The Corporation of the City of Vaughan

Portage Parkway Class Environmental Assessment

Portage Parkway Extension from West of Black Creek to Creditstone Road Environmental Study Report Part B

FINAL

September 2016

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0. Executive Summary

The City of Vaughan Transportation Master Plan (TMP), *A New Path* identified Portage Parkway Widening and Easterly Extension to Creditstone Road as a strategic improvement and key element in support of the Vaughan Metropolitan Centre (VMC) and recommends completion of the Municipal Class Environmental Assessment.

This Environmental Assessment (EA) Study advances implementation of the Portage Parkway Widening and its Easterly Extension to Creditstone Road in accordance with Schedule C of the Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011 and 2015).

The City of Vaughan retained CIMA+ in May 2015 to complete an EA study for the Portage Parkway Widening from Applewood Crescent to Jane Street (Part A) and Portage Parkway Extension from Jane Street to Creditstone Road (Part B) as two interrelated parts, the project limits of which were subject to refinement through the study process.

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. More specifically, 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.

Accordingly, this Environmental Study Report documents the planning and design process, in accordance with the Municipal Class EA for:

Part B: Portage Parkway Extension from West of the Black Creek to Creditstone Road.

+ Part B is for the extension of Portage Parkway from west of the Black Creek, crossing the Black Creek to Creditstone Road.

Documentation with respect to Part A is contained in a separate Environmental Study Report for Portage Parkway Widening and Easterly Extension to West of Black Creek.

Background and Study Context

The City's Transportation Master Plan, *A New Path* (2013), 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.

Portage Parkway is an east-west road from its westerly connection at Chrislea Road and is currently built to a 4-lane urban cross section (2 lanes in each direction) from Applewood Crescent to Edgeley Boulevard. The current right-of-way through this section is approximately 26 metres. East of Edgeley Boulevard to Jane Street, Portage Parkway is currently built as a 2 lane urban cross section to its

terminus at the signalized intersection with Jane Street. The right-of-way through this section is approximately 23 metres. Portage Parkway west to Chrislea Road features an overpass structure crossing Highway 400 – a strategic connection in the City's transportation network that opened in late 2010.

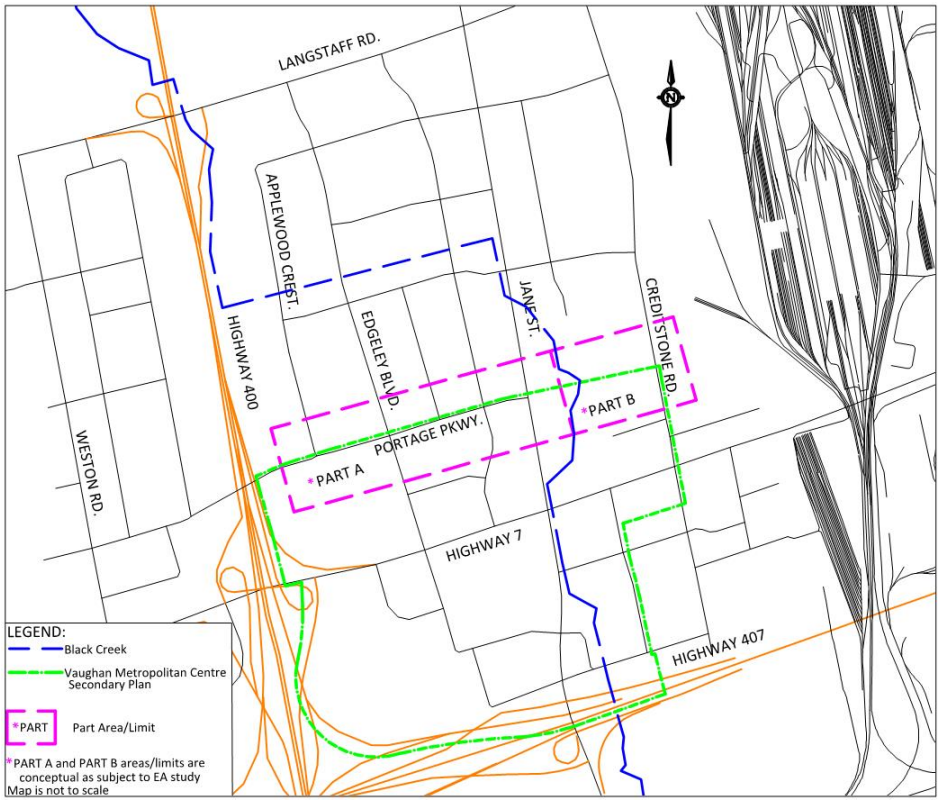
The VMC Secondary Plan and focused area supporting plans and studies, in the context of broader area, provided a robust planning and design framework for advancing and completing the EA (planning and design) study process. These principally included:

+ VMC Transportation Plan (June 2012) and VMC and Surrounding Areas Transportation Study (March 2013);
+ Municipal Servicing Class EA Master Plan (November 2012);
+ Black Creek Stormwater Optimization Study Municipal Class EA Master Plan (February 2012) and ongoing Black Creek Renewal EA; and
+ VMC Streetscape and Open Space Plan (November 2015), City-wide Streetscape Implementation Manual and Financial Strategy (November 2014) and Design Criteria and Standard Drawing.

Study Area

The figure below illustrates the study area for Part A and Part B. The total distance of the study area corridor is approximately 1.5 km. As the project progressed, it became clear that Part A widening had implications immediately east of Jane Street because of an existing driveway on the east side of the Jane Street/Portage Parkway intersection that would have to be relocated. Therefore, both Parts A and B considered implications of the alignment immediately east of Jane Street.

The EA study and recommended Preliminary Preferred Design is supported by a multi-disciplinary and comprehensive technical review and study of the transportation, natural, socio-economic and built environment of the area corridor.



Study Area for Part A and Part B

Class EA Process

Municipal projects that affect the purpose, capacity or function of a roadway, or propose new roadways, are subject to the Municipal Engineers Association *Municipal Class Environmental Assessment* (October 2000, as amended in 2007, 2011 and 2015).

The TMP, *New Path* (Appendix I), having addressed Phases 1 and 2, recommended completing the planning and design process in accordance with the Municipal Class EA. This EA study revisits Phases 1 and 2 and completes Phases 3 and 4 for the Portage Parkway Widening and Easterly Extension to West of Black Creek as a **Schedule C** project under the Municipal Class EA. As noted above, Schedule C projects must follow Phases 1 through 5 of the Class EA process:

Phase 1 Identify the problem or opportunity.

Phase 2 Identify alternative solutions to address the problem or opportunity.

Phase 3 Examine alternative methods of implementing the preferred solution.

Phase 4 Document the rationale for the Preferred Solution and Design Concept, and the planning, design and consultation process in an Environmental Study Report (ESR) for public and agency review.

Phase 5 Complete contract drawings and documents, and proceed to construction, operation and environmental monitoring.

Accordingly, separate Environmental Study Reports for Part A and interrelated Part B will be prepared

and available for the minimum 30 calendar days upon study completion for public and agency review. The Environmental Study Reports for Part A and Part B will document Phases 1 through 4 of the Class EA study.

Consultation Plan

An extensive Consultation Plan was implemented to ensure meaningful consultation with internal and external stakeholders and reviewing agencies. The Consultation Plan, organized around 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 Portage Parkway EA project team comprised of CIMA+ and City staff. The City's website, printed media and correspondence provided information on the study's progress and notice of key study milestones.

A mailing list was developed to notify potentially interested parties of opportunities for review and comment. Four notices to the public and internal and external stakeholders were undertaken:

Notice of Study Commencement	June 18 and 25, 2015
Notice of Public Information Centre No. 1	November 12 and 19, 2015
Notice of Public Information Centre No. 2	February 25 and March 3, 2015
Notice of Study Completion	Pending, 2016

To inform the general public of the study, each of the notices were advertised in two separate issues of the Vaughan Citizen and The Thornhill Liberal, and mailed to approximately 1,500 stakeholders and 93 agency representatives on the study mailing list. The Notices were also posted to the City's webpage at: http://www.vaughan.ca/projects/projects_and_studies/environmental_assessment_studies/Pages/Class-EA-Study-for-Portage-Parkway.aspx.

The Public Information Centres (PICs) were held at the Homewood Suites Hotel near Portage Parkway on:

+ November 25, 2015 from 5:00 pm to 8:00 pm

  This PIC presented findings from Phases 1 and 2 of the project and asked for public input on the findings – 19 members of the public attended.

+ March 9, 2016 from 5:00 pm to 8:00 pm

  This PIC presented findings from Phase 3 of the project, presenting alternative designs and the preliminary preferred design, and requested public input on the findings - 14 members of the public attended.

Two advisory groups were formed and met three (3) times to provide input to the study following commencement and in advance of each PIC. Invitations to participate on the study's Technical Agencies Committee were mailed to approximately 93 agency representatives. Invitations to participate on the study's Stakeholders Group were mailed to approximately 201 property owners within 200 m north and south of Portage Parkway within the study limits.

+ A Stakeholders Group was established from interested owners of property within 200 m of the Portage Parkway study corridor, including representatives of active and proposed development in the area; and
+ A Technical Agencies Committee 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.

One-on-one meetings were held with several land owners whose property was directly impacted by the proposed road improvements so that their concerns were considered during the evaluation of options and mitigation measures developed as appropriate. An Open House further reaching out and engaging affected property owners along the corridor was held on May 5, 2016.

The Ministry of Aboriginal Affairs advised the following First Nations may have existing or asserted rights or claims in Ontario's land claims process or litigation which may be affected by the project:

+ Chippewas of Georgina Island
+ Chippewas of Rama
+ Beausoleil First Nation
+ Mississaugas of the New Credit First Nation

Phase 1 – Problem and Opportunity

The EA Study, building on the City's TMP and VMC Secondary Plan, corroborates the need to improve and design Portage Parkway as a multi-modal street.

Needs and Justification

A broader comprehensive traffic analysis of the corridor was undertaken that validates the need to widen Portage Parkway to 4 lanes from Applewood Crescent to Creditstone Road as a major collector road. The following highlights technical findings with respect to roadway performance and operations including under a "Do-Nothing' planning scenario:

+ Under existing traffic conditions, most intersections and turning movements operate satisfactorily during both the AM and PM peak hours;
+ Under future 2031 traffic conditions with a "Do Nothing" scenario (e.g. no widening on Portage Parkway), traffic operations along the corridor is expected to severely deteriorate, resulting in high levels of congestion; and
+ Under future 2031 traffic conditions with the proposed widening and road extension, all intersections and turning movements are expected to operate satisfactorily during the AM peak hour.

Problem and Opportunity Statement

The following Problem and Opportunity Statement was developed and used to guide the remainder of the planning process:

Transportation improvements are needed to support growth and to provide alternative truck routes to Highway 7 within the VMC.

Improving Portage Parkway from Applewood Crescent to Jane Street is an opportunity to:

+ Serve the VMC and surrounding employment area,
+ Create an alternative route for trucks to bypass the VMC core,
+ Improve connections to local and regional infrastructure,
+ Support transit-oriented nodes and corridors, and
+ Enhance transit ridership, cycling and walking.

The extension of Portage Parkway from Jane Street to Creditstone Road is an opportunity to:

+ Provide a continuous route for all modes of transportation from Weston Road crossing Highway 400 and the Black Creek channel to Creditstone Road, and
+ Alleviate traffic congestion on Highway 7 within the VMC.

Phase 2 – Alternative Planning Solutions

Six (6) alternative planning solutions were identified and evaluated as part of Phase 1 and 2 of the Class EA process, namely:

Do Nothing

This solution would leave Portage Parkway unmodified in an 'as is' state.

Travel Demand Management Initiatives

Travel demand management initiatives involve strategies and policies used to reduce travel demand or redistribute the demand spatially or temporally.

Alternative Modes of Transportation

Promoting and facilitating the use of alternative modes of transportation, such as transit and cycling, can reduce the demand on a roadway.

Localized Intersection and Operational Improvements

Operational improvements, such as the retiming of traffic signals and installation of turning lanes, can improve the overall efficiency of a roadway (i.e. maximize throughput) and the surrounding network.

Widening Portage Parkway from Applewood Crescent to Jane Street

This solution would increase the capacity of the roadway between Applewood Crescent and Jane Street.

Extending Portage Parkway from Jane Street to Creditstone Road

This solution addresses the local area network discontinuity by extending Portage Parkway from Jane Street to Creditstone Road.

An advantage/disadvantage evaluation process was used to evaluate the appropriateness of the above alternatives. Two (2) of the recommended solutions have previously been recommended as part of the TMP and are assumed to continue, which are:

+ Travel Demand Management Initiatives – Identified in the TMP and will be implemented by the City as a separate strategy.

+ Alternative Modes of Transportation – Identified in the TMP, including the provision for continuous sidewalks, cycling systems, connectivity of the subway extension to Highway 7, and rapid transit of Jane Street.

The other three (3) recommended solutions are:

+ Localized Intersection and Operational Improvements;
+ Widening Portage Parkway from Applewood Crescent to Jane Street; and
+ Extending Portage Parkway from Jane Street to Creditstone Road.

The alternative planning solutions and evaluation were presented to the Advisory Groups (Technical and Stakeholder) and also at the first PIC. Minor comments were received during this consultation process, mostly concerning requests to be kept up to date as the project proceeds.

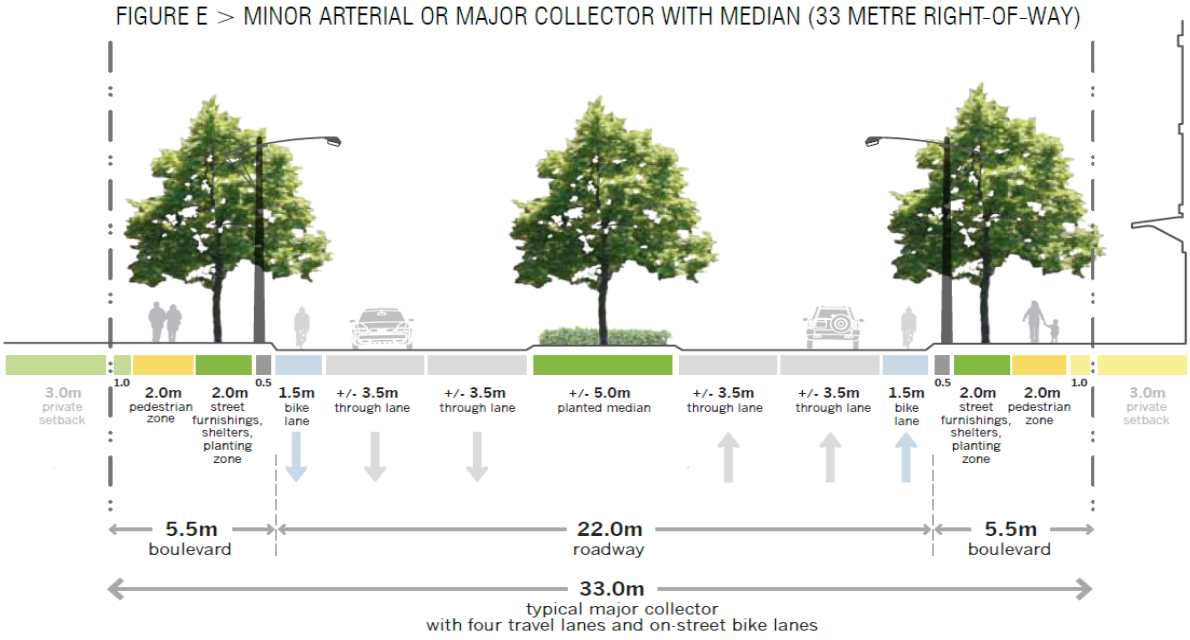
Phase 3 – Alternative Designs

Development of the design concepts has to consider the three-dimensions of a road corridor; i.e. the cross-section, the horizontal alignment and vertical profile.

Cross-Section

The VMC Secondary Plan (see figure below) and supporting VMC Streetscape and Open Space Plan in the context of the City's broader City-wide Streetscape Implementation Manual and Financial Strategy and Design Criteria and Standard Drawings provided the planning and design context for the exploration of alternative typical cross-sections.

More specifically, the beginning point for development of a typical cross-section was the recommended cross-section from the VMC Secondary Plan (see figure below). The symmetrical cross-section accommodated four 3.5m travel lanes, two 1.5m on-street bicycle lanes and 5.5m boulevards within a 33 metre right-of-way.



Typical Cross-Section

Given the high truck volumes expected to continue on this roadway it was decided to provide extra protection for cyclists by changing the on-street bicycle lanes to an off-roadway bicycle track adjacent to a roll-over curb. The refined cross-section is shown in the figure below. A reduced right-of-way (25.7m) was adopted for the crossing of Black Creek, wherein the planted boulevard was omitted and the median reduced. The right-of-way width tapered from the 25.7m width to 33m width as it approached Jane Street and Creditstone Road.

Technical and Environmental Criteria

Each of the alternative design options was assessed against the following technical and environmental criteria:

Technical Criteria

Economic

+ Capital costs.

Implementation

+ Conformity with regulatory framework.
+ Construction staging and phasing.
+ Impacts on existing municipal services and utilities.

Infrastructure Planning

+ Improved road safety.
+ Opportunities for other travel modes (walking, cycling, and public transit).
+ Improving road capacity and/or traffic flow.
+ Conformity with official/secondary plans and transportation master plans.
+ Impacts to stormwater management.
+ Opportunities for streetscapes.

Environmental Criteria

Natural

+ Impacts on avian and wildlife.
+ Encroachment onto natural areas.
+ Impacts on species at risk.
+ Impacts on aquatic habitat.
+ Impacts on watercourses.
+ Impacts on vegetation.

Cultural

+ Impacts on archaeology.
+ Impacts on built heritage and cultural landscapes.

Social

+ Air quality.
+ Compatibility with emergency services requirements.
+ Impacts on Businesses.
+ Property and parking access impacts.
+ Property requirements.
+ Noise impacts (post construction).

Jane Street to Creditstone Road Alternatives

Alternative design concepts were generated with consideration to challenges and constraints and iteratively short listed to a reasonable range of context sensitive alternative design options and were carried forward for evaluation.

It is noted that for the extension east from Jane Street to west of the Black Creek, key challenges and constraints in generating alternative design concepts for a new road right-of-way were principally centered on:

1. An existing commercial property on the northeast corner of Jane Street and Portage Parkway and the need to relocate its driveway, potential property requirements and impacts on on-site operations;
2. A proposed development on the southeast corner of Jane Street and Portage Parkway;
3. A large property (Iron Mountain) on the northeast corner of the crossing of Black Creek;
4. Existing buildings on the southeast side of the Black Creek crossing, recognizing that they are in

the VMC;

5. A CN Rail spur line from the MacMillan Yard crossing Creditstone Road and Transport Canada's Grade Separated restriction with respect to at least 30 metres away from this line with any new road; and
6. Intersection with Creditstone Road and proximity of adjacent existing driveways.

In short-listing design options, these challenges and constraints were dealt with in the following manner:

+ Item 1 and 2 above were considered in the evaluation of Part B options.
+ Item 3 was addressed by developing options that had varying degrees of impact on the Iron Mountain building.
+ Item 4: all alternatives had an impact on the buildings on the southeast side of the creek. These buildings are shown as being redeveloped in the VMC Secondary Plan. These buildings will remain until the time that the owners decide to redevelop their land.
+ Item 5 was addressed by ensuring all options were shown at least 30 metres away from the CN Rail spur.
+ Item 6 was addressed by ensuring that adjacent driveways could be accommodated in any of the designs.

Four (4) alternatives along with Do-Nothing were carried forward for evaluation and examined for the Portage Parkway road extension. The development of options proceeded in an iterative manner in avoiding and minimizing impacts, recognizing stable built form/uses and associated parking and operation:

'Do Nothing' Option

No extension of Portage Parkway from Jane Street to Creditstone Road – this was used for comparative purposes in order to measure the net impacts.

Option A: Southerly Shift of alignment east of Jane Street

This context sensitive alignment does not facilitate the proposed development on the southeast corner of the Jane Street/Portage Parkway intersection;

Option B: Northerly Shift of alignment east of Jane Street

This context sensitive alignment impacts property on the northeast corner of the Jane Street/Portage Parkway intersection;

Option C: Alignment east of Jane Street with Centre Boulevard

This context sensitive alignment impacts property on the northeast corner of the Jane Street/Portage Parkway intersection while facilitating the proposed development on the southeast corner;

Option D: Alignment east of Jane Street without Centre Boulevard (*Preferred)*

This context sensitive alignment minimizes impacts on the property on the northeast corner of the Jane Street/Portage Parkway intersection and facilitates proposed development on the southeast corner. This was achieved by exploring opportunities for gradually narrowing the boulevard on the north side

immediately west of Black Creek.

Under all design options, the unavoidable need to relocate the existing off-set driveway access at the Jane Street intersection to the property on the northeast quadrant of Jane Street and the Portage Parkway extension was considered. In this regard it is noted that the EA study provided for exchange of information and ongoing dialogue with Region of York staff as part of the formal Technical Agencies Committee and specifically as it relates to intersection design and access to Jane Street as under the Region's jurisdiction. It is recognized that all access to Jane Street is subject to York Region's future Rapid Transit Corridor Environmental Assessment.

Black Creek Channel Crossing

The crossing of the Black Creek was the subject of a separate set of alternative design options and evaluation for a preferred structure crossing of the Black Creek. It is noted that the EA study provided for ongoing consultation, exchange of information and focused technical meetings with the Toronto and Region Conservation Authority with respect to the crossing of the Black Creek channel as under their regulated area. Five preliminary design concepts were considered for the crossing grouped under culverts (2) and bridges (3). Culvert options not meeting flood criteria were dismissed from further consideration.

The following provides an overview of the preliminary design concepts and key considerations that emerged through the evaluation.

Five (5) preliminary design concepts were considered for the crossing of the Black Creek Channel:

Option 1: 10.6m wide Box Culvert with two 4.5m wide culverts for multiuse trails on both sides of the creek;

Option 2: Single Span 35m Bridge with multiuse trails accommodated underneath the bridge;

Option 3: 2 Span (60m) Bridge with multiuse trails accommodated underneath the bridge;

Option 4: 3 Span (60m) Bridge with multiuse trails accommodated underneath the bridge;

Option 5: 12m wide ConSpan Culvert with two 4.5m wide culverts for multiuse trails on both sides of the creek *(Preferred)*

As previously noted, a key stakeholder for the crossing was the Toronto and Region Conservation Authority (TRCA) with various flood accommodation criteria needing to be met – two meetings were held with TRCA staff to discuss the crossing options. Option 1 for a culvert did not meet the TRCA flood criteria and was not short-listed while the other options met or exceeded the criteria.

For each of the bridge options, there is in the order of an approximately $6 million premium relative to costs for culvert design options.

Notwithstanding that there are no current plans for active transportation facilities extending north from the VMC Secondary Plan area along the Black Creek channel, all alternative design options at the crossing consider and do not preclude the opportunity for north-south continuous pedestrian and cycling linkages.

Meetings with Stakeholders

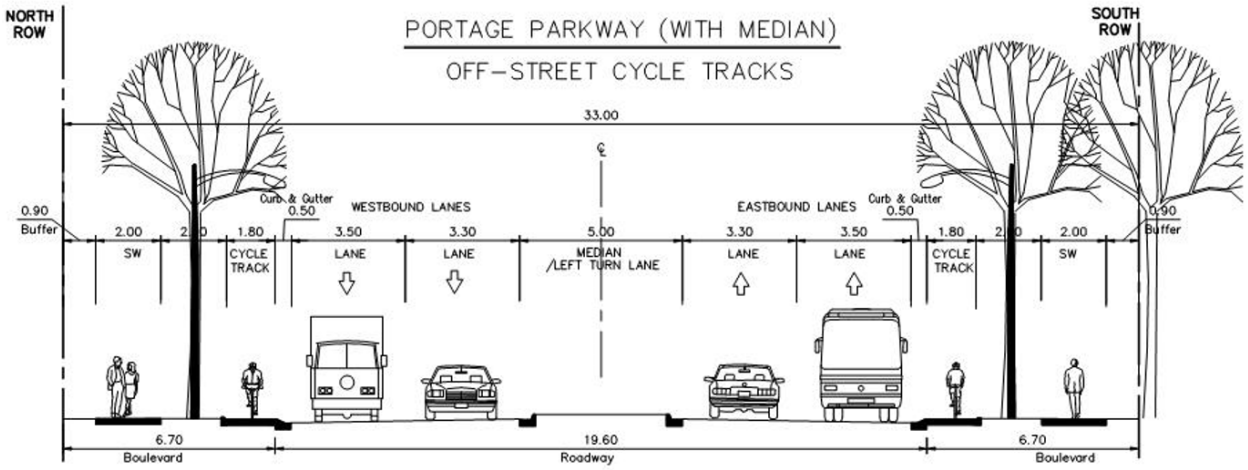
Meetings were held with the Stakeholders and Agencies as well as with property owners where there was a significant property impact concern. A second PIC was also held to review the design options. There was general support for the preferred design options and some minor modifications developed to further minimize impacts wherever possible.

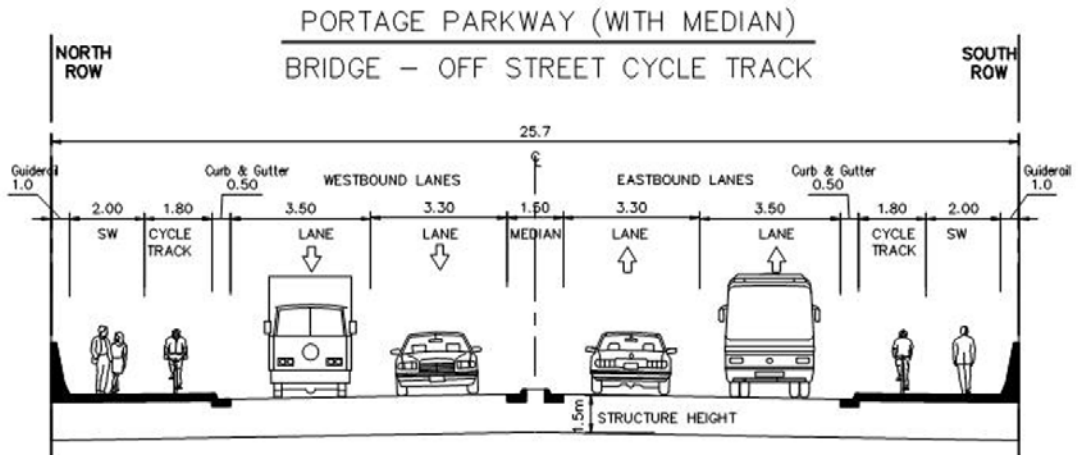
Preliminary Preferred Design

Based on the evaluation of alternative design concepts and consultation with the affected property owners, interested public and agencies, the recommended Preliminary Preferred Design (See Plate 1) is to:

+ Extend Portage Parkway from West of Black Creek to Creditstone Road, via an alignment that allows the viability of existing and proposed developments immediately east of Jane Street; and
+ Accommodate the bridging of Black Creek by implementing a 12m wide ConSpan structure with two separate 4.5m wide culverts to accommodate a multiuse trail.

The typical cross sections for the preferred design are shown below.





Typical Cross Sections

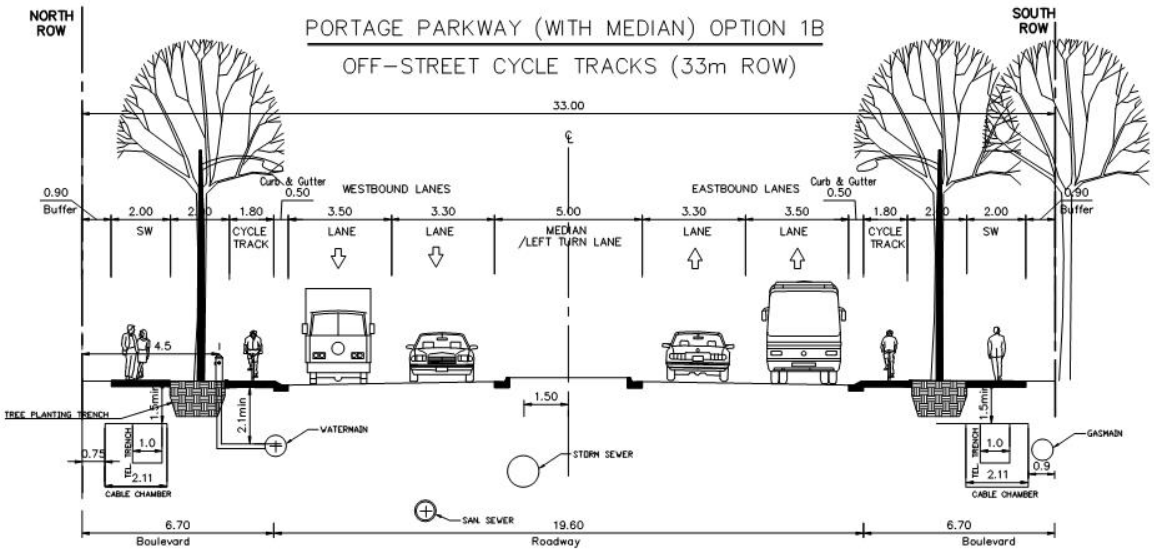
A 1.8m wide cycle track and 2.0m wide sidewalk are accommodated on both sides of the road and separated from the travel lanes by a roll-over curb.

Municipal Infrastructure/Utilities

The recommended Preliminary Preferred Design provides for the integrated and coordinated implementation of planned and approved municipal services (water and sanitary) as per the VMC Municipal Class EA Master Plan.

The profile had to match the existing profiles at Jane Street and Creditstone Road while in between those terminal points, the need for fill in the valley was minimized by using a minimum -0.55% slope approach from Jane Street.

Based on the City Standards, the proposed locations of the relocated utilities are shown below.



Utility Locations

Traffic Signals and Illumination

The EA study and recommended Preliminary Preferred Design provides for signalized intersections at the future Maplecrete Road extension and at Creditstone Road.

Implementation Plan

The EA study recommends advancing an Implementation Plan staging improvements in step with the transformation of the VMC and in coordination with the VMC planned street network. The key components of the Implementation Plan follow:

+ Program and allocate funding for completion of detailed design and engineering for the construction of the crossing of the Black Creek and extension from Creditstone Road; and
+ Obtain approvals (permits – Black Creek Crossing, etc.) and acquire property (where necessary) in a timely manner consistent with policy in the VMC Secondary Plan.

Capital Cost Estimate

The estimated total project cost associated with the proposed improvements, including engineering, construction, utility relocations and other project costs is approximately:

+ $6,200,000 for Part B, extending Portage Parkway from West of Black Creek to Creditstone Road (including $3,200,000 for the Black Creek Crossing; a 12m ConSpan culvert and 2 precast concrete box underpasses for active transportation).

Property Requirements

Implementation of the Portage Parkway extension will require the acquisition of lands from several properties including two (2) properties on the south side of Portage Parkway in the VMC Secondary Plan area.

Phase 4 – Notice of Completion

The Environmental Study Report will be placed on the public record for a minimum 30 calendar days. The Notice of Completion will announce where the report can be reviewed and will include contact information and a date for receiving comments. The Notice will further explain the process for resolving concerns. The public must contact the City of Vaughan within the 30-day review period to discuss and resolve any outstanding issues. If the issues cannot be resolved, the public may request for the Minister of Environment and Climate Change to order the City to comply with Part II of the *Environmental Assessment Act*, which addresses individual environmental assessments. Part II Order requests must be made to the Minister of Environment and Climate Change within the review period. Contact information for the Minister will be included in the Notice.

1. Introduction

1.1 Purpose

The City of Vaughan retained CIMA+ in May 2015 to complete an Environmental Assessment (EA) study for the Portage Parkway Widening and Easterly Extension to Creditstone Road, a strategic municipal network improvement facilitating development of the Vaughan Metropolitan Centre (VMC).

The study advances the planning and design process for Portage Parkway Widening and Easterly Extension to Creditstone Road in accordance with Schedule C of the *Municipal Class Environmental Assessment* (October 2000, as amended in 2007, 2011 and 2015), in two parts, the project limits of which were subject to refinement through the study process.

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. More specifically, 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.

Accordingly, this Environmental Study Report documents the planning and design process in accordance with the Municipal Class EA for:

Part B: Portage Parkway Extension from West of the Black Creek to Creditstone Road[1]

+ Part B is for the extension of Portage Parkway from west of the Black Creek, crossing the Black Creek, to Creditstone Road.

Documentation for the interrelated Schedule C project for the Portage Parkway Widening and Easterly Extension to West of Black Creek is the subject of a separate Environmental Study Report (ESR) July 2016. Notice of Completion was issued on July 15, 2016 and the ESR placed on public record for the minimum 30 day review period ending August 15, 2016.

1.2 Study Area and Project Location

Figure 1 illustrates the study area corridor for Part A and Part B. The total distance of the study area corridor generally from Applewood Crescent to Creditstone Road is approximately 1.5 km. Part A was initially identified from Applewood Crescent to Jane Street. As the project progressed, it became clear that Part A widening had implications immediately east of Jane Street because of an existing driveway on the east side of the Jane Street/Portage Parkway intersection that would have to be relocated.

[1] As the study progressed, the project limits for Part A was extended easterly in order to accommodate the required reconstruction of the east leg of the Jane Street intersection and staging an interim terminus west of Black Creek.

Therefore, both Parts A and B considered implications of the alignment immediately east of Jane Street.

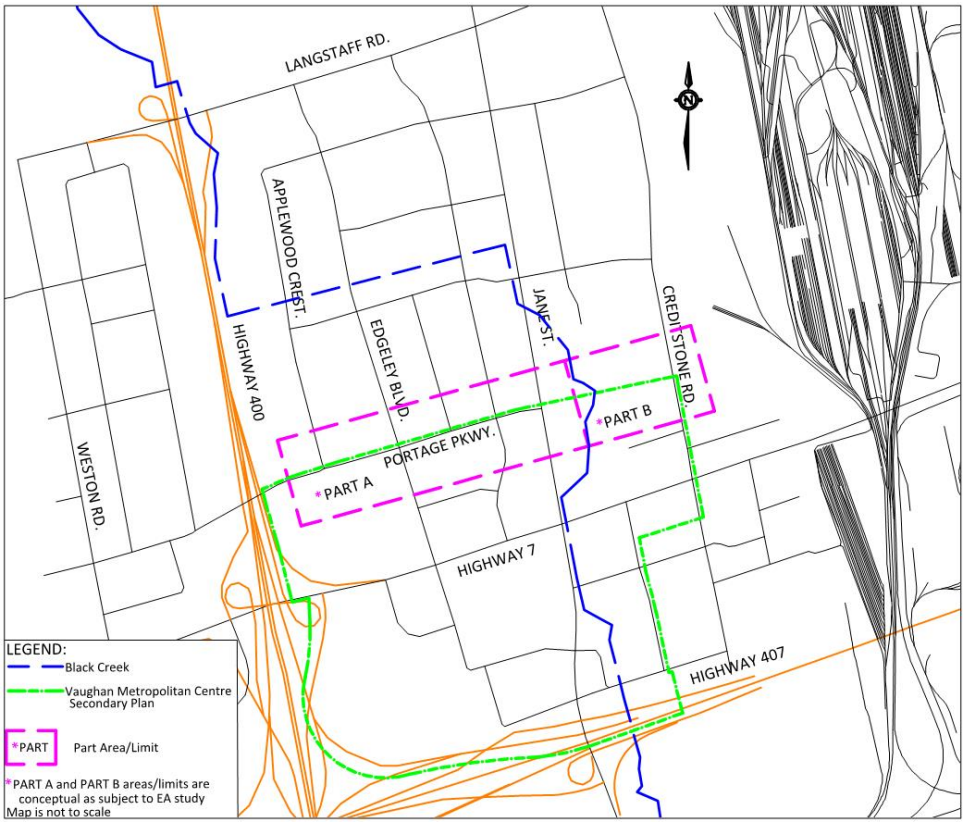


Figure 1: Study Area for Part A and Part B

1.3 Class EA Process

Municipal projects that affect the purpose, capacity or function of a roadway, or propose new roadways, are subject to the Municipal Engineers Association *Municipal Class Environmental Assessment* (October 2000, as amended in 2007, 2011 and 2015). The Municipal Class EA is a planning and design process for transportation/transit and water/wastewater infrastructure projects which have a predictable range of impacts that can be mitigated. The Municipal Class EA process is approved by the Ministry of Environment and Climate Change to meet the requirements of the *Environmental Assessment Act* (Government of Ontario, 2010).

Based on their potential range of impacts, projects are classified under the Municipal Class EA by Schedules:

Schedule A Activities have minimal environmental[2] effects. Projects are pre-approved.

[2] The EA Act defines "Environment" as "(a) air, land or water, (b) plant and animal life, including human life, (c) the social, economic and cultural conditions that influence the life of humans, or a community, (d) any building, structure, machine or other device or thing made by humans, (e) any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities, or

Schedule A+ Activities have minimal environmental effects. Projects are pre-approved so long as the public is advised prior to implementation.

Schedule B Activities have some adverse environmental effects. Projects typically involve improvements and minor expansions to existing facilities. These projects proceed through a screening process (Phases 1 and 2 of the Class EA), including consultation with the potentially affected public.

Schedule C Activities have the potential for significant environmental effects. Projects typically involve the construction of new facilities and major expansions to existing facilities. These projects proceed through the full Class EA planning and design process (Phases 1 through 5).

In particular, road widening or extension with an estimated construction cost of $2.3M or more is classified as a **Schedule C** project under the Municipal Class EA. As noted above, Schedule C projects must follow Phases 1 through 5 of the Class EA process:

Phase 1 Identify the problem or opportunity.

Phase 2 Identify alternative solutions to address the problem or opportunity.

This Phase will identify and assess the positive and negative effects of alternative solutions, taking into account the natural, social, cultural, and economic environment and input from agencies and the public.

Phase 3 Examine alternative methods of implementing the preferred solution.

This Phase will identify and assess the positive and negative effects of alternative design concepts for the Preferred Solution, taking into account the natural, social, cultural, and economic environment and input from agencies and the public.

Phase 4 Document the rationale for the Preferred Solution and Design Concept, and the planning, design and consultation process in an Environmental Study Report for public and agency review.

The Environmental Study Report is placed on the public record for at least 30 calendar days. Should the City not be able to resolve issues raised by the public or agencies during this review period, the public and agencies have a right to request the Minister of Environment and Climate Change to order the City of Vaughan to comply with Part II of the EA Act, which addresses Individual EAs. If no requests for a Part II Order are received during the review period, the project will proceed to Phase 5 for implementation.

Phase 5 Complete contract drawings and documents, and proceed to construction, operation and environmental monitoring.

(f) any part or combination of the foregoing and the interrelationships between any two or more of them, in or of Ontario."

The City's Transportation Master Plan having addressed Phases 1 and 2 of the Municipal Class EA process, established the need and justification for widening Portage Parkway from Applewood Crescent to Jane Street (Part A) and extending Portage Parkway easterly from Jane Street across the Black Creek channel to Creditstone Road. The Transportation Master Plan (2013) recommended completion of Phases 3 and 4 of the Class EA process for the proposed improvements and extension to Portage Parkway. This EA study revisits Phases 1 and 2 and concurrently completes Phases 3 and 4 for the **Portage Parkway Extension from West of Black Creek to Creditstone Road (Part B)** and Portage Parkway Widening and Easterly Extension to West of Black Creek (Part A) as Schedule C projects in accordance with the Municipal Class EA.

Accordingly, separate Environmental Study Reports for Part B and interrelated Part A Portage Parkway EA projects were prepared and available for at least 30 calendar days upon study completion for public and agency review. **This Environmental Study Report documents Phases 1 through 4 of the Class EA study for Portage Parkway Extension from West of Black Creek to Creditstone Road (Part B).**

1.4 Consultation Plan

An extensive Consultation Plan was implemented to ensure meaningful consultation with internal and external stakeholders as well as reviewing agencies. The Consultation Plan, organized around 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 Portage Parkway EA project team comprised of CIMA+ and City 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. The key stakeholders included:

+ 407 Express Toll Route (ETR)
+ Canadian Environmental Assessment Agency
+ Canadian National (CN) Rail
+ First Nations and Metis Communities: Mississaugas of Scugog Island, The Chiefs of Ontario, The Metis Nation of Ontario, Chippewas of Georgina Island, Beausoleil First Nation (Christian Island), Chippewas of Rama, and Mississaugas of the New Credit First Nation
+ Metrolinx
+ Ministry of Natural Resources and Forestry
+ Ministry of the Environment and Climate Change
+ Ministry of Tourism, Culture and Sport
+ Ministry of Transportation
+ Tenants and/or Property Owners

+ Toronto and Region Conservation Authority
+ Toronto Transit Commission (Toronto-York Spadina Subway Extension)
+ Utilities (e.g., Powerstream)
+ York Catholic District School Board
+ York Region
+ York Region District School Board
+ York Region Rapid Transit Corporation (VivaNext)

Further information on consultation is found in **Section 6**. The final mailing list of reviewing agencies is provided in **Appendix B**. The final mailing list of landowners is not provided to respect the *Municipal Freedom of Information and Protection of Privacy Act* (Government of Ontario, 2016).

To inform the general public of the study, each of the following notices were advertised by the City of Vaughan in two separate issues of the *Vaughan Citizen* and *The Thornhill Liberal*, and mailed by CIMA+ to approximately 1,500 stakeholders and 93 agency representatives on the study mailing list:

+ Notice of Study Commencement;
+ Notice of Public Information Centre No. 1;
+ Notice of Public Information Centre No. 2; and
+ Notice of Study Completion.

The above notices were also posted to the City's webpage at: http://www.vaughan.ca/projects/projects_and_studies/environmental_assessment_studies/Pages/Class-EA-Study-for-Portage-Parkway.aspx. 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 B**.

To gather public input on the study, two Public Information Centres were held toward the end of Phase 2 and Phase 3 of the Class EA study. In addition, two advisory groups were formed to provide input to the study following commencement and in advance of each Public Information Centre.

A Stakeholders Group was established from interested owners of property within 200m of the Portage Parkway study corridor, including representatives of active and proposed development in the area. Additionally, individual meetings were held with several landowners whose property was directly impacted by the proposed road improvements. These meetings addressed the owners' concerns which were considered during the evaluation of solutions and mitigation measures.

A Technical Agencies Committee 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 B**.

1.5 Study Team

Table 1 lists the lead Professionals and their roles for this study.

Table 1: Study Team

Lead Professional	Role
City of Vaughan (Proponent)	
Selma Hubjer	Project Director
Marta Roias	Project Manager
CIMA+ (Prime Consultant)	
Stephen Keen, M.Sc., P.Eng.	Consultant Team Project Manager
Jaime Garcia, Ph.D., P.Eng.	Transportation Planner
Sonya Kapusin, MCIP, RPP	EA/Land Use Planner
Nicolas Charest, P.Eng.	Structural Engineer
Hongtao Gao, P.Eng., PTOE	Road Designer
Steve May, C.Tech.	Topographical Surveyor
Lisa Cullen, OALA, CSLA	Landscape Architect/Arborist
Maram Miri, B.Eng.	Transportation Planner
Golder Associates Ltd. (Golder) (Sub Consultant)	
Peter Popkin, Ph.D., CAHP, MCIfA	Archaeologist
Michael Greguol, M.A., CAHP Intern	Cultural Heritage Specialist
Richard Booth, Ph.D.	Ecologist
Andrew Forbes, M.Sc., P.Geo	Geomorphologist
Rafael Abdulla, M.Eng., P.Eng.	Geotechnical Engineer
John Piersol, M.Sc., P.Geo.	Hydrogeologist
Joe Tomaselli, M.Eng.	Noise Engineer
Emily Casey, M.Env.Sc.	Phase 1 Environmental Site Assessment Specialist
Christopher Davidson, B.A.Sc., P.Eng.	Water Resources Engineer
Moon Matz Ltd. (Sub Consultant)	
Michael Matz, PMP, LC	Street Lighting Specialist

Internal stakeholder communication was integral to the Consultation Plan, which included coordination with the VMC Project Management Team with respect to ongoing and emerging projects and initiatives in the VMC and the City of Vaughan multi-disciplinary Technical Advisors. **Table 2** lists the City of Vaughan's Technical Advisors to the study team.

Table 2: Technical Advisors

Technical Advisor	Advisory Role
Jennifer Cappola-Logullo, P. Eng.	VMC Project Management
Amy Roots, OALA, CSLA, LEED AP	Development Engineering and Infrastructure Planning
Gerardo Paez Alonso, OALA, CSLA	Urban Design Parks Development
Musa Deo, P. Eng., PTOE	Transportation and Traffic Specialists
Winnie Lai, M.A. Sc., P. Eng	
Vince Suppa	
Frank Facchini, P. Eng.	Infrastructure Design and Construction
Andy Lee, P. Eng.	Environmental Engineering
Stephen Lue, MES|PL, MCIP, RPP	Development Planning
Daniel Rende, M.Pl.	Cultural Heritage
Gino Martino, B.A., C.Tech	Infrastructure Design and Construction
Danny Woo, P.Eng.	Development Engineering
Saad Yousaf , M.Sc., P. Eng., PMP	Stormwater Engineering

Figure 2 demonstrates the process for a Schedule C project under the Municipal Class EA. This study began on April 22, 2015 with completion scheduled for November, 2016. It is noted that the Notice of Completion for the interrelated Schedule C approved project, Portage Parkway Widening and Easterly Extension to West of Black Creek (Part A) was issued on July 15, 2016. The ESR was placed on record for the minimum 30 day review period ending August 15, 2016.

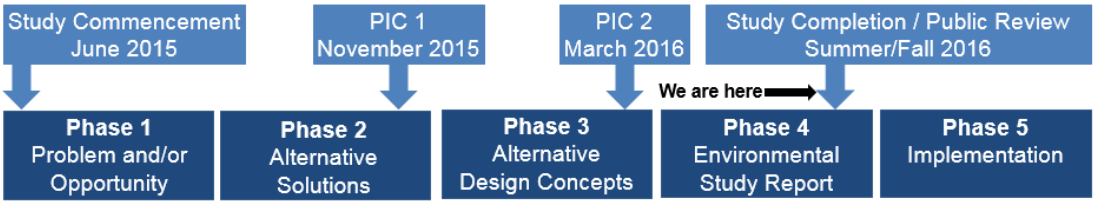


Figure 2: Municipal Class EA Flow Chart

2. Background and Study Context

The VMC is the City's new downtown, encompassing all amenities of urban lifestyle with a subway station connecting to the City of Toronto's Yonge-University line. With subway service to the VMC Subway Station set to begin in late 2017 and the first phase of the VIVAnext Highway 7 fully dedicated Rapidway from Edgeley Boulevard to Bowes Road nearing completion, advancing implementation of the planned supporting street network that addresses travel demand, capacity and mobility needs of all users, with priority to transit and non-auto based modes of travel, is a key element to the transformation and building of the VMC as a pre-eminent downtown.

Council's adopted Official Plan (2010) and companion Transportation Master Plan - A New Path (2013) identified strategic road improvements to support regional initiatives and future development areas in step with and as part of the sustainable strategy for growth - Vaughan Tomorrow.

Portage Parkway is an east-west travel road that extends from Weston Road to Jane Street. Portage Parkway is currently four lanes from Weston Road to Edgeley Boulevard and two lanes east of Edgeley Boulevard to its terminus at the signalized intersection with Jane Street.

Portage Parkway features a four lane overpass structure crossing Highway 400, a strategic connection in the City of Vaughan's transportation network and system and a key element of the transportation infrastructure serving the broader area, which opened in late 2010.

Portage Parkway through the VMC frames the northern boundary of the Centre and is classified as a major collector with a planned right-of-way of 33 meters**. Figure 3** shows the location of the study area in Schedule C from the VMC Secondary Plan.

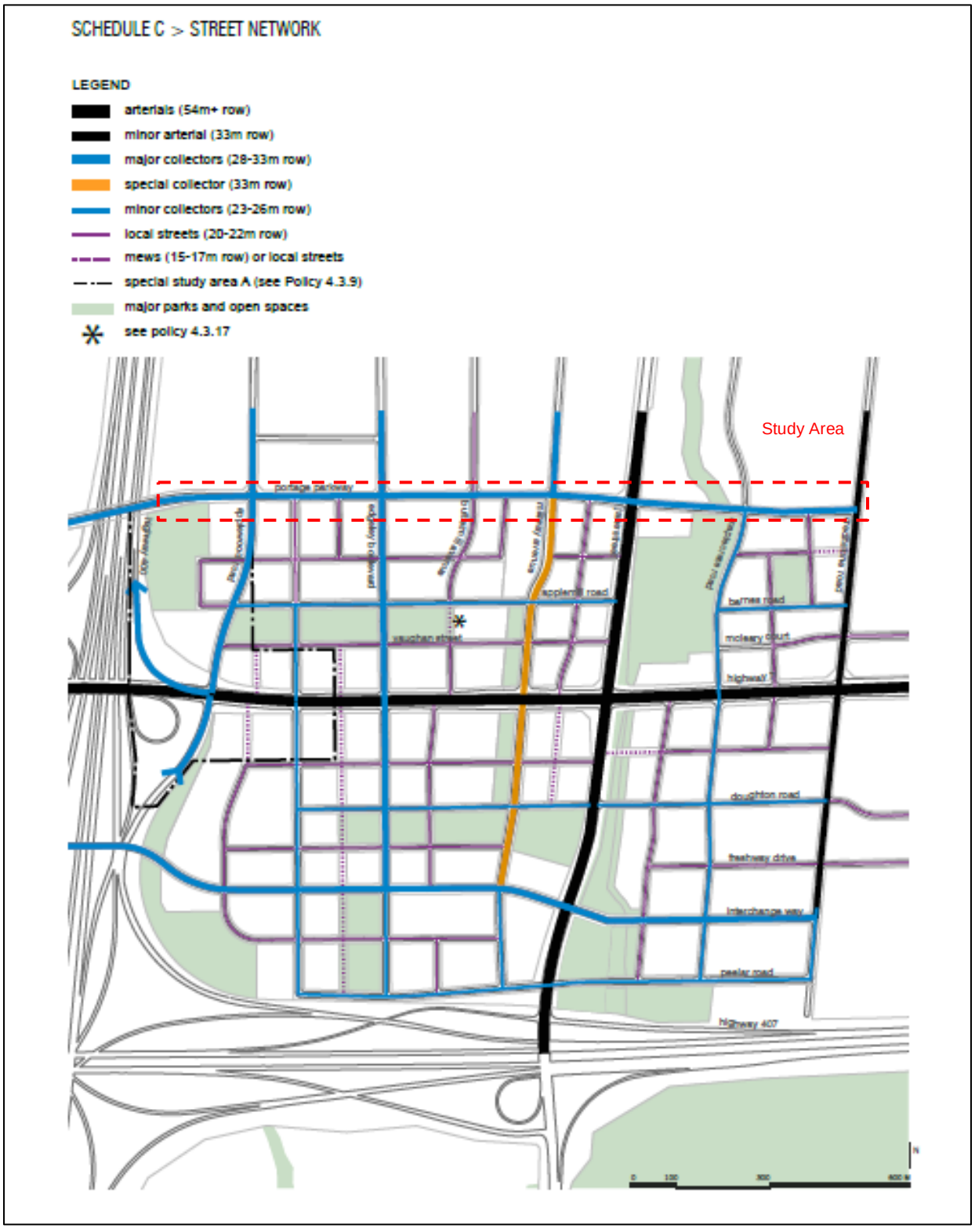


Figure 3: Schedule C of VMC Secondary Plan with Study Area

2.1 Overview of Planning Context

2.1.1 Provincial Planning Context

Provincial Policy Statement

The 2014 Provincial Policy Statement (PPS) sets out the foundation for sustainable land use vision and integrated land use planning policies. It accounts for the three (3) lenses of sustainability: economy, society and environment. The PPS provides for appropriate development and protects resources of public interest through long-term planning that integrates the principles of strong communities.

Section 1.6.7 of the PPS describes policies related to transportation systems, including:

+ "Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs."
+ "Efficient use shall be made of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible."
+ "As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries."

Section 1.6.8 of the PPS describes policies related to transportation and infrastructure corridors, including:

+ "Planning authorities shall plan for and protect corridors and rights-of-way for infrastructure, including transportation, transit and electricity generation facilities and transmission systems to meet current and projected needs."
+ "Major goods movement facilities and corridors shall be protected for the long term."
+ "When planning for corridors and rights-of-way for significant transportation, electricity transmission, and infrastructure facilities, consideration will be given to the significant resources in Section 2: Wise Use and Management of Resources." (e.g., protection of natural features and water quality/quantity; and conservation of built heritage resources and cultural heritage landscapes).

This EA study and the proposed widening and extension of Portage Parkway are consistent with the above policies by:

+ Providing additional capacity at all subject intersections, by means of geometric improvements (e.g. roadway widening) to reduce the potential for a failure of operations;
+ Considering travel demand management strategies as an alternative planning solution;
+ Providing connectivity within the existing road and transit network;
+ The Creditstone-Portage-Applewood bypass would provide a route virtually framing the VMC providing access to Highway 400, Jane Street and Creditstone Road. The reduction of heavy vehicles from arterial roads within the VMC, such as Highway 7, will reduce congestion during all hours of the day; and

+ Natural Environment and Heritage Impact Assessments were completed to assess the impacts of the project.

Growth Plan for the Greater Golden Horseshoe (GGH)

The Provincial Growth Plan (2006) identifies the study area within a "built-up area" and designates the Vaughan Corporate Centre (now part of the VMC) as an Urban Growth Centre, which is expected to achieve 200 residents and jobs combined per hectare by 2031.

The proposed widening and extension of Portage Parkway is consistent with the following transportation policies:

+ "The *transportation system* within the *GGH* will be planned and managed to provide connectivity among transportation modes for moving people and for moving goods." The extension of Portage Parkway will provide connectivity within the existing road and transit network.
+ "In planning for the development, optimization, and/or expansion of new or existing *transportation corridors*, the Ministers of Infrastructure and Transportation, other Ministers of the Crown, other public agencies and municipalities will ensure that corridors are identified and protected to meet current and projected needs for various travel modes." This EA study and the proposed widening and extension of Portage Parkway incorporates facilities for different travel modes, such as sidewalks, cycle tracks and additional traffic lanes, including boulevards between sidewalks and cycle tracks.

The Big Move

The Big Move (2008) is a regional transportation plan for the Greater Toronto and Hamilton Area, promoting the integration of GO Transit with all modes of transportation and local transit systems. The Spadina Subway extension to the Vaughan Corporate Centre (now part of the VMC) was identified as one of the top transit priorities for implementation within the first 15 years of the Plan's inception.

2.1.2 Municipal and Local Planning Context

York Region Official Plan and Transportation Master Plan

Map 1 of York Region's Official Plan (2010) shows the Region's structure and identifies the Portage Parkway study area as a Regional Centre within an Urban Area. A northward subway extension is also identified in the study area. Maps 10 and 11 show the Regional cycling and transit networks, respectively, which identify cycling facilities and a Regional rapid transit corridor on Jane Street through the study area.

The 2009 York Region Transportation Master Plan shows the Regional road network planned for 2031. Similar to the Regional Official Plan, the study area is identified as part of the Regional Centre within an Urban Area. The Plan shows a new east-west local or regional road to the north of Highway 7 from Weston Road crossing over Highway 400 to Jane Street. The Plan further identifies road improvements on Jane Street to improve transit. Jane Street is also shown to have bike lanes and a sidewalk on one side.

City of Vaughan Official Plan and Transportation Master Plan

The City of Vaughan Official Plan (2010) established the VMC Secondary Plan area boundary, which extends from Highway 400 in the west to Creditstone Road in the east, and from Portage Parkway in the north to Highway 407 in the south. The Official Plan prescribes land uses within the VMC, including residential, office, employment and mixed-use. The Plan further prescribes a centre with parks, open spaces and a "fine grain grid" street pattern. The Official Plan recommended that a Secondary Plan be developed to facilitate the design of the VMC.

The **City of Vaughan Transportation Master Plan** – A New Path (2013) identified projects to improve connections to local and regional infrastructure, provide access to future developments, support transit-oriented nodes and corridors, and enhance transit ridership, cycling and walking. The Plan identified the need to widen Portage Parkway from Applewood Crescent to Jane Street and extend Portage Parkway from Jane Street to Creditstone Road as a strategic improvement to the local transportation network, and in support of development within the VMC. Specifically, the Transportation Master Plan identified the need to widen Portage Parkway to four lanes from Applewood Crescent to Jane Street and establish a new four lane road from Jane Street to Creditstone Road.

The **VMC Secondary Plan** (2013) provides the following broader transportation planning and policy context for advancing and completing the planning and design of Portage Parkway:

+ Encourage the use of Portage Parkway for through movements linking to Highway 400.
+ Support the extent of the right-of-way for the Spadina Subway Line to Portage Parkway to protect for future subway extension beyond the VMC.
+ Link Creditstone Road to Portage Parkway and link both roads to Highway 7 and Jane Street to establish a bypass (i.e., Creditstone-Portage-Applewood Bypass) to assist with mitigating through movements on Highway 7 and Jane Street. This bypass would require the southerly extension of Applewood Crescent from Portage Parkway.
+ Cooperate with York Region to implement rapid transit services on Jane Street.
+ Acquire right-of-way for an extension of Portage Parkway from Jane Street to Creditstone Road.

The VMC Secondary Plan and supporting plans surrounding the study area provide a robust planning and design framework for advancing and completing the EA study process. These principally included the following:

+ VMC Transportation Plan (June 2012) and VMC and Surrounding Areas Transportation Study (March 2013).
+ VMC Municipal Servicing Class EA Master Plan (November 2012).
+ Black Creek Stormwater Optimization Study Municipal Class EA Master Plan (February 2012) and ongoing Black Creek Renewal EA.
+ VMC Streetscape and Open Space Plan (November 2015), City-wide Streetscape Implementation Manual and Financial Strategy (November 2014), and Design Criteria and Standard Drawings.

The focused area **VMC Transportation Plan** (2012) and the **VMC and Surrounding Areas Transportation Study** (2013) define the transportation infrastructure needed to facilitate planned (and potential) development within the VMC and surrounding areas to the 2031 planning horizon. The VMC and Surrounding Areas Transportation Study recommended initiating the planning and detailed design studies for Portage Parkway widening and extension as relative short term infrastructure improvements. More specifically, the VMC and Surrounding Areas Transportation Study recommended the following improvements by 2017, as part of a broader area strategy, advancing implementation of transportation infrastructure that strengthens the grid network in support of the VMC:

+ Portage Parkway widening to four lanes from Edgeley Boulevard to Jane Street, and
+ Portage Parkway extension with four lanes from Jane Street to Creditstone Road.

3. Problems and Opportunities

3.1 Transportation and Traffic Operations

3.1.1 Existing Conditions

The study area corridor is currently occupied by low-density retail and industrial spaces as well as vacant land. Traffic volumes originating and destined from/for the area are fairly low and consist in large part of heavy vehicles. However, development within the VMC is expected to significantly increase in the coming years.

Under existing traffic conditions, most intersections and turning movements operate satisfactorily during both the AM and PM peak hours, except for the following intersections and turning movements:

+ Westbound approach at the Edgeley Boulevard intersection during the PM peak hour is nearing capacity with a Volume to Capacity (v/c) ratio of 0.94;
+ Northbound approach at the Edgeley Boulevard intersection during the PM peak hour is over capacity with a v/c ratio of 1.11;
+ Millway Avenue intersection (all-way stop control) during the PM peak hour operates at a low level of service (F) with high delay for eastbound, westbound and southbound approaches;
+ Eastbound left turn movement at the Jane Street intersection during the PM peak hour operates at a low level of service (E); and
+ Northbound left turn movement at the Jane Street intersection during the AM peak hour is nearing capacity (though considered still acceptable) with a v/c ratio of 0.86.

Queuing for the westbound and northbound approaches at the Edgeley Boulevard intersection in Part A are considered long with opportunity for improvement. **Figure 4 and Figure 5** show the existing traffic volumes during AM and PM peak hours in the study area for Part B.

Portage Parkway generally operates at acceptable levels of service with a v/c ratio of less than 0.9 (v/c of 1.0 is at capacity). Detailed information is provided in the technical report documenting transportation and traffic in **Appendix A**.

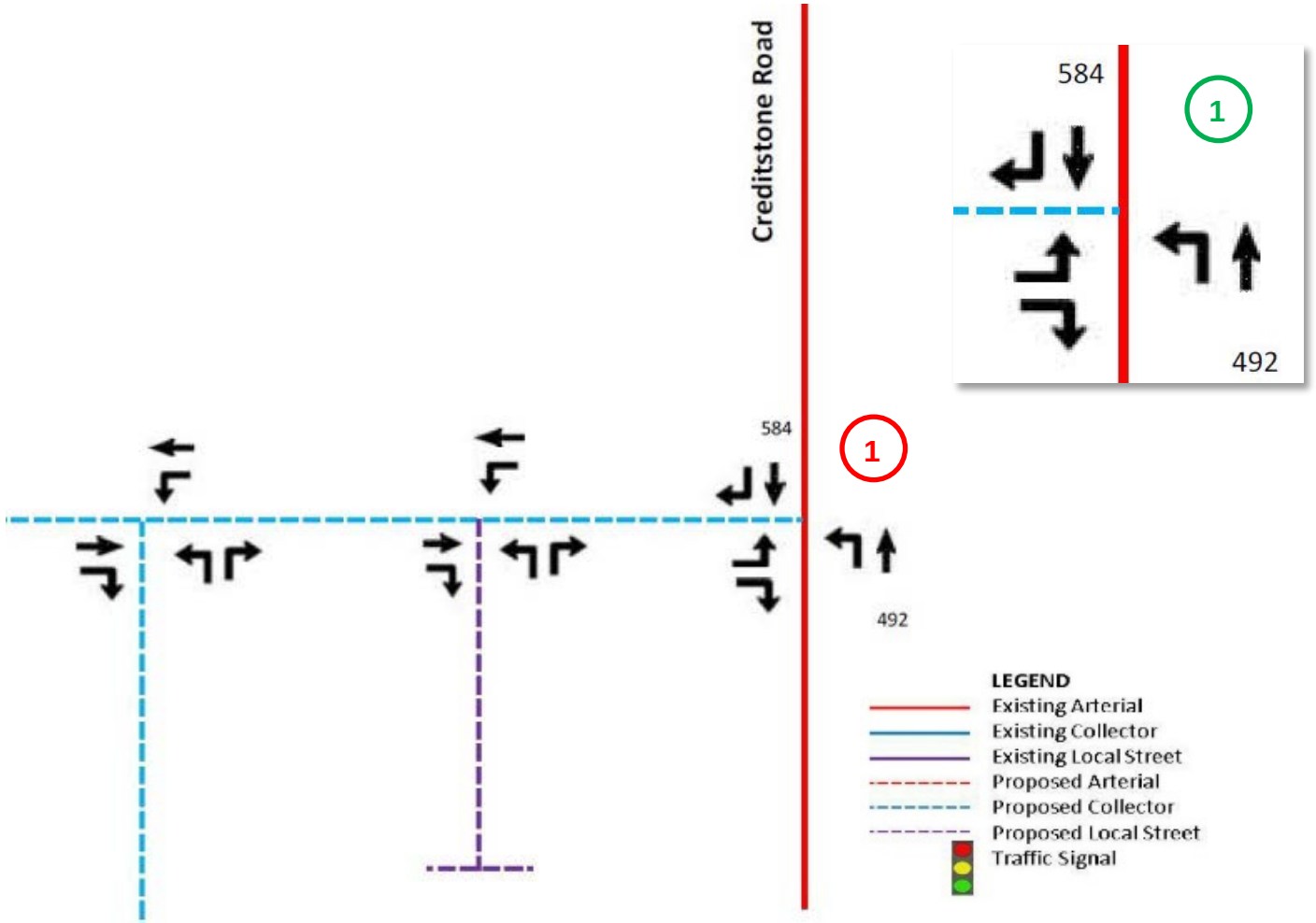


Figure 4: Existing AM Peak Hour

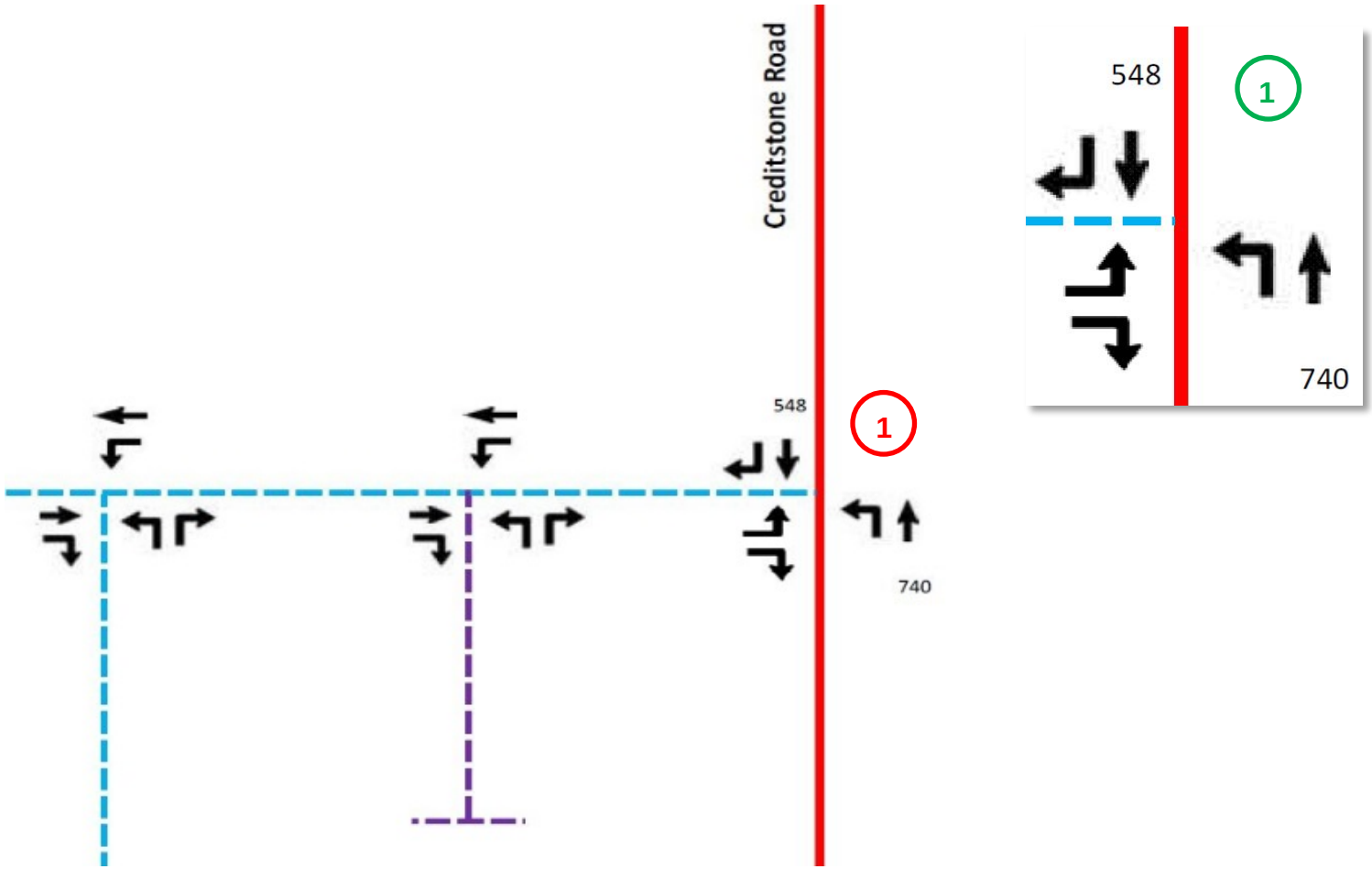


Figure 5: Existing PM Peak Hour

A large percentage of the traffic composition within the VMC are heavy vehicles, which can be attributed to its predominantly industrial land use. The extension of Portage Parkway would create an alternative route for heavy vehicles to bypass the VMC core. Trucks would be able to travel north-south on Creditstone Road and Applewood Crescent and east-west on Portage Parkway (see **Figure 6**). The Creditstone-Portage-Applewood bypass would provide a route virtually framing the VMC providing access to Highway 400, Jane Street and Creditstone Road. The reduction of heavy vehicles from arterial roads within the VMC, such as Highway 7, will reduce congestion during all hours of the day. For detailed information, the traffic analysis undertaken by CIMA+ is provided in **Appendix A.**

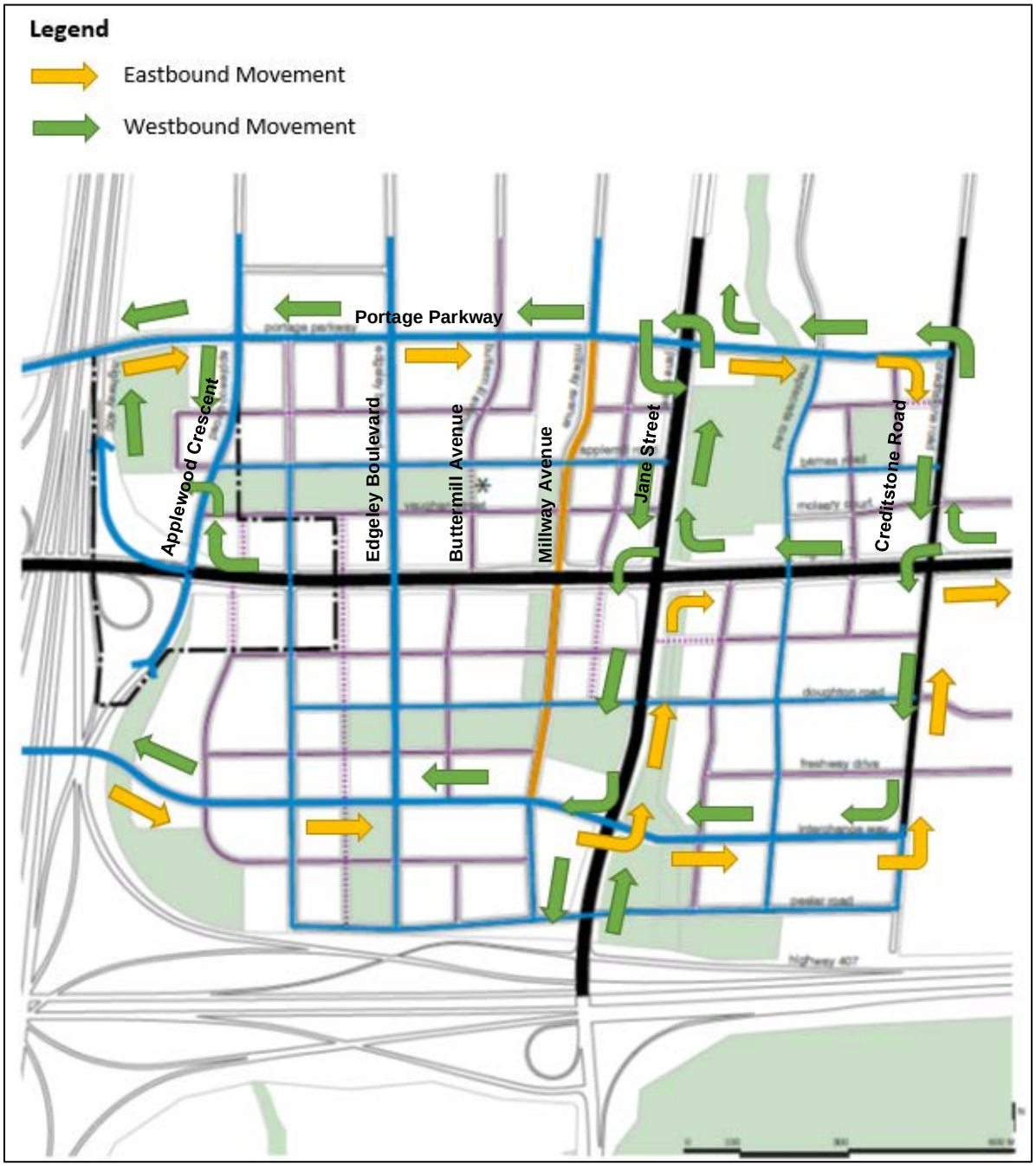


Figure 6: Proposed Truck Routes

3.1.2 Future Conditions

To forecast future vehicular trips to the 2031 planning horizon, an iterative process based on existing traffic volumes and growth rates that considered the planned street network and land use in the VMC was undertaken. **Figure 7** and **Figure 8** show the forecast future AM and PM peak hours.

The forecasted turning movement volumes provided the basis upon which the operational analysis of future scenarios was conducted utilizing synchro and Simtraffic software. The results of this analysis are summarized below and detailed in **Appendix A:**

2031 Future Conditions "Do Nothing"

Future conditions traffic analysis was undertaken for a "Do Nothing" scenario. This scenario includes consideration for the future 2031 development and resulting trip generation, and applies these volumes to the existing cross-section configuration of Portage Parkway.

During the AM peak hour under future traffic conditions without any extension or road widening of Portage Parkway, nearly all intersections in Part A and B are expected to be nearing or over capacity. The overall v/c ratio for Jane Street was 1.45 and during the PM peak hour 5.05.

Creditstone Road is expected to operate reasonably well in comparison to other study area signalized intersections. The overall intersection delay is as follows:

+ Creditstone Road (control delay of AM = 14.0 seconds and PM = 34.6 seconds).

2031 Future Conditions "with Widening and Extension of Portage Parkway"

The traffic analysis for the widening of Portage Parkway and the extension was done in one comprehensive set of analyses. Under future traffic conditions with the Portage Parkway widening and extension in place, along with associated intersection geometric improvements, all intersections and turning movements are expected to operate satisfactorily during the AM peak hour; with some intersections nearing capacity during the PM peak hour. The overall AM and PM peak hour v/c ratios for the Part B intersections are as follows:

+ Jane Street (v/c ratio of AM = 0.82 and PM = 0.96); and
+ Creditstone Road (v/c ratio of AM = 0.45 and PM = 0.89).

Overall intersection delay is expected to be fairly moderate, with traffic signal cycle lengths ranging from 120 to 130 seconds due to the increased demand.

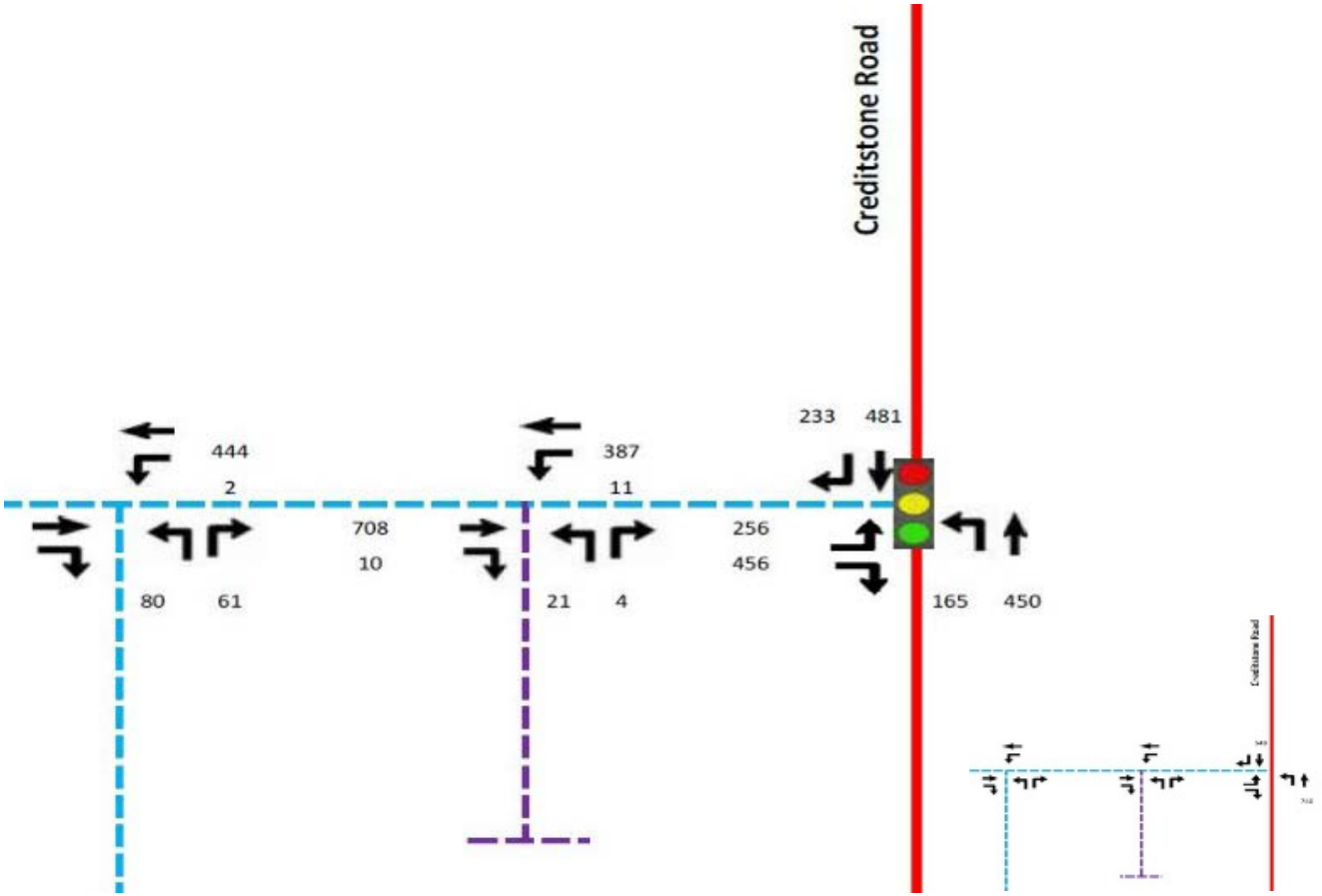


Figure 7: Future Forecast AM Peak Hour

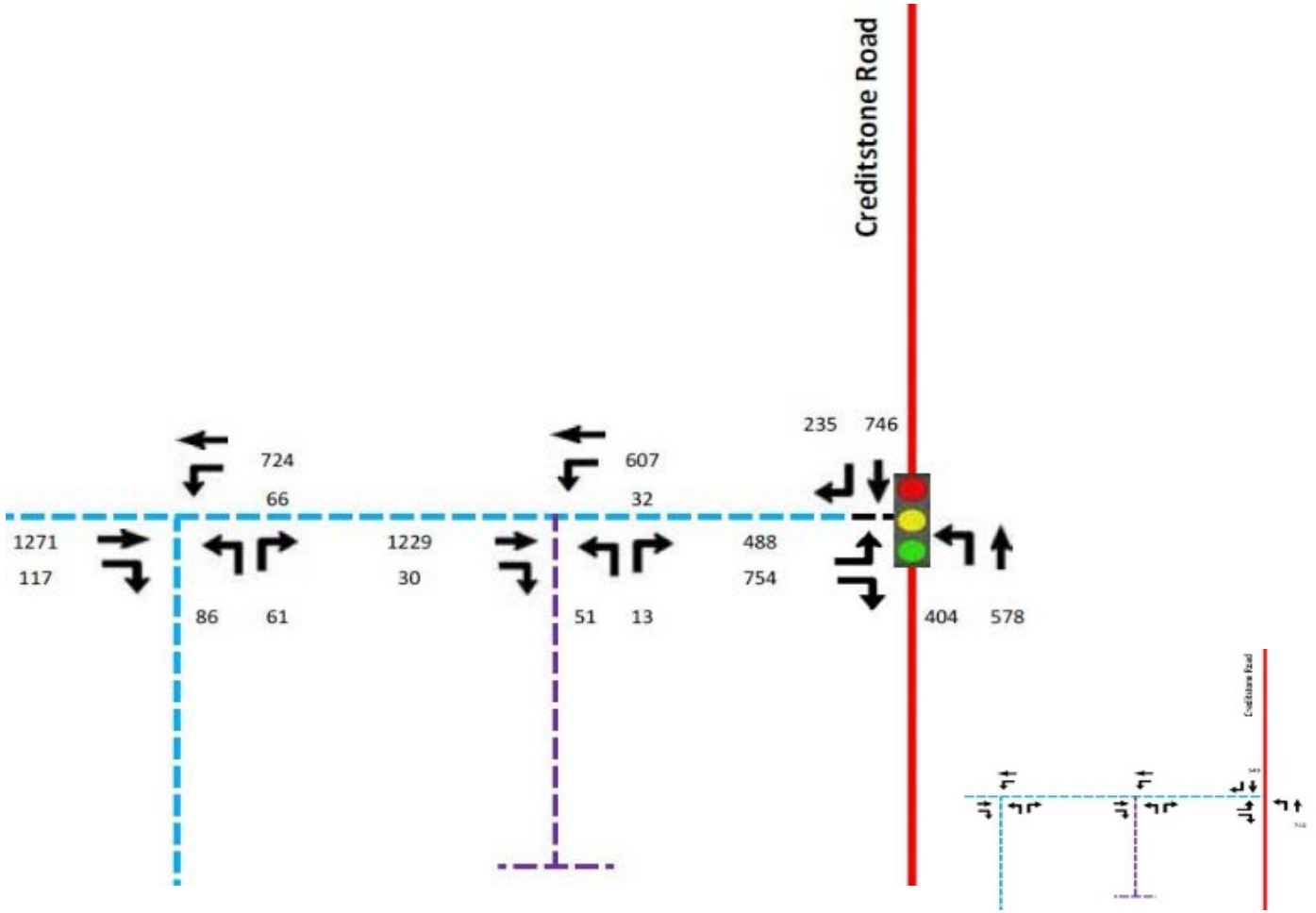


Figure 8: Future Forecast PM Peak Hour

3.2 Traffic Safety

A safety performance review of the existing conditions for the portion of Portage Parkway between Applewood Crescent and Jane Street was completed by CIMA+. A copy of the Safety Review of Existing Conditions report is provided in **Appendix A**.

Eleven (11) collisions were experienced within the study area between 2008 and 2013. All reported collisions were of the type "property damage". Four turning movement collisions occurred at the intersection of Portage Parkway and Edgeley Boulevard.

The following safety improvements were suggested at the intersection of Applewood Crescent and Portage Parkway:

+ Repair the malfunctioning pedestrian signal head located in the northwest quadrant of the intersection;
+ Install Object Marker Signs on guiderails on both sides of the west approach of the intersection; and
+ Improve the turning radius for facilitating the westbound right turn movement for heavy vehicles.

The following safety improvements were suggested at the intersection of Edgeley Boulevard and Portage Parkway:

+ Improve the lane configuration at the intersection of Edgeley Boulevard and Portage Parkway by widening the portion of Portage Parkway east of Edgeley Boulevard to four lanes. As a short-term remedy, the pavement markings within this area can be improved in both directions. The existing "Right Lane Exits" sign (Wa-56R) can be moved to a point upstream of a private driveway providing access to the loading bay of 100 Edgeley Boulevard (LOWE'S Home Improvement Warehouse);
+ Improve the turning radius to facilitate the northbound right turn movement for heavy vehicles; and
+ Provide *Accessibility for Ontarians with Disabilities Act* (AODA) compatible pedestrian facilities (e.g. tactile surface provided at curb ramps should be aligned with crosswalks).

The following safety improvements were suggested at the intersection of Millway Avenue and Portage Parkway:

+ Increase the lateral offset of the temporary "Street Section Closed" sign.

The following safety improvements were suggested at the intersection of Jane Street and Portage Parkway:

+ Improve pedestrian infrastructure at Jane Street and Portage Parkway including improvements to the bus stop located on the southeast corner of the intersection of Jane Street and Portage Parkway by providing appropriate sidewalk, curb ramps, shelter, and a concrete pad; and
+ Provide a "Street Name" sign for the northbound traffic on the right side of Jane Street.

Overall, most of the safety issues would be resolved with widening of Portage Parkway as the widening would result in replacing the intersections entirely.

3.3 Transit Access

According to the **VMC Transportation Plan** (2012), the forecasted land use changes are projected to increase transit use from 6% in 2006 to 37% in 2031 (AECOM, 2012). The extension of Portage Parkway to Creditstone Road will further establish road network continuity within the VMC. A fully connected network promotes walking and cycling, which in turn promotes the use of public transit.

The extension of Portage Parkway would increase pedestrian accessibility from Creditstone Road to the Jane Street VivaNext station (see **Figure 9).** The potential Jane Street VivaNext station will be located on the north-east corner of Highway 7 and Jane Street, connecting to the potential Jane Street Rapidway. Currently, southbound Creditstone Road pedestrians would have to access the future Jane Street VivaNext station via Highway 7, a major arterial roadway and designated truck route.

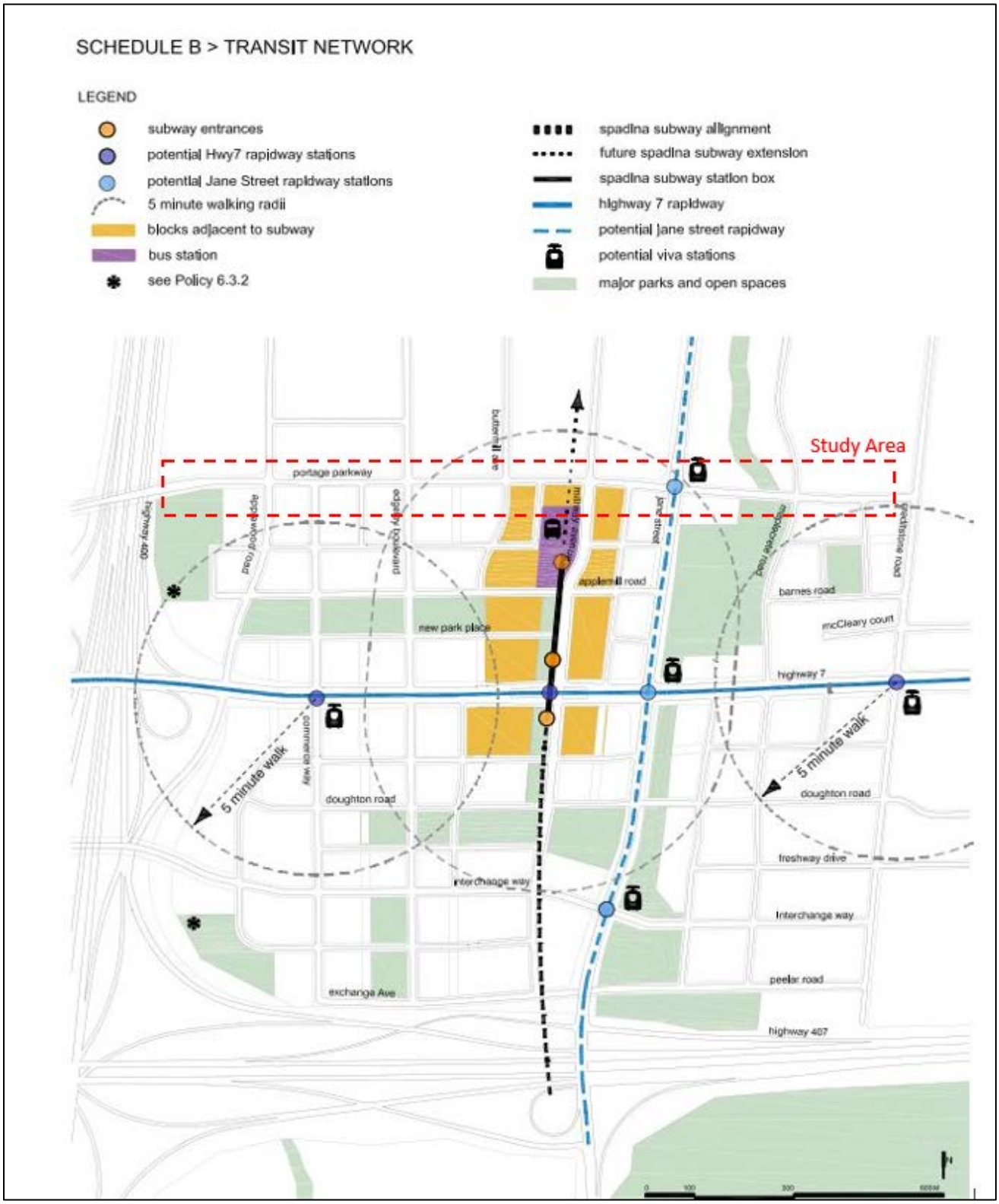


Figure 9: Location of VivaNext and VMC Station

The VMC Station at Highway 7 and Millway Avenue, an extension of the Spadina Subway line, is expected to be operational in 2017. The station will provide connection services to the York Region Transit Bus Terminal and to Highway 7 Viva Bus Transit and include a designated Passenger Pick-Up and Drop-Off. Resultantly, the link between Toronto's subway network, particularly the downtown core, and the VMC will increase trips of all transportation modes destined for the VMC. Therefore, the resultant network continuity resulting from the extension of Portage Parkway from Jane Street to Creditstone Road will alleviate congestion and divert vehicles from the core of the VMC.

3.4 Problem and Opportunity Statement

Transportation improvements are needed to support growth and to provide alternative truck routes to Highway 7 within the VMC.

Improving Portage Parkway from Applewood Crescent to Jane Street is an opportunity to:

+ Serve the VMC and surrounding employment area;
+ Create an alternative route facilitating trucks to bypass the VMC core;
+ Improve connections to local and regional infrastructure;
+ Support transit-oriented nodes and corridors; and
+ Enhance transit ridership, cycling and walking.

The extension of Portage Parkway from Jane Street to Creditstone Road is an opportunity to:

+ Provide a continuous route for all modes of transportation from Weston Road crossing Highway 400 and the Black Creek channel to Creditstone Road; and
+ Alleviate traffic congestion on Highway 7 within the VMC.

4. Existing Conditions

4.1 Natural Environment

4.1.1 Natural Sciences

Golder conducted a field survey on September 1st, 2015 which focused on the publically accessible lands along Portage Parkway. A second field survey was conducted on July 6th, 2016 to address portions of the study area where access was previously restricted. Following the field surveys, a natural environment assessment for the study area was completed (see **Appendix A**).

Natural Heritage Policies

The Provincial Policy Statement (PPS) (MMAH 2014) must be considered when assessing potential interactions between projects and the natural environment. The Policy requires that both the natural feature and adjacent lands be evaluated for the potential negative impacts of a proposed development. Adjacent lands are classified as areas that are in close proximity to a specific natural heritage feature or area where it is probable that the development would have a negative impact on the feature. The extent of the adjacent lands may be recommended by the province or based on alternative municipal guidelines.

In addition to the PPS, further documents were reviewed in order to develop an understanding of the natural heritage features and regulations that are relevant to the site. The following applicable natural heritage policies were reviewed:

+ The Endangered Species Act (ESA) (Endangered Species Act, 2007. S.O. 2007) which identifies species at risk in Ontario that may not be harmed under the ESA;
+ The Species at Risk Act (SARA) protects species that have been identified as endangered or threatened by proving protection to critical habitats;
+ The Fisheries Act manages the threat to Canada's commercial, recreational and Aboriginal (CRA) fisheries; and
+ The Migratory Birds Convention Act (MBCA) protects bird species from disturbance and destruction across Canada.

Vegetation

The study area is located in a region of the City that is currently experiencing ongoing substantial growth. Due to this development, the naturally occurring vegetation is limited and the majority of the study area contains fragmented natural areas with a cultural origin. Due to the ongoing development, there is limited naturally occurring vegetation and most of the surrounding area is comprised of woody plants and manicured grass (e.g., Kentucky bluegrass, *Poa pratensis*), which occur predominantly within existing boulevards on Portage Parkway. The study area at the Black Creek channel contains old field cultural meadow (CUM1-1), deciduous forest (FOD), and unvegetated disturbed areas. Refer to **Figure 10** for a map of plant communities between Jane Street and the Black Creek Channel.

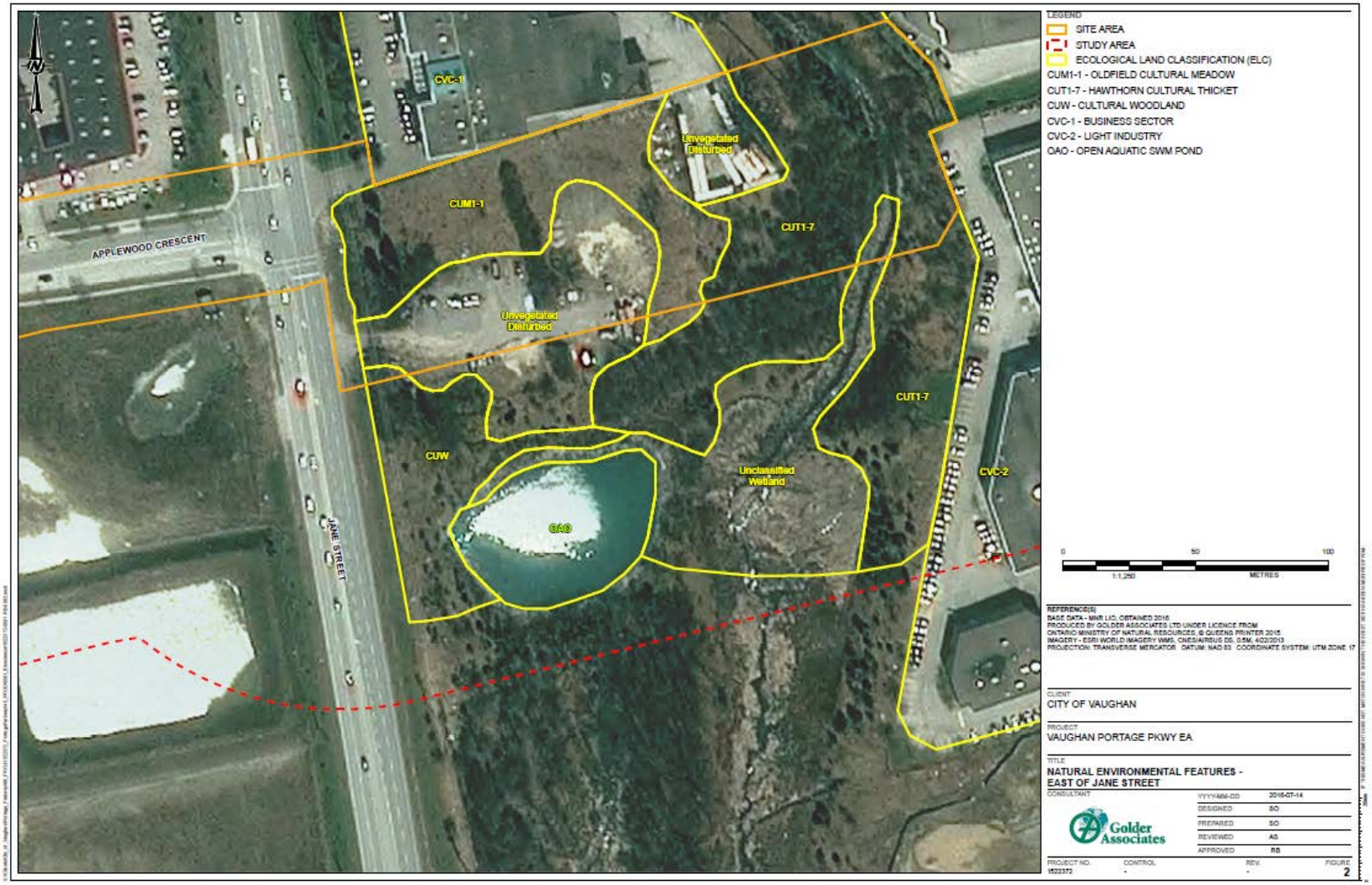


Figure 10: Plant Communities

Wildlife

Landscape trees within the study area may provide nesting habitat for birds protected under the *Migratory Birds Convention Act*. These trees include white ash (*Fraxinus Americana*), Norway maple (*Acer platanoides*), blue spruce (*Picea pungens*), red pine (*Pinus resinosa*), and black locust (*Robinia pseudoacacia*).

Aquatic and Surface Water

The study area is situated within the Humber River watershed and Black Creek subwatershed, within the jurisdiction of the Toronto and Region Conservation Authority. The study area crosses Black Creek between Jane Street and Creditstone Road, which is a highly urbanized, disturbed watercourse that supports a warm water fish community. The creek at this crossing has been modified through channelization, impoundment and realignment. These modifications limit the suitability of this section of Black Creek to support fish. The most common fish species in Black Creek include White Sucker (*Catostomus commersonii*), Blacknose Dace (*Rhinichthys atratulus*), Fathead Minnow (*Pimephales promelas*) and Creek Chub (*Semotilus atromaculatus*) (TRCA, 2008). Black Creek does not consist of aquatic Species at Risk (SAR).

According to the City of Vaughan Official Plan (Vaughan 2010), roadways are permitted to cross valley and stream corridors with the completion of an EA. The structures must be constructed using appropriate erosion and sediment control measures to minimize environmental impacts. Development or alteration within the floodplain or hazard lands must also comply with the policies of the Toronto and Region Conservation Authority. Also, work within the valley and stream corridor for Black Creek will require a permit from the Toronto and Region Conservation Authority.

Species at Risk

Desktop assessment indicated the potential for Species at Risk (SAR) to occur in the study area. Of these, one species Monarch (*Danaus plexippus*) was assessed to have moderate potential to occur within the study area, however this species was not observed during field surveys. The host plant for this species (Milkweed) was observed in the study area.

In summary, the natural features within the study area are considered common in the province and larger region, and are unlikely to pose significant constraints to the proposed widening and extension of Portage Parkway.

4.1.2 Fluvial Geomorphology

Golder completed a fluvial geomorphic assessment at Black Creek within the study area (see **Appendix A**). The assessment characterized channel morphology, assessed bed and bank stability, determined the meander potential of the stream near the proposed crossing, and determined the long-term erosion potential of the stream at the proposed crossing.

The results of the field reconnaissance suggest that the channel is generally stable. The channel geometry was observed to be moderately entrenched in several sections (i.e., well-incised between steeply sloped banks); the channel planform was observed to be largely confined to the surrounding

stream valley; and instances of bank erosion were observed in a number of locations. However, the banks and riparian zones were observed to be well protected against erosion with a dense cover of vegetation.

The meander belt width of the channel was determined to be approximately 76m and the 100-year erosion limit of the channel ranges from approximately 20 to 22m. According to protocols of the Toronto and Region Conservation Authority, crossing structures should be constructed outside of the meander belt width of a watercourse to the extent possible or, alternatively, the features should be designed to match or exceed the 100-year erosion limit of the channel.

However, for the study reach at Black Creek, it is recognized that spanning a crossing structure the length of the estimated belt width or 100-year erosion limit are overly conservative.

For the reasons identified above and from the standpoint of fluvial geomorphology, it is recommended that the proposed culvert at Portage Parkway include a width of at least 8m. The suggested crossing dimension represents two (2) times the average bank full width of the channel. The suggested span for the proposed culvert is expected to provide sufficient opportunities to maintain channel form and/or function (e.g., sediment transport and fish passage).

4.1.3 Environmental Site Assessment

Golder completed a Phase 1 Environmental Site Assessment (ESA) in accordance with Ontario Regulation (O.Reg.) 153/04 (see **Appendix A**). **Figure 11** maps the Potentially Contaminating Activities (PCAs) within the study area for the proposed widening and extension of Portage Parkway. Areas of Potential Environmental Concern (APECs) were identified within:

+ Part B of the study area, east of Black Creek, due to potential presence of groundwater migrating from industrial operations, including bulk fuel storage at 500 Creditstone Road; and due to potential presence of contaminated groundwater migrating from industrial operations at 20 Barnes Court and 400 Creditstone Road.

A Phase 2 ESA is required to support submission of a Record of Site Condition (RSC) for the study area(s), should a RSC be required.

LEGEND

1. POTENTIALLY CONTAMINATING ACTIVITY
- WATERCOURSE
- APPROXIMATE PHASE ONE PROPERTY (PART A)
- APPROXIMATE PHASE ONE PROPERTY (PART B)
- PHASE ONE STUDY AREA (250 M RADIUS)

Potentially Contaminating Activities ("PCA")		
PCA ID	Detail	Location
1	***#46 - Railyards, Tracks and Spurs –*** A paved yard area associated with the MacMillan Rail Yard is located immediately adjacent to the northeast of the Site	Off-Site
2	***#46 - Railyards, Tracks and Spurs –*** A rail spur is located immediately adjacent to the north of the Site	Off-Site
3	***# 28 Gasoline and Associated Products Storage in Fixed Tanks & #11 Commercial Trucking and Container Terminals–*** 500 Creditstone Road immediately adjacent to the north of the Site was listed for tanks including two 50,000 L liquid fuel double walled USTs installed in 1995. This property has been listed as a hazardous waste generator under six different business names.	Off-Site
4	***#28 Gasoline and Associated Products Storage in Fixed Tanks & #11 Commercial Trucking and Container Terminals –*** 391 Creditstone Road was listed for several tanks including: a 68,190 L tank, a 1750 L tank which expired on June 30, 1994; a 1885 L which expired on January 31, 1993; and a 68,190 L tank. The property has been listed as a hazardous waste generator under six different business names.	Off-Site
5	***Commercial Autobody Shop*** - Kal Tire was present at the time of the Site visit and listed as a hazardous waste generator.	Off-Site
6	***Industrial Land Use*** - CN Machining and Repairs was listed at 400 Creditstone Road as a current generator of hazardous wastes	Off-Site
7	***Industrial Land Use*** - MTB Industries Inc. was listed at 20 Barnes Court as a past generator of hazardous wastes	Off-Site
8	***Industrial Land Use*** - Sherwood Electromotion Inc. was listed at 20 Barnes Court as a past and current generator of hazardous wastes including aliphatic solvents	Off-Site
9	***Industrial Land Use*** - Comma Inc. was listed at 19 McCleary Court as a past and current generator of hazardous wastes including aliphatic solvents	Off-Site
10	***Industrial Land Use*** - Electrophotonics Corporation was listed at 8000 Jane Street as a past generator of hazardous wastes including aliphatic solvents	Off-Site
11	***Wood Treating and Preservatives Facility*** - Super Furniture Finishing and Refinishing was listed at 212 Millway Avenue as a past and current generator of aromatic solvents	Off-Site
12	***Industrial Land Use*** - Alpen Machine and Tool Ltd. was listed at 212 Millway Avenue as a current generator of hazardous wastes	Off-Site
13	***Commercial Autobody Shops –*** Candle AutoSales was observed at 190 Millway Avenue at the time of the Site visit	Off-Site
14	***Commercial Autobody Shops*** - Auto Bagno was observed at 10 Buttermill Avenue at the time of the Site visit	Off-Site
15	***Industrial Land Use*** - Terago Networks INC Data Centres Canada was listed at 27 Buttermill Avenue as a generator of aliphatic solvents	Off-Site
16	***Industrial Land Use*** - Diversified Power Inc. was listed at 90 Buttermill Avenueas a past and current generator of hazardous wastes including aliphatic solvents	Off-Site
17	***Wood Treating and Preservatives Facility*** - Mar-Tec Woodworking Ltd. was listed at 97 Buttermill Avenue as a past generator of aromatic solvents	Off-Site
18	***Wood Treating and Preservatives Facility*** - Ravensbourne Custom Finishing was listed at 97 Buttermill Avenue as a past and current generator of aromatic solvents	Off-Site
19	***Commercial Autobody Shops –*** Mr. Lube was observed at 101 Edgely Boulevard at the time of the Site visit	Off-Site
20	***Industrial Land Use*** - ITS Electronics Incorporated, was listed at 200 Edgely Boulevard as a past generator of hazardous wastes including aliphatic solvents and halogenated solvents	Off-Site
21	***Industrial Land Use*** - Ultra Spray Depot Inc. was listed at 207 Edgely Boulevard as a past generator of aromatic solvents	Off-Site
22	***Wood Treating and Preservatives Facility*** - Emerald Furniture Restorations was listed at 259 Edgeley Boulevard as a past generator of aromatic solvents	Off-Site

0 150 300

1:7,000 METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL
RESOURCES, © QUEENS PRINTER 2016
2. BASE IMAGERY © 2010 DIGITALGLOBE IMAGE COURTESY OF USGS EARTHSTAR GEOGRAPHICS SIO © 2016 MICROSOFT CORPORATION
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
CIMA+

PROJECT
PHASE ONE ENVIRONMENTAL SITE ASSESSMENT
PORTAGE PARKWAY, VAUGHAN, ONTARIO

TITLE
POTENTIALLY CONTAMINATING ACTIVITIES

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-04-15
DESIGNED	MK
PREPARED	MK/JT
REVIEWED	EC
APPROVED	EH

PROJECT NO. 152372 | CONTROL | REV. | FIGURE 3

Figure 11: Potentially Contaminating Activities

4.1.4 Groundwater Conditions

According to Golder's Hydrogeological Assessment for this study:

+ Groundwater levels are expected to fluctuate seasonally; Higher groundwater levels are expected during wet periods of the year (e.g., Spring),
+ The area between Edgeley Boulevard and Jane Street is underlain by a confined aquifer of up to 10m of coarse grained sand and gravel materials representative of the Oak Ridges Moraine Aquifer Complex; The aquifer is confined by the overlying Halton Till and can be encountered at elevations ranging from approximately 198m to 195m.
+ The aquifer unit was encountered between approximately elevations 201 and 191m in the vicinity of Black Creek.

Local groundwater is expected to flow towards the nearest branch of Black Creek, one of which is located 130m southwest of the extreme western end of the study area and another branch which crosses approximately 200m east of Jane Street. Regional groundwater is anticipated to flow in a southerly direction towards Lake Ontario.

4.1.5 Air Quality

Golder completed a semi-qualitative air quality assessment for the proposed widening and extension of Portage Parkway (See **Appendix A**). Based on existing monitoring data in the Project area, the levels of particulate matter, nitric oxide (NO_x), carbon monoxide (CO) and 1, 3-butadiene are shown to be below current standards and guidelines. The annual benzene concentrations are greater than the annual Ambient Air Quality Criteria (AAQC) and are typically associated with traffic emissions. Roadways typically only have a very localized influence on air quality and predicted concentrations decline within a very short distance from the road edge. The project is anticipated to be a relatively minor source when compared to other larger sources within the area, and the impact on overall air quality in the region is expected to be negligible.

4.1.6 Tree Inventory and Assessment

CIMA+ completed a tree inventory and assessment report (See **Appendix A**). The report includes a list of tree species, construction management and assessment of construction impact. It is recommended that new tree planting take place along the road corridor where space allows, possibly including on adjacent private property. Species should be non-invasive and tolerant of urban conditions.

4.1.7 Source Water Protection

CIMA+ identified that the study area is not within a source water protection vulnerable area, through the Source Water Protection Map available on the Government of Ontario website (MOECC, 2010). The map also illustrated that the study area is not in a wellhead protection area (WHPA), intake protection zone (IPZ) and/or issue contributing area (ICA).

4.2 Social Environment

4.2.1 Existing Land Use

The City of Vaughan is situated within the Regional Municipality of York. Its neighbouring municipalities include the Township of King to the north, the Towns of Richmond Hill and Markham to the east, the City of Toronto to the south, and Peel Region (Town of Caledon and City of Brampton) to the west. The Portage Parkway study area is situated within the southeastern portion of Vaughan (Ward 4).

Existing land uses within the study area are predominantly industrial and commercial, as illustrated in in **Figure 12.** Of note for Part A is some undeveloped land on the south side of Portage Parkway. Of note for Part B is the Black Creek channel crossing north-south, generally within the western half of the study area; some undeveloped land between Jane Street and the Black Creek channel; and the CN MacMillan Rail yard at the east end of the study area.

The Portage Parkway study area corridor falls within the Urban Area as defined by the City of Vaughan Official Plan (2010). Schedule 13 (see **Figure 13**) of the City's Official Plan identifies most of the land immediately north of Portage Parkway within the study area as Prestige Employment, with the exception of Natural Areas adjacent to the Black Creek and General Employment between the Creek's natural area and Creditstone Road. The VMC is identified immediately south of Portage Parkway within the study area.

Portage Parkway delineates the northern boundary of the VMC Secondary Plan (2013) area. Schedule F (see **Figure 14**) of the VMC Secondary Plan (2013) identifies Neighbourhood Precincts immediately south of Portage Parkway, from Applewood Crescent to Edgeley Boulevard, and on the east side of Maplecrete Road; Station Precincts from Edgeley Boulevard to a mid-point generally between Jane Street and Maplecrete Road, followed by Major Parks and Open Spaces up to Maplecrete Road; and Technology/Office Precincts on the west side of Creditstone Road.

East of the Black Creek, the new right-of-way corridor traverses three (3) existing properties that may be affected by the project with respect to property access and property impacts. These properties include:

+ 70 Talman Court;
+ 20 Barnes Court; and
+ 400 Creditstone Road.

Figure 12: Existing Land Uses

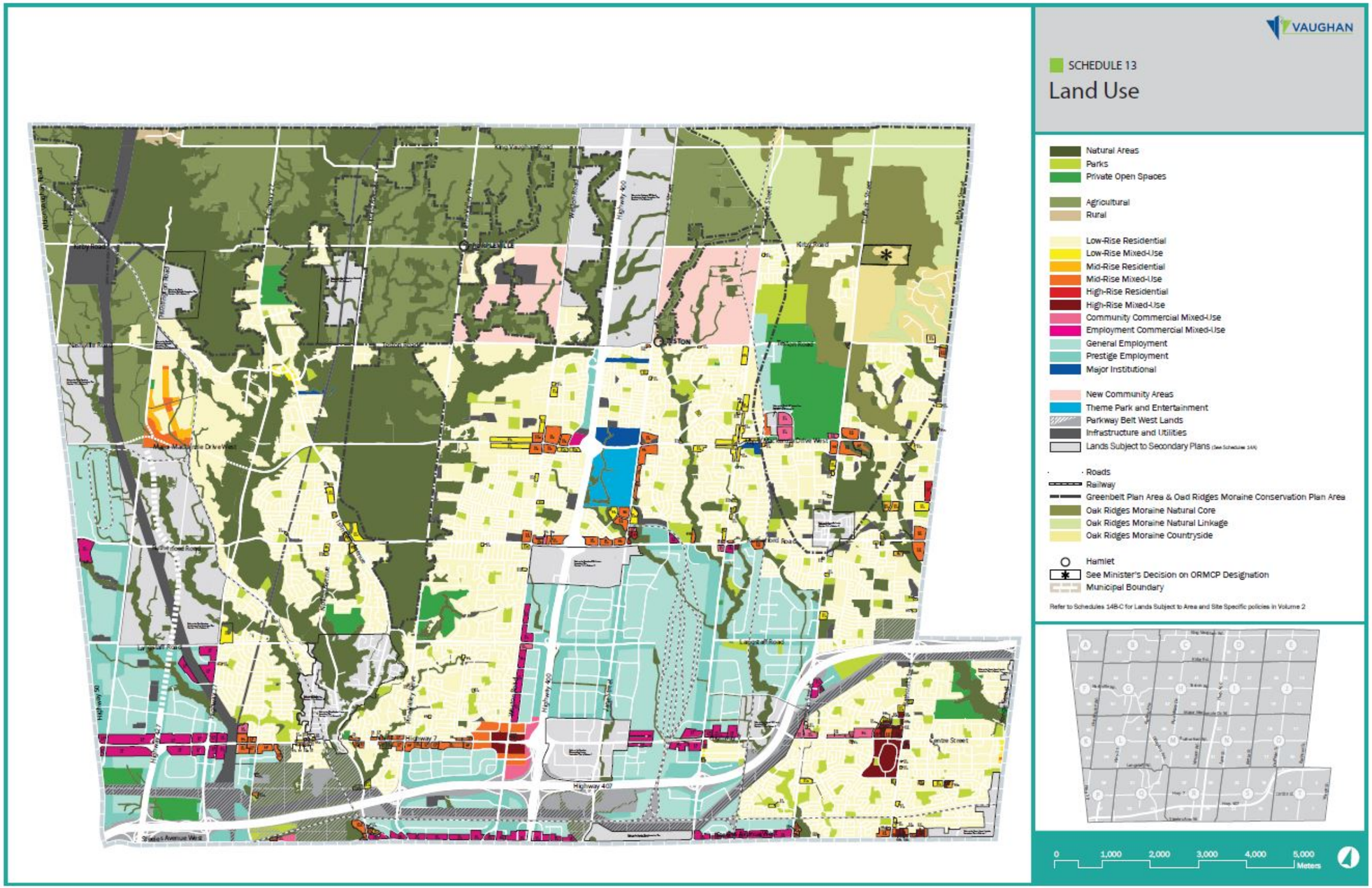


Figure 13: Schedule 13 Land Use

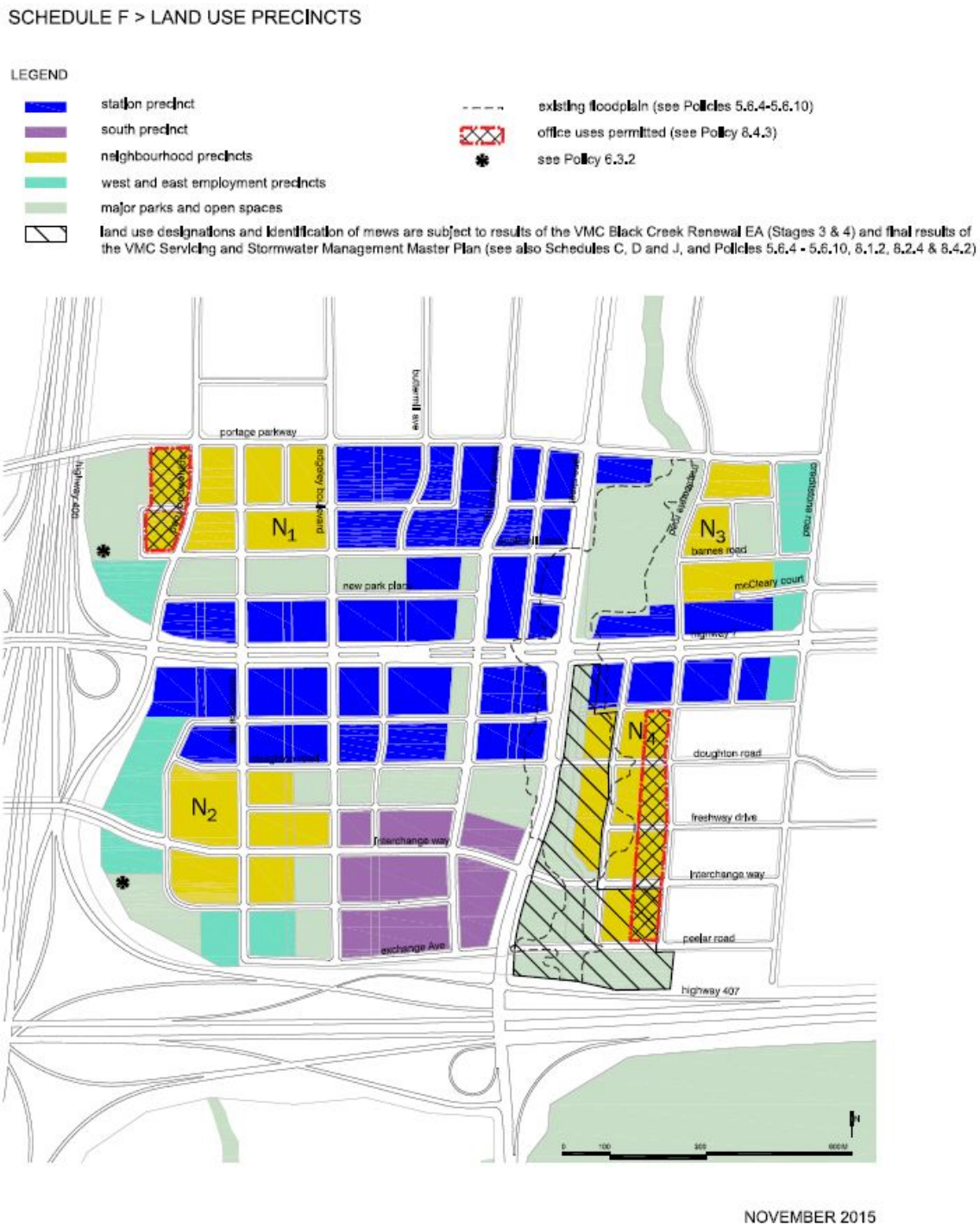


Figure 14: Schedule F Land Use

4.2.2 Noise Impact Study

Golder completed a Noise Impact Study for the proposed widening and extension of Portage Parkway (see **Appendix A**), to assess the potential noise impact on sensitive receptors. The assessment concluded that York Region's noise level limit criterion of 55 dBA has been exceeded. However, the expected increase in levels associated with this project are expected to be less than 5 dB at the identified study area, therefore, no mitigation effort is required.

4.3 Cultural Environment

Aboriginal Interests

The Ministry of Aboriginal Affairs (July, 2015) advised the following First Nations may have existing or asserted rights or claims in Ontario's land claims process or litigation which may be affected by the project:

+ Chippewas of Georgina Island;
+ Beausoleil First Nation (Christian Island);
+ Chippewas of Rama; and
+ Mississaugas of the New Credit First Nation.

In addition to the communities listed above, the following First Nations were consulted:

+ Mississaugas of Scugog Island;
+ The Chiefs of Ontario; and
+ The Metis Nation of Ontario.

Built Heritage and Cultural Heritage Landscapes

Golder completed a Heritage Impact Assessment for the proposed widening and extension of Portage Parkway within the study area (see **Appendix A**). No cultural heritage value or interest was identified along the study corridor and therefore no impacts to cultural heritage resources are anticipated. The nearest heritage properties are located at 7961 Jane Street (registered under the *Ontario Heritage Act*) and 8001 Jane Street (cemetery listed under the Vaughan Heritage Inventory).

Archaeological Potential

Golder completed a Stage 1 Archaeological Assessment for the proposed widening and extension of Portage Parkway within the study area (see **Appendix A**). Most of the study area was found to be disturbed and to have low to no archaeological potential. Sections of the study area that required further archaeological assessment were determined through separate investigations to be of no further archaeological concern. Therefore, no further archaeological assessment of the study area is required.

4.4 Economic Environment

The City of Vaughan's Community Profile (2011) reports on 2006 census data from Statistics Canada to describe the City's economic state. Among the highest labour force by occupation are Business and

Finance (22.2%) and Sales and Services (21.8%). The top three sectors by employment are Manufacturing (33.1%), Retail Trade (14.3%), and Construction (13.5%). The 2013 York Region Employment Survey shows similar results, identifying the top three areas of employment by industry as Manufacturing (23%), Construction (12.6%), and Retail Trade (12%).

According to the City of Vaughan's Economic Development website (2016), the City is the largest employment centre in York Region with over 10,000 businesses employing over 194,000 people. The City has plans in place to protect 28 areas of employment lands. Most relevant to this study are the lands protected under the employment area of "Vaughan 400". This area is bounded by Langstaff Road to the North, the CN Rail yard to the east, Highway 7 to the south, and Highway 400 to the west. Within this employment area, there are five properties identified as "Vacant – Serviced" near the Portage Parkway study area corridor.

4.5 Transportation Infrastructure

Road Network

Portage Parkway is a major east-west collector with a posted speed limit of 50 km/h. Portage Parkway extends from Chrislea Road to Jane Street and is the northern boundary of the VMC. Currently, Portage Parkway is constructed as a four (4) lane urban cross-section from Chrislea Road to Edgeley Boulevard and a two (2) lane urban cross-section from Edgeley Boulevard extending east to its terminus intersection with Jane Street. West of Jane Street, the existing Portage Parkway right-of-way is 23m.

The horizontal alignment of the existing roadway is relatively straight within the study limits. The portion of the study area between Millway Avenue and Jane Street consists of a slight horizontal curve.

Portage Parkway intersects five north-south roadways within the study corridor, and numerous driveway accesses exist servicing commercial and retail establishments of varying size. Three of the intersections are signalized and two are unsignalized. The signalized intersections are located at Applewood Crescent, Edgeley Boulevard, and Jane Street. The two unsignalized intersections are located at Buttermill Avenue (stop control on minor approach) and Millway Avenue (all-way stop control). The Portage Parkway extension is planned to terminate at a T-intersection with Creditstone Road, a north-south road currently constructed as 2 lanes through the study area corridor. The Transportation Master Plan identifies widening Creditstone Road to 4-5 lanes as a strategic network improvement to divert traffic away from Highway 7 and Jane Street.

Transit

According to the York Region Transit System Map (2015), Route 20 Jane transit service is available along Portage Parkway within the study area. Route 20 provides service from Monday to Friday. Transit bus stops for Route 20 are located at the following locations:

+ Edgeley Boulevard and Portage Parkway;
+ Portage Parkway and Buttermill Avenue; and
+ Portage Parkway and Jane Street (West Side).

Additionally, York Region Transit provides the following services to roads crossing Portage Parkway within the study area:

+ Route 35D on Edgeley Boulevard. Route 35D provides rush hour service from Monday to Friday;
+ Route 20 (Jane) on Millway Avenue. Route 20 provides service from Monday to Friday; and
+ Routes 20 and 20A (Jane) and 760 (Vaughan Mills / Wonderland) on Jane Street. Route 20A provides service from Monday through Sunday and on Holidays. Route 760 provides service on Saturday and Sunday, and on Holidays.

The Spadina Subway Transit Strategy plans for the northerly extension of the Toronto-York Spadina Subway line to the VMC at Millway Avenue and Highway 7, south of the Portage Parkway study area corridor. **Figure 15** shows the York Region Transit System Map surrounding the study area.

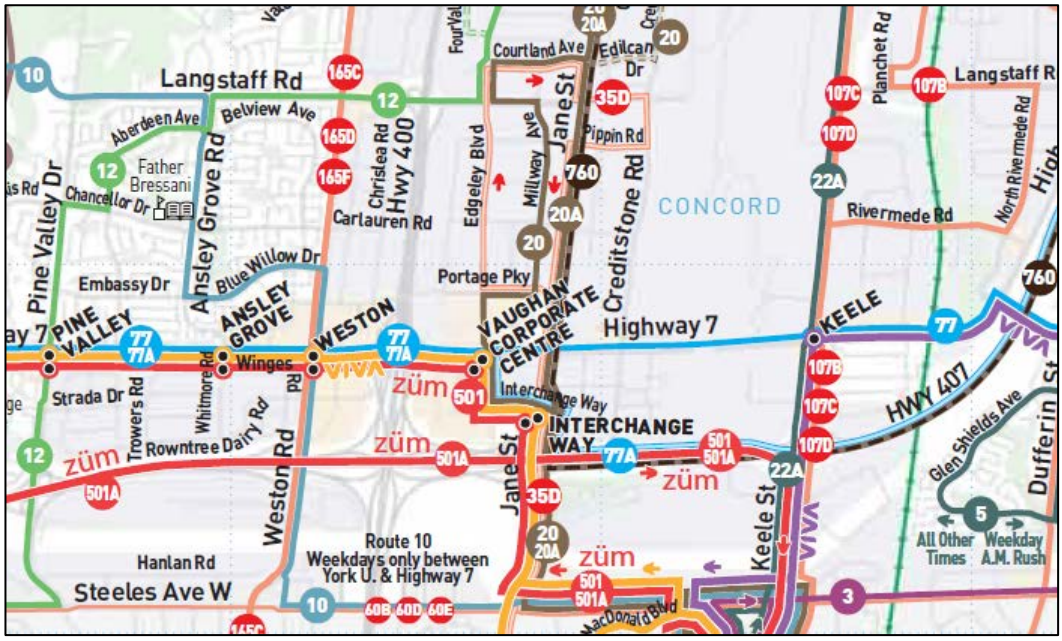


Figure 15: York Region Transit System Map

4.6 Municipal Infrastructure

Water Distribution

The VMC Servicing Class EA Master Plan (2012) identified the following existing water distribution system within the study area as seen in **Figure 16**:

+ 300mm diameter watermain along Portage Parkway, Applewood Crescent, Edgeley Boulevard (north of Portage Parkway), and Buttermill Avenue;
+ 400mm diameter watermain along Edgeley Boulevard (south of Portage Parkway);
+ 500mm diameter watermain along Millway Avenue; and
+ 600mm diameter watermain along Jane Street.

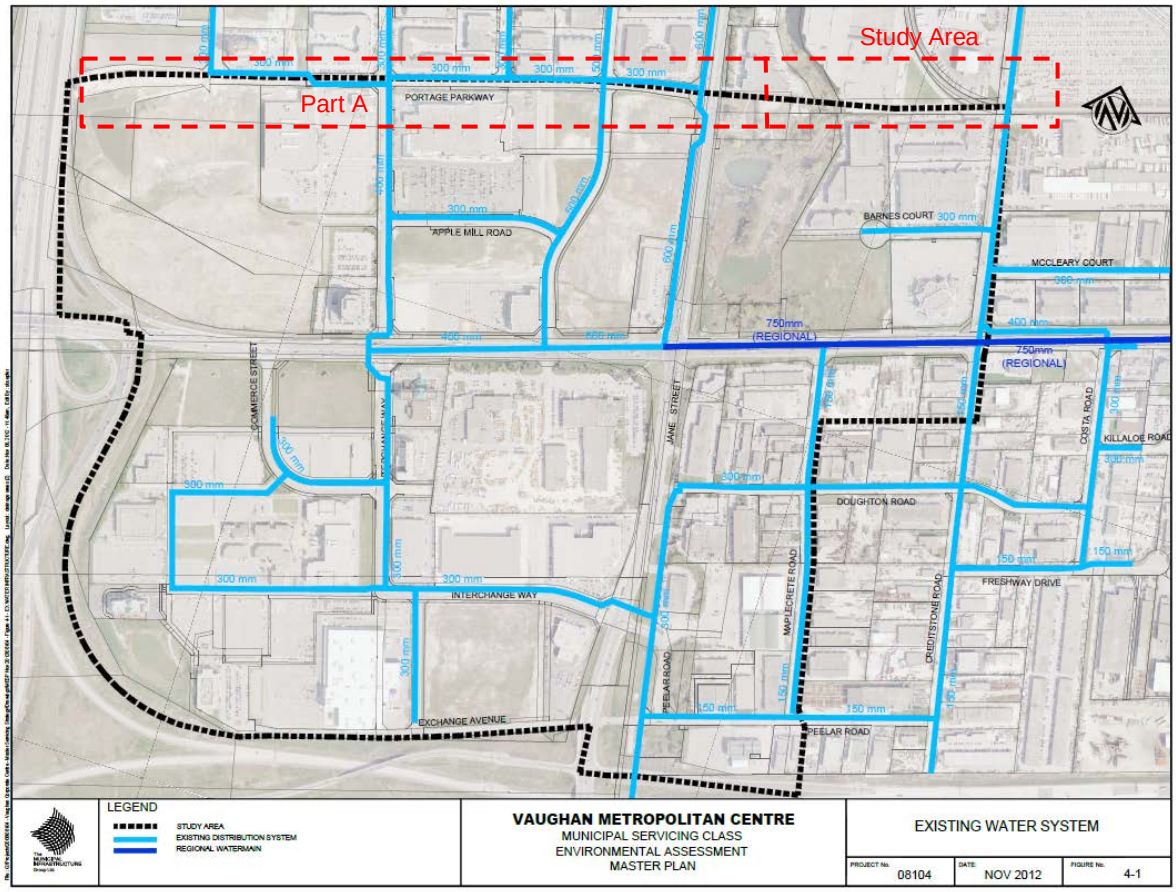


Figure 16: VMC Municipal Servicing Class EA Master Plan (2012)

Sanitary System

The VMC Municipal Servicing Class EA Master Plan (2012) identified the following existing sanitary sewer system within the study area:

+ 300mm diameter sanitary sewer along Portage Parkway from Applewood Crescent to Edgeley Boulevard and along Applewood Crescent;
+ 200mm diameter sanitary sewer along Portage Parkway from east of Buttermill Avenue to Millway Avenue;
+ 250mm diameter sanitary sewer along Edgeley Boulevard (north of Portage Parkway) and Buttermill Avenue;
+ 450mm diameter sanitary sewer along Edgeley Boulevard (south of Portage Parkway); and
+ 600mm diameter sanitary sewer along Millway Avenue and the Black Creek Channel.

Stormwater System

The major stormwater constraints for the proposed Portage Parkway widening and extension can be found in Golder's technical report which is provided in **Appendix A**. The following is a summary of the constraints for Part B:

+ The stormwater system for 70 Talman Court (Iron Mountain), 20 Barnes Court (Electromotion) and 400 Creditstone Road is immediately adjacent to the proposed Portage Parkway extension, and could be affected by the proposed works. The proposed designs should maintain the existing functionality of this system;
+ The existing regional flow water level for Black Creek through the site is approximately 202.41m, and the 1:100 year return period flow through the site is approximately 202.01m;
+ The bridge opening area over Black Creek should provide conveyance equal to upstream crossings (i.e., 2 x 4.3m wide x 2.4m high) to reduce the risk of capacity reduction upstream; and
+ A constraint offered by the storm sewer systems to the proposed extension is to maintain the south-flowing storm sewer at the proposed Portage Parkway and Creditstone Road intersection.

Storm Sewer System

The existing storm sewer system was mostly constructed between 1987 and 1989 and includes the following:

A stormwater management pond located southeast of the Portage Parkway bridge over Highway 400, which collects stormwater runoff from the following:

+ 1095mm diameter storm sewer flowing south along Applewood Crescent; and,
+ 900mm diameter storm sewer flowing west along Portage Parkway, collecting stormwater runoff from the majority of Portage Parkway between Edgeley Boulevard and Applewood Crescent.

A stormwater management pond south of Portage Parkway located southeast of the intersection with Jane Street, which collects stormwater runoff from the following:

+ 1350mm diameter storm sewer flowing south along Edgeley Boulevard, crossing Portage Parkway;
+ 1200mm diameter storm sewer flowing south along Buttermill Avenue. This storm sewer continues along Portage Parkway as a 1350mm diameter storm sewer from Buttermill Avenue to Millway Avenue;
+ 1350mm diameter storm sewer flowing south along Millway Avenue, crossing Portage Parkway and collecting stormwater runoff from 1350mm and 600mm diameter storm sewers along Portage Parkway. This storm sewer continues south of Portage Parkway along Millway Avenue as an 1800mm diameter storm sewer; and
+ Storm sewers located in Creditstone Road and Jane Street.

For detailed information, the Stormwater Management Report is provided in **Appendix A.**

4.7 Utilities

Street lighting poles and fire hydrants are visible throughout the study corridor. Existing utilities include telephone (Bell Canada), Gas (Enbridge Gas), Hydro (Powerstream), cable (Rogers Cable), and All Stream. Hydro poles are present on the east side along Jane Street.

5. Planned Municipal Infrastructure

Water Distribution

Water servicing projects were recommended in the Class EA Master Plan for municipal servicing (City of Vaughan, 2012) to support new roads identified by the VMC Secondary Plan, including:

+ 300mm diameter watermain along Applewood Crescent (south side of Portage Parkway);
+ A new 300-400mm diameter watermain along the future Portage Parkway from Jane Street to Creditstone Road, for a total length of approximately 570m; and
+ 400mm diameter watermain along Creditstone Road (south side of Portage Parkway).

The proposed water distribution system included:

+ 400mm diameter watermain along extended Portage Parkway from Jane Street to the proposed North-South Road east of Black Creek;
+ 300mm diameter watermain along extended Portage Parkway from the proposed North-South Road east of Black Creek to Creditstone Road; and
+ 400mm diameter watermain along the south leg of proposed North-South Road east of Black Creek.

Stormwater System

Recommendations of the City's Black Creek Stormwater Optimization Study (2012), most relevant to the study area, included:

+ Replacing the Black Creek channel with a naturalized channel between the stormwater management pond on the east side of Jane Street to the south of Portage Parkway (Edgeley Pond) and Highway 407;
+ Retrofitting the Edgeley stormwater management pond; and
+ Constructing new bridges at road crossings.

6. Consultation

6.1 Notices

6.1.1 Notice of Study Commencement

A Notice of Study Commencement was prepared to inform the public of the study and future opportunities for review and input. The notice was placed in the *Vaughan Citizen* and *The Thornhill Liberal* on June 18 and 25, 2015. It was mailed to approximately 1,500 landowners within the boundaries of Langstaff Road to the north, the CN Rail yard to the east, Highway 407 to the south and Weston Road to the west. Copies of these notices are provided in **Appendix B**. As previously noted, the mailing list of landowners is not provided to respect the *Municipal Freedom of Information and Protection of Privacy Act* (Government of Ontario, 2016).

Invitations to participate on the study's Technical Agencies Committee were mailed to approximately 93 agency representatives. Invitations to participate on the study's Stakeholders Group were mailed to approximately 201 property owners within 200m north and south of Portage Parkway within the study limits. The invitations were sent in letter format and were accompanied by the notice and a reply form to indicate interest in the study and/or the Technical Agencies Committee or Stakeholders Group, respectively. Copies of the invitations and a mailing list of agencies can be found in **Appendix B**.

The study team received correspondence from 22 individuals representing the public and 16 agency representatives. Correspondence was received by reply forms, letters, electronic mail (email), and telephone (phone). **Appendix B** includes a copy of the correspondence received during this study.

Of the individuals representing the public, 20 indicated an interest to be kept informed of the study and eight (8) indicated an interest in participating as a member of the Stakeholders Group. Further, 15 individuals indicated an interest in Part A and Part B; and three (3) individuals indicated an interest in Part A of the study area(s).

Comments related to Part B generally focused on the following opportunities for improvement:

+ To achieve traffic relief from Highway 7, extend Portage Parkway to Keele Street over the CN property; and study the extension of Langstaff Road from Creditstone Road to Keele Street; The City's Transportation Master Plan established the need and justification for widening Portage Parkway from Applewood Crescent to Jane Street (Part A) and extending Portage Parkway easterly from Jane Street across the Black Creek channel to Creditstone Road (Part B); This EA study revisits Phases 1 and 2 and concurrently completes Phases 3 and 4 for the Portage Parkway Extension from West of Black Creek to Creditstone Road (Part B) and Portage Parkway Widening and Easterly Extension to West of Black Creek (Part A) as Schedule C projects in accordance with the Municipal Class EA.
+ To meet municipal and provincial planning objectives, add a dedicated truck route to the Portage Parkway Extension; As described in the Problem and Opportunity Statement for this study, transportation improvements are needed to support growth and to provide alternative truck routes to Highway 7 within the VMC; Improving Portage Parkway from Applewood Crescent to Jane Street

is an opportunity to create an alternative route for trucks to bypass the VMC core; The extension of Portage Parkway from Jane Street to Creditstone Road is an opportunity to alleviate traffic congestion on Highway 7 within the VMC.

Of the agency representatives, six (6) indicated an interest to be kept informed of the study and four (4) indicated an interest in participating on the Technical Agencies Committee. Further, three (3) representatives indicated an interest in Part A and Part B; and one (1) indicated an interest in Part B of the study area.

Comments generally advised on how to determine if the study area:

+ Applies to the Canadian Environmental Assessment Act; This project does not appear to be described in the Regulations Designating Physical Activities under the Canadian Environmental Assessment Act (2012);
+ Falls within the Ministry of Transportation Permit Control Area; The Ministry of Transportation will be provided with detailed design drawings when they become available to determine whether the proposed works are located within the Ministry's Permit Control Area;
+ Has archaeological potential or consists of built heritage resources or cultural heritage landscapes with respect to the Ontario Heritage Act; A Stage 1 Archaeological Assessment and a Heritage Impact Assessment were completed for this study;
+ Includes property managed by Infrastructure Ontario; This project will not impact lands managed by Infrastructure Ontario;
+ May be of interest to Aboriginal communities, including the First Nations identified by the Ministry of Aboriginal Affairs: Chippewas of Georgina Island, Beausoleil First Nation (Christian Island), Chippewas of Rama, Mississaugas of the New Credit First Nation, Mississaugas of Scugog Island, The Chiefs of Ontario and the Metis Nation of Ontario; The study team will contact First Nations regarding the Notice of Completion to confirm they have no interest in this project; and
+ Requires measures for protecting sensitive species; A natural environment assessment was completed for this study and factored into the evaluation of alternatives and mitigation measures; Desktop assessment indicated the potential for Species at Risk (SAR) to occur in the study area; Of these, one species Monarch (Danaus plexippus) was assessed to have moderate potential to occur within the study area, however this species was not observed during field surveys; The host plant for this species (Milkweed) was observed in the study area.

In addition, the Ministry of Environment and Climate Change outlined its expectations for the content of the Environmental Study Report as it relates to the following:

+ Aboriginal Consultation;
+ Groundwater and Soil Conditions;
+ Growth Plan for the Greater Golden Horseshoe and Provincial Policy Statement;
+ Stormwater Management;
+ Underground Storage Tanks and Transmission Lines; and

+ Waste Disposal Sites.

A draft copy of the Environmental Study Report was provided to the Ministry of Environment and Climate Change for review. Review comments were addressed in the final report where warranted.

6.1.2 Notice of Public Information Centre No. 1

A Notice of Public Information Centre No. 1 was prepared to invite the public to review and provide input to the study at a Public Information Centre on November 25, 2015. The notice was placed in the *Vaughan Citizen* and *Thornhill/Richmond Hill Liberal* on November 12 and 19, 2015. It was mailed to approximately 1,500 landowners within the boundaries of Langstaff Road to the north, the CN Rail yard to the east, Highway 407 to the south and Weston Road to the west. Invitations were mailed to approximately 121 agency representatives and 22 stakeholders on November 12, 2015. Copies of these notices are provided in **Appendix B**. As previously noted, the mailing list of landowners is not provided to respect the *Municipal Freedom of Information and Protection of Privacy Act* (Government of Ontario, 2016).

6.1.3 Notice of Public Information Centre No. 2

A Notice of Public Information Centre No. 2 was prepared to invite the public to review and provide input to the study at a Public Information Centre on March 9, 2016. The notice was placed in the *Vaughan Citizen* and *Thornhill/Richmond Hill Liberal* on February 25 and March 3, 2016. It was mailed to approximately 1,500 landowners within the boundaries of Langstaff Road to the north, the CN Rail yard to the east, Highway 407 to the south and Weston Road to the west. Invitations were mailed to approximately 121 agency representatives and 42 stakeholders on February 24, 2016. Copies of these notices are provided in **Appendix B**. As previously noted, the mailing list of landowners is not provided to respect the *Municipal Freedom of Information and Protection of Privacy Act* (Government of Ontario, 2016).

6.1.4 Notice of Study Completion

A Notice of Study Completion will be prepared to inform the public of the preferred solution and design, and invite the public to review the Environmental Study Report. The notice will be placed in the *Vaughan Citizen* and *Thornhill/Richmond Hill Liberal* on two separate dates each; mailed to landowners within the boundaries of Langstaff Road to the north, the CN Rail yard to the east, Highway 407 to the south and Weston Road to the west; and mailed to agency representatives and other stakeholders.

6.2 Meetings

6.2.1 Regulatory Agencies

A meeting with the Toronto and Region Conservation Authority was held on May 15, 2015. The main purpose of the meeting was to initiate discussion regarding hydraulic modelling and criteria for the Black Creek crossing at Portage Parkway. The Toronto and Region Conservation Authority advised that, at a minimum, there should be no impacts to existing flood levels. Details of the discussion are documented in the meeting notes in **Appendix B**. During the study, five (5) preliminary design concepts were

considered for the Black Creek crossing grouped under culverts (2) and bridges (3). Culvert options that did not meet the Toronto and Region Conservation Authority's flood criteria were dismissed from further consideration.

A follow-up meeting was held with Toronto and Region Conservation Authority on March 7, 2016 to review the results of the hydrological modelling and geomorphology assessment. In response to questions, CIMA+ clarified each creek crossing option being examined can accommodate minimum 4.5m wide multi-use trails; and the stormwater analysis, hydraulic modelling and plan for the stormwater pond south of the crossing is being undertaken in the context of the Black Creek Stormwater Optimization Master Plan (i.e. the stormwater pond south of the crossing is not assessed as part of this Class EA). Details of the meeting are documented in **Appendix B**.

6.2.2 Technical Agencies Committee

Meeting #1

The first meeting with the Technical Agencies Committee was held as a joint meeting with the Stakeholders Group on July 16, 2015. Twenty-one (21) agency representatives were invited to attend via email on July 3, 2015. Twenty-two (22) people attended, including four (4) agency representatives, seven (7) technical staff from the City of Vaughan, the City's Project Manager, and two (2) representatives from the Consultant Team. The remaining attendees represented the Stakeholders Group. In addition, nine (9) agency representatives and ten (10) technical staff who could not attend were sent a copy of the meeting notes for information. Input was limited to comments provided by the Stakeholders Group, as described below, in **Section 6.2.4** Meeting #1. Detailed meeting notes are provided in **Appendix B**.

Meeting #2

The second Technical Agencies Committee meeting was held on October 20, 2015. Twenty-two (22) agency representatives were invited to attend via email on September 23, 2015. Fourteen (14) people attended, including four (4) agency representatives, seven (7) technical staff from the City of Vaughan, the City's Project Manager, and two (2) representatives from the Consultant Team. In addition, eleven (11) agency representatives and eleven (11) technical staff who could not attend were sent a copy of the meeting notes for information. Detailed meeting notes are provided in **Appendix B**. One area of concern related to the effect of the project on underground utilities. Impacts on existing municipal services and utilities was factored into the assessment of alternative designs.

Meeting #3

The third meeting with the Technical Agencies Committee was held on February 2, 2016. Seventeen (17) representatives were invited to attend via email on January 15, 2016. Eleven (11) people attended, including six (6) agency representatives, two (2) technical staff from the City of Vaughan, the City's Project Manager, and two (2) representatives from the Consultant Team. In addition, six (6) agency representatives and nineteen (19) technical staff who could not attend were sent a copy of the meeting notes for information. A concern was raised for the potential impact of road widening on the stormwater management system. The City explained that it is considering the stormwater optimization study and

coordination with this Class EA is ongoing. In addition, the study team has held meetings with the Toronto and Region Conservation Authority. Other comments relevant to the Class EA process for Part B included:

+ Show extended roads in the VMC area; Alternative design plans for the road extension showed connections to potential roads in the VMC area;
+ Clarify plans for rapid transit way on Jane Street which may include changes to existing access points; Include statement in the Environmental Study Report addressing provision for any potential future restrictions on access to Jane Street north of Portage Parkway as applicable; Statements regarding potential access restrictions on Jane Street are included in the Environmental Study Report for Part B, under the description of alternative designs and commitments; and
+ Consider how to implement interface between residential and employment land uses on Creditstone Road; During the meeting, CIMA+ explained that a change to the cross-section shown in the VMC Streetscape and Open Space Plan was based on consideration for the north side as an active industrial area and the south side as a changing environment, acknowledging that making the corridor "citified" may not be appropriate for the industrial area.

Detailed meeting notes are provided in **Appendix B**.

6.2.3 Stakeholders

Six (6) separate meetings were held with individual stakeholders during the study, representing:

+ 7895 Jane Street on September 22, 2015 (Part A and B);
+ 70 Talman Court on October 7, 2015 (Part B);
+ 700 Applewood Crescent on December 17, 2015 and January 7, 2016 (Part A);
+ 7941 Jane Street on February 4, 2016 (Part A and B); and
+ 10 Buttermill Avenue on May 12, 2016 (Part A).

The purpose of each meeting was to review project impacts on the respective property, such as restricted/modified accesses, loss of parking, changes to on-site traffic circulation, or potential for land requirements.

As a result of meeting with representatives of 7895 Jane Street, the following considerations were assessed by the study team during the identification and evaluation of alternative design concepts:

+ Using a lower design speed (60 km/h) for the extension and thereby allowing a more northerly alignment and a sharper turn near 70 Talman Court than what was presented at the meeting;
+ Moving the alignment to the north immediately east of Jane Street and relying on future redevelopment to acquire the ultimate right-of-way by considering a reduced boulevard and a bicycle track on the south side only; and
+ Discussing with York Region, a smaller daylight triangle at the Jane Street intersection as well as the potential for a relocated/new access on Jane Street for 7941 Jane Street.

A 'pie' section of the driveway at 70 Talman Court (approximately 40-50 feet at the west limit of this site, gradually tapering down easterly) is required to facilitate the future road extension. As a result of meeting with representatives of 70 Talman Court, it was determined that this required 'pie' section would not impact their operations.

6.2.4 Stakeholders Group

Meeting #1

The first meeting with the Stakeholders Group was held as a joint meeting with the Technical Agencies Committee on July 16, 2015. Fifteen (15) stakeholders were invited to attend via email on July 3, 2015. Twenty-two (22) people attended, including eight (8) stakeholders, seven (7) technical staff from the City of Vaughan, the City's Project Manager, and two (2) representatives from the Consultant Team. The remaining attendees represented agencies. The meeting notes can be found in **Appendix B**.

The following considerations were highlighted by the Stakeholders Group:

+ Concerns over the proximity of the road extension to the existing CN Rail spur; Criteria of a 30m buffer from the rail to the nearest curb cut was a Transport Canada standard; the preferred design adheres to the Transport Canada standard;
+ Concern around the future viability of the area for industry given the various bicycle/pedestrian and potential mixed used development being introduced into this predominately industrial area; Alternative design concepts for the corridor were initially generated using the existing centerline, but then modified with consideration for the constraints presented by the existing stable built form on the north side, and consideration to the emerging transformation of the VMC;
+ Staging of intersection improvements and driveways as part of new developments will need to be compatible with the ultimate design for Portage Parkway; The EA study recommends advancing an Implementation Plan staging improvements in step with the transformation of the VMC and in coordination with the VMC planned street network; and
+ Functionality and landscaping are important factors for Portage Parkway given the needs of the adjacent employment area; The VMC Secondary Plan, Transportation Plan and Streetscape and Open Space Plan provided a robust planning and design framework for advancing and completing the EA study process.

Meeting #2

The second meeting with the Stakeholders Group was held on October 20, 2015. Nineteen (19) stakeholders were invited to attend via email on September 23, 2015. A total of fourteen (14) people attended, including six (6) stakeholders, two (2) technical staff from the City of Vaughan, the City's Project Manager, and two (2) representatives from the Consultant Team. Based on the meeting notes in **Appendix B**, no comments were raised that could not be addressed.

Meeting #3

The third meeting with the Stakeholders Group was held on February 2, 2016. Twenty-One (21) stakeholders were invited to attend via email on January 15, 2016. A total of nineteen (19) people

attended, including eleven (11) stakeholders, five (5) technical staff from the City of Vaughan, the City's Project Manager, and two (2) representatives from the Consultant Team.

In response to questions regarding the preferred typical cross section for Part B, the study team explained:

+ The typical cross-section width at the crossing of the Black Creek channel does not include a centre/auxiliary left turn lane and boulevard planting; The 33m cross-section width at the Jane Street intersection provides for turn lanes at the intersection; and
+ The relocated access driveway at 7941 Jane Street at a minimum, as subject to the Region, will accommodate a right-in/right-out access on Jane Street.

A comment was raised regarding cycle tracks in the cross-section:

+ Consider whether 33m are needed if there is no connection to cycle tracks; The beginning point for development of a typical cross-section was the street cross-section from the VMC Secondary Plan and organization of streetscape infrastructure as guided by the VMC Streetscape and Open Space Plan; The symmetrical street cross-section in the VMC Secondary Plan accommodates four 3.5m travel lanes, two 1.5m on-street bicycle lanes, and 5.5m boulevards within a 33m right-of-way; The VMC Streetscape and Open Space Plan incorporates cycling facilities into the street network to build a cohesive and permeable network identifying a cycle track for Portage Parkway.

The meeting notes can be found in **Appendix B**.

6.3 Public Information Centres

Public Information Centre #1

A Public Information Centre (PIC) was held on November 25, 2015 from 5:00 pm to 8:00 pm. The PIC was held to present the study, including information on alternative planning solutions, existing conditions, evaluation criteria and design considerations. The PIC served as an opportunity for the public to review project information, ask questions or discuss comments with members of the study team. As discussed above, a notice announcing the PIC was advertised in the *Vaughan Citizen* and *Thornhill/Richmond Hill Liberal* on November 12 and November 19, 2015. Also, invitations were mailed to approximately 121 agency representatives and 22 stakeholders on November 12, 2015.

During the PIC, the public was invited to review presentation boards and ask questions or discuss comments with the study team. The boards presented information on the following topics:

+ Study Area, Process, Background
+ Safety Review
+ Natural Environment
+ Socio-Economic and Cultural Environment
+ Needs Assessment
+ Problem and/or Opportunity Statement
+ Alternative Solutions

+ Evaluation Criteria
+ Evaluation of Alternative Solutions
+ Stakeholder Comments
+ Preliminary Preferred Solution
+ Next Steps

Nineteen (19) people signed into the PIC. Most attendees were area residents and/or adjacent property owners. Four (4) members of the study team were present, including the City of Vaughan's Project Director and Project Manager, and CIMA+'s Project Manager and EA/Land Use Planner.

Comment sheets were available for the public to fill out and submit at the PIC or mail in by December 13, 2015. A total of four (4) comment sheets were submitted: two (2) by local residents, one (1) by a local business representative, and one (1) by an agency representative. Three (3) comments were received out of four (4) comment sheets. A summary of the comments is provided in **Table 3** and copies of the completed comment sheets are included in **Appendix B**.

Table 3: PIC 1 Comments/Feedback and Study Team's Response

Comments/Feedback	Project Team Response
Thanks for keeping us updated.	Comment noted.
Please add to stakeholder group.	PIC participants who asked to be added to the stakeholder group were added.
I am interested in the Portage EA as it affects the VMC subway station and Millway Avenue.	Comment noted.

Public Information Centre #2

A Public Information Centre (PIC) was held on March 9, 2016 from 5:00 pm to 8:00 pm. The PIC was held to present the alternative design concepts, evaluation of alternatives, and recommended design. The PIC served as an opportunity for the public to review the alternative design concepts, ask questions or discuss comments with members of the study team. As discussed above, a notice announcing the PIC was advertised in the *Vaughan Citizen* and *Thornhill/Richmond Hill Liberal* on February 25 and March 3, 2016. Also, invitations were mailed to approximately 121 agency representatives and 42 stakeholders on February 24, 2016.

During the PIC, the public was invited to review presentation boards and ask questions or discuss comments with the study team. The boards presented information on the following topics:

+ Class EA Process, Study Area, Background
+ Summary of PIC No. 1 and Public Comments
+ Summary of Environmental Investigations
+ Design Constraints and Considerations
+ Design Evaluation Criteria
+ Typical Cross-Sections Portage Parkway Widening Options West of Jane Street

+ Evaluation of Widening West of Jane Street
+ Portage Parkway Road Extension East of Jane Street
+ Evaluation of Extension East of Jane Street
+ Preliminary Preferred Widening and Extension Options (Roll Plan)
+ Black Creek Crossing Preliminary Design Concepts
+ Impacts and Mitigations
+ Next Steps and Contact Information

Fourteen (14) people signed into the PIC. Most attendees were area residents and/or adjacent property owners. Five (5) members of the study team were present, including the City of Vaughan's Project Director and Project Manager, and CIMA+'s Project Manager, EA/Land Use Planner, and Transportation Planner. Comment sheets were available for the public to fill out and submit at the PIC or mail in by March 23, 2016. A summary of the comments is provided in **Table 4**.

Table 4: PIC 2 Comments/Feedback and Study Team's Response

Comments/Feedback	Project Team Response
Preliminary preferred design is appropriate and satisfactory as it relates to our development located at 7895 Jane Street. We request notification of future stages of the study process to its completion.	Comment noted.

Representatives of 400 Creditstone Road, one of the properties affected by the proposed extension, attended the first and second PIC. No written comments were received during the study with respect to this property.

6.4 Public Open House

A Public Open House was held on May 5, 2016 from 4:00 pm to 8:00 pm. The Open House was an opportunity for landowners along Portage Parkway, within the study limits, to meet with the study team to review specific issues associated with the preliminary preferred design and their individual property. An invitation to the Open House was mailed to landowners within 200m of the study corridor on April 21, 2016. The invitation was extended to the Technical Agencies Committee and Stakeholders Group by email on April 25 and 26, 2016. The invitation explained the requirement for property on both sides of Portage Parkway and for the easterly extension of Portage Parkway to Creditstone Road. A description of the preliminary preferred design and access to a plan showing the proposed road improvements was provided in the invitation. Three landowners attended the Open House to review the plans and effects specific to their respective property. No written comments were received. A copy of the invitation is included in **Appendix B**.

6.5 Council Report

City of Vaughan Council at their meeting on June 28, 2016 ratified the recommendation with respect to issuing Notices of Completion and placing the Environmental Study Reports on public record for the

minimum 30 day review period for the Portage Parkway Widening and Easterly Extension to West of Black Creek (Part A) Schedule C project and the Portage Parkway Extension from West of Black to Creditstone Road (Part B) Schedule C project. An extract is included in **Appendix B.**

6.6 Public Review Period

The Environmental Study Report will be placed on the public record for a minimum 30 calendar days. The Notice of Study Completion will announce where the report can be reviewed and will include contact information and a date for receiving comments. The notice will further explain the process for resolving concerns. The public must contact the City of Vaughan within the 30-day review period to discuss and resolve any outstanding issues. If the issues cannot be resolved, the public may request for the Minister of Environment and Climate Change to order the City to comply with Part II of the *Environmental Assessment Act*, which addresses individual EAs. Part II Order requests must be made to the Minister of Environment and Climate Change within the 30-day review period. The requester shall also forward a copy of the request to the proponent and the Director of the Ministry of the Environment and Climate Change's Environmental Approvals Branch. Contact information is as follows:

Minister of the Environment and Climate Change
Honorable Glen Murray
77 Wellesley Street West, 11th Floor
Toronto, ON M7A 2T5

Director, Environmental Approvals Branch
Ministry of the Environment and Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, ON M4V 1P5

City of Vaughan
Development Engineering and Infrastructure Planning
2141 Major Mackenzie Drive
Vaughan, ON L6A 1T1

7. Alternative Solutions

Alternative solutions were identified and evaluated as part of Phase 1 and 2 of the Class EA process, as there are multiple ways to address the future travel demands of Portage Parkway. Six (6) alternatives were examined as part of this EA study, namely:

Do Nothing

This solution would leave Portage Parkway unmodified in an 'as is' state.

Travel Demand Management Initiatives

Travel demand management initiatives involve strategies and policies used to reduce travel demand or redistribute the demand spatially or temporally.

Alternative Modes of Transportation

Promoting and facilitating the use of alternative modes of transportation, such as transit and cycling, can reduce the demand on a roadway.

Localized Intersection and Operational Improvements

Operational improvements such as the retiming of traffic signals and installation of turning lanes, can improve the overall efficiency of a roadway (i.e. maximize throughput) and the surrounding network.

Widening Portage Parkway from Applewood Crescent to Jane Street

This solution would increase the capacity of the roadway between Applewood Crescent and Jane Street.

Extending Portage Parkway from Jane Street to Creditstone Road

This solution addresses the local area network discontinuity by extending Portage Parkway from Jane Street to Creditstone Road.

+ An advantage/disadvantage evaluation process was used to evaluate the appropriateness of the above alternatives. The advantages and disadvantages of each alternative are illustrated in **Table 5.**

Table 5: Alternative Solution Advantage/Disadvantage Evaluation

Alternative	Advantage(s)	Disadvantage(s)
Do Nothing	• No natural environmental impacts	• Does not accommodate future traffic growth • Does not conform to VMC Secondary Plan/Transportation Master Plan (TMP) • No improvements to traffic safety
Travel Demand Management Initiatives	• Indirect improvements encourage alternative transportation • Long term potential for increased traffic capacity • Partially conforms to VMC Secondary Plan/TMP • Long term potential for reduction in vehicular emissions	• Does not accommodate future traffic growth • No improvements to traffic safety
Alternative Modes of Transportation	• Direct and indirect improvements encourage alternative transportation • Partial reduction of traffic volumes • Partially conforms to VMC Secondary Plan/TMP/Pedestrian and Cycling Master Plan • Potential for minor improvements to aesthetics and streetscape • Low construction/implementation costs	• Does not accommodate future traffic growth • No impact to traffic safety • Low potential for archaeological impact
Localized Intersection and Operational Improvements	• Marginally improves Level of Service (LOS) for traffic • Opportunity for gateway intersections per Streetscape and Open Space Plan	• Does not accommodate future traffic growth • Low construction costs
Widening Portage Parkway from Applewood Crescent to Jane Street	• Opportunity to encourage alternative transportation • Improves LOS for traffic • Conforms to VMC Secondary Plan/TMP • Opportunity to address traffic operations • Opportunity to improve aesthetics and streetscape per VMC Streetscape and Open Space Plan • Improves access to industry and business • Improves emergency access	• Increases surface area contributing to storm water runoff • Low potential for archaeological impact • Property required • High construction costs
Extending Portage Parkway from Jane Street to Creditstone Road	• Opportunity to encourage alternative transportation • Conforms to VMC Secondary Plan/TMP	• Increases surface area contributing to storm water runoff • Potential traffic noise impact • Potential environmental issues

Alternative	Advantage(s)	Disadvantage(s)
	• Provides alternative route for truck traffic • Improves access to industry and businesses • Improves emergency route	• Low potential for archaeological impact • Property required • High construction costs

The advantage/disadvantage evaluation process yielded a combination of the aforementioned alternatives as the recommended solution for Portage Parkway. Two (2) of the recommended solutions have also been recommended as part of the TMP, which are:

+ Travel Demand Management Initiatives – Identified in the TMP and will be implemented by the City as a separate strategy; and
+ Alternative Modes of Transportation – Identified in the TMP, including the provision for continuous sidewalks, cycling systems, connectivity of the subway extension to Highway 7, and rapid transit of Jane Street.

The other three (3) recommended solutions are:

+ Localized Intersection and Operational Improvements;
+ Widening Portage Parkway from Applewood Crescent to Jane Street; and
+ Extending Portage Parkway from Jane Street to Creditstone Road.

8. Alternative Designs

8.1 Planning and Design Context

Active Transportation

The City of Vaughan Pedestrian and Bicycle Master Plan (2007) is a guide for improvements to existing and proposed pedestrian and cycling facilities. Map 4 of the Master Plan shows the type of facilities proposed for the City's pedestrian and bicycle network. Portage Parkway and Edgeley Boulevard are identified under Class 2 Bike Lanes with paved shoulders and sidewalks. Specifically, both roads within the study area are marked as Neighbourhood Bike Lanes with formal pavement markings and signs, and the possibility of road widening.

Currently, sidewalks are present on the south side of Portage Parkway from Applewood Crescent to Jane Street and intermittently along the north side. Sidewalks on the north side generally appear on approach to intersections. Sidewalks are separated from the roadway by grassed boulevards with street trees.

There are no cycling facilities on Portage Parkway within the study area.

Streetscape and Open Space

The VMC Streetscape and Open Space Plan (2015) is a guideline for landscape design of streets and public spaces within the VMC. The primary objective is to create a public realm that integrates the design of public spaces with the design of privately owned spaces.

The Plan identifies Portage Parkway at Applewood Crescent and Portage Parkway at Jane Street as Mobility Hub Gateway Intersections. Gateway intersections are described in the Plan as "distinguishable places of change within the urban landscape" that "convey a sense of arrival". A mobility hub gateway intersection conveys a sense of arrival to transit users. The remaining eight intersections within the study area are identified as minor intersections, which are described as intersections that "bring together all the varying urban conditions at grade".

Typical landscape treatments for Major Collector roads, such as Portage Parkway, are illustrated in **Figure 17.** As described in the Plan, the purpose of a Major Collector is to collect and distribute traffic between neighbourhoods and arterial streets, provide access to commercial land uses, and support strong connections between schools and parks. The Plan recognizes Portage Parkway as a transitional zone between a green urban centre and employment lands. The treatments shown in **Figure 17** include large scale street trees, understorey planting and topographical changes to mitigate noise.

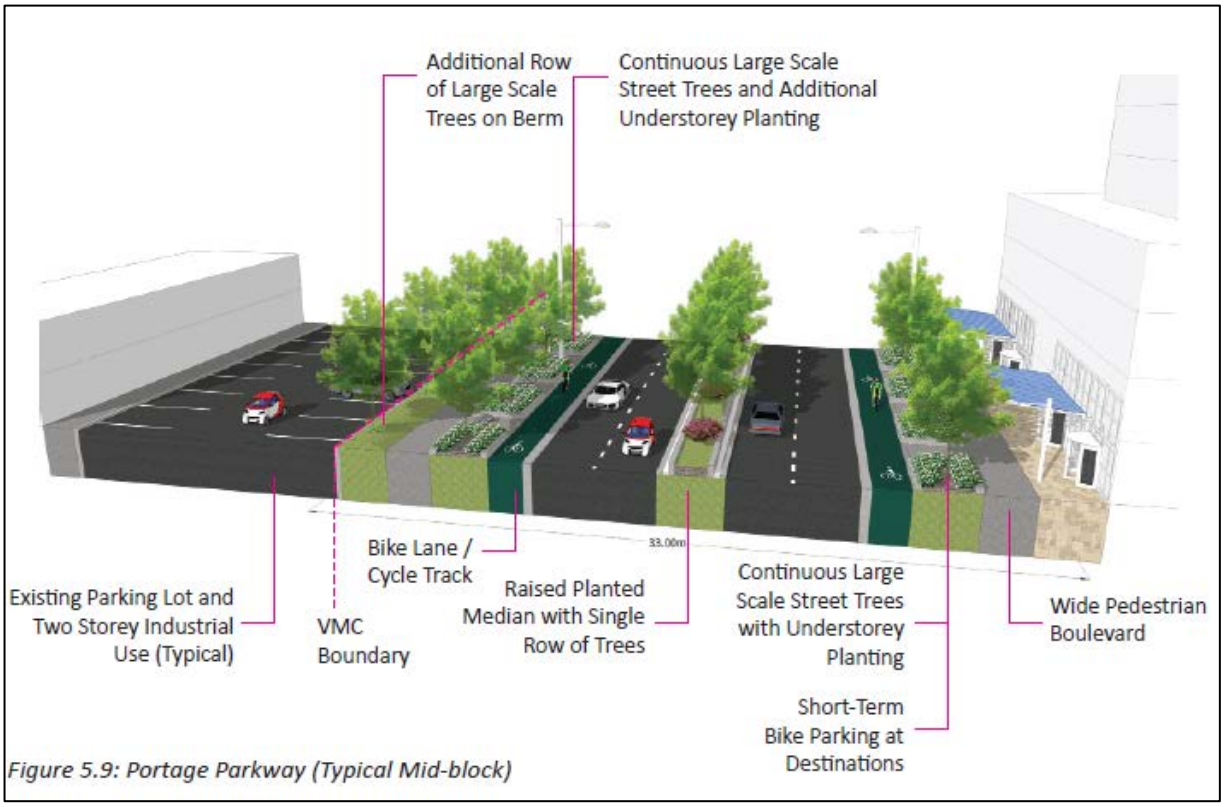


Figure 17: Typical Landscape Elements

The typical cross-section from the VMC plan shown above was refined during the EA process while the basic elements were retained.

8.2 Generating Design Alternatives

Alternative design concepts for the extension east of Jane Street were initially generated using the existing centerline of Portage Parkway in the context of the corridor, but then iteratively modified, screened and refined with consideration for the constraints presented by the existing stable built form on the north side (outside the VMC), and consideration to the emerging transformation of the VMC.

Several design constraints were considered in the development of alternative design concepts including:

+ How can property and access impacts be avoided and minimized;
+ What horizontal alignment should the extension take east of Jane Street;
+ What type of structure is needed to traverse Black Creek east of Jane Street;
+ Black Creek Crossing – Ensuring that the impact of the proposed roadway improvements on Regional storm events and water surface elevation are equal to or less than the existing conditions (within Toronto and Region Conservation Authority guidelines); and
+ Meeting Transport Canada's Grade Crossing Standards (July 2014) with respect to restrictions on the proximity of intersections and driveways to public grade crossings.

While Part A was initially identified as being west of Jane Street, as the project progressed, it became clear that Part A widening had implications immediately east of Jane Street because of an existing offset driveway on the east side of the Jane Street/Portage Parkway intersection that would have to be relocated. Therefore, both Parts A and B considered implications of the alignment immediately east of Jane Street.

Development of the design has to consider the three-dimensions of a road corridor (i.e., the cross-section, horizontal alignment and vertical profile).

Cross-Section

The VMC Secondary Plan (**Figure 18**) and VMC Streetscape and Open Space Plan as coordinated with the City's broader city-wide Streetscape Implementation Manual and Financial Strategy, and Design Criteria and Standard Drawings, provided the planning and design context and framework for the exploration of alternative typical cross-sections.

The beginning point for development of a typical cross-section was the street cross-section from the VMC Secondary Plan (**Figure 18**) and organization of streetscape infrastructure as guided by the VMC Streetscape and Open Space Plan. The symmetrical street cross-section in the VMC Secondary Plan accommodates four 3.5m travel lanes, two 1.5m on-street bicycle lanes, and 5.5m boulevards within a 33m right-of-way. The VMC Streetscape and Open Space Plan incorporates cycling facilities into the street network to build a cohesive and permeable network identifying a cycle track for Portage Parkway.

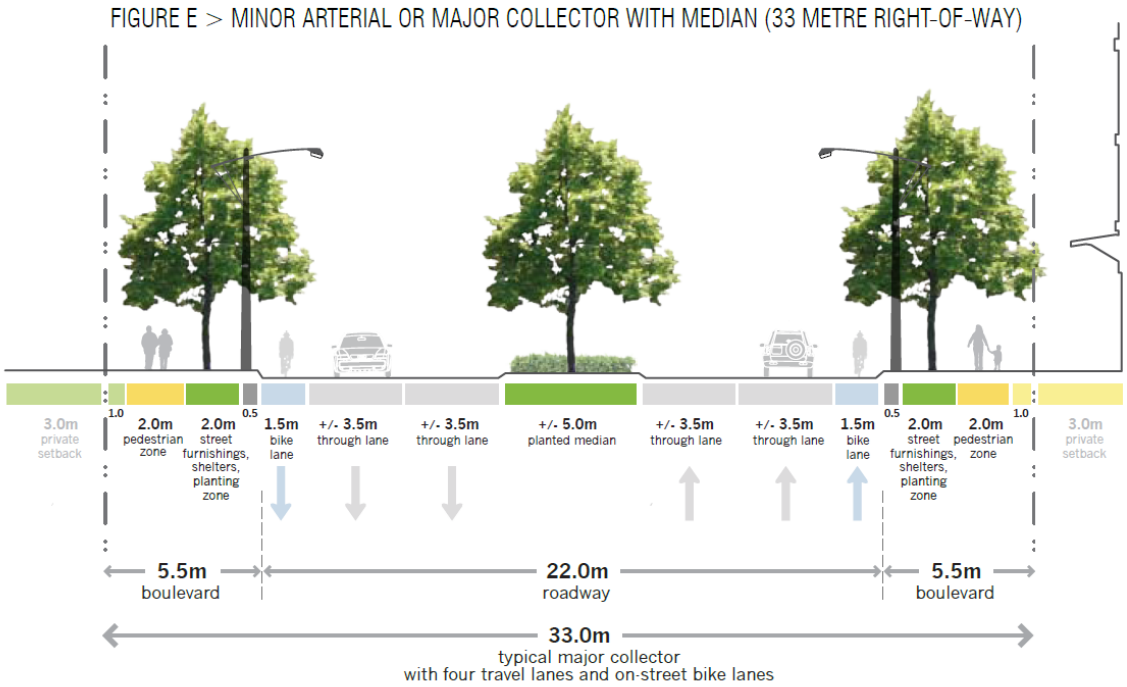


Figure 18: VMC Secondary Plan Typical Cross-section

Recognizing high truck volumes associated with the surrounding industrial and employment areas, the preferred typical cross-section was refined to provide a wider 3.5m curb lane (relative to 3.3m inside lane) and a wider raised off-road cycle track at 1.8m, separated by a rolled curb facilitating trucks and cyclists, respectively. The preferred typical cross-section for the crossing of Black Creek provides for continuation of four (4) general purpose lanes (2 in each direction) and a raised median within an approximate 25.7m right-of-way, maintaining the wider curb lane at 3.5m and off-road cycle track at 1.8m. The right-of-way width tapered from the 25.7m width to 33m width as it approached Jane Street and Creditstone Road.

8.3 Technical and Environmental Criteria

Each of the alternative designs was assessed against the following technical and environmental criteria:

Technical Criteria

Economic

+ Capital costs

Implementation

+ Conformity with regulatory framework.
+ Construction staging and phasing.
+ Impacts on existing municipal services and utilities.

Infrastructure Planning

+ Improved road safety.
+ Opportunities for other travel modes (walking, cycling, and public transit).
+ Improving road capacity and/or traffic flow.
+ Conformity with official/secondary plans and transportation master plans.
+ Impacts to stormwater management.
+ Opportunities for streetscapes.

Environmental Criteria

Natural

+ Impacts on avian and wildlife.
+ Encroachment onto natural areas
+ Impacts on species at risk.
+ Impacts on aquatic habitat.
+ Impacts on watercourses.
+ Impacts on vegetation.

Cultural

+ Impacts on archaeology.
+ Impacts on built heritage and cultural landscapes.

Social

+ Air quality (vehicle emissions).
+ Compatibility with emergency services requirements.
+ Impacts on Businesses.
+ Property and parking access impacts.
+ Property requirements.
+ Noise impacts (post construction).

8.4 Jane Street to Creditstone Road

Alternative design concepts were generated with consideration to challenges and constraints, and iteratively short listed to a reasonable range of context sensitive alternative design options, which were carried forward for evaluation.

For the extension east from Jane Street to Creditstone Road, key challenges and constraints in generating alternative design concepts for a new road right-of-way were principally centered on:

1. Unavoidable need to relocate the off-set driveway to the existing commercial property at 7941 Jane Street on the northeast corner of Jane Street and Portage Parkway,
2. Facilitating transformation of the VMC/imminent proposed development at 7895 Jane Street requiring access from Portage Parkway on the southeast corner of Jane Street and Portage Parkway;
3. Stable built form on the northeast corner of the crossing of Black Creek to Creditstone Road at 70 Talman Court, north of the VMC Secondary Plan area;
4. Existing CN Rail spur line from the MacMillan Yard crossing Creditstone Road and Transport Canada's Grade Crossings Standards (July 2014) and 30 metre restriction; and
5. Existing buildings on the southeast side of the Black Creek crossing at 400 Creditstone Road and 20 Barnes Court in the VMC Secondary Plan area;
6. Intersection with Creditstone Road and proximity of adjacent driveways.

In short-listing design options, these challenges and constraints were dealt with in the following manner:

+ Item 1 and 2 above were iteratively considered in generating context sensitive design options as part of the evaluation of Part B options west of the Black Creek crossing.
+ Item 3 was addressed by developing options that examined any potential impacts to site circulation and loading operations along the south end of the site associated with the existing Iron Mountain facility at 70 Talman Court.
+ Item 4 – Design options not adhering to Transport Canada's restriction for 30 metres, from the travelled way of an intersecting road or entranceway to the nearest rail of the grade crossing, were screened and dismissed. All short listed options carried forward for evaluation adhere to the restriction.
+ Item 5 – All design options carried forward adhere to Transport Canada's Grade Crossings Standards and traverse properties. The design options will necessitate property at 400 Creditstone Road and 20 Barnes Court on the southeast side of the creek in the VMC Secondary Plan area. The transformation of these properties is anticipated to be consistent with the VMC Secondary Plan.
+ Item 6 was addressed by ensuring that adjacent driveways could be accommodated in any of the designs.

Four (4) alternative options along with Do-Nothing were carried forward for evaluation and examined for the Portage Parkway road extension. The development of options proceeded in an iterative manner

avoiding and minimizing impacts, recognizing stable built form/uses and associated parking and operation.

'Do Nothing' Option

+ No extension of Portage Parkway from Jane Street to Creditstone Road – this was used for comparative purposes in order to measure the net impacts;

Option A: Southerly Shift of alignment east of Jane Street

+ This context sensitive alignment does not facilitate the proposed development on the southeast corner of the Jane Street/Portage Parkway intersection;

Option B: Northerly Shift of alignment east of Jane Street

+ This context sensitive alignment impacts property on the northeast corner of the Jane Street/Portage Parkway intersection;

Option C: Alignment east of Jane Street with Centre Boulevard

+ This context sensitive alignment impacts property on the northeast corner of the Jane Street/Portage Parkway intersection while facilitating the proposed development on the southeast corner;

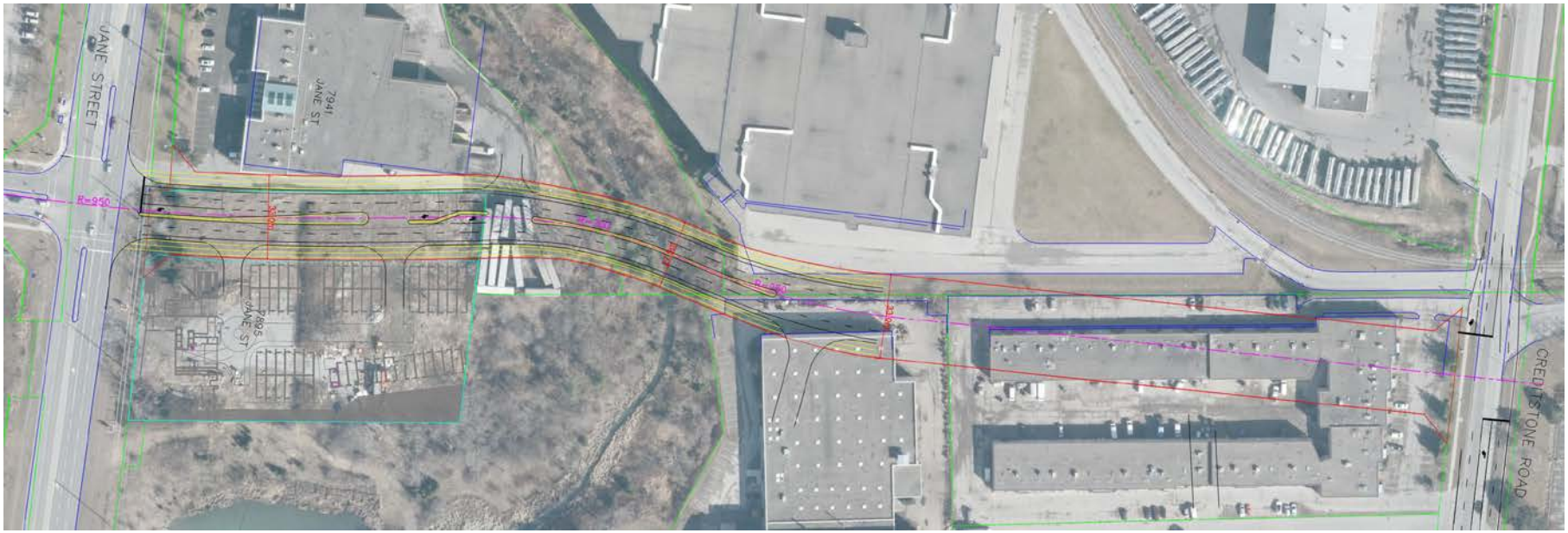
Option D: Alignment east of Jane Street without Centre Boulevard

+ This context sensitive alignment minimizes impacts on the property on the northeast corner of the Jane Street/Portage Parkway intersection and facilitates proposed development on the southeast corner. This was achieved by exploring opportunities for gradually narrowing the boulevard on the north side immediately west of Black Creek.

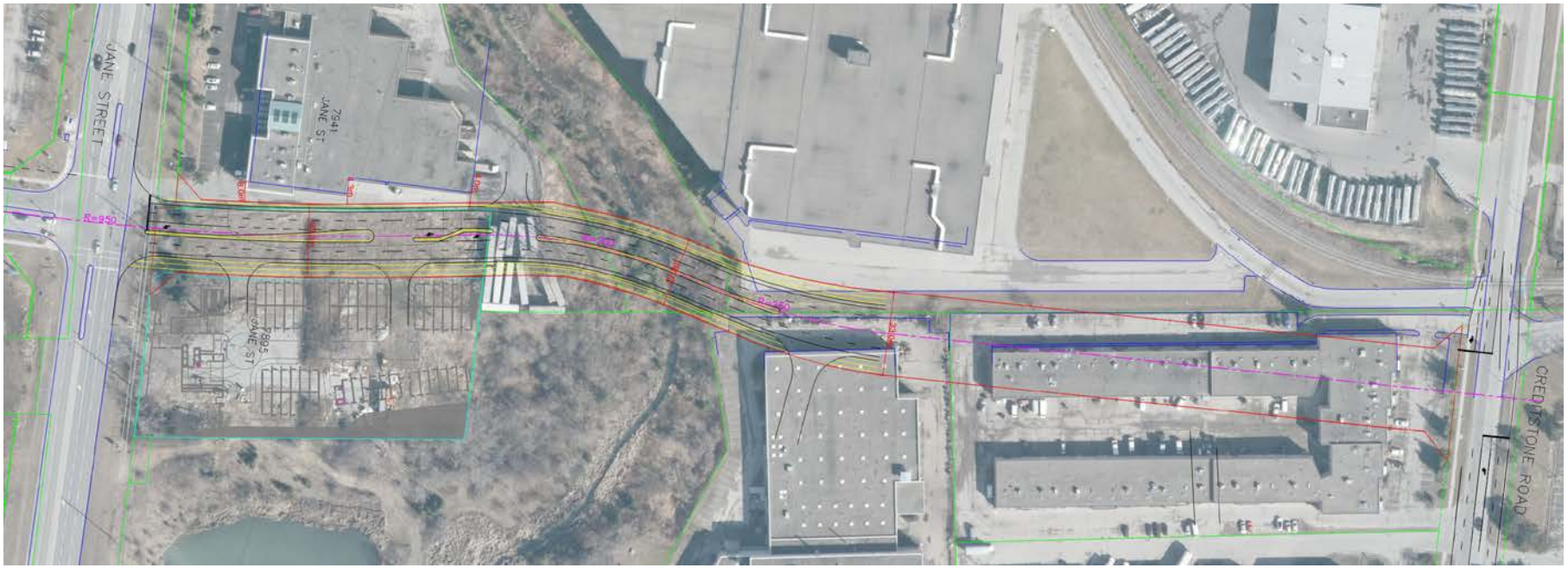
Under all design options, the unavoidable need to relocate the existing off-set driveway access at the Jane Street intersection to the property on the northeast quadrant of Jane Street and the Portage Parkway extension was considered. The EA study provided an exchange of information and ongoing dialogue with York Region staff as part of the formal Technical Agencies Committee and specifically as it related to intersection design and access, as Jane Street is under the Region's jurisdiction. All access to Jane Street is subject to the findings of York Region's future Rapid Transit Corridor EA.

The above options are illustrated in **Figure 19.**

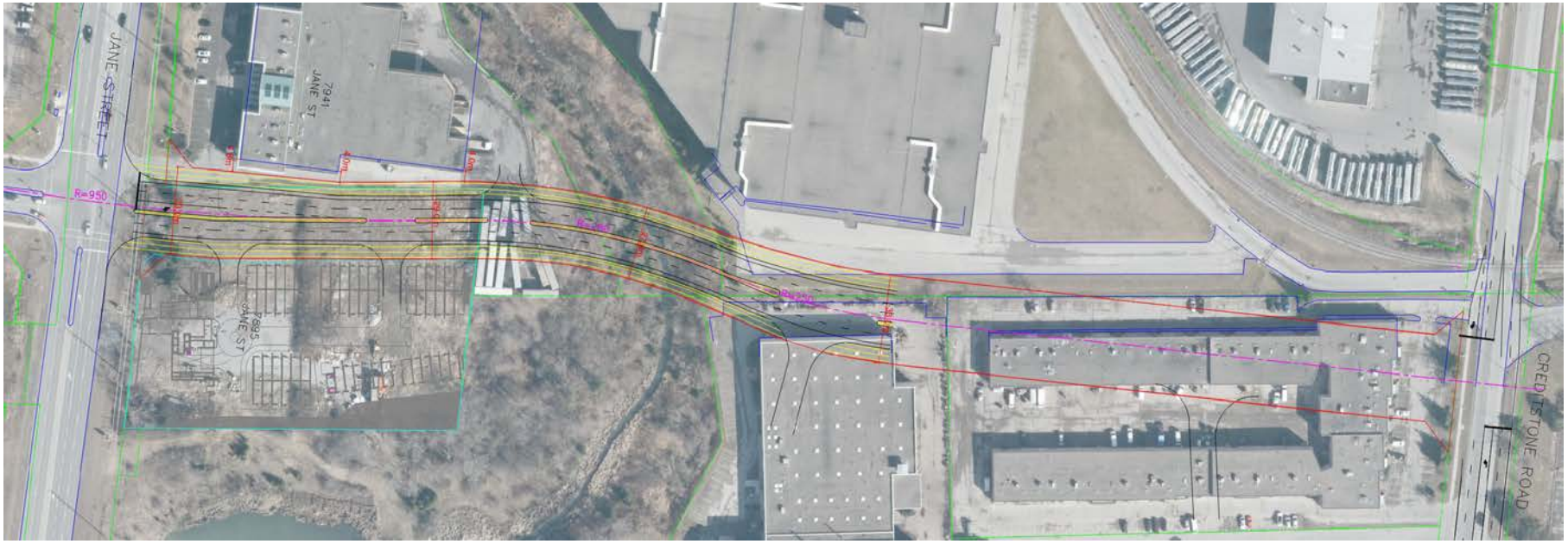
Option A – Southerly Shift of alignment east of Jane Street



Option B - Northerly Shift of alignment east of Jane Street



Option C – Alignment east of Jane Street with Centre Boulevard



Option D – Alignment east of Jane Street without Centre Boulevard

Figure 19: Alternative Designs for Road Extension

Each option was assessed against each of the identified technical and environmental criteria, and ranked from least to most positive based on the level of net impact on the corresponding criteria. To determine net impacts, the assessment considered both positive and negative effects of each option, with measures in place to mitigate any negative effect. This assessment is summarized in **Table 6.** Each option was then evaluated and ranked from least to most positive based on the level of overall net impact. The evaluation is summarized in **Table 7.**

Table 6: Part B - Alternative Designs Evaluation

Technical Criteria	Do Nothing	A (Southerly Shift East of Jane Street)	B (Northerly Shift East of Jane Street)	C (Alignment East of Jane Street with Centre Boulevard)	D (Alignment East of Jane Street without Centre Boulevard)
Cultural					
Archaeological Features	● No impact.	◕ Property #7895 Jane Street has low to no archaeological potential.	◕ Property #7895 Jane Street has low to no archaeological potential.	◕ Property #7895 Jane Street has low to no archaeological potential.	◕ Property #7895 Jane Street has low to no archaeological potential.
Built Heritage Resources (BHRs) and Cultural Heritage Landscapes (CHLs) **BHRs/CHLs** – none	● No BHRs or CHLs adjacent to Portage Parkway within the study area.	● No BHRs or CHLs adjacent to Portage Parkway within the study area.	● No BHRs or CHLs adjacent to Portage Parkway within the study area.	● No BHRs or CHLs adjacent to Portage Parkway within the study area.	● No BHRs or CHLs adjacent to Portage Parkway within the study area.
Economic					
Capital Costs	● No impact	◑ $6.5M not including property costs.	◑ $6.5M not including property costs.	◑ $6.5M not including property costs.	◑ $6.5M not including property costs.
Implementation					
Regulatory Framework	● Regulatory approvals not required.	◑ Regulatory approvals required for the Black Creek Channel crossing; Ontario Regulation 166/06 for Development, Interference with wetlands and alterations to shorelines and watercourses. Adheres to Transport Canada's Grade Crossings Standards.	◑ Regulatory approvals required for the Black Creek Channel crossing; Ontario Regulation 166/06 for Development, Interference with wetlands and alterations to shorelines and watercourses. Adheres to Transport Canada's Grade Crossings Standards.	◑ Regulatory approvals required for the Black Creek Channel crossing; Ontario Regulation 166/06 for Development, Interference with wetlands and alterations to shorelines and watercourses. Adheres to Transport Canada's Grade Crossings Standards.	◑ Regulatory approvals required for the Black Creek Channel crossing; Ontario Regulation 166/06 for Development, Interference with wetlands and alterations to shorelines and watercourses. Adheres to Transport Canada's Grade Crossings Standards.
Construction Staging and Phasing	● No staging required.	◑ Construction staging required (i.e. lane closures and temporary conditions) at intersection of Portage Parkway and Jane Street and future intersection at Creditstone Road. Temporary Road required between Jane Street and Black Creek to support access to existing and future land uses.	◑ Construction staging required (i.e. lane closures and temporary conditions) at intersection of Portage Parkway and Jane Street and future intersection at Creditstone Road. Temporary Road required between Jane Street and Black Creek to support access to existing and future land uses.	◑ Construction staging required (i.e. lane closures and temporary conditions) at intersection of Portage Parkway and Jane Street and future intersection at Creditstone Road. Temporary Road required between Jane Street and Black Creek to support access to existing and future land uses.	◑ Construction staging required (i.e. lane closures and temporary conditions) at intersection of Portage Parkway and Jane Street and future intersection at Creditstone Road. Temporary Road required between Jane Street and Black Creek to support access to existing and future land uses.
Municipal Servicing and Utilities Coordination	● No municipal service and utilities coordination required.	◑ Coordination with municipal servicing and utilities required.	◑ Coordination with municipal servicing and utilities required.	◑ Coordination with municipal servicing and utilities required.	◑ Coordination with municipal servicing and utilities required.

●	◕	◑	◔	○
Very Low Impact (Most Positive)	Fairly Low Impact	Medium Impact	Fairly High Impact	Very High Impact (Least Positive)

Technical Criteria	Do Nothing	A (Southerly Shift East of Jane Street)	B (Northerly Shift East of Jane Street)	C (Alignment East of Jane Street with Centre Boulevard)	D (Alignment East of Jane Street without Centre Boulevard)
Infrastructure Planning					
Alternative Transportation	○ No opportunities for alternative transportation infrastructure within existing land uses.	● Proposed sidewalk and cycle tracks.	● Proposed sidewalk and cycle tracks.	◑ Proposed sidewalk and cycle tracks. No north sidewalk provided on Portage Parkway fronting 7941 Jane Street.	● Proposed sidewalk and cycle tracks.
Streetscape	● No opportunities for streetscaping within existing land uses.	● Boulevard and street trees are provided in proposed cross-section.	● Boulevard and street trees are provided in proposed cross-section.	● Boulevard and street trees are provided in proposed cross-section.	● Boulevard and street trees are provided in proposed cross-section.
Level of Service and Network Capacity	○ No opportunities to improve level of service or increase capacity within the surrounding road network.	● Improves level of service and increases capacity within the surrounding road network.	● Improves level of service at intersections within the surrounding road network.	● Improves level of service at intersections within the surrounding road network.	● Improves level of service at intersections within the surrounding road network.
Planning Policy (Official Plan, VMC Secondary Plan, Transportation Master Plan)	○ Not consistent with Official/Secondary Plan and Transportation Master Plan.	● Conforms to Official/Secondary Plan and Transportation Master Plan. Generally conforms to the VMC Secondary Plan. A potential re-examining of the framework, street pattern and block organization in an area generally east of Maplecrete Road, west of Creditstone Road and north of Highway 7 in the VMC Secondary Plan, resulting from a shift of the alignment south (adhering to Transport Canada distance from rail line), should be considered Presents constraints to proposed development concept for #7895 Jane street (reduces amount of development).	● Conforms to Official/Secondary Plan and Transportation Master Plan. Generally conforms to the VMC Secondary Plan. A potential re-examining of the framework, street pattern and block organization in an area generally east of Maplecrete Road, west of Creditstone Road and north of Highway 7 in the VMC Secondary Plan, resulting from a shift of the alignment south (adhering to Transport Canada distance from rail line), should be considered. Facilitates proposed development concept at #7895 Jane Street.	● Conforms to Official/Secondary Plan and Transportation Master Plan. Generally conforms to the VMC Secondary Plan. A potential re-examining of the framework, street pattern and block organization in an area generally east of Maplecrete Road, west of Creditstone Road and north of Highway 7 in the VMC Secondary Plan, resulting from a shift of the alignment south (adhering to Transport Canada distance from rail line), should be considered. Facilitates proposed development concept at #7895 Jane Street.	● Conforms to Official/Secondary Plan, and Transportation Master Plan. Generally conforms to the VMC Secondary Plan. A potential re-examining of the framework, street pattern and block organization in an area generally east of Maplecrete Road, west of Creditstone Road and north of Highway 7 in the VMC Secondary Plan, resulting from a shift of the alignment south (adhering to Transport Canada distance from rail line), should be considered. Facilitates proposed development concept at #7895 Jane Street. Best addresses right of way corridor design constraints, facilitating development of the VMC.

Technical Criteria	Do Nothing	A (Southerly Shift East of Jane Street)	B (Northerly Shift East of Jane Street)	C (Alignment East of Jane Street with Centre Boulevard)	D (Alignment East of Jane Street without Centre Boulevard)
Infrastructure Planning					
Stormwater Management	● No impact.	◑ It is assumed that this section of road would represent only a minor increase to the existing drainage area; The City of Vaughan does not require quantity control of stormwater runoff from Portage Parkway prior to discharge to Black Creek, as Black Creek has an existing online stormwater management facility; Quality control of stormwater runoff will be managed through the use of oil/grit separators prior to discharge to Black Creek. Black Creek crossing evaluation tabled separately.	◑ It is assumed that this section of road would represent only a minor increase to the existing drainage area; The City of Vaughan does not require quantity control of stormwater runoff from Portage Parkway prior to discharge to Black Creek, as Black Creek has an existing online stormwater management facility; Quality control of stormwater runoff will be managed through the use of oil/grit separators prior to discharge to Black Creek. Black Creek crossing evaluation tabled separately.	◑ It is assumed that this section of road would represent only a minor increase to the existing drainage area; The City of Vaughan does not require quantity control of stormwater runoff from Portage Parkway prior to discharge to Black Creek, as Black Creek has an existing online stormwater management facility; Quality control of stormwater runoff will be managed through the use of oil/grit separators prior to discharge to Black Creek. Black Creek crossing evaluation tabled separately.	◑ It is assumed that this section of road would represent only a minor increase to the existing drainage area; The City of Vaughan does not require quantity control of stormwater runoff from Portage Parkway prior to discharge to Black Creek, as Black Creek has an existing online stormwater management facility; Quality control of stormwater runoff will be managed through the use of oil/grit separators prior to discharge to Black Creek. Black Creek crossing evaluation tabled separately.
Traffic Safety	● No impact.	● Improves overall safety.	● Improves overall safety.	● Improves overall safety.	● Improves overall safety.

●	◕	◑	◔	○
Very Low Impact (Most Positive)	**Fairly Low Impact**	**Medium Impact**	**Fairly High Impact**	**Very High Impact (Least Positive)**

Technical Criteria	Do Nothing	A (Southerly Shift East of Jane Street)	B (Northerly Shift East of Jane Street)	C (Alignment East of Jane Street with Centre Boulevard)	D (Alignment East of Jane Street without Centre Boulevard)
Natural					
Aquatic	● No impact.	◑ Represents substantial intrusion into aquatic habitat within Black Creek channel. However, Black Creek is an urbanized, highly disturbed watercourse with tolerant warm water aquatic species.	◑ Represents substantial intrusion into aquatic habitat within Black Creek channel. However, Black Creek is an urbanized, highly disturbed watercourse with tolerant warm water aquatic species.	◑ Represents substantial intrusion into aquatic habitat within Black Creek channel. However, Black Creek is an urbanized, highly disturbed watercourse with tolerant warm water aquatic species.	◑ Represents substantial intrusion into aquatic habitat within Black Creek channel. However, Black Creek is an urbanized, highly disturbed watercourse with tolerant warm water aquatic species.
Avian and Wildlife	● No impact.	◑ Represents moderate level of intrusion into riparian area adjacent to the watercourse and associated wildlife habitat. However, riparian area is urbanized and disturbed.	◑ Represents moderate level of intrusion into riparian area adjacent to the watercourse and associated wildlife habitat. However, riparian area is urbanized and disturbed.	◑ Represents moderate level of intrusion into riparian area adjacent to the watercourse and associated wildlife habitat. However, riparian area is urbanized and disturbed.	◑ Represents moderate level of intrusion into riparian area adjacent to the watercourse and associated wildlife habitat. However, riparian area is urbanized and disturbed.
Natural Areas Cultural Meadow (CUM1-1) Deciduous Forest (FOD)	● No impact.	◑ Represents moderate level of intrusion into CUM1-1 and FOD.	◑ Represents moderate level of intrusion into CUM1-1 and FOD.	◑ Represents moderate level of intrusion into CUM1-1 and FOD.	◑ Represents moderate level of intrusion into CUM1-1 and FOD.
Species at Risk	● No impact.	◕ Moderate probability of species at risk (e.g., Butternut Trees) to occur within the study area. Detailed fisheries information in background studies did not indicate issues with species at risk.	◕ Moderate probability of species at risk (e.g., Butternut Trees) to occur within the study area. Detailed fisheries information in background studies did not indicate issues with species at risk.	◕ Moderate probability of species at risk (e.g., Butternut Trees) to occur within the study area. Detailed fisheries information in background studies did not indicate issues with species at risk.	◕ Moderate probability of species at risk (e.g., Butternut Trees) to occur within the study area. Detailed fisheries information in background studies did not indicate issues with species at risk.
Vegetation	● No impact.	◑ Represents moderate level of intrusion into CUM1-1 and FOD; classified as significant woodland. However, study area is highly urbanized and has significant invasive species.	◑ Represents moderate level of intrusion into CUM1-1 and FOD; classified as significant woodland. However, study area is highly urbanized and has significant invasive species.	◑ Represents moderate level of intrusion into CUM1-1 and FOD; classified as significant woodland. However, study area is highly urbanized and has significant invasive species.	◑ Represents moderate level of intrusion into CUM1-1 and FOD; classified as significant woodland. However, study area is highly urbanized and has significant invasive species.
Watercourses	● No impact.	◕ Represents substantial intrusion into Black Creek channel. However, the overall impact to the Black Creek channel is low. The portion of watercourse within the study area is regulated by a water control structure 300m downstream of the study area. Fish movement within the study area is restricted at periods of the year by the structure. Appropriate culvert width is expected to maintain channel form and function.	◕ Represents substantial intrusion into Black Creek channel. However, the overall impact to the Black Creek channel is low. The portion of watercourse within the study area is regulated by a water control structure 300m downstream of the study area. Fish movement within the study area is restricted at periods of the year by the structure. Appropriate culvert width is expected to maintain channel form and function.	◕ Represents substantial intrusion into Black Creek channel. However, the overall impact to the Black Creek channel is low. The portion of watercourse within the study area is regulated by a water control structure 300m downstream of the study area. Fish movement within the study area is restricted at periods of the year by the structure. Appropriate culvert width is expected to maintain channel form and function.	◕ Represents substantial intrusion into Black Creek channel. However, the overall impact to the Black Creek channel is low. The portion of watercourse within the study area is regulated by a water control structure 300m downstream of the study area. Fish movement within the study area is restricted at periods of the year by the structure. Appropriate culvert width is expected to maintain channel form and function.

Technical Criteria	Do Nothing	A (Southerly Shift East of Jane Street)	B (Northerly Shift East of Jane Street)	C (Alignment East of Jane Street with Centre Boulevard)	D (Alignment East of Jane Street without Centre Boulevard)
Social					
Air Quality	Congestion may lead to increased emissions and worsen air quality.	No measurable impact anticipated.	No measurable impact anticipated.	No measurable impact anticipated.	No measurable impact anticipated.
Businesses	No impact.	Impact to #7941 Jane Street (removes laneway around south end of the building).	Impact to #7941 Jane Street (removes laneway around south end of the building).	Impact to #7941 Jane Street (reduces laneway around south end of the building).	Maintains laneway around south end of the building at #7941 Jane Street.
Emergency Services	Congestion may impact emergency vehicle operations.	Overall, improved access for emergency response vehicles; however, this option would prohibit access around 7941 Jane Street.	Overall, improved access for emergency response vehicles; however, this option would prohibit access around 7941 Jane Street.	Overall, improved access for emergency response vehicles; however, this option would restrict access around 7941 Jane Street.	Overall, improved access for emergency response vehicles; This option would maintain access around 7941 Jane Street.
Property Requirements (approximate areas subject to detailed design)	No impact.	16,320 m^2 Moderate property impacts on 7941 Jane Street. Significant property impacts on 7895 Jane Street. Minor property impacts on 70 Talman Road. Similar impact on the commercial/ industrial buildings at 20 Barnes Court and 400 Creditstone Road amongst all options.	16,700 m^2 Significant property impacts on 7941 Jane Street. Moderate property impacts on 7895 Jane Street. Minor property impacts on 70 Talman Road. Similar impact on the commercial/ industrial buildings at 20 Barnes Court and 400 Creditstone Road amongst all options.	16,150 m^2 Moderate property impacts on 7941 Jane Street. Moderate property impacts on 7895 Jane Street. Minor property impacts on 70 Talman Road. Similar impact on the commercial/ industrial buildings at 20 Barnes Court and 400 Creditstone Road amongst all options.	16,760 m^2 Minor property impacts on 7941 Jane Street. Moderate property impacts on 7895 Jane Street. Minor property impacts on 70 Talman Road. Similar impact on the commercial/ industrial buildings at 20 Barnes Court and 400 Creditstone Road amongst all options.
Noise Impacts	The expected increase in levels associated with this project are expected to be less than 5 dB, therefore, no mitigation effort is required.	The expected increase in levels associated with this project are expected to be less than 5 dB, therefore, no mitigation effort is required.	The expected increase in levels associated with this project are expected to be less than 5 dB, therefore, no mitigation effort is required.	The expected increase in levels associated with this project are expected to be less than 5 dB, therefore, no mitigation effort is required.	The expected increase in levels associated with this project are expected to be less than 5 dB, therefore, no mitigation effort is required.

Technical Criteria	Do Nothing	A (Southerly Shift East of Jane Street)	B (Northerly Shift East of Jane Street)	C (Alignment East of Jane Street with Centre Boulevard)	D (Alignment East of Jane Street without Centre Boulevard)
Social					
Property Access	● No impact.	◕ Proposed eastern access at #7895 Jane Street to have no dedicated westbound left-turn lane for entering traffic. Existing Jane Street access for #7941 Jane Street to be relocated north on Jane Street with new rear access on Portage Parkway approximately 150 metres east of intersection. Driveways adjacent to the Creditstone Road intersection could be accommodated in any of the designs.	● Proposed eastern access at #7895 Jane Street to have limited dedicated westbound left-turn lane for entering traffic. Existing Jane Street access for #7941 Jane Street to be relocated north on Jane Street with new rear access on Portage Parkway approximately 150 metres east of intersection. Driveways adjacent to the Creditstone Road intersection could be accommodated in any of the designs.	● Proposed eastern access at #7895 Jane Street to have limited dedicated westbound left-turn lane for entering traffic. Existing Jane Street access for #7941 Jane Street to be relocated north on Jane Street with new rear access on Portage Parkway approximately 150 metres east of intersection. Driveways adjacent to the Creditstone Road intersection could be accommodated in any of the designs.	◕ Proposed eastern access at #7895 Jane Street to have no dedicated westbound left-turn lane for entering traffic. Existing Jane Street access for #7941 Jane Street to be relocated north on Jane Street with new rear access on Portage Parkway approximately 150 metres east of intersection. Driveways adjacent to the Creditstone Road intersection could be accommodated in any of the designs.

●	◕	◑	◔	○
Very Low Impact (Most Positive)	Fairly Low Impact	Medium Impact	Fairly High Impact	Very High Impact (Least Positive)

Table 7: Part B - Recommended Alternative Design

Technical Criteria	Do Nothing	A (Southerly Shift East of Jane Street)	B (Northerly Shift East of Jane Street)	C (Alignment East of Jane Street with Centre Boulevard)	D (Alignment East of Jane Street without Centre Boulevard)
Overall Findings	 Does not address road network capacity needs. Maintains current state of natural environment.	 Positive impacts include improved connectivity and capacity of VMC sub-area network. Negative impacts include interaction with natural environment. Moderate impacts on adjacent businesses (Impact to #7941 Jane Street (removes south part of laneway that extends around the side of the building)). Overall, improved access for emergency response vehicles; however, this option would prohibit access around 7941 Jane Street. Minor impacts on associated property accesses (Proposed eastern access at #7895 Jane Street to have no dedicated westbound left-turn lane for entering traffic). Moderate property impacts on 7941 Jane Street. Significant property impacts on 7895 Jane Street.	 Positive impacts include improved connectiviety and capacity of VMC sub-area network. Negative impacts include interaction with natural environment. Moderate impacts on adjacent businesses (Impact to #7941 Jane Street (removes south part of laneway that extends around the side of the building)). Overall, improved access for emergency response vehicles; however, this option would prohibit access around 7941 Jane Street. Negligable impacts on associated property accesses (Proposed eastern access at #7895 Jane Street to have limited dedicated westbound left-turn lane for entering traffic). Significant property impacts on 7941 Jane Street. Moderate property impacts on 7895 Jane Street.	 Positive impacts include improved connectivity and capacity of VMC sub-area network. Negative impacts include interaction with natural environment. No north sidewalk provided on Portage Parkway fronting 7941 Jane Street. Minor impacts on adjacent businesses (Impact to #7941 Jane Street (reduces south part of laneway that extends around the side of the building). Overall, improved access for emergency response vehicles; however, this option would restrict access around 7941 Jane Street. Moderate property impacts on 7941 and 7895 Jane Street.	 Positive impacts include improved connectivity and capacity of VMC sub-area network. Negative impacts include interaction with natural environment. Negligable impacts on adjacent businesses (Maintains south part of driveway that extends around the side of the building at #7941 Jane Street). Overall, improved access for emergency response vehicles; This option would maintain access around 7941 Jane Street. Minor impacts on associated property accesses (Proposed eastern access at # 7895 Jane Street to have no dedicated westbound left-turn lane for entering traffic.). Minor property impacts on 7941 Jane Street. Moderate property impacts on 7895 Jane Street.
Recommendation	Not carried forward	Not carried forward	Not carried forward	Not carried forward	**Recommended**

				
Very Low Impact (Most Positive)	**Fairly Low Impact**	**Medium Impact**	**Fairly High Impact**	**Very High Impact (Least Positive)**

The alternative designs for Part B were compared to select the recommended design to extend Portage Parkway from Jane Street to Creditstone Road as shown in **Table 6 and Table 7.** The preferred design will improve the connectivity and capacity of the VMC sub-area network, however, it will significantly impact two (2) adjacent properties and will have some minor impacts on another two (2) property accesses.

8.5 Analysis and Evaluation: Black Creek Channel Crossing

The crossing of the Black Creek was the subject of a separate set of alternative design options and evaluation for a preferred structure crossing the Creek. The EA study provided for ongoing consultation, exchange of information and focused technical meetings with the Toronto and Region Conservation Authority, with respect to the crossing of the Black Creek channel as it is under their regulated area. Five (5) preliminary design concepts were considered for the crossing grouped under culverts (2) and bridges (3). Culvert options that did not meet flood criteria were dismissed from further consideration.

The following provides an overview of the preliminary design concepts and key considerations that emerged through the evaluation:

+ **Option 1**: 9m wide Box Culvert with two 4.5m wide culverts for multiuse trails on both sides of the creek;
+ **Option 2**: Single Span (35m) Bridge with multiuse trails accommodated underneath the bridge;
+ **Option 3**: 2 Span (60m) Bridge with multiuse trails accommodated underneath the bridge;
+ **Option 4**: 3 Span (60m) Bridge with multiuse trails accommodated underneath the bridge; and
+ **Option 5**: 12m wide ConSpan Culvert with two 4.5m wide culverts for multiuse trails on both sides of the creek.

8.5.1 Technical and Environmental Criteria

Each of the alternative designs was assessed against the following technical and environmental criteria:

Technical Criteria	**Environmental Criteria**
Economic + Capital costs *Implementation* + Conformity with regulatory framework. + Constructability. + Staging. + Impacts on existing municipal services and utilities. *Infrastructure Planning* + Opportunities for other travel modes (walking, cycling, and public transit). + Opportunities for streetscapes. + Impacts on stormwater management and floodplain. *Engineering* + Fill in valley. + Hydraulics.	*Natural* + Impacts on avian and wildlife. + Encroachment onto natural areas + Impacts on species at risk. + Impacts on aquatic habitat. + Impacts on watercourses. + Impacts on vegetation. + Impacts to trees within crossing footprint. *Cultural* + Impacts on archaeology. + Impacts on built heritage and cultural landscapes. *Social* + Safety. + Property Requirements.

Table 8: Black Creek Crossing – Alternative Solutions Evaluation

Technical Criteria	Do Nothing	Option 1 – Box Culvert (9 m)	Option 2 to 4 – Bridges (1, 2 or 3 Spans)	Option 5 – ConSpan Culvert (12 m)
Social				
Safety	No impact.	Multi-use trail with culverts provides space for active transportation that is more concealed, and therefore possibly less lit with more obstructed sightlines, than the multi-use trail crossing under the bridge in Option 2 to 4. The type (e.g., precast concrete box) and size (e.g. width and length) of the active transportation underpass is similar to Option 5.	Multi-use trail provides for active transportation underpass with unobstructed sightlines, limited access to concealed areas, and adequate lighting. The size (e.g., width and length) of the active transportation underpass is similar for all Options.	Multi-use trail with culverts provides space for active transportation that is more concealed, and therefore possibly less lit with more obstructed sightlines, than the multi-use trail crossing under the bridge in Option 2 to 4. The type (e.g., precast concrete box) and size (e.g. width and length) of the active transportation underpass is similar to Option 1.
Property Requirements	Assessed in alternative designs evaluation.	Assessed in alternative designs evaluation.	Assessed in alternative designs evaluation.	Assessed in alternative designs evaluation.
Cultural				
Archaeological Features	No impact.	No impact.	No impact.	No impact.
Built Heritage Resources (BHRs) and Cultural Heritage Landscapes (CHLs) **BHRs / CHLs** – none	No BHRs or CHLs adjacent to Portage Parkway within the study area.	No BHRs or CHLs adjacent to Portage Parkway within the study area.	No BHRs or CHLs adjacent to Portage Parkway within the study area.	No BHRs or CHLs adjacent to Portage Parkway within the study area.
Economic				
Capital Costs	No impact.	$3.8M not including property costs.	$9.9M to $10.5M not including property costs.	$4.2M not including property costs.
Implementation				
Regulatory Framework	Regulatory approvals not required.	Regulatory approvals required for the Black Creek Channel crossing; Ontario Regulation 166/06 for Development, Interference with wetlands and alterations to shorelines and watercourses.	Regulatory approvals required for the Black Creek Channel crossing; Ontario Regulation 166/06 for Development, Interference with wetlands and alterations to shorelines and watercourses.	Regulatory approvals required for the Black Creek Channel crossing; Ontario Regulation 166/06 for Development, Interference with wetlands and alterations to shorelines and watercourses.
Constructability	No Impact.	Easier than Option 2 to 4.	60m beams need to split and assembled on-site.	Easier than Option 2 to 4.
Staging	No staging required.			

Municipal Servicing and Utilities	No municipal service and utilities coordination required.	Municipal servicing under boulevard; No utilities present.	Municipal servicing attached to bridge; No utilities present.	Coordination with municipal servicing required; No utilities present.

Technical Criteria	Do Nothing	Option 1 – Box Culvert (9 m)	Option 2 to 4 – Bridges (1, 2 or 3 Spans)	Option 5 – ConSpan Culvert (12 m)
Natural				
Aquatic	No impact.	Permanent loss of aquatic habitat.	Moderate permanent loss of aquatic habitat.	Minimal permanent loss of aquatic habitat.
Avian and Wildlife	No impact.	Limited loss of terrestrial habitat.	Limited loss of terrestrial habitat.	Limited loss of terrestrial habitat.
Natural Areas	No impact.	Placement of permanent structure in the floodplain resulting in permanent loss of riparian wetland habitat.	Limited placement of permanent structures within floodplain resulting in limited loss of riparian wetland habitat.	Placement of permanent structures within floodplain and proposed active transportation passage results in moderate loss of riparian wetland habitat.
Species at Risk	No impact.	Detailed information in background studies did not indicate issues with species at risk.	Detailed information in background studies did not indicate issues with species at risk.	Moderate probability of species at risk (e.g., Butternut Trees) to occur within the study area. Detailed fisheries information in background studies did not indicate issues with species at risk.
Vegetation Cultural Meadow (CUM1-1) Deciduous Forest (FOD)	No impact.	Represents moderate level of intrusion into CUM1-1 and FOD; classified as significant woodland. However, study area is highly urbanized and has significant invasive species.	Represents moderate level of intrusion into CUM1-1 and FOD; classified as significant woodland. However, study area is highly urbanized and has significant invasive species.	Represents moderate level of intrusion into CUM1-1 and FOD; classified as significant woodland. However, study area is highly urbanized and has significant invasive species.
Trees within Crossing Footprint	No impact.	Removal of trees within bridge area. More root impact to nearby trees due to fill.	Removal of trees within bridge area. Less root impact to nearby trees.	Removal of trees within bridge area. More root impact to nearby trees due to fill.
Watercourses	No impact.	Negligible water level increase at Jane St. Provides potential constraints to channel form and/or channel function, recognizing that the crossing feature would be constructed within the channel footprint and the boundaries of the 100-year erosion limit.	Negligible water level increase at Jane St. Accommodates channel form and function, with the understanding that the crossing feature for all options would be constructed outside of the channel footprint, and in most cases, would span the boundaries of the 100-year erosion limit.	Negligible water level increase at Jane St. Accommodates channel form and function (lesser extent relative to Options 2 to 4), with the understanding that the crossing feature would be constructed outside of the channel footprint (albeit within the boundaries of the 100-year erosion limit) and would span at least two-times the bankfull width of the channel.

Technical Criteria	Do Nothing	Option 1 – Box Culvert (9 m)	Option 2 to 4 – Bridges (1, 2 or 3 Spans)	Option 5 – ConSpan Culvert (12 m)
Infrastructure Planning				
Alternative Transportation	 No opportunities for alternative transportation infrastructure within existing land uses.	 Multi-use trails with culverts running parallel.	 Multi-use trail crossing under the bridge.	 Multi-use trails with culverts running parallel.
Streetscape	 No opportunities for streetscaping within existing land uses.	 Boulevard (median) is provided in proposed cross-section.	 Boulevard (median) is provided in proposed cross-section.	 Boulevard (median) is provided in proposed cross-section.
Stormwater Management/Flood Plain	 No impact.	 Placement of permanent structure in the floodplain (i.e. footings and abutments).	 Moderate placement of permanent structures within floodplain (i.e. footings and abutments).	 Limited placement of permanent structures within floodplain (i.e. footings and abutments).

Table 9: Black Creek Crossing - Recommended Alternative Design

Technical Criteria	Do Nothing	Option 1 – Box Culvert (9 m)	Option 2 to 4 – Bridges (1, 2 or 3 Spans)	Option 5 – ConSpan Culvert (12 m)
Engineering				
Fill in Valley ***Area is the centre line between proposed profile and existing ground	No Impact	72m ($180m^2$)*	30m ($50m^2$)*	69m ($170m^2$)*
Hydraulics	No impact.	Does not meet requirements.	Provide additional capacity.	Provide additional capacity.
Summary				
Overall Findings	Does not address road network capacity needs. Maintains current state of natural environment.	Multi-use trail with culverts provides space for active transportation that is more concealed, and therefore possibly less lit with more obstructed sightlines, than the multi-use trail crossing under the bridge in Option 2 to 4. Easier to construct than Option 2 to 4. Municipal servicing under boulevard. Negative impacts include interaction with natural environment. Greatest negative impact from placement of structures in the floodplain (i.e. footings and abutments). Requires most amount of fill in valley. Does not meet requirements for hydraulics. Least costly of all options.	Multi-use trail provides for active transportation underpass with unobstructed sightlines, limited access to concealed areas, and adequate lighting. Most difficult to construct. Municipal servicing attached to bridge. Negative impacts include interaction with natural environment (lesser extent relative to Option 1). Moderate placement of permanent structures within floodplain (i.e. footings and abutments). Requires least amount of fill in valley. Provides additional hydraulic capacity. Most cost prohibitive of all Options.	Multi-use trail with culverts provides space for active transportation that is more concealed, and therefore possibly less lit with more obstructed sightlines, than the multi-use trail crossing under the bridge in Option 2 to 4. Easier to construct than Option 2 to 4. Coordination with municipal services required. Negative impacts include interaction with natural environment (lesser extent relative to Option 1). Limited placement of permanent structures within floodplain (i.e. footings and abutments) Requires less fill than Option 1 and more fill than Option 2 to 4. Provides additional hydraulic capacity. More cost prohibitive than Option 1 and less than Option 2 to 4.
Recommendation	Not carried forward	Not carried forward	Not carried forward	**Recommended**

Very Low Impact (Most Positive)	Fairly Low Impact	Medium Impact	Fairly High Impact	Very High Impact (Least Positive)

The alternative designs for the Black Creek Channel Crossing were compared to select the recommended design for the crossing as shown in **Table 8** and **Table 9.** The recommended design protects for a multiuse trail for pedestrians and cyclists.

8.6 Preferred Design

Based on the evaluation of alternative design concepts and public consultation, the preferred design is to:

+ Extend Portage Parkway from West of the Black Creek to Creditstone Road, via an alignment that recognizes the existing uses and adheres to Transport Canada associated operations, and facilitates a staged development and transformation of the VMC.
+ Accommodate the bridging of Black Creek by implementing a 12m wide ConSpan structure with two separate 4.5m wide culverts, providing for accommodating active transportation/multiuse trail.

The typical cross-sections for the preferred design are shown in **Figure 20** to Error! Reference source not found.**,** and the preferred design can be found in **Figure 23.**

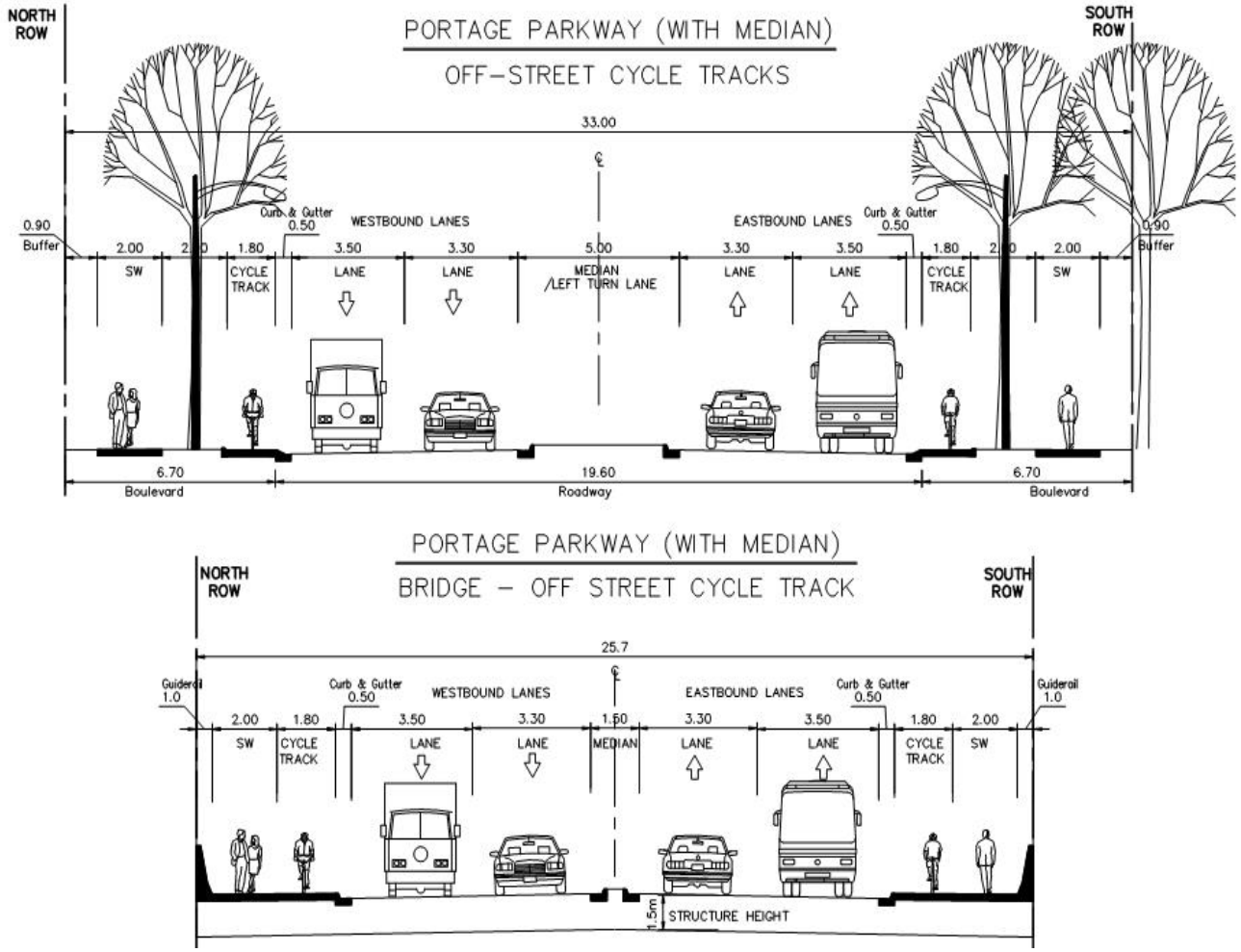


Figure 20: Portage Parkway Preferred Design Typical Cross-Sections

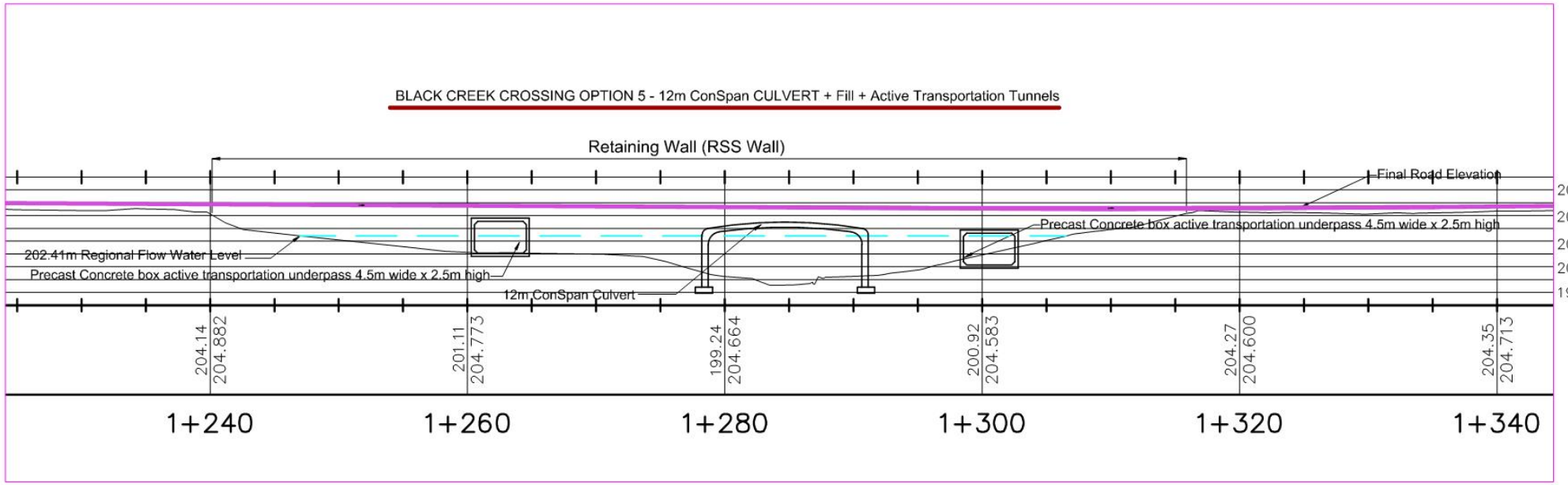


Figure 21: Black Creek Crossing Preferred Design Cross-Section

8.6.1 Structural Design

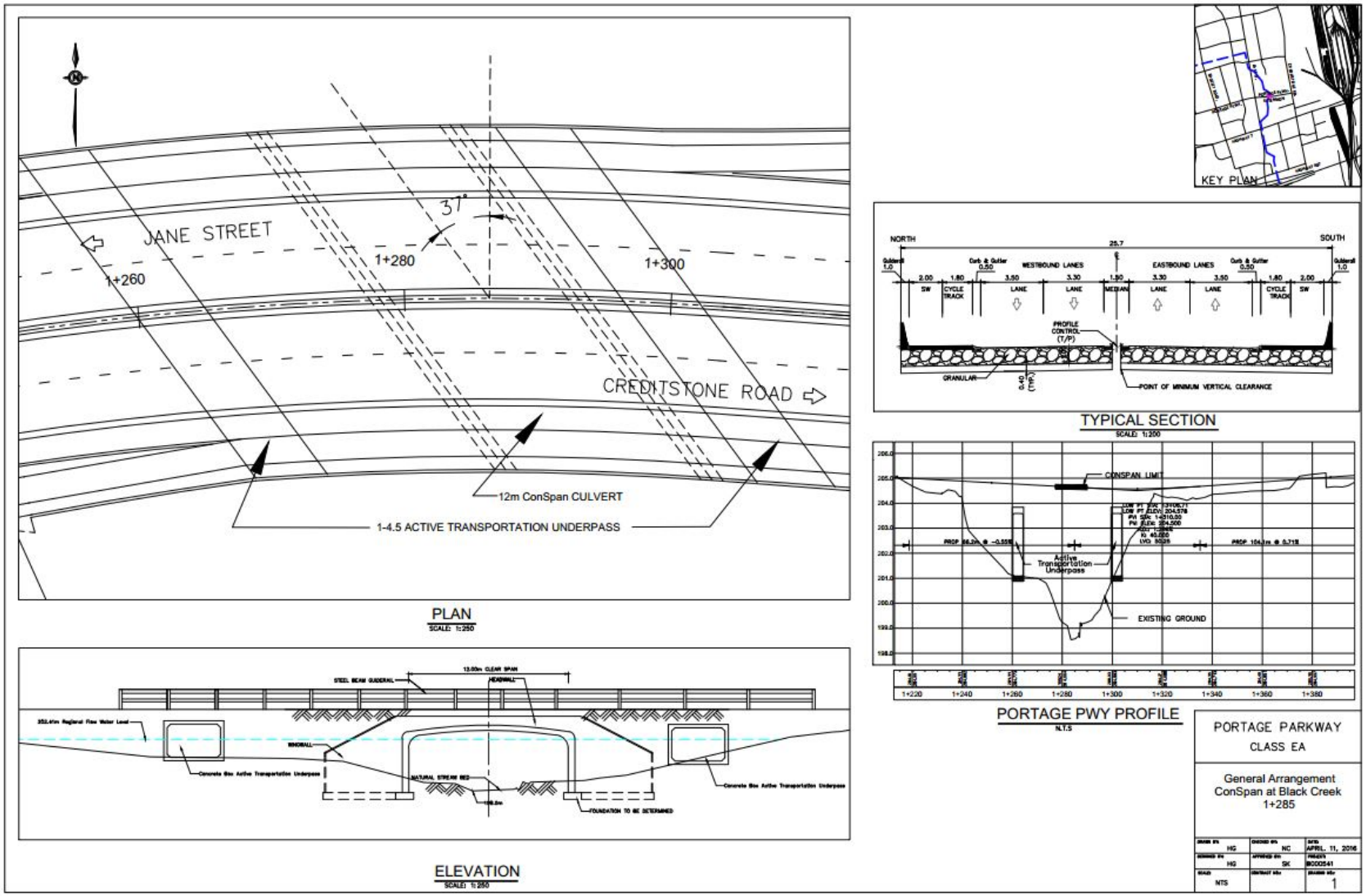


Figure 22: Portage Parkway General Arrangement

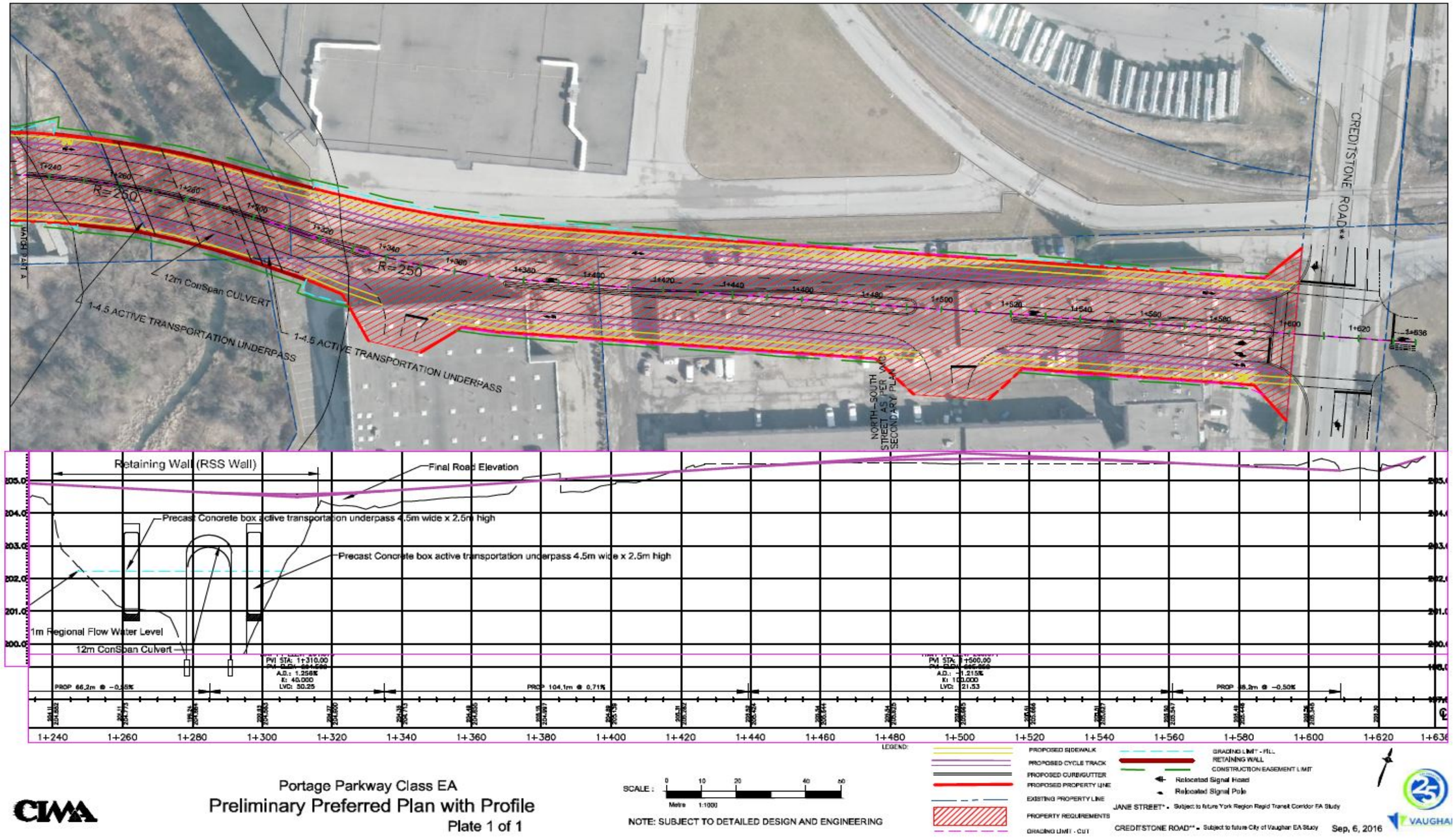


Figure 23: Preferred Design

9. Project Description

This section identifies the main features of the preferred design for the Portage Parkway corridor. Drawings for the preferred design for Portage Parkway are provided in **Figure 23.**

9.1 Design Criteria

Table 10: Design Criteria

Parameter			Unit	Values
Classifications				UCD 60
Design Speed			km/h	60
Number of Through Lanes				4
Design Vehicle				WB-20
Stopping Sight Distance			m	85
Horizontal Alignment	Minimum Radius		m	150
	Minimum Radius with Normal Crown		m	1290
	Minimum Spiral Parameter A		m	90
Vertical Alignment	Grade	Maximum	%	5
		Minimum	%	0.5
	K Value	Crest Curve		13
		Sag Curve		9
Cross-Section	Max. Superelevation		m/m	0.04
	Lane Width	Through Lane	m	3.5 (Outer) 3.3m (Inner)
		Turning Lane	m	3.5
		Bicycle Lane	m	1.5
	Median Width		m	5
	Sidewalk Width		m	2.0
	Cycling Track Width One-Way/(Two-Way)		m	1.8/(3.0)
	Boulevard Width (Planting Area)		m	2.0
	Cross Fall		%	2
Intersection Daylight Triangle			m	15/10
Right of Way	Without Median		m	28
	With Median		m	33

9.2 Plan and Profile

Currently, Portage Parkway is a two-way undivided Major Collector roadway with a maximum speed limit of 50km/h. The horizontal alignment is relatively straight within the study limits, and numerous driveway accesses exist servicing commercial and retail properties.

Portage Parkway from Applewood Crescent to Jane Street is to be widened to 4 through lanes with left turn lanes at intersections. A 1.8m cycle track on each side is proposed at boulevard level and against the curb. A 2.0m sidewalk on each side is proposed just inside the property buffer. The proposed property width is 33m.

The extension from Jane Street to Creditstone Road has a similar cross-section as the widening section, except the right-of-way is narrowed to 25.7m at the creek crossing.

The existing vertical alignment is relatively flat. Some sections have grading less than 0.5%. The proposed vertical alignment is improved with minimum grading 0.5% for the entire study area.

9.3 Drainage and Stormwater Management Plan

For the existing section from Applewood Crescent to Edgeley Boulevard, it is anticipated that the proposed widening will have a negligible effect on the rate of stormwater runoff for this area and a new storm sewer system or enlargement of the existing storm sewers west of Edgeley Boulevard will not be required. However, relocation of catchbasin structures will be required during the detailed design to line up with the edge of the road and the revised profile.

A new local storm sewer system is proposed east of Edgeley Boulevard extending up to and outletting directly into Black Creek. The new local storm sewer system is proposed to help alleviate ponding concerns that the City of Vaughan has noticed along Millway Avenue, south of Portage Parkway. The preliminary design for the new sewer system consists of:

+ 450mm (east of Black Creek) and 675mm (west of Black Creek) diameter storm sewers installed along the south edge of Portage Parkway;
+ Installation at grades of 0.2% to 0.4% in order to maintain the minimum cover of 1.2m at Edgeley Boulevard; and
+ Outlets into Black Creek at an invert elevation of 199.20m.

The City of Vaughan does not require quantity control of stormwater runoff from Portage Parkway prior to discharge to Black Creek, as Black Creek has an existing online stormwater management facility. Quality control of stormwater runoff will be managed through the use of an oil/grit separator prior to discharge into Black Creek. Stormceptors are proposed to provide enhanced level of quality control. Two Stormceptor units are proposed, one for each outlet into Black Creek. The 675mm diameter storm sewer on the west side of Black Creek will be serviced by a Stormceptor STC9000, which will provide 80% removal of Total Suspended Solids (TSS). The 450mm diameter storm sewer

on the east side of Black Creek will be serviced by a Stormceptor STC 4000, which will provide 80% removal of TSS.

Approximately 100m of the eastern portion of the Portage Parkway extension is proposed to drain to the existing storm sewer system on Creditstone Road. Additional catchbasins will be required on Portage Parkway, west of its intersection with Creditstone Road, to connect to the storm sewers in Creditstone Road. A 300mm diameter storm sewer is proposed at a grade of 1.5%. Additional catchbasins between the high points and initial inlet structures, or in between structures, may be required to meet City of Vaughan standards.

For detailed information, the Stormwater Management Report is provided in **Appendix A.**

9.4 Municipal Infrastructure

There is a sanitary sewer along the north side of Portage Parkway. Depending upon the condition of the sewer, it will either be protected or replaced during reconstruction of the roadway. This will be a consideration during detailed design and engineering.

The City has watermains within the study area that may need to be replaced as part of the road construction. The exact requirements for replacing watermains will be examined more closely in the detail design stage.

Water servicing projects were recommended in the VMC Municipal Servicing Class EA Master Plan as part of infrastructure to support new roads identified by the VMC Secondary Plan, including:

+ 300mm diameter watermain along Applewood Crescent (south side of Portage Parkway); and
+ A new 300-400mm diameter watermain along the future Portage Parkway from Jane Street to Creditstone Road, for a total length of approximately 570m.

9.5 Utilities

A number of utilities will require relocation to accommodate the recommended roadway design, such as:

+ Underground bell cable may require relocation where it is needed;
+ Rogers buried fiber may require relocation where it is needed;
+ Enbridge pipe which is significant within the study corridor. The pipes are generally located on the south side of Portage Parkway. The exact locations need to be confirmed in the detailed design;
+ All Stream underground ducts and cable may require relocation where it is needed;
+ PowerStream underground ducts and cable may require relocation where it is needed; and
+ If possible, avoid placement of utilities under planting area.

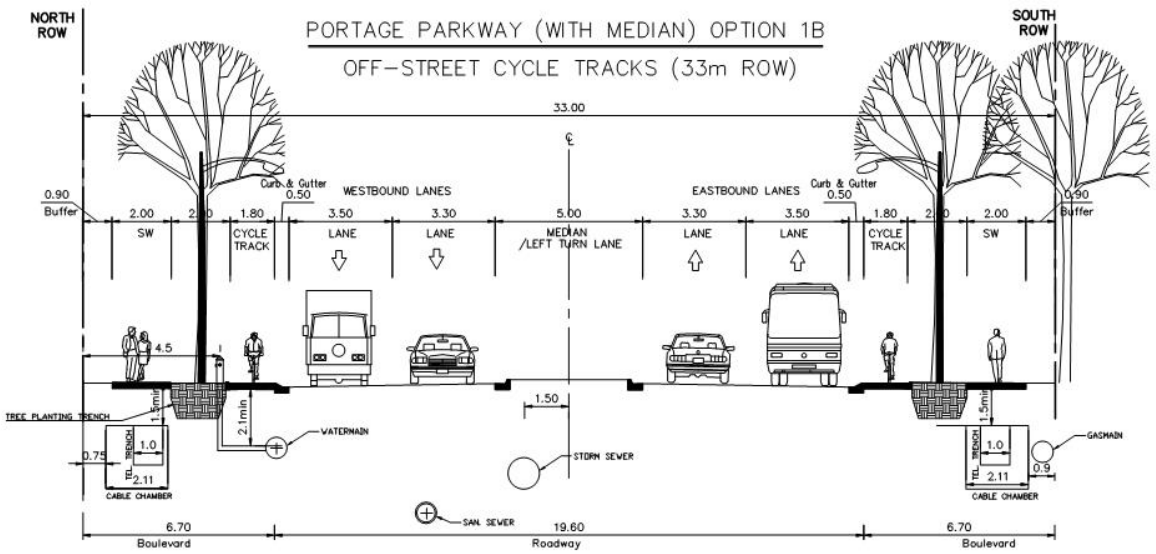


Figure 24: Utilities Location

The proposed utility relocations are shown in **Figure 24**. Placing the cable chamber under the boulevard is preferred, as it is easy to construct and maintain. Placing the cable chamber under the cycle track will not provide flexibility for any future maintenance.

9.6 Cycling and Pedestrian Facilities

9.6.1 Portage Parkway (Part B)

The preferred design includes a 6.7m wide boulevard on the north and south side, which can accommodate both cycling and pedestrian facilities. Within the boulevard, a 2.0m sidewalk, 1.8m cycle track, 2.0m green zone for street trees, and 0.9m buffer are proposed.

9.6.2 Black Creek Channel Crossing

The preferred design of the ConSpan culvert crossing includes a 3.8m wide boulevard on the north and south side, which can accommodate both cycling and pedestrian facilities. Within the boulevard, a 1.8m cycle track and a 2.0m sidewalk are proposed.

9.7 Traffic Signals and Illumination

The intersection at Creditstone Road is proposed to be signalized. The new traffic signal design will be determined in the detail design stage.

The preferred design includes boulevards on both sides of the street which provide street illumination consistent with a Standard Urban streetscape in the City-wide Streetscape Implementation Manual and Financial Strategy.

9.8 Streetscape

The preferred design includes boulevards on both sides of the street and landscape elements where space permits. In facilitating implementation of Standard Urban streetscape, consistent with the City-wide Streetscape Implementation Manual and Financial Strategy, streetscape will function as vital green infrastructure contributing to creating a robust urban canopy, with open planters capturing stormwater and contribute to the overall aesthetics of the road corridor and provide a safe, pedestrian-friendly environment in the broader context of improving Portage Parkway as a multi-modal street. Street furnishings will be coordinated with the VMC Streetscape and Open Space Plan as the project continues through the detailed design stages of the project.

9.9 Driveway Regrading

Road widening will reduce driveway length and increase driveway grading. During reconstruction, all driveways will be regraded to obtain an acceptable grade.

9.10 Property Requirements

In keeping with VMC Secondary Plan polices, the preferred design for the extension from West of the Black Creek to Creditstone Road will require land from properties to establish a new City right-of-way ranging from approximately 25.7m at the Black Creek channel crossing to 33m at signalized intersections. With the exception of the Black Creek channel, all land for this new City right-of-way are in private ownership. The approximate property requirement is 11,432 m^2 and is subject to refinement through the completion of detailed design and engineering.

9.11 Pavement

A pavement design and analysis will be completed for the proposed widening and extension of Portage.

9.12 Traffic Maintenance and Construction Staging

Traffic disruption will be minimized as much as possible during construction. During peak periods, the City will attempt to keep one lane open per direction on Portage Parkway.

Every effort will be made to maintain driveway access during the widening and extension construction period. Driveways may be temporarily closed for short periods. If there are no alternative driveways available, half driveway width closures may be implemented temporarily.

9.13 Capital Cost Estimate

The estimated total project cost associated with the proposed improvements, including engineering, construction, utility relocations and other project costs is approximately:

+ $6,200,000 for Part B, extending Portage Parkway from West of the Black Creek to Creditstone Road. The detailed cost estimate for Part B is shown in **Table 11.**

Table 11: Part B – Detailed Cost Estimate

Part B – Cost Estimate – 1+238 - 1+605 (367m)					
Item No.	**Description**	**Unit**	**Estimated Quantity**	**Unit Price**	**Total Price**
1	Clearing and Grubbing	m^2	12850	$13.50	$173,475
2	Earth Borrow	m^3	14500	$13.00	$188,500
3	Earth Excavation	m^3	12000	$13.50	$162,000
4	Remove Asphalt	m^2	0	$11.50	$0
5	Asphalt HL-1	t	621	$115.00	$71,441
6	HDBC	t	1933	$100.00	$193,270
7	Granular A	m^3	2260	$23.00	$51,980
8	Granular B	m^3	7900	$14.60	$115,340
9	Concrete Sidewalk	m^2	1468	$75.00	$293,600
10	Concrete Median	m^2	810	$200.00	$60,750
11	Asphalt Cycle Track	m	734	$300.00	$220,200
12	Cycle Track Rolled Curb	m	734	$75.00	$55,050
13	Concrete Curb & Gutter	m	1468	$75.00	$110,100
14	Active Transportation Underpass	LS	1	$500,000	$500,000
15	ConSpan	LS	1	$1,000,000	$1,000,000
16	Retaining Wall (RSS Wall)	m^2	600	$800.00	$480,000
17	Concrete Barrier Wall and Counter Balance on Retaining Walls	m	150	$800.00	$120,000
18	Catch Basin	each	20	$3,500.00	$70,000
19	Storm Pipe	m	367	$700.00	$256,900
20	Pavement Marking & Symbols	m	2200	$5.00	$11,000
21	New Traffic Signal Installation	each	2	$250,000	$500,000
22	Street Lighting	m	367	$400.00	$146,800
Sub-Total Construction Cost					**$4,780,406**
Minor Items (20% of Construction Cost)					$956,081.18
Estimated Engineering - Civil, Geo, Etc. (10%)					$478,040.59
Total Construction Cost					**$6,214,528**
Notes: Property cost is not included. COST SUBJECT TO DETAILED DESIGN AND ENGINEERING.					

10. Implementation and Mitigation Plan

The EA study sets out an Implementation and Mitigation Plan facilitating the logical and orderly staging of the widening, extension and improvements. These plans are in accordance with the ongoing and emerging transformation of the VMC with priority to advancing the Portage Parkway Widening and

Easterly Extension to West of Black Creek (Part A)[3], particularly in the vicinity of the mobility hub/VMC subway station.

The implementation plan facilitates the staging of the Portage Parkway Extension from West of Black Creek to Creditstone Road (Part B), commensurate with the relative and anticipated longer term transformation of the VMC east of the Black Creek. More specifically, the interim terminus will be opened and Portage Parkway extended easterly across the Black Creek channel to connect with Creditstone Road.

It is noted that horizontal alignment of the extension, as per the recommended Preliminary Preferred Design, curves south on approach to Creditstone Road adhering to Transport Canada's Grade Crossings Standards (July 2014). A potential re-examining of the framework, street pattern and block organization in an area generally east of Maplecrete Road, west of Creditstone Road and north of Highway 7 in the VMC Secondary Plan should be considered.

Key elements of the plan include and facilitate:

+ New City road public right-of-way and crossing of the Black Creek channel;
+ Programming and allocation of funding for detailed design and engineering;
+ Obtaining approvals (permits, etc.) and acquiring property (where necessary) in a timely manner;
+ Four lane right-of-way extension from the interim terminus west of the Black Creek channel to Creditstone Road;
+ Four lane road bridge crossing of the Black Creek channel;
+ Provision of a signalized intersection with Maplecrete Road (major collector) extension;
+ Signalized intersection with Creditstone Road, as subject to future City of Vaughan EA Study;
+ Design coordination with the Black Creek Renewal EA as it relates to the Black Creek crossing;
+ Provision and opportunity for Active Transportation north-south linkages and facilities; and
+ Coordinating detailed design and construction with intersecting north-south VMC streets as determined through the VMC Secondary Plan approval process.

Table 12 summarizes the mitigation measures and commitments for this Class EA project.

[3] Documentation with respect to Part A is contained in the Portage Parkway Widening and Easterly Extension to West of Black Creek Environmental Study Report (July 2016)

Table 12: Mitigation Measures and Commitments

Issue / Impacts	Approval Agency / Concerned Party	Mitigation Measures / Commitments
Air Quality Temporary construction operations may result in dust production.	Ministry of the Environment and Climate Change (MOECC)	Apply best management practices to manage emissions from construction operations (i.e. construction dust). Please note that the Ministry recommends that non-chloride dust suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures, refer to Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities; Report prepared for Environment Canada (March 2005). Monitoring and mitigation measures will be part of the special provisions to construction tender documents.
Archaeology Underground archaeological resources may be identified during construction activities. These resources may be harmed if not properly identified and protected.	Ministry of Tourism, Culture and Sport (MTCS)	The entirety of the Portage Parkway Municipal Class EA Archaeological Project Area may be considered free from further archaeological concern. No further archaeological assessment of the project area is required. Should deeply buried archaeological resources be identified during ground disturbance activity associated with future development of the study area, ground disturbance activities should be immediately halted and the Archaeology Division of the Culture Programs Unit of the Ministry of Tourism, Culture and Sport notified.
Environmental Site Conditions Contaminated soil may be identified during construction activities.	Ministry of the Environment and Climate Change (MOECC)	Based on the Phase 1 ESA, a Phase 2 ESA is required to support submission of a Record of Site Condition ("RSC") for the study area corridor prior to construction, should a RSC be required. Prior to construction, routine soil sampling along the alignment of the preferred alternative should be conducted for analysis of metals, volatile organic compounds, and petroleum hydrocarbons to assist with the management of excess fill generated during construction activities. The removal, movement and storage of soil should be managed in accordance with the Ministry of the Environment and Climate Change document "Management of Excess Soil – A Guide for Best Management Practices" (2014). Updated Phase 1 ESAs, including a site visit, should be conducted for each property at 20 Barnes Court and 400 Creditstone Road prior to construction. Contact the Ministry's York Durham District Office for further consultation if contaminated sites are present.
Natural Environment Construction activities may harm natural environments such as waterbodies, fish habitats and bird habitations.	Fisheries and Oceans Canada Ministry of Natural Resources and Forestry (MNRF) Toronto and Region Conservation Authority (TRCA)	Conduct breeding bird surveys and further assessment of potential riparian wetlands to inform the design and permitting stages of the project. If construction limits extend to within 30m of a waterbody, a self-assessment for impacts must be conducted for Fisheries and Oceans Canada; If impacts are unavoidable, a Project Review is required for Fisheries and Oceans Canada. Work within watercourses, wetlands or waterbodies must be in compliance with Ontario Regulation (O. Reg.) 166/06 *Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.*

Issue / Impacts	Approval Agency / Concerned Party	Mitigation Measures / Commitments
		Adhere to restricted activity construction timing windows for fish and fish habitat (April 1 to June 30) for works near water. Avoid removal of vegetation during the active season for breeding birds (April 15 to August 15), unless construction disturbance is preceded by a nesting survey conducted by a qualified biologist. Avoid activities resulting in major noise and vibration levels during the breeding bird season (April 15 to August 15). Implement standard best management practices, including sediment and erosion controls and spills prevention, during construction. Consider wildlife passage requirements for typical urban wildlife (e.g., raccoon, coyote and skunk) in the active transportation culverts during detailed design.
Noise Construction activities may cause a temporary increase in noise levels within the study area.	Ministry of the Environment and Climate Change (MOECC) Property Owners	All construction equipment should be properly maintained according to manufacturer's recommendation and be in accordance with the MOECC model municipal noise control by law. If any construction activities involve piling or Blasting, they should be carried out in accordance with OPSS 120 and MOECC NPC-119. Construction equipment or activities typically known to be of annoyance should consider limited operating time within the day time period, maintain an acceptable setback distance from Noise Sensitive Areas (NSAs), carry out additional noise studies or monitoring program, implement noise barriers or investigate alternative construction equipment. Implement a process for dealing with noise complaints during the construction phase.
Property Acquisition Lands are required from properties along the widening and extension of Portage Parkway.	City of Vaughan Property Owners	The City of Vaughan will contact the affected property owners regarding property acquisition, during detail design and prior to construction. It is recommended that the orphan parcel from the property to the east of 7941 Jane Street, resulting from and not otherwise required for the Portage Parkway right-of-way, be considered to form part of the VMC Environmental Open Space, as subject to future process(es) for property acquisition.
Stormwater Management New stormwater infrastructure will be required in order to reduce ponding. Stormwater runoff will need to be managed to control water quality. Potential need for sediment and erosion control.	City of Vaughan Toronto and Region Conservation Authority (TRCA)	A new local storm sewer system is proposed east of Edgeley Boulevard extending up to Black Creek to help alleviate ponding concerns. New catchbasins and maintenance holes are proposed on the east side of Black Creek to intercept stormwater runoff from a portion of the proposed extension of Portage Parkway. The eastern portion of the extension of Portage Parkway is proposed to drain to the existing storm sewer system on Creditstone Road. Additional catchbasins connecting to the storm sewers in Creditstone Road will be required west of the intersection. The connection point and elevation will need to be confirmed during the detailed design. Additional catchbasins may be required between the high points and initial inlet structures or in between structures, in order to meet maximum spacing requirements or provide improved collection of stormwater runoff (should be included in the detailed design).

Issue / Impacts	Approval Agency / Concerned Party	Mitigation Measures / Commitments
		Quality control of stormwater runoff will be managed through the use of an oil/grit separator prior to discharge into Black Creek. Two Stormceptor units are proposed, one for each outlet into Black Creek. The 675mm diameter storm sewer on the west side of Black Creek will be serviced by a Stormceptor STC9000, which will provide 80% removal of Total Suspended Solids (TSS). The 450mm diameter storm sewer on the east side of Black Creek will be serviced by a Stormceptor STC 4000, which will provide 80% removal of TSS. The final design of the Stormcepter units will be based on the drainage areas determined during the detailed design. During detailed design, consider relocation of Oil Grit Separator (OGS) units out of the valley and closer to the roadway. TRCA will have an opportunity to review the final recommendation for OGS units during detail design. Ultimate placement of the culvert trails should consider the various storm levels. Erosion protection will be required at the outfall locations. Provide TRCA with drawings demonstrating a multi-barrier approach to erosion and sediment control.
Traffic Management, Access and Parking Traffic operations will be restricted and driveway access will be reduced during construction.	Ministry of the Environment and Climate Change (MOECC) City of Vaughan York Region Property Owners Road Users	The City of Vaughan will keep one (1) lane per direction open during construction. During detail design, the new intersection of Portage Parkway with Creditstone Road will require a redesign of the access for the existing development on the east side of Creditstone Road. 7941 Jane Street access includes: • Relocated access north on Jane Street permitting right-in/right-out and left-in movements (left-out restricted). • Full moves access to Portage Parkway at the east property limits. • Opportunity for additional westerly access restricted to right-in/right-out only movements to be further investigated through future processes. • All access to Jane Street is subject to the findings of York Region's future Rapid Transit Corridor. Any significant modification to the project or change in the environmental setting for the project which occurs after the filing of the ESR must be reviewed by the proponent and an addendum to the ESR shall be written.[4] Submit an application to York Region for Corridor Control Permits with all necessary information for the Region to review, including detailed engineering design, construction plan, traffic management plan, etc. A construction staging plan will be developed during detail design.
Trees and Landscape	City of Vaughan	Trees removed during construction will be replaced.

[4] Mitigation measures and commitments as per the Portage Parkway Widening and Easterly Extension to West of Black Creek Environmental Study Report (July 2016)

Issue / Impacts	Approval Agency / Concerned Party	Mitigation Measures / Commitments
Trees may be harmed or may require removal during construction.		A landscape plan will be developed during detail design. Grade changes and construction activities that could cause soil compaction should be kept away from trees as much as possible. If roots will be damaged by excavation equipment, it is better to cut roots cleanly with sharp pruning tools rather than allow them to be torn by large equipment. Equipment and materials should not be stored near trees and equipment should not be left idling where exhaust could burn foliage In developing the site, new potential targets will be introduced and this must be considered when developing a tree preservation plan.
Utility Relocation A number of utilities will require relocation to accommodate the recommended roadway design.	City of Vaughan All Stream Bell Canada Enbridge Gas Hydro One Networks Powerstream Rogers Cable York Region	Utilities will be relocated prior to construction.
Waste Disposal Waste will be produced during construction which requires proper disposal.	Ministry of the Environment and Climate Change (MOECC)	All waste generated during construction must be disposed of in accordance with the Ministry requirements.
Permits Based on detail design plans, control permits may be required.	Ministry of Transportation Ontario (MTO) Ministry of the Environment and Climate Change (MOECC) Toronto and Region Conservation Authority (TRCA)	Send detail design plans to the Ministry of Transportation to determine the need for control permits. Confirm the need for permits with approval authorities during detail design. Obtain permit for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (Ontario Regulation 166/06) from TRCA. Obtain Permit to Take Water from the Ministry of Environment and Climate Change. The following will be required at detailed design for works within TRCA Regulated area: • Evaluation of design and construction options to minimize ecological impacts during and post construction • Quantification of terrestrial and aquatic impacts within the valley lands associated with Black Creek • Terrestrial and aquatic restoration plans prepared with the objective of compensation for defined impacts confirmed through additional studies as noted as well as for the restoration of disturbed areas • Updated and detailed topographic surveys, including clear delineation of the watercourse banks, to inform design, ESC planning, access, restoration, etc.

Issue / Impacts	Approval Agency / Concerned Party	Mitigation Measures / Commitments
		• Detailed construction staging and phasing plans to demonstrate how implementation will minimize ecological risk and impacts • A comprehensive erosion and sediment control report and plan consistent with the requirements as outlined in TRCA's Erosion and Sediment Control Guideline for Urban Construction (available online at www.sustainabletechnologies.ca)

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Appendix A – Technical Reports

Appendix B - Consultation

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