIGN
PREFERRED DESIGN

DESIGN BY: D.S.W.	DATE: APRIL 2025	CHECKED BY:
DRAWN BY: G.H.B.	PROJECT No.	APPROVED BY:
SCALE:		DWG. No.

File: S:\20M-01179-00\Dwgfiles\20M-01179-00-RL1-Plan-Interchange Way.dwg - Revised by <Bermudez, Gerry> : Wed, Apr 16, 2025 , 2:26 PM

8.1 Design Criteria

The design criteria for the proposed Interchange Way improvements are shown in Table 8-1 (subject to minor changes during detailed design).

Table 8-1: Interchange Way Design Criteria

	DESIGN STANDARD	PROPOSED STANDARD
Roadway Classification	Major Collector	Major Collector
Design Speed	60 km/h	60 km/h
Posted Speed	50 km/h	50 km/h
No. of Lanes and Width	4 lanes urban (2 curb lanes @ 3.5m, 2 inside lanes @ 3.3m)	4 lanes urban (2 curb lanes @ 3.5m, 2 inside lanes @ 3.3m)
Provision for Pedestrians and Cyclists	1.8 m cycle track and 2.0m sidewalks on both sides of the road	1.8 m cycle track and 2.0m sidewalks on both sides of the road
Minimum Stopping Sight Distance	85m	85m
Minimum Grade	0.5%	0.5%
Maximum Grade	5%	3%
Minimum Curve Radius	190m to 220 m	198m
Minimum Crest Curve	K_{crest} = 15	K_{crest} = 15
Maximum Crest Curve	K_{crest} = 43*	K_{crest} = 43*
Minimum Sag Curve	K_{sag} = 20**	K_{sag} = 20**
Maximum Sag Curve	K_{sag} = 43*	K_{sag} = 43*
Basic Right-of-Way	28m to 33m	33 m

* Urban drainage requirement
** (K=10) comfort control with illumination

8.2 Plan and Profile

The horizontal alignment of Interchange Way west of Jane Street generally follows the centre of the existing road allowance. Alternative horizontal alignments east of Jane Street were prepared and the preferred alignment was selected.

It is anticipated that the proposed Interchange Way profile will generally follow the existing roadway / ground profile tying into the existing Jane Street, Maplecrete Road, and Creditstone Road intersection grades.

8.3 Drainage and Stormwater Management Plan

A slight adjustment of the Interchange Way alignment is proposed east of Jane Street for the preferred alternative. This new slightly shifted alignment of Interchange Way will not produce any significant changes compared with the initial proposed alignment.

Based on the proposed design, three out of the four ROW catchments have an increase in impervious area (Catchments 105, 200 and 300) while the last catchment (100) has the same impervious area as existing conditions .

Table 8-2 includes the impervious area comparison between existing and proposed conditions for each catchment. Increase in impervious areas and flows, as a result of the proposed design, is proposed to be addressed through the retrofit of the Interchange Pond for the ROW catchment areas within the study limits west of Jane Street and the SWM Strategy of the SEQ for the ROW east of Jane Street.

Table 8-2: Impervious Comparison

CATCHMENT ID	IMPERVOIUS AREA (HA)		AREA INCREASE (%)
	EXISTING CONDITIONS	PROPOSED CONDITIONS	
100	1.01	1.01	0.0
105	2.27	2.95	30.0
200	1.75	1.91	9.1

CATCHMENT ID	IMPERVOIUS AREA (HA)		AREA INCREASE (%)
	EXISTING CONDITIONS	PROPOSED CONDITIONS	
300	0.44	0.51	15.9

Due to the road improvements, a slight increase in impervious area and flows is to be expected. The existing storm sewer network within the study limits may need to be increased in size due to the Millway Avenue and Interchange Way improvements. Under proposed conditions, the drainage pattern is assumed to stay the same as existing conditions.

The outcome of the analysis is summarized below, and further details can be found in Appendix F.

8.4 Municipal Infrastructure

There is existing watermain, sanitary and storm sewers along the existing section of Interchange Way west of Jane Street and, during detailed design, there will be ongoing coordination required with adjacent development regarding the relocation, installation and upgrading of municipal infrastructure to facilitate development needs. East of Jane Street, there will be ongoing coordination required with adjacent development regarding the installation of municipal infrastructure to facilitate development needs.

Existing TTC subway tunnels are below Interchange Way at the Millway Avenue intersection. There is also an emergency exit building on the southeast corner of the intersection and underground tunnel connection to the subway tunnels. Coordination with TTC will be required during detailed design.

8.5 Utilities

There are existing private utility companies (hydro, gas, telecom, TV) with buried plant along the existing section of Interchange Way west of Jane Street and, during detailed design, there will be ongoing coordination required with adjacent development regarding the relocation, installation and upgrading of utilities to facilitate development needs. East of

Jane Street, there will be ongoing coordination required with adjacent development regarding the installation of utilities to facilitate development needs.

8.6 Cycling and Pedestrian Facilities

Providing useful Active Transportation facilities is a significant component of the preferred preliminary design plan. The typical section includes a 2.0m wide concrete sidewalk located 0.5m offset from the property line and a 1.8m wide cycle track located 0.6m (buffer) from the face of the concrete curb. The sidewalk and cycle track are separated by raised planters to isolate the different users. Gaps between the raised planters will be required to accommodate above ground utility features and the landscape design. During detailed design, coordination with utility companies will be required to determine the gap requirements between the raised planters.

8.7 Traffic Signals and Illumination

Traffic signals are proposed at the intersections of Commerce Way, Edgeley Road, Millway Avenue, Jane Street, Maplecrete Road, and Creditstone Road with Interchange Way. The design of the intersections will be AODA compliant with dedicated crosswalks for pedestrians and cross rides for cyclists as per the requirements of OTM Book 15 and Book 18.

Full illumination is proposed along Interchange Way.

8.8 Property Requirements

The proposed road allowance for Interchange Way will have direct property impacts to lands adjacent to the roadway. Most of the impacted properties in the area belong to developers and the property acquisition for the 33 m right-of-way and daylight requirements at intersections will be obtained through the subdivision process application.

All property owners will be contacted during detailed design regarding property acquisition and compensation will be subject to negotiation between the City and the property owners.

8.9 Pavement

For pavement rehabilitation and new constructions of Interchange Way (from Commerce Street to Creditstone Road) is recommended to be constructed as follows:

- Remove the existing asphalt and underlying materials to a depth 650 mm below the finished grade;
- Proof-roll the exposed subgrade, repair soft-spots with Granular 'A' and re-grade as necessary;
- Place 350 mm, or more as required of OPSS 1010 Granular B Type II followed by placing a minimum of 150 mm of OPSS 1010 Granular A. All granular materials should be placed in lift thicknesses of 150 mm or less and compacted to a minimum of 100 percent Standard Proctor Maximum Dry Density (SPMDD);
- place three lifts of hot-mix asphalt with 100 mm of SP 19.0 Cat B (PGAC 64-28) binder course in two lifts and 50 mm of SP 12.5 Cat B (PGAC 64-28) surface course in one lift; – A light tack coat between the exposed concrete base and hot-mix asphalt courses; and
- The surface of the completed pavement should be provided with a minimum centre-to-edge cross-fall of 2 percent.

The following generalized geotechnical recommendations are provided for the replacement of culverts within the project limits:

1) Bedding for culvert should be in accordance with OPSD 802.010 and should consist of Granular A material.
2) Culvert should be backfilled in accordance with the OPSD 802.010.

8.10 Traffic Maintenance and Construction Staging

The existing section of Interchange Way is an important roadway connecting the properties to the west of Jane Street to Jane Street. The staging of construction for Interchange Way west of Jane Street should maintain one lane of traffic in each direction and left turn lanes at the Jane Street intersection. During detailed design, the feasibility of maintaining traffic during construction will need to be reviewed.

Only side road traffic will need to be maintained across the proposed Interchange Way east of Jane Street.

8.11 Driveway Regrading

It is anticipated that the proposed Interchange Way profile will generally follow the existing roadway / ground profile and the required driveway regrading will be minimal. With the proposed redevelopment of the lands adjacent to Interchange Way, it is anticipated that many of the existing driveways will be either relocated or eliminated, and coordination during detailed design will be required.

8.12 Streetscape

The Landscape Streetscape Concept Plan shown in Appendix C shows landscape design treatments for the preferred alignment. The vision of the Vaughan Secondary Plan and Vaughan Streetscape and Open Space Plan were considered when preparing the Landscape Streetscape Concept Plan.

The improvements will include the following features:

- Widening of the Interchange Way from two to four lanes with a center median barrier;
- New 1.8-meter-wide raised cycle tracks on both sides along Interchange Way and Millway Avenue;
- Decorative paving and other enhancements along Millway Avenue, as outlined in the SOS Plan;
- Re-alignment of Black Creek and new Interchange Way overpass;
- Drainage and stormwater management improvements including the construction of two new Stormwater Management Ponds near the E-N-Ramp and S-N-Ramp, and potential Low Impact Development (LID) measures;
- Illumination improvements and relocation of impacted utilities; and
- Potential for decorative paving at intersections and transit stops, to respect broader VMC character.

8.13 Capital Cost Estimate

The preliminary cost estimate for the preferred alternative alignment would be on the order of $33.4 million. The breakdown of the cost estimate is shown in Table 8-3. This cost excludes the following items:

- Black Creek Culvert / Bridge Structure;
- Property acquisition
- Road Allowance
- Permanent Easement
- Temporary Grading Easement

Table 8-3: Interchange Way Preliminary Cost Estimate (2024 $)

ITEM	DESCRIPTION	QUANTITY	UNIT	ESTIMATED PRICE	TOTAL
1	Earth Excavation	50,000	m^3	$35.00	$1,750,000.00
2	Surface Asphalt SP12.5 (50mm depth)	3,500	t	$160.00	$560,000.00
3	Base Asphalt SP19 (100mm depth)	7,000	t	$150.00	$1,050,000.00
4	Granular 'A' (150mm)	11,600	t	$35.00	$406,000.00
5	Granular 'B' Type II (350mm)	27,300	t	$32.00	$ 873,600.00
6	Concrete Curb and Gutter	5,600	m	$110.00	$616,000.00
7	Concrete Sidewalk / Median / Platform	8,600	m^2	$110.00	$946,000.00
8	Concrete Strip	1,600	m^2	$120.00	$192,000.00
9	Tactile Walking Surface Indicator plates	110	each	$600.00	$66,000.00
10	Asphalt Cycle Track	5,300	m^2	$75.00	$397,500.00
11	Storm Sewer		L.S.		$3,500,000.00

ITEM	DESCRIPTION	QUANTITY	UNIT	ESTIMATED PRICE	TOTAL
12	SWM Facilities/Oil Grit Separator		L.S.		$500,000.00
13	Steel Beam Guide Rail	100	m	$700.00	$70,000.00
14	Topsoil and Sod	3,200	m^2	$17.00	$54,400.00
15	Removal of Asphalt Pavement	17,500	m^2	$10.00	$175,000.00
16	Removal of Curb and Gutter	2,500	m	$20.00	$50,000.00
17	Removal of Concrete Sidewalk	3,500	m^2	$20.00	$70,000.00
18	Clearing and Grubbing		L.S.		$15,000.00
19	Landscaping including Raised Planters		L.S.		$5,600,000.00
20	Illumination and Comm		L.S.		$750,000.00
21	Intersection Traffic Signals				
	— Permanent	5	each	$300,000.00	$1,500,000.00
	— Temporary	2	each	$150,000.00	$300,000.00
22	Maintenance of Traffic		L.S.		$100,000.00
23	Miscellaneous (~20%)		L.S.		$3,908,300.00
	Subtotal (Construction)				$23,449,800.00
24	Utility Relocation (est. by Consultant)				$2,000,000.00
25	Contingency (~15%)				$3,817,000.00
26	Engineering (Detailed Design & CA ~15%)				$4,090,000.00
	TOTAL (excluding HST)				$33,357,000.00

9 Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work

Mitigation of negative effects is applied throughout the MCEA process, including development of alternatives to avoid constraints, and selection of the Technically Preferred Plan by identifying the alternative that has the least overall effects on the environment. Some negative effects cannot be completely avoided; therefore, additional mitigating measures are identified in order to avoid or minimize effects. These measures will be further developed and finalized in the next phase of design and will be included in the contract documents for implementation during construction. Recommendations and commitments to future work can be found in Section 9.11.

9.1 Multi-modal Transportation Infrastructure

As mentioned in Section 4.1 (Multi-Modal Transportation Infrastructure), justification from a traffic perspective for Interchange Way was included in the City's 2012 TMP and associated appendices. Reconstruction of the existing east-west portion of Interchange Way and further extension of the road east of Jane Street to Creditstone Road will provide greater connectivity in the VMC and allow people to reach their destinations more efficiently by multiple modes of transportation. The extension east of Jane will bisect an existing large block planned for redevelopment and will reduce travel distances by foot, cycle, and vehicle by creating a more manageable block size with public access to the land uses expected to be redeveloped along this street.

9.1.1 Pedestrian

Pedestrian sidewalks are expected to be constructed on both sides of the Interchange Way, both the reconstructed portion that exists today and the extension being planned east of Jane Street to Creditstone Road.

9.1.2 Cycling

Cycle tracks are planned to be constructed in both directions on Interchange Way. There are not any dedicated cycling facilities on Jane Street or Creditstone Road at present. Additional facilities would have to be built on intersecting streets with Interchange Way to integrate the Interchange Way cycle tracks with a broader network of cycling facilities. Facilities on intersecting streets are expected to be constructed over time as part of the overall intensification and redevelopment of the Vaughan Metropolitan Centre.

9.1.3 Transit

Buses may use Interchange Way in the future. The road design would allow for transit vehicles to pass through without concern. At the time of the writing of this report, no decision has been made by transit authorities whether or not to use Interchange Way for transit purposes.

9.1.4 Vehicular Traffic

The reconstructed Interchange Way and its extension to Creditstone Road will provide two lanes of vehicular traffic eastbound and two lanes of vehicular traffic westbound, with turning pockets at intersections as necessary. The reconstruction and extension will collect traffic from local roads, enable access to properties, and improve the public street grid system in the VMC.

9.2 Natural Environment

9.2.1 Fish and Fish Habitat Impact Assessment

Black Creek is being realigned as part of a separate project (Black Creek Renewal Project) and will be independent of these project works. As such, no direct impacts to Black Creek are discussed within this report.

9.2.2 General Vegetation, Wildlife and Wildlife Habitat

The Project Boundary consists of the areas where vegetation removal is anticipated to be required for the Project based on the 30% preliminary design. As a conservative approach, all vegetation overlapped by the project boundary was assumed to be permanently removed during construction.

Most of the area of the construction zone has been heavily disturbed, and contains weedy, introduced species such as Canada Thistle (*Cirsium arvense*) and Reed-canary Grass (*Phalaris arundinacea var. arundinacea*). The removal of small areas of vegetation on the edge of the Cultural Meadow, Cultural Woodland, and Reed-canary Grass Mineral Meadow Marsh communities is necessary within the construction area.

General vegetation, wildlife and wildlife habitat mitigation measures identified as part of the Study can be found in Table 9-2.

9.2.3 Species at Risk

The proposed works have the potential to impact vegetation communities and associated SAR and SAR habitat through both direct and indirect impacts. Based on the SAR Screening, there is moderate potential suitable habitat within the Project Boundary and within the Study Area for 11 species designated threatened or endangered under the ESA:, including: Eastern Small-footed Myotis, Little Brown Myotis, Bank Swallow, Bobolink, Chimney Swift, Eastern Prickly-pear Cactus, Jefferson Salamander, Purple Twayblade, and Red-headed Woodpecker. Mitigation measures to be implemented for the protection of SAR and SAR habitat can be found in Table 9-2.

9.2.3.1 Migratory Birds

Nesting migratory birds and their nests, eggs and young are protected under the Migratory Bird Convention Act (MBCA 1994) and Regulations (2022) under that Act. No work is permitted to proceed that would result in the destruction of active nests (i.e., nests with eggs or young birds), or the wounding or killing of bird species protected under the MBCA. As tree removal is required, there is the potential for harm to nesting birds, if present within the trees. Due diligence mitigation measures can be found in Table 9-2.

9.3 Arborist and Tree Preservation Plan

In accordance with the City of Vaughan's Tree Protection Protocol, tree removal is determined based on the proposed degree of excavation / anticipated disturbance within the Tree Protection Zone (TPZ) or extent of the crown (drip line), whichever is greater, considering: tree species, size, condition and the amount of critical roots that would be impacted that are vital to sustaining the trees overall health and stability. This amount of impact and above is likely to cause a significant and irreversible decline in health of the tree.

Where proposed works will encroach into a TPZ, a reduction to the TPZ will be required; Where TPZ reductions are proposed , mitigative measures may be recommended in the Tree Protection Plan to minimize damage to roots and canopy.

Preservation of trees is considered where an encroachment, excavation or disturbance into the TPZ is expected to be minor or nil and that tree health and stability will not be adversely impacted; The implementation of mitigation measures will reduce potential impacts to the tree therefore allowing for the tree to be preserved e.g. air spade excavation and / or horizontal root protection.

Proposed works will occur beyond the TPZ and the dripline with no impacts to the tree. Trees can be retained and do not require tree protection hoarding.

Mitigation measures to be considered for the construction phase of the project that applies to all trees that may be impacted by the construction can be found in Table 9-2.

9.4 Landscaping

The only direct impacts are anticipated to be on vegetation. Vegetation impacts will mainly affect the Black Creek corridor in proximity of Peelar Road, which consists of a variety of native, introduced, and invasive species. In addition to direct impacts required for construction removals, there is potential for indirect impacts to retained vegetation and wildlife habitat features within and bordering the right-of-way (ROW). Vegetation beyond the anticipated construction footprint may be disturbed during or after construction and changes in drainage patterns may impact dependent vegetation. With proper mitigation, including good maintenance practices, the indirect effects can be managed during and after construction and during operation.

In addition to direct impacts required for construction removals, there is potential for indirect impacts to retained vegetation and wildlife habitat features within and bordering the right-of-way (ROW). Vegetation beyond the anticipated construction footprint may be disturbed during or after construction and changes in drainage patterns may impact dependent vegetation. Potential indirect effects to adjacent vegetation features that may occur during the construction period include the following:

- Release of construction-generated sediment/garbage into the Black Creek channel.
- Soil compaction and vegetation clearing/damage beyond the working limits.

Potential indirect effects to adjacent vegetation features that may occur following the construction period include:

- Damage from excessive or improper application of herbicides and pesticides for ROW maintenance requirements.
- Increased potential of introduction of non-native species due to accidental spreading through construction activities (e.g. movement of materials via vehicle tire, etc.).
- Contaminants from spills and highway runoff.
- Damage to bordering natural vegetation from roadway maintenance activities such as salting and sanding, structure/culvert repairs, and/or ditch cleanout. Salt runoff and salt spray drift into vegetated areas may result in the loss of vegetation vigor and in extreme cases, vegetation dieback and spread of salt tolerant flora (halophytes).

General mitigation measures for invasive species, erosion and sediment control, grading, edge management, and wildlife can be found in Table 9-2.

9.5 Archaeological and Cultural Heritage Resources

9.5.1 Archaeological Resources

The resultant archaeological recommendations have been made based on the results of background historic research, an understanding of the geography and natural environment of the study area, and the property inspection to confirm the presence and/or absence of indicators of archaeological potential as outlined in Standards and Guidelines for Consultant Archaeologists. With the exception of three small areas, the study area was confirmed to

have been significantly previously disturbed with potential for the presence of archaeological resources removed. Based on the results of the Stage 1 archaeological assessment, it has been determined that the areas identified as retaining archaeological potential must be subject to Stage 2 archaeological assessment.

The Stage 2 archaeological assessment for the three areas determined to retain archaeological potential must be subject to the following:

- Given current land conditions, test pit survey is to be conducted at 5 m intervals as per Standard 2.1.2 of the Standards and Guidelines for Consultant Archaeologists. In areas of confirmed disturbance, test pit survey may be increased to 10 m intervals based on professional judgement.

It should be noted that areas determined to no longer retain archaeological potential should not be subject to ground disturbing activities until the recommendations stated herein have been accepted by the Ontario Ministry of Citizenship and Multiculturalism (MCM, formerly Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)) and the report has been entered into the Public Register of Archaeological Reports.

The Stage 1 Archaeology Report has been accepted by MCM and has been entered into the Ontario Public Register of Archaeological Reports.

9.5.2 Cultural and Built Heritage Resources

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment was carried out and completed in March 2022 in support of the Class EA Study. Based on the assessment, it was determined that no built heritage resources (BHRs) or cultural heritage landscapes (CHLs) were identified within the Project study area and there will be no direct or indirect impacts to BHRs and CHLs as a result of the Project. The Cultural Heritage Report has been reviewed by MCM (formerly MHSTCI) in 2022 as part of the EA process.

The report has resulted in the following recommendations:

- That no further cultural heritage assessments are required for the Project.
- That should further work require an expansion of the MCEA study boundary, a qualified heritage consultant should be contacted to confirm the impacts of the proposed work on potential BHRs and CHLs.

9.6 Drainage and Stormwater Management

Based on the proposed design, three out of the four ROW catchments have an increase in impervious area (Catchments 105, 200 and 300) while the last catchment (100) has the same impervious area as existing conditions. Increase in impervious areas, as a result of the proposed design, is proposed to be addressed through stormwater quality and quantity control measures.

Water Quantity Control

Table 9-1 summarizes the volumes required for quantity control that meet the TRCA target release flows for the contributing ROW study areas east and west of Jane Street for the 100-year storm event to be considered for the Interchange Pond retrofit and the SWM strategy for the southeast quadrant (SEQ).

Table 9-1: 100-Year Storage Volume to be Considered

Location	Contributing ROW Catchment Area (ha)	UNIT
West of Jane Street	4.34	2606
East of Jane Street	2.60	1565

Based on Table 9-1, the 100-year volume calculated for the ROW study area west of Jane Street should be considered for the Interchange Pond retrofit while the 100-year volume calculated for the ROW study area east of Jane Street should be considered for the SWM strategy of the southeast quadrant (SEQ).

The above-mentioned quantity control volumes should further be confirmed and refined at the detailed design stage. A storm sewer analysis should also be completed at the detailed design stage to confirm that the existing sewer system has the required capacity to convey the flow increase. Further communication with the City of Vaughan will be required during the detailed design stage.

Water Quality Control

Based on the TRCA's Stormwater Management Criteria, all watercourse and water bodies within the TRCA jurisdiction requires an Enhanced level of water quality protection equivalent to 80% Total Suspended Solids (TSS) removal. Based on the MSMP, FSSR and the Black Creek Renewal Class EA, the quality control will be achieved through the retrofitted Interchange Pond for the ROW catchments west of Jane Street while the quality control for the ROW catchments east of Jane Street will be achieved through the on-going SWM strategy of the SEQ. It is noted that the City will not accept filter units, such as Jellyfish, within the City rights-of-way.

The use of LID was investigated, however due to the proposed road design which includes construction of bike lanes in front of the planters in the boulevard throughout the project area, runoff from the roadway is unable to make its way to the boulevard. As such, the use of LIDs such as bioretention facilities within the ROW study area, is not feasible. Note, the City is currently recommending LIDs be implemented within rights-of-way within the VMC southeast quadrant to achieve water quality control. This may be an interim solution or part of a treatment train approach as a permanent solution. This will be determined through the City's on-going VMC SWM Enhancement Study.

For the study area west of Jane Street (Millway Avenue and Interchange Way), 15 mm onsite retention is being proposed for development sites. The Interchange Pond retrofit will include erosion control via extended detention. For the study area east of Jane Street, 15 mm onsite retention is being proposed for development sites. The SWM strategy for SEQ may include erosion control via extended detention should a pond be proposed.

Sediment and Erosion Control (ESC) mitigation measures to be considered for this Project can be found in Table 9-2.

9.7 Hydrogeology and Source Water Protection Review

A Hydrogeological Assessment was completed in May 2022 in support of this EA Study. Construction dewatering may be required for the proposed extensions of Interchange Way and Millway Avenue as per the following:

- For construction of a bridge or a culvert at Interchange Way crossing Black Creek and extension of Interchange Way and Millway Avenue due to presence of shallow groundwater / groundwater upwelling in this area;
- To reconstruct, improve, or re-locate below ground municipal services (sanitary sewers, sanitary force mains, water mains, and storm sewers) at the Site; and
- Additional works may require temporary dewatering for construction of sign post foundations or road cut excavations.

The proposed road extensions may pass through areas where there are potential environmental concerns related to soil or groundwater quality, particularly near industrial buildings and warehouses. In addition, sodium adsorption ratios may be high within shallow soils along roadways, attributed to application of road salt for winter road maintenance. Road salting within the Study Area will occur during the winter season. Concentrations of sodium and chloride will continue to be present in the runoff along roadside drainage ditches and through roadside infiltration and will most likely impact surface water features.

The following recommendations are offered at this stage of the project.

Groundwater Considerations

The OWRA states that the diversion of surface water or the extraction of groundwater in excess of 50,000 litres per day requires an Environmental Activity and Sector Registry (EASR) / Permit to Take Water (PTTW) from the MECP. Construction activities for the extensions of Millway Avenue and Interchange Way may result in groundwater takings. An EASR/PTTW may be required for the proposed works due to presence of surface water features, shallow groundwater, and water-bearing units in the Study Area. Site-specific geotechnical and hydrogeological investigations are recommended to be carried out to confirm the site-specific hydrogeological conditions at the Site, dewatering needs of the project and impacts of dewatering on the natural environment.

Surface Water Considerations

An Erosion and Sediment Control plan will need to be prepared at the detail design stage of the project to ensure impacts of construction are managed according to the Erosion and Sediment Control Guideline for Urban Construction. Quality of surface water will need to be protected during the construction stage of the project by avoiding fuel, lubricant and fluid

spills and construction debris falling in road-side ditches, culverts, and surface water catchment grates. Equipment refueling and maintenance activities should not take place within 30 m of Black Creek. A monitoring plan to prevent spills and fall of debris in surface water features and contingency plan to efficiently mitigate any potential spills should be prepared prior to the construction stage of the project.

Contaminant Consideration

Detailed and site-specific soil and groundwater quality investigations will be required at select locations, during the detailed design phase, to evaluate existing soil and groundwater quality conditions. This will be of particular importance around structures to be re-built, requiring excavation and earth moving, as well as where lands must be expropriated for road widening.

During any phase of road construction activities, due care should be exercised to avoid fuel, lubricant, and fluid spills. Spill and contamination prevention practices should be implemented to avoid potential environmental hazards and cleanups. Where practical, activities such as refueling should not be undertaken in areas with high susceptibility to groundwater contamination. Small spills and leaks during construction activities have the potential to affect areas of shallow groundwater and high permeability soils. The environmental impacts of spills on fine-grained soils are damaging to surface water quality due to runoff; whereas spills on medium to coarse-grained soils are most damaging to groundwater resources.

9.8 Contamination Overview Study

WSP completed a Contamination Overview Study (COS) in support of this EA study which identified seven APECs with the potential to impact soil and groundwater conditions at the Site. These APECs correspond to locations where potential contamination may be present and have been categorized by assessing the overall relative potential for contamination. The locations of the seven APECs are displayed in Figure 4-3 in Section 4.9 of the ESR.

Based on this study, it is recommended that a Phase Two ESA be completed for the Site, to characterize soil and groundwater conditions that may impact soil management and disposal, dewatering and other aspects related to extension of Interchange Way for the Vaughan Metropolitan Centre.

9.9 Climate Change

The Ministry of the Environment, Conservation and Parks (MECP) guide Consideration of Climate Change in Environmental Assessment in Ontario sets out ministry expectations and supports the province's Climate Change Action Plan by outlining climate change considerations for environmental assessment studies.

The guide notes 'climate consideration' within a project means that consideration has been given to methods to reduce greenhouse gas emissions and developing a design that is more resilient to future changes in climate and helps maintain the ecological integrity of the local environment in the face of a changing climate. Considering how a project may contribute to climate change, through its greenhouse gas emissions or its effects on the natural landscape, is important to the planning process as it allows proponents to consider climate mitigation measures to avoid, minimize, or offset such effects.

The City of Vaughan supports environmental sustainability and fights climate change through the Green Directions Vaughan which is the City's Community Sustainability and Environmental Master Plan. The City promotes the reduction of greenhouse gas through corporate and community partnership.

On a policy level, the City's approach to considering climate change is guided by provincial policies and embedded in several of the municipal planning policies as the Province's Growth Plan, Provincial Policy Statement, City of Vaughan Official Plan, and City of Vaughan Transportation Master Plan. By promoting and building infrastructure that support active transportation and transit uses, it helps to shift the reliance on auto use and the associated reduction in greenhouse gas emissions.

The consideration of climate change will follow the guideline in the MECP Consideration of Climate Change in Environmental Assessment in Ontario, for example, climate change as one of the evaluation/screen criteria of design alternatives, documentation of City of Vaughan's effort on climate change strategy on a city-wide level, as well as consideration of source water protection and air quality.

The MECP guide Consideration of Climate Change in Environmental Assessment in Ontario sets out ministry expectations and supports the province's Climate Change Action Plan by outlining climate change considerations for environmental assessment studies.

The guide notes 'climate considerations' within a project means that consideration has been given to methods to reduce greenhouse gas emissions and developing a design that is more resilient to future changes in climate and helps maintain the ecological integrity of the local environment in the face of a changing climate. Specifically, proponents are encouraged to consider mitigation (how the project might mitigate climate change) and adaptation (measures to adapt to climate change or make the project more resilient to the effects of climate change). Considering how a project may contribute to climate change through its greenhouse gas emissions or its effects on the natural landscape is important to the planning process as it allows proponents to consider climate mitigation measures to avoid, minimize, or offset such effects.

To mitigate potential effects during the construction phase of the project, the following best practices, or the most current best practices, will be implemented:

- Develop and implement detailed erosion and sediment control measures to be carried out during all construction phases in order to limit the amount of sediment/laden material entering receiving drainage systems.
- Dust suppression techniques to be employed for the duration of construction activities.
- A traffic staging plan will be developed during detailed design to accommodate local access. Opportunities to reduce idling will be considered further during detailed design.
- Potential effects to consider pertaining to construction include the greenhouse gas (GHG) emissions associated with the construction period, including the physical machinery and equipment, travel distance and time for construction workers to travel to and from the site, and sourcing building materials. The construction vehicle movement and access to the site are to be described in the contract documents to be prepared in detailed design. Idling and hours of work conditions will also be considered within the contract documents.

To mitigate potential impacts during the operational phase of the project, aligning with best practices for infrastructure design, practices such as more frequent monitoring and maintenance and improvement of road design to adapt to climate change impacts and minimize impact to individuals within the City of Vaughan for the extension of Millway Avenue EA study area in the future may include (but are not limited to):

Erosion protection techniques developed during detailed design to limit the extent of erosion in the vicinity of the watercourse crossings along the study corridor.

As the amount of impervious surfaces are increased, appropriate stormwater capacity should be calculated and identified.

9.9.1 Noise

Noise studies have not been conducted at this stage and will be reviewed during the Detail Design stage. Should Noise Mitigation be determined to be required during Detail Design, landscape mitigation measures can be considered including coniferous plantings as screening or as living walls.

9.9.2 Air Quality

The Project involves road improvements including new road construction and road widening. The modified preferred alternative design for Interchange Way was reviewed for potential project related air emissions. Since the Project road extensions are less than 2 km in length and the road widening from two lanes to four lanes is less than 1 km in length, the Project is expected to have minimal impacts to local air quality and surrounding sensitive receptors. The addition of traffic lanes and roadways from the Project are expected to alleviate traffic congestion on surrounding roadways, help to reduce idling and slower moving traffic particularly during peak hours, and disperse emissions. The design of the Project also incorporates pedestrian/cycling infrastructure which can also help to decrease emissions throughout the area. Increased use of electric vehicles or public transport is also anticipated to reduce emissions in the future for the area.

During construction there is potential for air quality impacts to occur; however, these impacts are expected to be temporary and can be minimize with the implementation of an Air Quality Management Practices (AQMP). Construction related air quality impacts may arise from construction vehicle emissions and the emissions of dust within the specific areas of construction. Construction activities that have the potential to generate dust include the following:

- TSP, PM10, and PM2.5 resulting from:
  - Stockpiling of soils and other friable material;
  - Granular material loading and unloading activities;
  - Transportation of soils and other friable materials via dump trucks;
  - Soil excavation and filling activities;
  - Movement of heavy and light vehicles on paved and unpaved roads;

- Mixing processes
- Paving of roadways; and,
- Cutting of concrete.

- Emissions resulting from the combustion engines of construction equipment.

Air emissions from construction activities can be managed through following the recommendations outlined in the ECCC guidance document "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities", dated March 2005. The AQMP should ensure that dust and other emissions from construction and demolition activities do not impact surrounding environmentally sensitive areas such as aquatic habitats and fisheries, terrestrial vegetation, and faunal communities, as well as residential properties in proximity to work areas.

The design changes after PIC #2 to the preferred alternative design for Interchange Way were minor and therefore do not alter the results of the AQIA completed for the previous alternative design. The Project itself is anticipated to be a relatively minor source when compared to other larger sources within the area and is necessary to help alleviate congestion. The Project is expected to alleviate traffic congestion on surrounding roadways, help to reduce idling and slower moving traffic particularly during peak hours, and disperse emissions. The design of the Project also incorporates pedestrian/cycling infrastructure which can also help to decrease emissions throughout the area. Increased use of electric vehicles or public transport is also anticipated to reduce emissions in the future for the area. With proposed mitigation efforts during construction no substantial impact to air quality is expected. During construction, dust impacts should be mitigated by implementing a construction Air Quality Management Practices (AQMP). During the operation, dust should be managed through best management practices and routine maintenance of roadways.

Mitigation measures to be considered for this Project to minimize air quality impacts during construction can be found in Table 9-2.

9.10 Utilities

The existing private utility companies (hydro, gas, telecom, TV) that are within the right-of-way of the existing section of Interchange Way west of Jane Street will need to be extended east to Creditstone Road. During detailed design, there will be ongoing coordination

required with adjacent development regarding the relocation, installation and upgrading of utilities to facilitate development needs. East of Jane Street, there will be ongoing coordination required with adjacent development regarding the installation of utilities to facilitate development needs.

9.11 Summary of Mitigation Measures

Table 9-2 summarizes the mitigation measures to be implemented during detailed design.

Table 9-2:Mitigation Measures to be Implemented During Detailed Design

ID #	CATEGORY	ID #	ENVIRONMENTAL CONCERN	PROPOSED MITIGATION MEASURES AND / OR DETAILED DESIGN COMMITMENTS
1.0	Natural Environment	1.1	Vegetation	▪ The limits of vegetation clearing shall be clearly staked in the field and disturbance beyond the staked limits shall not be permitted.
		1.2	Wildlife	▪ Any wildlife incidentally encountered during construction will not be knowingly harmed or harassed and will be allowed to move away on its own.
		1.3	Wildlife and Wildlife Habitat	▪ In the event that an animal encountered during construction does not move from the construction zone and construction activities are such that continuing construction in the area would result in harm to the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator and/or Environmental Inspector will be notified.
		1.4	Species at Risk	▪ Tree removals are not to occur between April 1 – November 30 (active season for migratory bats) to ensure that no direct harm to SAR bat individuals occurs (including potential maternal and day-roosting bats). Refer to the Arborist Report (Appendix B) for tree protection information) ▪ If a tree identified as potential SAR bat roosting habitat cannot be removed between October 1 and March 31, the tree will be flagged and protected from harm. If protection of this tree is not possible, MECP will be consulted to determine if there are options for tree removal during the bat active season. An appropriate sediment and erosion control (ESC) plan shall be developed to manage the discharged water. Water shall be discharged into the swamp in such a way as to prevent erosion of soils, disturbance of vegetation and deposition of sediment. If the presence of SAR individuals is confirmed, permitting or registration under the ESA for removal of habitat may be required. Additional consultation with the Ontario Ministry of the Environment, Conservation and Parks (MECP) may be necessary to confirm permitting or registration requirements.

		1.5	Nesting Migratory Birds	▪ Awareness of the potential for nesting activity within the project limits during the Regional Nesting Period.
				▪ Avoidance of activities that may disturb or harm nesting migratory birds.
				  ▪ Vegetation clearing (including grubbing and tree/shrub/grass removal) and any construction activities, in areas where migratory birds might nest should be scheduled to avoid the Regional Nesting Period (approximately March 31 to August 31). The Contractor will be made aware that occasionally bird species will precede or exceed the approximate breeding bird window.
				  ▪ If vegetation clearing must occur within the Regional Nesting Period, a nest search by a qualified biologist may be conducted in 'simple habitats', as defined by ECCC. If no nesting is observed, vegetation clearing shall occur within 48 hours of the nest search. Nest searches are due diligence measures that do not constitute or guarantee compliance with the MBCA. It remains the responsibility of the individual or company undertaking the activities to ensure compliance with the MBCA.
				▪ No active nests will be removed, or birds or nests disturbed in accordance with the MBCA.
				▪ The Contractor will be advised that all temporary brush and loose soil or aggregate piles that are expected to remain undisturbed for greater than 48 hours, should be tarped or otherwise inspected regularly to prevent nesting as they provide potentially suitable nesting sites for some species.
				▪ If a nesting migratory bird is identified within the construction site and the construction activities are such that continuing construction in that area might result in a contravention of the MBCA (i.e. potential harm or stress to nests, birds, eggs or young), all activities must cease, and the Contractor Administrator immediately notified.

ID #	CATEGORY	ID #	ENVIRONMENTAL CONCERN	PROPOSED MITIGATION MEASURES AND / OR DETAILED DESIGN COMMITMENTS
		1.6	Regulated Features	▪ A portion of the Site and Study Area consists of TRCA Regulated Area. Impacts to this Regulated Area surrounding Black Creek are to be mitigated through erosion and sediment control measures, as well as keeping vegetation clearing to a minimum.
		1.7	Aquatic Environment	▪ Black Creek is being realigned as part of a separate project (Black Creek Renewal Project) and will be independent of these project works. No mitigation measures are identified as part of this Study.
2.0	Cultural Heritage	2.1	No direct or indirect impacts to built heritage resources (BHRs) or cultural heritage landscapes (CHLs).	▪ No further cultural heritage assessments are required for the Project. ▪ Should further work require an expansion of the MCEA study boundary, a qualified heritage consultant should be contacted to confirm the impacts of the proposed work on potential BHRs and CHLs.
3.0	Archaeological Resources	3.1	Three small areas within the study area have potential for the presence of archaeological resources.	The Stage 1 archaeological assessment determined that with the exception of three small areas, the study area was confirmed to have been significantly previously disturbed with potential for the presence of archaeological resources removed. Based on the results of the Stage 1 archaeological assessment, it has been determined that the areas identified as retaining archaeological potential must be subject to Stage 2 archaeological assessment. The Stage 2 archaeological assessment for the three areas determined to retain archaeological potential must be subject to the following: ▪ Given current land conditions, test pit survey is to be conducted at 5 m intervals as per Standard 2.1.2 of the Standards and Guidelines for Consultant Archaeologists. In areas of confirmed disturbance, test pit survey may be increased to 10 m intervals based on professional judgement.
4.0	Socio-Economic Environment	4.1	Property requirements to construct recommended plan	▪ The City will continue to correspond with impacted property owners throughout the study. ▪ The City will continue to reduce property impacts wherever possible.
		4.2	Change in noise during construction and following completion of road	▪ Construction will be completed in accordance with standard construction measures for noise.
5.0	Air Quality	5.1	Impacts to Air Quality	Potential mitigation measures that may be incorporated in the Air Quality Management Plan (AQMP) include: ▪ Dust suppression measures (e.g. application of water wherever appropriate, or the use of approved non-chloride chemical dust suppressants, where the application of water is not suitable); ▪ Use of dump trucks with retractable covers for the transport of soils and other friable materials; ▪ Minimize the number of loadings and unloading of soils and other friable materials; ▪ Minimize drop heights, use enclosed chutes, and cover bins for debris associated with deconstruction of affected structures; ▪ Washing of equipment and/use of mud mats where practical at construction site exits to limit the migration of soil and dust off-site; ▪ Stockpiling of soil and other friable materials in locations that are less exposed to wind (protected from the wind by suitable barriers or wind fences/screens, or covered when long-term storage is required) and away from sensitive receptors to the extent possible; ▪ Reduction of unnecessary traffic and implementation of speed limits; ▪ Permanent stabilization of exposed soil areas with non-erodible material (stone or vegetation) as soon as practicably possible after construction in the affected area is completed;

ID #	CATEGORY	ID #	ENVIRONMENTAL CONCERN	PROPOSED MITIGATION MEASURES AND / OR DETAILED DESIGN COMMITMENTS
				▪ Ensuring that all construction vehicles, machinery, and equipment are equipped with current emission controls, which are in a state of good repair; and, ▪ Dust-generating activities should be minimized during conditions of high wind. In addition to the AQMP, construction activities should be: ▪ Monitored by a qualified environmental inspector who will review the effectiveness of the mitigation measures and construction best management practices to confirm they are functioning as intended. If mitigation is found to not be effective, revised mitigation measures designed to improve effectiveness should be implemented. ▪ Dust levels should be monitored daily by the contractor and frequently by the environmental inspector to assess the effectiveness of dust suppression measures and adjust as required. Monitoring should continue throughout the construction phase until activities are complete. A complaint response protocol should be established for nuisance effects, such as dust, for residents to provide feedback. ▪ Regular inspections of dust emissions should be carried out by the contractor (frequency to be defined prior to Project construction) to confirm dust control watering frequency and rates are adequate for control. ▪ Contractors and the environmental inspectors should monitor the site for wind direction and weather conditions to ensure that high-risk dust generating activities are reduced when the wind is blowing consistently towards nearby sensitive receptors. The Site Supervisor should also monitor for visible fugitive dust and take action to determine and correct the cause. Specific details regarding monitoring should be included in the AQMP. During the operation, dust should be managed through best management practices and routine maintenance of roadways.
6.0	Hydrogeology	6.1	Diversion of surface water or extraction of groundwater	▪ An EASR/PTTW may be required due to the presence of surface water features, shallow groundwater and water-bearing units in the Study Area. The diversion of surface water or the extraction of groundwater in excess of 50,000 litres per day requires an Environmental Activity and Sector Registry (EASR) / Permit to Take Water (PTTW) from the MECP. ▪ Site-specific geotechnical and hydrogeological investigations are recommended to be carried out to confirm the site-specific hydrogeological conditions at the Site, dewatering needs of the project and impacts of dewatering on the natural environment.
		6.2	Erosion and Sediment Control	▪ An Erosion and Sediment Control plan will need to be prepared at the detailed design stage of the project to ensure impacts of construction are managed according to the Erosion and Sediment Control Guideline for Urban Construction. ▪ Quality of surface water will need to be protected during the construction stage of the project by avoiding fuel, lubricant and fluid spills and construction debris falling in road-side ditches, culverts, and surface water catchment grates. ▪ Equipment refueling and maintenance activities should not take place within 30 m of Black Creek. ▪ A monitoring plan to prevent spills and fall of debris in surface water features and contingency plan to efficiently mitigate any potential spills should be prepared prior to the construction stage of the project.
		6.3	Groundwater Quality	▪ Detailed and site-specific soil and groundwater quality investigations will be required at select locations, during the detailed design phase, to evaluate existing soil and groundwater quality conditions. ▪ During any phase of road construction activities, due care should be exercised to avoid fuel, lubricant, and fluid spills. Spill and contamination prevention practices should be implemented to avoid potential environmental hazards and cleanups. Where practical, activities such as refueling should not be undertaken in areas with high susceptibility to groundwater contamination.

ID #	CATEGORY	ID #	ENVIRONMENTAL CONCERN	PROPOSED MITIGATION MEASURES AND / OR DETAILED DESIGN COMMITMENTS
7.0	Drainage and Stormwater Management	7.1	Impacts to Sediment and Erosion Control	▪ Sediment and erosion control measures will be implemented during all phases of construction, clean up and restoration to prevent sediment laden runoff from entering any of the watercourses directly from the construction zone. ▪ Uncontrolled erosion and sedimentation occurring during construction can result in loss in topsoil, a disruption of nearby watercourses and degradation of downstream water quality. During construction, erosion and sedimentation control measures should be implemented to prevent the migration of soils from site. ▪ The following recommended erosion and sedimentation control measures should be considered: Vegetative: ▪ All areas not subject to active construction 30 days after area grading should be top soiled and seeded immediately after completion of such grading. ▪ Immediately following seed application, a straw erosion control blanket should be installed on any exposed slopes adjacent to sensitive features. Structural: ▪ As construction proceeds, diversion swales should be graded where needed along the right of way boundaries to intercept drainage from external areas and direct it away from exposed surfaces. ▪ Temporary silt fencing and sedimentation traps should be placed around existing drainage features. ▪ Temporary silt fencing should be installed around sensitive vegetative features. ▪ Additional erosion control works may be required during the course of construction. These may consist of silt fences, swales, an/or diversion berms. The location and need for these works will be established in the field.
8.0	Contamination Overview	8.1	Seven (7) APECs have been identified as having potential to impact soil and groundwater conditions within the Study Area.	▪ It is recommended that a Phase Two ESA be complete for the Site, to characterize soil and groundwater conditions that may impact soil management and disposal, dewatering and other aspects related to extensions of Interchange Way and Millway Avenue for the Vaughan Metropolitan Centre.
9.0	Excess Soils	9.1	Excess Soil Management	▪ The Excess Soil Reuse Planning requirements include the generation of some or all of the following documents/components: Assessment of Past Uses, Sampling and Analysis Plan, Soil Characterization Report, Excess Soil Destination Assessment Report, Filing of Notice on Registry, and Soil Tracking. In areas where excess soil may be generated at the Site, soils shall be managed in accordance with O.Reg.406/19. ▪ MECP's current guidance document "On-Site and Excess Soil Management" (O.Reg. 406/19) will be adhered to for all activities associated with the management of excess soil during construction.
10.0	Landscape	10.1	Invasive Species	▪ Ensuring equipment is clean prior to entering the site and prior to entering another site. ▪ Cleaning equipment at least 30m away from any watercourse/water body or natural vegetation (clean on a mud-free, gravel covered and hard surface or well-maintained grassy area). ▪ Using compressed air and high-pressure hose in combination with a stiff brush or broom.

ID #	CATEGORY	ID #	ENVIRONMENTAL CONCERN	PROPOSED MITIGATION MEASURES AND / OR DETAILED DESIGN COMMITMENTS
				▪ Paying special attention to cleaning the underside of vehicles and in areas where dirt clods or plant materials may collect (wheel arches, guards, radiators, etc.). ▪ Soil contaminated with invasive seeds should only be disposed of at a site where the material can be contained, monitored, and, if necessary, treated, or at an appropriate municipal staging or disposal location.
		10.2	Sediment Control	▪ To prevent migration of sediment into watercourses and natural areas, implement erosion and sediment controls prior to construction and monitor regularly to ensure they remain in place and are functioning properly during construction. Ensure sediment control measures remain in place until groundcover plantings (i.e., seeded areas) have become established. ▪ Protect existing vegetation that is to be retained as per Ontario Provincial Standard Specification (OPSS) 805: Construction Specification for Temporary Erosion and Sediment Control Measures. ▪ Disturbed areas (i.e., open soil areas created during construction) will be stabilized and re-vegetated with appropriate seed mixes as soon as possible following construction. Where appropriate and feasible, side slopes will be vegetated with native plant species to reduce erosion, improve slope stability, increase infiltration, and reduce overland flow.
		10.3	Grading	▪ Existing surface and groundwater flow patterns will be carefully studied so that proposed grading can be designed to maintain these patterns to the greatest extent possible. ▪ Where possible, side slopes should not exceed 3:1 (horizontal: vertical). Where conditions require slopes greater than 3:1 the application of erosion blankets are to be considered in addition to seeding to maintain a stable slope and minimize erosion until seed becomes established.

		10.4	Edge Management	▪ Construction limits is to be used to minimize the removal of existing vegetation, wherever feasible, and will be staked out prior to construction commencement (including clearing and grubbing) in forested areas.
				▪ Trees, shrubs, and other vegetation not specified for removal is to be preserved.
				▪ Erosion and Sediment Control (ESC) fencing is to be erected to mark the vegetation clearing zones and prevent encroachment into vegetation beyond ESC fencing.
				▪ Ensure the use of appropriate vegetation clearing techniques (i.e., felling away from retained vegetation communities) to avoid impacts/damage to sensitive areas. Vegetation removal will follow OPSS.MUNI 201 (clearing) and OPSS.MUNI 801 (tree protection).
				▪ Beyond the edge that is disturbed, additional understorey plantings may be incorporated within the ROW adjacent to the existing natural area to buffer it from anticipated impacts.
				▪ Retain good native soil and seedbank wherever possible in areas where clearing is proposed. Seedbank and soil that has invasive species present should be treated as contaminated.
				▪ Stabilize and re-vegetate all exposed surfaces as soon as possible, and use native seed mixes which include impacted species, wherever feasible. These seed mixes are to be developed in the Detail Design stage. Seeding shall be conducted in accordance with OPSS.MUNI 804.
				▪ Immediately following construction, edge management plantings is to be undertaken in areas as identified in the Landscape Plan, as refined through Detail Design. These areas should:
				  ▪ Include narrow 'no-grubbing' zones at the treeline (in order to stimulate suckering from cut roots and stumps).
				  ▪ Arrange edge plantings to establish a gradient from the exposed edge, decreasing in height and size from taller species to shrub and herbaceous species as you move away from the treeline.

ID #	CATEGORY	ID #	ENVIRONMENTAL CONCERN	PROPOSED MITIGATION MEASURES AND / OR DETAILED DESIGN COMMITMENTS
				▪ Establish buffer plantings with groups of native trees and shrubs along the new edges to increase shade, reduce wind, and the effects of other contaminants such as salt spray. ▪ Re-plant using native species of the same species proposed to be removed. Species selection shall consider factors such as salt tolerance, longevity and hardiness of plant material, and seasonal interest. Invasive or exotic species should not be utilized in any circumstance. ▪ In sloped areas, select colony forming/suckering and deep-rooted plant species to assist with slope stabilization and organize plantings in large masses to promote dense colony formation and enhance visual quality.
11.0	Arborist and Tree Assessment	11.1	Impacts to Trees	▪ Development Engineering (VMC) shall notify Vaughan Forestry once the Tree Protection (Hoarding) has been installed, to allow Vaughan Forestry to inspect and approve according to By-law 052-2018 and/or in accordance with the City of Vaughan's Tree Protection Protocol (2018). ▪ The tree protection fencing will be maintained until all construction is completed, soils are stabilized, and all the equipment has been removed from the site. ▪ To minimize damage to roots it is recommended that excavators scrape soil within the same direction of the roots and not across. Any roots exposed are too be pruned neatly and cleanly; ▪ Areas where excavation, grading and construction have compacted soil within a reduced TPZ, at the completion of construction, scarify soil to a depth of 100 millimetres (mm). Restore disturbed areas and apply the following methods below: ▪ Water trees periodically during construction; and ▪ After construction apply a 75mm deep layer of mulch in a 2m radius around the tree's trunk. ▪ Prior to the commencement of tree removals, all limits of the locations of the tree preservation fencing must be clearly staked in the field, installed per approved plans, and approved by the contract administrator. All trees within the tree preservation zone must be left standing. The tree removals must be coordinated in accordance and compliance with the *Migratory Bird Convention Act* (MBCA). ▪ All removals must be felled into the work area to ensure that damage does not occur to the trees within the tree preservation zone. ▪ Upon completion of the tree removals, all felled trees are to be removed from the site, and all should be brush chipped. All brush, roots and wood debris must be shredded into pieces that are smaller than 25 mm in size to ensure that any insect pests that could be present within the wood are destroyed. ▪ The Canadian Food and Inspection Agency (CFIA) has issued a prohibition of movement where the Emerald Ash Borer (EAB), Oak Wilt Disease and Dutch Elm Disease have been confirmed. EAB has been found within the Region of York and it is within the EAR Regulated Area. This directive pertains to the movement of regulated materials (including but not limited to ash wood or bark and ash wood chips or bark chips) from a regulated area. EAB regulated articles moving out of a regulated area must be accompanied by a Movement Certificate issued by the CFIA. Refer to the EAB Regulated Areas of Canada found on the CFIA website. ▪ Ash materials may be removed from the site and disposed of within the 'Regulated Area' (see CFIA website for the 'Regulated Area' limits). Should it be necessary to dispose of Ash products outside of the 'Regulated Area' a 'Movement Certificate' will be required from the CFIA prior to transport. ▪ Tree protection fencing must be constructed and installed as per the details on the approved Tree Preservation Plan. Upon installation of the fencing, the contractor will contact the contract administrator to review and approve the fencing and its location prior to commencement of any grading work.

ID #	CATEGORY	ID #	ENVIRONMENTAL CONCERN	PROPOSED MITIGATION MEASURES AND / OR DETAILED DESIGN COMMITMENTS
				▪ Areas within the TPZ are not to be used for any type of storage (e.g., storage of debris, construction material, surplus soils, and construction equipment). No trenching or tunneling for underground services shall be located within the tree protection zone or dripline of trees designated for preservation within or adjacent to the construction zone. ▪ No grade changes shall occur within the TPZ unless approved as part of the Landscape Memo. If any grade changes may occur, either as a cut or fill situation, the consulting arborist must be notified prior to such work occurring to ensure that all precautions to preserve the tree are made. ▪ Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protective areas. Further, no contaminants shall be dumped or flushed where they may come into contact with the feeder roots of the trees. ▪ If it is necessary to remove additional limbs or portions of trees after construction has commenced, in order to accommodate the construction, the consulting arborist is to be informed and under their direction the removal is to be executed carefully and in full accordance with arboricultural techniques, by a certified arborist. Root Pruning Practices: ▪ All approved root pruning is to take place by or under the supervision of an arborist and in accordance good arboricultural practices. ▪ Pruned root ends shall be neatly and squarely trimmed and the area shall be backfilled with clean native fill as soon as possible to prevent desiccation and promote root growth. ▪ The exposed roots shall not be allowed to dry out and an appropriate watering schedule shall be undertaken (e.g. water bi-weekly to field capacity between June 1st and September 15th so that the roots maintain optimum soil moisture during construction and backfilling operations. ▪ Backfilling shall occur immediately and shall be with clean uncontaminated topsoil from an approved source. It is recommended that texture of backfill be coarser than existing soils, and that backfill comes into clean contact with existing soils, i.e. remove air pockets, sod, etc. ▪ Pruning to be conducted by an International Society of Arboriculture (ISA) certified Arborist. Branch Pruning Practices: ▪ All limbs damaged or broken during construction should be pruned cleanly, utilizing by-pass secateurs in accordance with approved arboricultural practices . Should there be a potential risk of transfer of disease from infected to non-infected trees, tools must be disinfected after pruning each tree by dipping in methyl hydrate. This practice is particularly important during periods of tree stress and when pruning many members of the same genera, within which a disease could be spread quickly (i.e., Verticillium Wilt on Maples or Fireblight on genera of the Rosaceae family). ▪ All pruning cuts should be made to a growing point such as a bud, twig or branch, cut just outside the branch collar (the swollen area at the base of the branch that sometimes has a bark ridge), and perpendicular to the branch being pruned rather than as close to the trunk as possible. This minimizes the site of the wound. No stubs should be left. Poor cut location, poor cut angle and torn cuts are not acceptable. ▪ Extensive pruning is best completed before plants break dormancy. Pruning should be limited to the removal of no more than 25% of the total bud and leaf bearing branches. Pruning should include the careful removal of:

ID #	CATEGORY	ID #	ENVIRONMENTAL CONCERN	PROPOSED MITIGATION MEASURES AND / OR DETAILED DESIGN COMMITMENTS
				▪ Deadwood; ▪ branches that are weak, damaged, diseased and those which will interfere with construction activity; ▪ secondary leaders of conifers; ▪ trunk and root suckers; ▪ trunk waterspouts; and, ▪ tight V-shaped or weak crotches (included unions). ▪ Any branches that overhang the work area and require pruning are to be pruned using good arboricultural practices utilizing by-pass secateurs in accordance with approved horticultural practices and/or American National Standard (ANSI) A300 (Part 1) – 2008 Pruning. ▪ The Contractor must report immediately any damage to trees such as broken limbs, damage to roots, or wounds to the main trunk or stem systems so that the damage can be assessed immediately. ▪ Pruning to be conducted by an ISA Certified Arborist. Pre-Construction: ▪ A site meeting will be held with Contractor and Contract Administrator to review the clearing limits and confirm the installation location for the temporary tree protection fence; ▪ Tree removal along the tree retention limit must be carefully felled away from the tree retention limit and into the construction / development area. Stumps adjacent to trees identified for retention are to be flush cut and not chipped or grubbed to avoid impacts to retained trees. Construction: ▪ Periodic inspections will be undertaken by the site supervisor to ensure that the mitigation measures are being maintained during construction; ▪ The temporary protection fence is to be maintained throughout the entire construction period. No equipment storage, flushing of fuel, washing of construction equipment, and storage of spoil or construction debris is to occur behind the temporary protection fence; ▪ To avoid root zone impacts on trees to be retained, excavated material will not be stored against the tree protection barrier. Post-Construction: ▪ The temporary protection fence will be removed last after all the construction has ended, soils are stabilized, and all the equipment has been removed.
12.0	Transportation Consideration	12.1	Emergency access	▪ Advanced notice will be provided to emergency service providers notifying them of and anticipated lane closures, if required.
		12.2	Traffic interruptions and delays	▪ Advanced signage will be provided to motorists to notify them of closures, and detour routes required for construction. construction start, and any lane
		12.3	Construction staging	▪ Advanced notice will be provided to property owners to notify them of construction start and any disruptions to existing accesses, as well as construction contractors and/or City's contact information. Access to all properties will be maintained.

9.12 Detailed Design Commitments

Environmental concerns, anticipated impacts, and proposed mitigation measures as they relate to the project have been described throughout Section 9. Many of the environmental concerns have been mitigated through the process by which the recommended design was selected, as described in the ESR. This section provides an additional list of standard commitments to be carried forward into Phase 4 of the MCEA process. These commitments have been developed through consultation with various agencies throughout the study process. It is recognized that certain decisions require specific agency input. Therefore, a key component of detailed design is refining and detailing the impact assessment and mitigation measures as the design is developed and refined, in consultation with agency staff. Commitments during detail design include:

Landscape

- Immediately following construction, edge management plantings is to be undertaken in areas as identified in the Landscape Plan, as refined through Detail Design. These areas should:
    - Include narrow 'no-grubbing' zones at the treeline (in order to stimulate suckering from cut roots and stumps).
    - Arrange edge plantings to establish a gradient from the exposed edge, decreasing in height and size from taller species to shrub and herbaceous species as you move away from the treeline.
    - Establish buffer plantings with groups of native trees and shrubs along the new edges to increase shade, reduce wind, and the effects of other contaminants such as salt spray.
    - Re-plant using native species of the same species proposed to be removed. Species selection shall consider factors such as salt tolerance, longevity and hardiness of plant material, and seasonal interest. Invasive or exotic species should not be utilized in any circumstance.
    - In sloped areas, select colony forming/suckering and deep-rooted plant species to assist with slope stabilization and organize plantings in large masses to promote dense colony formation and enhance visual quality.

Archaeology

A Stage 2 archaeological assessment must be completed for areas identified as retaining archaeological potential.

Contamination Overview Study (COS)

Complete a Phase Two ESA for the Site, to characterize soil and groundwater conditions that may impact soil management and disposal, dewatering and other aspects related to extensions of Interchange Way for the Vaughan Metropolitan Centre.

Hydrogeology

Hydrogeology assessment will be required to be assessed during the design stage when detailed construction information becomes available, to address the potential impacts of any construction dewatering on groundwater and/or surface water resources.

Prepare an Erosion and Sediment Control plan at the detail design stage of the project to ensure impacts of construction are managed according to the Erosion and Sediment Control Guideline for Urban Construction.

Detailed and site-specific soil and groundwater quality investigations will be required at select locations, during the detailed design phase, to evaluate existing soil and groundwater quality conditions.

Arborist

Due to the slight modifications to the preferred alternative design for Interchange Way, additional inventory and assessment of trees located south of the Site Boundary noted will be required. The majority of tree data collected remains accurate and relevant to the anticipated impacts of the project. The Arborist Report will need to be updated with additional vegetation data, tree protection and mitigation recommendations during the detailed design.

For future plantings as part of the proposed works, any ties used to secure trees to wooden stakes shall be biodegradable. Aluminum wire with rubber hose will not be accepted.

Noise

Noise studies have not been conducted at this stage and will be reviewed during the detail design stage.

Drainage and SWM Management

The water quantity control volumes should further be confirmed and refined at the detailed design stage. A storm sewer analysis should also be completed at the detailed design stage to confirm that the existing sewer system has the required capacity to convey the flow increase. Further communication with the City of Vaughan will be required during the detailed design stage.

Future detailed designs and plans should identify all regulated features and boundaries within or adjacent to the anticipated work areas to demonstrate that the anticipated impacts to regulated features are mitigated.

9.13 Monitoring and Maintenance

A general monitoring program will be developed during detailed design which shall be implemented during construction to measure and monitor any potential project impacts on watercourses, including identifying contingency measures to mitigate or minimize the impact, if any.

During construction, the Contractor and on-site Contract Administrator will ensure that implementation of mitigation measures and key design features are consistent with the contract and external commitments (permit conditions/requirements and EA commitments). Mitigation measures shall be implemented and maintained by the Contractor who will ensure that the natural, social, and economic environments are not impacted by the construction activities and/or that impacts are minimized.

In addition, the effectiveness of the environmental mitigating measures will be assessed to ensure that:

- Individual mitigation measures are providing the expected control and/or protection; and

- Additional mitigation measures are provided, as required, for any unanticipated environmental issues that may develop during construction.

The Contractor will ensure that the environmental measures outlined in this ESR (Section 9) and further developed during detailed design are carried out. In an event that issues arise, appropriate agencies will be contacted to provide further input. If the impacts of construction are different than anticipated, of it the method of construction is such that there are greater than anticipated impacts, the Contractor's methods of operation will be changed or modified to reduce those impacts.

The Contractor will also ensure that items such as sedimentation controls and appropriate signage are maintained throughout construction. Appropriate signage shall be implemented to identify detour routes at the time of temporary roadway/sidewalk closures. In addition, closure events and restricted access to local residents and/or businesses shall be planned to accommodate vehicle and pedestrian movement during construction.

10 Permits and Approvals

Following the successful completion of the Municipal Class EA process documented in this ESR, all EA requirements will have been met. Other approval requirements will be addressed for the project during detailed design which include:

- Ontario Heritage Act requirements for Archaeological Clearance.
- Notifications/permissions for respective utilities with facilities in the area.
- Permitting, Registration or Approvals under the ESA have not been confirmed. Consultation with MECP may be required at detailed design to confirm requirements for species protected under the ESA.