West 5th Street Corridor Improvements from Stone Church Road West to Rymal Road West Municipal Class Environmental Assessment

Environmental Study Report

Stantec

Prepared for:
City of Hamilton

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West 5th Street Corridor Improvements from Stone Church Road West to Rymal Road West Environmental Assessment

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West 5th Street Corridor Improvements from Stone Church Road West to Rymal Road West Environmental Assessment

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Executive Summary

Introduction

The City of Hamilton has undertaken a Schedule 'C' Municipal Class Environmental Assessment (MCEA) to assess and plan improvements along West 5th Street from Stone Church Road West to Rymal Road West. This project is intended to bring the road to a Complete Streets urbanized cross section, with provision for active transportation. The project aligns with City plans and policies aimed at enhancing multi-modal transportation, safety, and mobility. The Environmental Study Report (ESR) documents the planning process, design options, technical evaluations, and consultation activities that led to the preferred design solution.

Existing Transportation Conditions

The existing West 5th Street consists of two travel lanes and lacks consistent active transportation infrastructure. The road is not at capacity; however, nearby developments are underway on West 5th Street and on adjacent roads. Safety concerns have been identified due to the lack of connectivity for active transportation and speeding on the road. There are limited sidewalks and no designated cycling facilities, creating barriers to pedestrian and cyclist travel. The corridor is not served by transit routes. A Multi-Modal Level of Service (MMLOS) assessment confirmed the need for improvements to better serve all users, including pedestrians, cyclists, transit riders, and drivers.

Alternative Solutions

The study reviewed various options to address the corridor's deficiencies. Initial alternatives focused on the need for capacity improvements, safety enhancements, and multi-modal integration. The alternatives considered included maintaining the existing corridor, operational improvements, improving other roadways, and improving West 5th Street. The preferred solution involved widening the road to improve traffic operations while integrating active transportation and stormwater management elements.

Alternative Design Concepts

Several road design options were evaluated to determine the best way to implement the preferred solution. Design alternatives were assessed using criteria such as transportation performance, natural and cultural environment impacts, property needs, cost, and public input. Active transportation alternatives included combinations of sidewalks, multi-use paths, uni-directional cycletracks, and on-road cycling lanes.

Recommended Design Concept

The recommended design includes adding a two-way centre left turn lane and maintaining one travel lane in each direction. Active transportation improvements include continuous sidewalks and a uni-directional cycle track in each direction. Stormwater infrastructure such as catch basins will be incorporated into the design.

These improvements aim to support all road users while accommodating planned residential and employment growth.

Project Description

The project will include a new road configuration, improved stormwater management infrastructure, and coordination with utility upgrades. The right-of-way will be expanded where necessary to accommodate sidewalks and the cycle track infrastructure. Construction phasing will be considered during detailed design to minimize disruption. The preliminary cost estimate has been developed, and property impacts are being assessed to identify any acquisition needs.

Summary of Consultation

Engagement with the public, agencies, and Indigenous communities has been integral to the study. Two Public Information Centres (PICs) were held to share information and collect feedback. Indigenous communities were consulted in accordance with the Environmental Assessment Act. Feedback highlighted the importance of safety at intersection road crossings, continuous sidewalks and bike lanes, and environmental protection. The final design reflects input received and demonstrates responsiveness to local concerns.

Impacts and Mitigation

Potential impacts from the project include vegetation loss, disturbance to wildlife habitat, and temporary construction effects such as noise and dust. The road improvements along West 5th Street are primarily within the existing road allowance and the natural features that overlap with the Preferred Plan footprint are limited. No significant impacts to archaeological or cultural heritage features are expected, although vibration monitoring has been recommended at two built heritage resource properties to occur in detailed design due to vibration sensitivity. Mitigation measures include erosion and sediment controls, wildlife timing restrictions, replanting strategies, and groundwater protection. A monitoring plan will be developed to ensure mitigation is effective throughout construction.

Next Steps

The Environmental Study Report will be available for a 30-day public review period. Following this, the City will advance the project to detailed design and property acquisition phases. Construction timelines will be confirmed based on funding and approvals. Members of the public may submit comments during the review period or request a higher level of environmental assessment on the grounds of potential adverse impacts to constitutionally protected Indigenous or treaty rights.

Once the 30-day public review period ends, there is a mandatory waiting period before any construction or project activities can begin. During this time, the project proponent must wait at least 30 additional days to allow for final processing and consideration of all comments received.

If a request for a Section 16 order was submitted during the review period, the project cannot proceed until that request is fully resolved and any conditions are met. This waiting period ensures that all public input has been properly considered and that any outstanding environmental concerns are addressed before the project moves forward. Only after this waiting period is complete, and provided no unresolved Section 16 orders exist, can the City begin implementing the project (i.e., detailed design and construction).

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Abbreviations

CA	Conservation Authority
City	City of Hamilton
CMP	Cycling Master Plan
CLB	Complete-Livable-Better
EA Act	Ontario Environmental Assessment Act
ERIS	Environmental Resource Information Services
ESR	Environmental Study Report
ESA	Environmental Site Assessment
HTMP	City of Hamilton Transportation Master Plan
HVA	Highly Vulnerable Aquifer
LID	Low Impact Development
MECP	Ministry of the Environment, Conservation and Parks
MNR	Ministry of Natural Resources
OGS	Ontario Geological Survey
OTM	Ontario Traffic Manual
PIC	Public Information Centre
PPS	Provincial Policy Statement
ROW	Right-of-Way
Stantec	Stantec Consulting Ltd.
SWM	Stormwater Management
TMP	Transportation Master Plan

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1 Introduction

The City of Hamilton (City) retained Stantec Consulting Ltd. (Stantec) for the West 5th Street Corridor Improvements from Stone Church Road West to Rymal Road West. This project is a Municipal Class Environmental Assessment located within the City of Hamilton. The study area is shown in **Figure 1**.

This project is being undertaken as part of the Municipal Engineers Association (MEA) Class Environmental Assessment (Class EA) process, as updated in 2023) and is addressing the requirements of a Schedule 'C' Class EA. The purpose of this Environmental Study Report (ESR) is to present and evaluate the feasible alternative designs to determine the preferred alternative to improve the West 5th Street corridor.

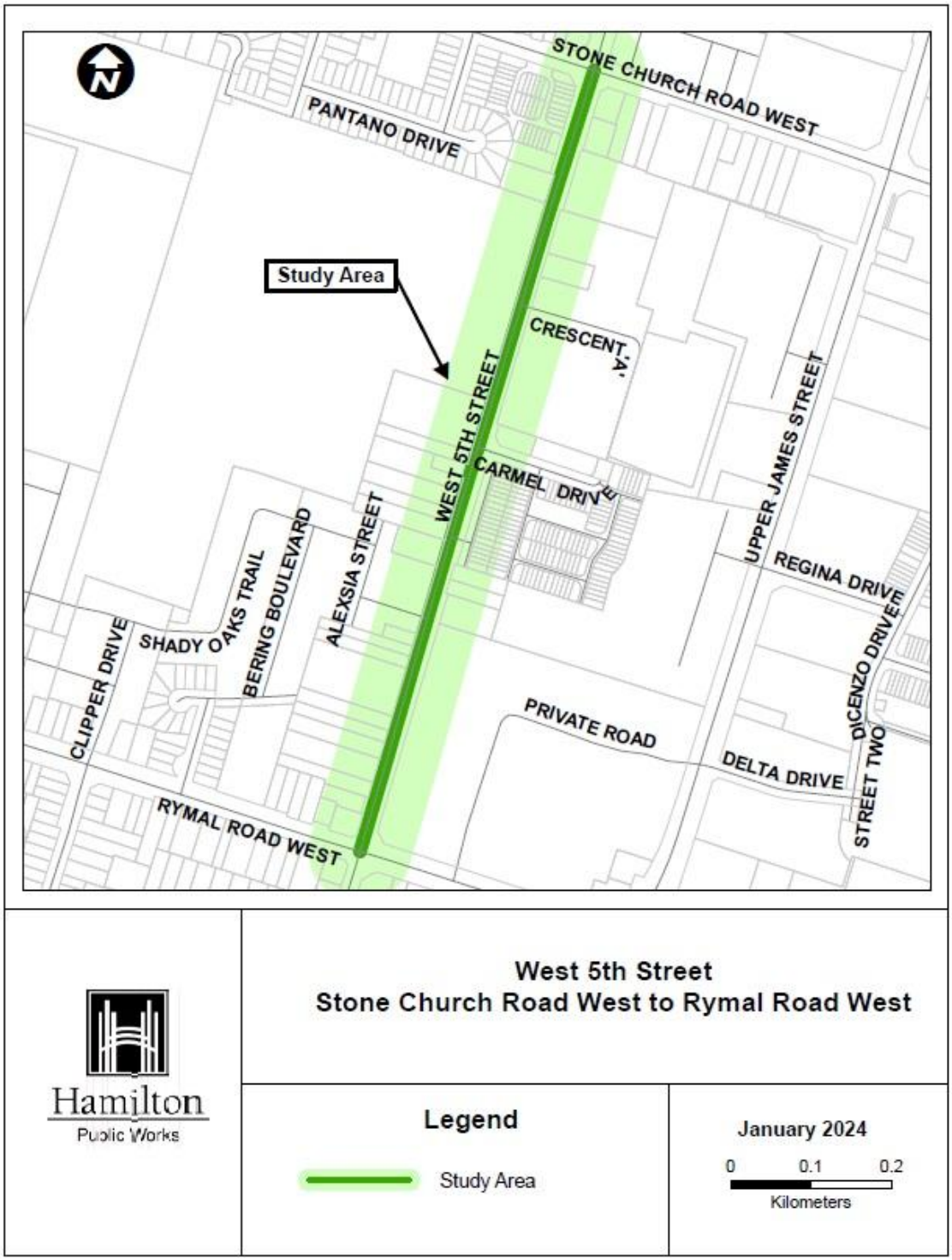
The ESR also describes consultation with review agencies and the public that has occurred prior to confirmation of the preferred alternative design solution.

1.1 Study Area

The study area includes West 5th Street from Stone Church Road West to Rymal Road West in Hamilton, Ontario.

West 5th Street Corridor Improvements from Stone Church Road West to Rymal Road West Environmental Assessment

Figure 1: Study Area



1.2 Background and Purpose

1.2.1 Municipal Class Environmental Assessment Process

The Ontario Environmental Assessment Act (EA Act) provides for the protection, conservation, and management of the environment in Ontario. The EA Act applies to municipalities and to activities including municipal road projects. Activities with common characteristics and common potential effects may be assessed as part of a "class" and are therefore approved subject to compliance with the pre-approved Class EA process. The Ministry of the Environment, Conservation and Parks (MECP) is responsible for administration of the EA Act.

The Municipal Class Environmental Assessment (MCEA) is an approved Class EA process that applies to municipal infrastructure projects including roads, water, and wastewater. This process provides a comprehensive planning approach to consider alternative solutions and evaluate their impacts on a set of criteria (e.g., transportation, environmental, social, engineering considerations) and determine mitigating measures to arrive at a preferred alternative for addressing the problem (or opportunity). The Class EA process involves a rigorous public consultation component that includes various provincial and municipal agencies, Indigenous communities, and the public, at each of the project stages.

This study follows the Municipal Engineers Association MCEA process for a Schedule 'C' project, as outlined in the MCEA 2024 document (October 2000, as amended in 2007, 2011, 2015 and March 2023), due to the type of project, anticipation for potential effects, and estimated capital cost. A Schedule 'C' project involves either the construction of new facilities or major modifications to existing facilities. Modifications to existing facilities could include road widening, intersection improvements, and/or other operational improvements.

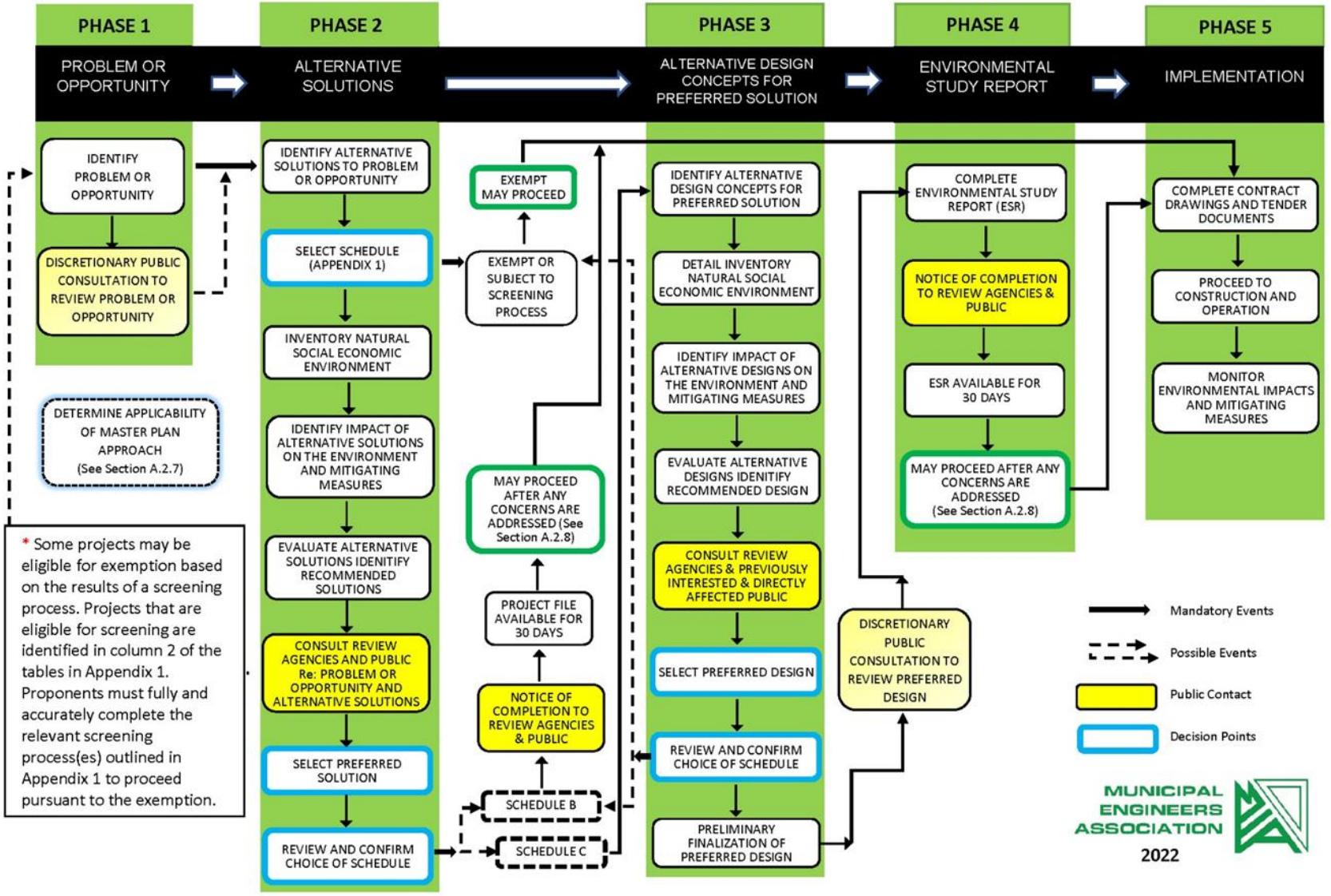
Schedule 'C' projects have the potential for significant environmental impacts and must follow the full planning process specified in the MCEA document, including Phases 1 through 4. The project is documented in an Environmental Study Report (ESR), which is then filed for review by the public, review agencies, and Indigenous communities.

Figure 2 illustrates the Class EA planning process and identifies the steps considered mandatory for compliance with the requirements of the EA Act. The following provides an overview of the five-phase planning process:

- Phase 1 – identify the Problem and Opportunity statement
- Phase 2 – identify and evaluate alternative solutions
- Phase 3 – identify and evaluate alternative design concepts for the preferred solution

- Phase 4 – prepare design plans and Environmental Study Report (ESR) for a minimum 30-day public review period
- Phase 5 –This phase involves detailed design and the preparation of contract/tender documents followed by construction, operation, and monitoring.

Figure 2: Municipal Class Environmental Assessment Process



1.2.2 Section 16 Order Requests

Interested persons may provide written comments to the City of Hamilton for a response using the following contact information:

Olivia Stanciu
Project Manager – Capital Infrastructure Planning
City of Hamilton
71 Main Street West, Hamilton, ON L8P 4Y5
Email: Olivia.Stanciu@hamilton.ca

In addition, a request may be made to MECP for an order requiring a higher level of study (i.e., requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g., require further studies), only on the grounds that the requested order may prevent, mitigate, or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests should include the requester contact information and full name for the Ministry.

Requests should specify what kind of order is being requested (i.e., request for additional conditions or a request for an individual/comprehensive environmental assessment), how an order may prevent, mitigate, or remedy those potential adverse impacts, and any information in support of the statements in the request. This will ensure that the Ministry is able to efficiently begin reviewing the request. The request should be sent in writing by mail or by email to:

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

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto, ON, M4V 1P5
EABDirector@ontario.ca

Requests should also be sent to the City of Hamilton contact above by mail or by email.

2 Planning and Policy Context

2.1 Provincial Planning Statement

The Provincial Planning Statement (PPS), 2024, is a streamlined province-wide land use planning policy framework that replaces both the *Provincial Policy Statement* (2020) and *A Place to Grow: Growth Plan for the Greater Golden Horseshoe* (2019), while building upon housing-supportive policies from both documents. The PPS is a policy statement issued under the authority of Section 3 of the *Planning Act* and came into effect on October 20, 2024. Section 3 of the *Planning Act* requires that decisions affecting planning matters be consistent with policy statements issued under the Act.

The PPS provides direction on matters of provincial interest related to land use planning and development, including transportation infrastructure, while protecting the environment and resources, and ensuring opportunities for employment and residential development. Adherence to the numerous policies in the PPS are considered while planning for transportation infrastructure.

This ESR meets the objectives of the PPS by adhering to the MCEA process, and local and provincial land use considerations.

The project makes efficient use of the existing West 5th Corridor by using the existing right of way (ROW) to the extent possible and adds to the City's active transportation network by facilitating multiple modes of travel through the study area.

2.2 City of Hamilton Official Plans

The City of Hamilton is divided into two Official Plans; the Urban Hamilton Official Plan, 2013 (UHOP), office consolidation 2022, and the Rural Hamilton Official Plan, 2012 (RHOP), office consolidation 2021. The Official Plans are a guiding document which outlines goals and policies to move the City towards achieving its visions for the future. They provide a long-term vision for the physical development of the City to achieve social, economic and environmental objections. The Official Plans are one of the key implementation mechanisms for the City's Growth-Related Integrated Development Strategy (GRIDS) and other corporate initiatives including Master Plans, and the Social Development Strategy. The framework of the Official Plan focuses on creating a compact and healthy urban community with a balanced transportation network that offers choice so people can walk, cycle, take transit or drive, and recognize the importance of goods movement to the local economy. GRIDS focuses on integrated growth management for land use and community services to achieve the City's Vision through the long-term development of land uses and services based on environmental priorities, social issues, economic opportunities and population studies.

The UHOP applies to lands within Hamilton's urban area, focusing on accommodating growth with major roads, transit, and full municipal services. In contrast, the RHOP covers the rural areas, emphasizing the preservation of agricultural activities and

resource-related uses. Together, these plans guide sustainable development and resource protection in both urban and rural Hamilton.

The *City of Hamilton Urban Official Plan* has three primary land use designations along West 5th Street:

- Neighbourhoods - residential uses throughout much of the West 5th Street corridor.
- Open Space - William Connell Park
- Mixed-Used Medium Density areas to the southeast of West 5th Street

West 5th Street is a minor arterial road within Urban Hamilton. The Official Plan also sets out right of way widths. The designated width of the right of way on West 5th Street in the study area south of Stone Church Road is 26.2 m.

The Official Plan adheres to the Provincial Policy Statement (PPS, 2024) by encouraging growth and transportation corridors in urban settlement areas to make efficient use of land and natural resources.

2.3 City of Hamilton Transportation Master Plan

The City of Hamilton's 2018 *City in Motion Transportation Master Plan* (HTMP) provides the framework which guides future transportation-related studies, projects, initiatives, and decisions. The HTMP considers population and employment growth with current and projected transportation trends for the 2031 planning horizon and beyond. The key objective of the HTMP is to provide a comprehensive and attainable transportation blueprint for Hamilton, that balances all modes of transportation to become a healthier city. Three desired outcomes were established to form the foundation and framework of the HTMP:

1. Sustainable and Balanced Transportation System: a balanced system characterized by connectivity, accessibility, choice and equitable accommodation for all modes of transportation, and for users regardless of age, ability, or income

2. Healthy and Safe Communities: a transportation system that encourages active lifestyles, provides safe movement of people, and reduces dependence on single occupancy vehicles to achieve a safe and supported, healthy city with a high quality of life

3. Economic Prosperity and Growth: enabled by a transportation system providing efficient access for industries and businesses to markets, employees, suppliers, and customers. Provide high quality multi-modal choices, enabling households to reduce overall transportation costs

The *Transportation Master Plan* provides general guidance for transportation. Planned bicycle lanes were proposed along West 5th Street, with a linkage to a nearby proposed multi-use pathway connecting West 5th Street and Upper James Street.

2.3.1 City of Hamilton Active Transportation Plans

The City of Hamilton's 2009 *Cycling Master Plan: Shifting Gears* (CMP) was included in the 2018 TMP and highlights improvements to the cycling network supported by the HTMP to implement a multi-modal shift in how Hamiltonians move through the City. The CMP outlines a transportation network that provides a connected, balanced and sustainable system, focused on moving people through active transportation and transit, to reduce the use of single-occupancy vehicles. The City of Hamilton strives to provide the safest roadways for all users, to create a healthy lifestyle for the community.

The 2018 Transportation Master Plan/ Cycling Master Plan, and the Hamilton Accelerated Active Transportation Master Plan (2024-2028, approved 2024) also upholds the need for a bicycle lane to be included in the West 5th Street reconstruction.

2.4 Other Previous Studies

2.4.1 Mewburn and Sheldon Master Servicing Plan (2004)

A servicing plan was completed for the Mewburn and Sheldon Neighbourhoods, which identified a preferred servicing for future land use consisting of proposed mixed-residential and commercial area located between West 5th Street and Upper James Street. The planning area corresponds to the developments identified as Mixed-Use Medium Density in the City Official Plan within the study area.

A Stormwater management pond was added as part of the Mewburn and Sheldon Master Servicing Plan (2004) and added with the park development.

- The EA Concluded that two stormwater ponds should be constructed for quantity and peak flow control. One near the existing sewer terminus in the study area, plus use of the existing natural pond in William Connell Park with minor modifications
- A sanitary trunk main routed north along West 5th Street and the following the proposed Street E and Street A within the Mewburn Neighbourhood Plan, and
- A storm sewer trunk main routed north along a street in the Sheldon Neighbourhood Plan, east through William Connell Park, north along West 5th Street, and then following the proposed Street "D" and Street "A" in the Mewburn Neighbourhood Plan.

The Plan identified that "the sanitary and storm trunk sewers will necessitate the reconstruction of West 5th Street for implementation. At the time of the report, West 5th Street was proposed for upgrading to a 3-lane roadway with an urban cross section. The City was requested to consider if the roadway improvements to West 5th Street should be undertaken at the same time as the implementation of servicing to capture cost savings and efficiencies.

Since the 2004 EA, the study area has undergone development, and the former natural pond at William Connell Park has undergone upgrades to accommodate stormwater.

A review of existing conditions drainage and stormwater is included in **Section 3.4.2**.

2.4.2 South Mountain Area Transportation Master Plan

The South Mountain Area Transportation Master Plan (SMATMP) in Hamilton, Ontario, provides a comprehensive framework for guiding transportation planning and infrastructure improvements across the city's southern region. Aligned with Hamilton's broader "City in Motion" vision, the plan supports the development of a sustainable, efficient, and inclusive transportation network that accommodates anticipated growth, encourages active transportation, and enhances public transit accessibility. A key element of the SMATMP is the implementation of Complete Livable Better Streets, which prioritize safety, accessibility, and multimodal transportation.

Among the specific recommendations, the SMATMP identified West 5th Street for reconstruction (SMATMP 2000, reviewed in 2006). It proposed the development of an urban cross-section with a 30-metre road allowance and a widening from two to three lanes to include a center turning lane. This improvement was scheduled to follow the completion of William Connell Park. The park was completed in 2018, however the proposed street configuration change has yet to occur.

2.5 Review of SMATMP Phases 1 and 2

The SMATMP Master Plan is over 10 years old, and a centreline turn lane was proposed at that time. As the timing for the project was to be completed to coincide with the park re-development, limited additional evaluation was completed for this portion of the SMATMP.

Outside of the study limits areas to the north of Stone Church Road on West 5th Street were converted to a continuous turn lane. A continuous two-way left turn lane will be carried forward as one of the Alternative Solutions to be considered within the Environmental Assessment.

Since the time of the EA, some nearby studies were completed associated with the reconstruction of William Connell City-Wide Park and the associated SWM pond improvements. Where available the study findings have been incorporated into the EA inventory to inform the study.

The current Environmental Assessment is seeking to re-confirm the preferred plan for reconstructing West 5th Street.

3 Existing Conditions

3.1 Transportation

Stantec completed a *Multimodal Transportation Assessment for the West 5th Street corridor* (Stantec, 2024). The assessment examined the existing conditions of transportation operations within the corridor. The geometric properties of this corridor were evaluated with deficiencies and areas of improvement were identified.

The transportation section below provides an overview of the existing conditions findings. A copy of the full Multi-Modal Transportation Assessment is available within **Appendix A.** Reference this report for more information about existing transportation conditions.

3.1.1 Road Network

The road network in the study area consists of the following:

- **West 5th Street –** West 5th Street is a north-south oriented 2-lane road classified as a minor arterial road with a speed limit of 50 km/h. West 5th Street has signalized intersections with both Stone Church Road West and Rymal Road West, featuring a center two-way left-turn lane and an unsignalized intersection with Carmel Drive (stop-controlled on Carmel Drive). The condition of the surface of West 5th Street is in a state of deterioration, with drainage issues identified at multiple locations within the corridor.
- **Stone Church Road West** – Stone Church Road West is an east-west oriented 3-lane road including a 2-way left-turn lane classified as a minor arterial road with a speed limit of 50km/h. Within the study area, it has a signalized intersection with West 5th Street, featuring auxiliary left-turn lanes in both directions.
- **Rymal Road West –** Rymal Road West is an east-west oriented 5-lane road cross section including a 2-way left-turn lane classified as a major arterial road with a speed limit of 50km/h. Within the study, it has a signalized intersection with West 5th Street, featuring auxiliary left-turn lanes in both directions.

3.1.2 Intersections

There are two current signalized intersections in the study area; one at West 5th Street/Stone Church Road at the north end of the study area, and the other at West 5th Street /Rymal Road at the south end of the study area. There is one stop-controlled intersection at West 5th Street/Carmel Drive (stop control on Carmel Drive) approximately halfway through the study area.

3.1.3 Road Safety

No historical collision data was reviewed as part of this study, and no historical trend concerns were identified by the City of Hamilton. There was no guiderail or alternate road safety features included within the study area.

3.1.4 Transit Network

The study corridor is not served by any transit routes and has no dedicated bus stops within its length. Transit routes on Stone Church Road West, Rymal Road West, and Upper James Street are accessible from residences within the study corridor.

3.1.5 Active Transportation

A sidewalk is provided along sections of the east side of the West 5th Street study corridor. The surface of the majority of the sidewalk is asphalt with shorter sections of concrete and is considered to be in poor condition within the study area. There is poor drainage and ponding in multiple locations, and there are several areas of localized fracturing. Through much of the study area, the sidewalk is not separated from the roadway by a curb or gutter.

There is no dedicated cycling infrastructure within the study corridor. Cyclists within the study corridor would be expected to share lanes with vehicular traffic. The deteriorating pavement and drainage deficiencies makes it a less desirable route for cyclists.

3.1.6 Existing Traffic Volumes

Traffic data from June 5th 2024 was provided by the City of Hamilton to determine the weekday AM and PM peak hour for both the West 5th Street/Stone Church Road and West 5th Street /Rymal Road intersections.

The AM peak hour was determined to be 8:00 AM to 9:00 AM for both intersections. The PM peak hour was determined to be 4:45 PM to 5:45 PM for both intersections.

Existing Traffic Volume data is included in The Transportation Assessment report in **Appendix A.**

3.1.7 Multi-Modal Level of Service (MMLOS) Assessment

An analysis of the existing accommodation for other modes of transportation was performed. The evaluation of the multimodal level of service (MMLOS) was completed according to the City of Hamilton's Transportation Assessment Guidelines, which prescribe the use of Multi-Modal Level of Service Guidelines created by the Ontario Traffic Council (OTC) in February 2022 as the method for analyzing service for different categories of road users. According to these guidelines, MMLOS is defined as, "…a

methodology for analyzing the level of service experienced by users of different modes along street segments and at intersections." MMLOS is cored using letter grades from 'A' to 'F', indicating the most and least favourable conditions, respectively.

For this study, both the study area intersections of West 5th Street and Stone Church Road West, and West 5th Street and Rymal Road West, as well as the segment of West 5th Street between these two intersections were analyzed to determine their current MMLOS. The results of this analysis are included in **Appendix A** and summarized in the following sections.

3.1.7.1 Intersection MMLOS: West 5th Street and Stone Church Road West

The intersection of West 5th Street and Stone Church Road West was evaluated as a signalized intersection according to the targets of a 'Neighbourhood Connector' area. This area type is defined as a corridor that carries high volumes of traffic between neighbourhoods with dedicated active transportation facilities. Though neither West 5th Street nor Stone Church Road West are classified as truck routes, both are classified as arterial roads which support a significant volume of traffic. Additionally, bike lanes are present on three of the four approaches at this intersection. The level of service evaluation results is provided in **Table 1.**

Table 1: Intersection Level of Service Evaluation Results: West 5th Street and Stone Church Road West

Mode	Pedestrian	Cycling	Public Transit	Trucks	Cars
Target LOS	E	D	B	D	D
Actual LOS	E	E	E	B	C

The following opportunities for improvement were identified:

- **Cycling:** The Actual LOS E could be improved to D by implementing any of the following improvements (independently, or desirably in combination):
  - Having at least half of the intersection approaches include enhanced cycling features
  - Decrease the average effective turning radius to below 14.9 m
  - Decrease the signal cycle length to 90 seconds or less
  - Decrease the number of uncontrolled conflicts to 1.0 conflicts per approach
- **Public Transit:** The Actual LOS of E could be improved to B by implementing any of the following improvements in combination (none are sufficient independently):
  - Transit priority measures at a minimum of one but not all approaches for transit

- Reduced transit delay
- Improved pedestrian LOS (achieving public transit LOS B requires a combination of these improvements; maximizing the improvement for one feature, lessens the level of required improvement for other features)

The results of the MMLOS will be considered during the design phase of the preferred cross-section for the study corridor as part of the EA Study. Every effort will be made to have the corridor design reflect the multi-modal features sufficient to achieve OTC's target LOS score.

3.1.7.2 Intersection MMLOS: West 5th Street and Rymal Road West

The intersection of West 5th Street and Rymal Road West was also evaluated as a signalized intersection according to the targets of a 'Neighbourhood Connector' area. Unlike Stone Church Road West, Rymal Road West is classified as a full-time truck route with no time-based or vehicle-based restrictions. In addition to this intersection's proximity to nearby commercial areas, Rymal Road is also significant to several residential neighbourhoods to which it provides access. The connections to both commercial and residential areas indicate a significant portion of traffic on Rymal Road West is commuter-based. Bike lanes are not present on any of the approaches at this intersection. The level of service evaluation results is provided in **Table 2**.

Table 2: West 5th and Rymal Road West Intersections Level of Service

Mode	Pedestrian	Cycling	Public Transit	Trucks	Cars
Target LOS	E	D	B	D	D
Actual LOS	E	D	D	B	C

The following opportunities for improvement were identified:

- **Public Transit:** The Actual LOS of E could be improved to B by the following improvements in combination (none are sufficient independently):
  - Transit priority measures at a minimum of one but not all approaches for transit
  - Reduced transit delay
  - Improved pedestrian LOS

Achieving public transit LOS B requires a combination of these improvements; maximizing the improvement for one feature, lessens the level of required improvement for other features.

The results of the MMLOS will be considered during the design phase of the preferred cross-section for the study corridor as part of the EA Study. Every effort will be made to

have the corridor design reflect the multi-modal features sufficient to achieve OTC's target LOS score.

3.1.7.3 Segment MMLOS: West 5th Street

The study corridor was evaluated as a "Neighborhood Boulevard" according to the definition included in the OTC's *Multi-modal Level of Service Guidelines*. Segments with this classification are intended to provide access to a suburban neighborhood for a variety of different modes of transportation. Traffic volume on these roads is lower than on "Neighborhood Connectors" as the priority for these segments is to balance the needs of pedestrian, cyclists, and vehicles. The level of service evaluation results is provided in **Table 3**.

Table 3: West 5th Street Level of Service

Mode	Pedestrian	Cycling	Public Transit	Trucks	Cars
Target LOS	D	B	D	N/A	E
Actual LOS	F	F	N/A	C	C

The following opportunities for improvement were identified:

- **Cycling:** The Actual LOS F could be improved to D by implementing any of the following improvements:
  - Introduce on-street bike lane with buffer
  - In boulevard cycling facility
- **Pedestrian:** The Actual LOS of F could be improved to D by implementing any of the following improvements (independently, or desirably in combination):
  - Filling in missing gaps in the sidewalk network by AODA compliant sidewalk (1.8m side) with at least 1.6m wide buffer from adjacent travelled lane
  - Introduce a midblock pedestrian crossing

The results of the MMLOS will be considered during the design phase of the preferred cross-section for the study corridor as part of the EA Study. Every effort will be made to have the corridor design reflect the multi-modal features sufficient to achieve OTC's target LOS score.

3.2 Socio-Economic Environment

3.2.1 Existing Land Use

The study area along West 5th Street, from Stone Church Road to Rymal Road, features predominately residential land uses, with William Connell City Wide Park as a notable recreational mid-block feature.

Existing land use designations include Neighbourhood, Open Space and Mixed Use – Medium Density:

- Neighbourhood – this is where the majority of Hamiltonians reside. They primarily consist of residential land uses and complementary facilities and services. The Neighbourhoods element of the urban structure permit a range of commercial uses including retail stores and services.
- Open Space – these areas are designated as public or private areas greater than 4 hectares where the predominant use of or function of the land is for recreational activities, conservation management and other open space uses. William Connell City Wide Park is the only Open Space within the study area.
- Mixed Use – Medium Density – these areas permit a full range of retail, service commercial, entertainment, and residential accommodation at a moderate scale and seek to increase the proportion of multiple storey and mixed use buildings that have retail and service commercial uses at grade. These land uses are located at the south end of the study area on West 5th Street near Rymal Road West.

The west side of West 5th Street includes primarily low density residential homes, a church, and the park. The east side of the street is undergoing a shift towards multi-storey buildings and townhomes.

3.2.2 Future Land Use

As further described in **Section 2,** while there are currently active developments within the study area, future land uses envisioned as part of Hamilton's urban and rural planning and transportation planning strategies include additional residential developments, commercial expansions, improved public transit services and active transportation, and enhanced public spaces to support balanced growth and community engagement.

3.2.3 Noise

Stantec completed a Noise and Vibration Assessment study for this project to identify potential noise receptors and complete an impact assessment.

The assessment identified ten (10) receptors representing the Outdoor Living Areas (OLA) of existing dwellings within the Study Area. The dwellings were identified from a

review of aerial imagery, Stantec's site observations, and local land use zoning maps. The receptors representing the OLA are located at 1.5 m above the existing ground, 3 m away from the dwelling, and are typically located in the backyard.

Apartment balconies, cemeteries, parks and picnic areas that are not part of OLAs, as well as commercial and industrial properties, do not qualify as NSAs. As part of the municipal land use planning process, the developer evaluates road traffic noise impacts and mitigation requirements for noise sensitive developments. Accordingly, the report did not evaluate road traffic noise impacts at noise sensitive developments.

Existing noise barriers were identified along West 5th Street just south of Rymal Road that were made of wood and are approximately 2 m tall.

Results of the noise and vibration assessment are included in **Section 9.2.**

3.2.4 Pedestrian and Cycling Facilities

As discussed in **Section 3.1.5,** there are limited facilities for pedestrians and cyclists in the West 5th corridor, and none currently present in within the study area.

North of the study area there are on-road bicycle lanes on either side of West 5th Street north of Stone Church Road West, and along either side of Stone Church Road West. A sidewalk is provided along sections of the east side of West 5th Street.

3.3 Cultural Environment

3.3.1 Archaeological Resources

A Stage 1 Archaeological Assessment (Stage 1 AA) (PIF # P394-0127-2024) was completed for this Class EA in accordance with the *Standards and Guidelines for Archaeological Assessments* (2011) and the *Ontario Heritage Act* (1990). The purpose of a Stage 1 AA is to determine the potential for the presence of known and/or potential archaeological resources within the study area based on a review of relevant background information and through visual site inspections.

A property site inspection was conducted on October 16, 2024 for the Stage 1 AA, focusing on the current West 5th Street ROW and adjacent properties. The Stage 1 archaeological assessment determined that approximately 80.8% of the study area retains low to no archaeological potential due to prior disturbances and past assessments that recommended no further work (AMICK 2024; Earthworks 2022; Lincoln 2019; Archeoworks 2019; New Directions 2016; Detritus 2011; ASI 2009).

In accordance with Sections 1.3.2 and 7.7.4 of the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), no additional archaeological investigation is recommended in these disturbed areas.

The previous assessments of the Hess site (AhGx-677) completed by ARA in 2017 and 2019 overlap with the current study area (approximately 0.4%). This site has been determined to retain further cultural heritage value or interest and has been recommended for further work: Stage 4 long-term avoidance and protection (ARA 2017). No construction work for the West 5th Street project is required in the area specified.

The remaining 18.8% of the study area retains archaeological potential and will require a Stage 2 assessment. In accordance with Section 1.3.1 and Section 7.7.4 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), Stage 2 archaeological assessment, both test pit survey and pedestrian survey, is recommended for portions of the study area retaining archaeological potential. A Stage 2 archaeological assessment is anticipated to be undertaken in detailed design for areas with archaeological potential, if impacted by the project.

The Stage 1 AA report was submitted to MCM, and the document was re-submitted in July 2025 with all comments addressed. the document is identified as pending review as of September 2025, with acceptance into the Ontario Public Register of Archaeological Record to follow.

Ground disturbing construction work shall not occur until final acceptance of the report into the record, anticipated to be received during detailed design.

A copy of the Stage 1 Archaeological Assessment report is included in **Appendix C.**

3.3.2 Built Heritage Resources and Cultural Heritage Landscapes

The requirement to consider cultural heritage in MCEAs is discussed in the *Municipal Class Environmental Assessment Manual* (MCEA Manual) (Municipal Engineers Association 2024). The MCEA Manual considers cultural heritage, including potential Built Heritage Resources (BHRs) and potential Cultural Heritage Landscapes (CHLs), as well as archaeological resources.

Stantec completed the Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes (the Checklist) published by the MCM in 2022. A copy of the checklist is provided in **Appendix D**. Given the presence of a designated heritage property within the project limits at 1073 West 5th Street (the Parsonage), further evaluation was required for potential impacts and mitigation measures.

Stantec completed a Cultural Heritage Report: Existing Conditions and Preliminary Assessment – Municipal Class Environmental Assessment, West 5th Street which included historical research, municipal and agency data requests, and a vehicular windshield and pedestrian survey on April 25, 2025 from publicly accessible roadways.

No CHLs were identified in the study area.

Four BHRs identified:

- BHR-1 – 1002 West 5th Street – Identified during field review
- BHR-2 – 63 Stone Church Road West – Current candidate for listing on the Register
- BHR-3 – 1073 West 5th Street – Designated under Part IV of the Ontario Heritage Act
- BHR-4 – 1236 West 5th Street – Identified during field review

Of the following, no impacts are anticipated to BHR-1 and 2 as all structures are located at least 50 m beyond the area of construction activities.

Potential for direct or indirect impacts was identified for BHR-3 and BHR-4 based on the proposed ROW ultimate width of 26 m. Evaluation results and mitigation measures are included for those properties in **Section 9.4.2.** A copy of the Cultural Heritage Report is included in **Appendix D**.

3.4 Physical Environment

3.4.1 Physiology, Geology and Soils

The study area for the Project is within the Haldimand Clay Plain, as identified by Chapman and Putnam (1984). The Haldimand Clay Plain, which was previously the bed of Lake Warren, consists of till that emerges from layers of stratified clay in low morainic ridges (Chapman and Putnam 1984). The northern portion of the region has more varied topography than the southern part (Chapman and Putnam 1984).

Soil types for the study area referenced by the Stage 1 archaeological assessment indicate that soils are of a lacustrine silty clay variety, specifically Brantford and Beverly. Additionally, bands of lacustrine silty clay loam such as Toledo and Alberton intersect the study area. Both Brantford and Beverly soils have developed at well-drained locations on lacustrine deposits of silty clay loam and silty clay.

Toledo soils are poorly drained silty clay loams and silty clays that are found in low or level areas in association with the better drained Beverly and Brantford series. With poor drainage, large portions of the Toledo soils were cleared and used mainly for pasture and hay. Drainage improvement was necessary if high and profitable crop yields were desired.

Alberton soils include alluvial silt loam and silty clay loam sediments of variable drainage, which have been deposited in most of the stream valleys of Ancaster, Glanford, and Binbrook townships. The lack of development in these soils indicates that they had been deposited fairly recently, likely laid down during flood periods. Most of the valleys in which the Alberton soils occur are subject to periodic flooding which increases the risks involved with crop production.

3.4.2 Groundwater and Drainage

As part of the study, the existing drainage conditions were examined and documented. The 1 km section of road in the study area has multiple high points, resulting in five outlets from the West 5th Street right-of-way (ROW). Stantec's Stormwater Management (SWM) assessment (Stantec, 2025) provides a summary of the existing drainage conditions through the study area and outlines the specific SWM/drainage criteria that will need to be considered in the design. Existing drainage patterns and stormwater infrastructure have been documented, as well as the SWM criteria and ultimate conditions based off the assumptions listed in the SWM reports of the surrounding lands.

The background review included previous stormwater strategies including the *William Connell City Wide Park SWM1 design report* and the *Mewburn Sheldon Servicing Master Plan*, among others mentioned in the SWM Assessment.

A description of the existing catchments is provided in the SWM Assessment report in **Appendix G**. The outlet locations are illustrated in **Figure 3.**

- Outlet A – Catchment E1: 0.33 ha
- Outlet B – Catchment E2: 1.85 ha
- Outlet C – Catchment E3: 3.75 ha
- Outlet D – Catchment E4: 2.07 ha
- Outlet 6 – Catchment E5: 1.76 ha

Throughout the study area, there are several existing centreline and entrance culverts. No site inspection was completed for these culverts as they are either new crossings or are assumed to be replaced/abandoned as part of the West 5th Street urbanization/improvements. No entrance culverts have been documented.

Within the study area, there are multiple sections of existing storm sewer. It is expected that ultimately West 5th Street will have a new storm sewer the length of the study area, and that some of these existing stretches of existing storm sewer listed below will be incorporated into the ultimate system. The relevant catchment areas have been illustrated in **Figure 3**.

- South of the study area is an 825mm storm sewer in the Rymal Road West ROW which collects the drainage from existing catchment E1.
- At STN 2+95 is a suspected storm sewer which drains to the proposed Sheldon neighbourhood. It replaces the previously existing culvert at STN-2+83. This sewer consists of 3 manholes and 3 lengths of pipe leading into the Sheldon neighbourhood from the West 5th Street ROW

- There is a single length of storm sewer at the intersection of Carmel Dr and West 5th Street (STN-5+26). As designed for the 1155 West 5th Street development, the sewer flows towards West 5th Street. However, the Mewburn Pond drainage plan treats the entire development at 1155 West 5th Street as one catchment. Therefore, it is assumed that under existing conditions, the sewer does not flow to the West 5th Street ROW. The status of this length of storm sewer should be confirmed during the West 5th Street storm sewer design to determine whether the flows from this area need to be accommodated. Regardless, this area has been accommodated in SWM2.

- There is an existing 1800 mm x 1200 mm length of pipe that crosses the West 5th Street ROW at STN 7+10, which extends from the SWM1 outlet to the SWM2 inlet. This length of sewer discharges SWM1 to the Mewburn subdivision.

- At the north end of the study area is two lengths of pipe (375 mm flowing to 450 mm) and two manholes which discharge to the 1200 mm storm sewer in the middle of the West 5th Street & Stone Church Road West intersection. This system captures the flows from existing drainage area E5.

Under existing and ultimate conditions, every catchment is within the Upper Ottawa Creek subwatershed, itself part of the Red Hill Creek watershed. These catchments ultimately discharge to the Mount Albion Pond.

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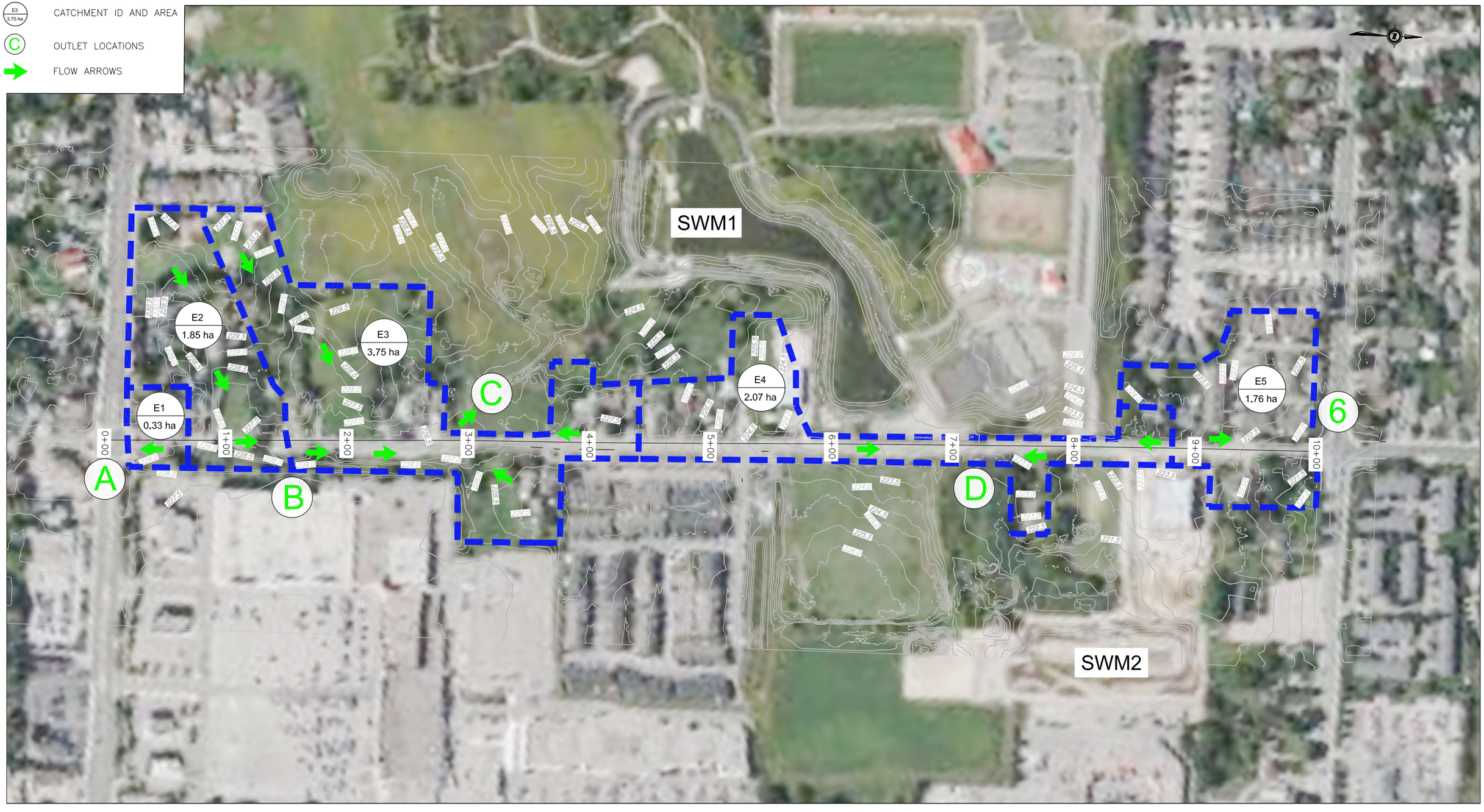
SUPPLEMENTAL LEGEND:

- CATCHMENT AREA
- CATCHMENT ID AND AREA (E3 / 3.75 ha)
- OUTLET LOCATIONS (C)
- FLOW ARROWS



EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION

DETAILS	
DESIGN	BR
DRAWN BY	MK
CHECKED	
APPROVED	
DATE	AUGUST 2025

No.	REVISIONS	DATE	CONSULTANT

CONSULTANT OR DIVISION

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ENGINEER'S STAMP

Hamilton

SCALE: N.T.S.

TITLE: WEST 5TH STREET EA

WEST 5TH STREET
SWM ASSESSMENT FIGURE 1

PROJECT No. 165001381

SHEET No. Figure 3

PLAN FILE No.

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3.4.3 Source Water Protection

The study area is located in the Halton-Hamilton Sourcewater Protection Region, and within the Hamilton Sourcewater Protection area. The Provincial Source Protection Information Atlas (MECP, 2025) was reviewed for sensitive groundwater features.

The following sensitive groundwater features were considered:

- Intake Protection Zones (IPZ) – none present in the study area.
- Highly Vulnerable Aquifers (HVA) – A portion of the study area near Rymal Road West and Stone Church Road West is within an HVA. The Study Area is located within a highly vulnerable aquifer (HVA) with a vulnerability score of 6. Based on this vulnerability score, under the Clean Water Act (2006) list of prescribed drinking water threats, there are no activities that would result in a significant chemical and/or pathogen threat if present at the proposed work area. Therefore, the proposed work within the Study Area is not considered a threat to drinking water supply systems.
- Wellhead Protection Areas (WHPA) – none present in the study area. No municipal water supply wells are present.
- Significant Groundwater Recharge Areas (SGRA) – none present in the study area

The Study Area is located within the physiographic region defined by Chapman and Putnam (2007) as the Haldimand Clay plains, which is characterized by clay plains and till moraines. This is consistent with the surficial geology mapping by the Ontario Geological Survey (OGS 2010) which characterizes the area as fine-textured glaciolacustrine deposits consisting of silt and clay with minor sand. Bedrock near the Study Area is described by Armstrong and Dodge (2007) as Lockport dolostone.

A review of the Ministry of the Environment, Conservation and Parks (MECP) Water Well Records (WWRs) (MECP 2024) indicated about 24 WWRs within 100 m of the Study Area. Based on review of the WWR, the overburden ranges from about 2.4 m to 15.2 m thick, predominately consisting of clay with some occurrences of silty material and underlain by limestone and dolostone bedrock.

Based on review of nearby properties and the City's water supply details, the majority of adjacent properties are supplied by municipal water supply and no longer rely on private water supply wells. This is consistent with the MECP WWR which indicated wells completed from 1949 to 1961, with no recent supply wells in the last 50+ years.

A review of the City's water supply details indicated 2 properties with occupied residences without a known water supply (1043 West 5th St. and 1172 West 5th St.). This could be an error in the dataset as provided to Stantec; however, it is recommended that for these two locations, a notification letter be delivered prior to

construction to inform the landowner of the proposed work and request details of their water supply.

Potential for contamination is not included within the scope of this assignment. A Phase One Environmental Site Assessment (ESA) may be recommended to be completed in Detailed Design.

3.5 Natural Environment

Stantec completed the West 5th Street *Natural Environmental Assessment Report* which provided an overview of natural environment legislation, the background review, fieldwork results and an impact assessment.

A preliminary review of natural environmental features was undertaken through a background review of available secondary sources to assess the existing environmental conditions within the study area. This included applicable policies and documentation through the City of Hamilton and Province of Ontario. Satellite imagery, and other relevant mapping and existing records. Information gathered during the background review was used to identify potentially significant natural heritage features within the study area.

The study team conducted field investigations in Fall 2024, and in Spring/ Summer (June, July and August 2025) to confirm the findings of the background review, assess existing conditions, establish a better understanding of potential impacts to natural environment features in the study area, and help determine appropriate mitigation measures. The fieldwork visits are identified in **Table 4**.

Table 4: Summary of Natural Environment Field Investigations

Type of Field Work	Date(s) of Field Work
Vegetation Surveys	
Preliminary Ecological Land Classification (ELC)	October 17, 2024
Summer Botanical and ELC Confirmation	August 6, 2025
Wildlife Surveys	
Breeding Bird Surveys	June 2, 2025
	June 28, 2025
Significant Wildlife Habitat Assessment	During vegetation surveys
Incidental Wildlife Observations	During all field visits
Fish and Fish Habitat	
Aquatic Habitat Assessment	October 17, 2024

A summary of the background review and field investigation findings are included in the following sections. The report is located in **Appendix F.**

3.5.1 Physical Geography and Landscape Ecology

The study area is located within Ecoregion 7E: Lake Erie-Lake Ontario, more specifically in the Niagara Ecodistrict (7E-5). This Ecodistrict is characterized predominantly of fine-textured, calcareous, glaciolacustrine deposits. Land use is largely developed/active agriculture, pastures or abandoned fields, as well as settlements and associated infrastructure throughout. Within the West 5th Street study area properties have been developed, or they are adjacent to commercial and residential properties. There is no active cropland within the study area.

3.5.2 Significant Natural Areas

Significant natural areas may include Provincially Significant Wetlands, Areas of Natural and Scientific Interest (ANSIs), Provincial Parks, Conservation Reserves, or known areas of Significant Wildlife Habitat (SWH) if they overlap with a study area.

Intermittent watercourses to the West of West 5th Street are within the Hamilton Conservation Authority (HCA) Limit.

The Natural Heritage System identified on Schedule B within the Urban Hamilton Official Plan (UHOP) is an overlay and not a designation. Core Areas as including “key natural heritage features and key hydrological features, as well as other locally and provincially significant natural areas. There are no terrestrial core areas identified on Schedule B of the City of Hamilton’s UHOP, however the watercourses are core areas identified as “Key Hydrologic Features – Streams”. There is a “Linkage” identified West of West 5th Street, but it has been recently developed and is no longer present.

No Provincially Significant Wetlands, ANSIs, Provincial Parks, or Conservation Reserves within the study area.

3.5.3 Species at Risk and Species of Conservation Concern

The background review identified that there are records of twenty-one (21) Species at Risk (SAR) and thirteen (13) Species of Conservation Concern (SOCC) that overlap with the study area. The list of these species is presented in **Table 5** and **Table 6** respectively.

Further details on the findings of SAR and SOCC identified in the study area, including habitat descriptions and assessment results can be found in the *Natural Environment Assessment Report* in **Appendix F.**

Table 5: Background Review of SAR in the Study Area

Group	Common Name	Scientific Name	SARO Status	COSEWIC	SARA Status	Prov. S-RANK
Amphibian	Jefferson Salamander	*Ambystoma jeffersonianum*	END	END	END	S2
Birds	Barn Swallow	*Hirundo rustica*	SC	THR	THR	S4B
Birds	Bobolink	*Dolichonyx oryzivorus*	THR	THR	THR	S4B
Birds	Canada Warbler	*Cardellina canadensis*	SC	THR	THR	S5B
Birds	Cerulean Warbler	*Setophaga cerulea*	END	THR	THR	S2B
Birds	Chimney Swift	*Chaetura pelagica*	THR	THR	THR	S3B
Birds	Eastern Meadowlark	*Sturnella magna*	THR	THR	THR	S4B,S3N
Birds	Least Bittern	*Ixobrychus exilis*	THR	THR	THR	S4B
Birds	Louisiana Waterthrush	*Parkesia motacilla*	SC	SC	SC	S3B
Birds	Red-headed Woodpecker	*Melanerpes erythrocephalus*	END	END	END	
Birds	Wood Thrush	*Hylocichla mustelina*	SC	THR	THR	S4B
Mammals	Eastern Small-footed Myotis	*Myotis leibii*	END	-	-	S2S3
Mammals	Little Brown Myotis	*Myotis lucifugus*	END	END	END	S3
Mammals	Northern Myotis	*Myotis septentrionalis*	END	END	END	S3
Mammals	Tricolored Bat	*Perimyotis subflavus*	END	END	END	S3?
Mammals	Eastern Red Bat	*Lasiurus borealis*	END	-	-	S4

Group	Common Name	Scientific Name	SARO Status	COSEWIC	SARA Status	Prov. S-RANK
Mammals	Hoary Bat	*Lasiurus cinereus*	END	-	-	S4
Mammals	Silver-haired Bat	*Lasionycteris noctivagans*	END	-	-	S4
Vascular Plants	American Columbo	*Frasera caroliniensis*	END	END	END	S2
Vascular Plants	Butternut	*Juglans cinerea*	END	END	END	S2
Vascular Plants	Spotted Wintergreen	*Chimaphila maculata*	THR	THR	THR	S1

Notes:
SC = special concern
THR = threatened
END = endangered
- = not listed and/or ranked
1 Provincial S-ranks (MNR 2025c)
2 As listed in the Species at Risk in Ontario (SARO) List (MECP 2025)
3 As listed under Schedule 1 of the Species at Risk Act (SARA) (ECCC 2025)

Table 6: Background Review of SOCC in the Study Area

Group	Common Name	Scientific Name	SARO Status	COSEWIC	SARA Status	Prov. S-RANK
Reptiles	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield population	*Pseudacris maculata* pop. 1	-	THR	THR	S4
Reptiles	Northern Map Turtle	*Graptemys geographica*	SC	SC	SC	S3B
Reptiles	Snapping Turtle	*Chelydra serpentina*	SC	SC	SC	S4
Reptiles	Eastern Milksnake	*Lampropeltis triangulum*	NAR	SC	SC	S4
Birds	Black-crowned Night Heron	*Nycticorax nycticorax*	-	-	-	S3B, S2N, S4M

Group	Common Name	Scientific Name	SARO Status	COSEWIC	SARA Status	Prov. S-RANK
Birds	Caspian Tern	*Hydroprogne caspia*	-	-	-	S3B, S5M
Birds	Common Nighthawk	*Chordeiles minor*	SC	SC	SC	S4B
Birds	Eastern Wood-Pewee	*Contopus virens*	SC	SC	SC	S4B
Birds	Peregrine Falcon	*Falco peregrinus*	SC	NAR	NAR	S4B
Birds	Tufted Titmouse	*Baeolophus bicolor*	-	-	-	S3
Birds	Upland Sandpiper	*Bartramia longicauda*	-	-	-	S2B
Insects	Monarch	*Danaus plexippus*	SC	END	END	S2N, S4B
Vascular Plants	Perfoliate Bellwort	*Uvularia perfoliata*	-	-	-	S1S2

Notes:
SC = special concern
THR = threatened
NAR = not at risk
1 Provincial S-ranks (MNR 2025c)
2 As listed under Species at Risk in Ontario (SARO) (MECP 2025)
3 As listed under Schedule 1 of the Species at Risk Act (SARA) (ECCC 2025)

Habitat for the following SAR was identified as potentially occurring in the Study Area based on the results of the background review and field investigations:

- SAR Bats: Seven (7) SAR bats (Little Brown Myotis, Northern Myotis, Tri-coloured Bat, Eastern Small Footed Myotis, Eastern Red Bat, Hoary Bat, and Silver-haired Bat) have the potential to roost in trees > 10 cm in diameter at breast height (DBH), shrubs, and in buildings in the Study Area.
- Chimney Swift: Residential and commercial buildings in the Study Area have the potential to provide suitable chimneys for Chimney Swifts to nest. There is low potential for Chimney Swift to use trees for nesting due to the species preference for chimneys.

Habitat for the following SOCC was identified during the detailed SOCC habitat screening as potentially occurring in the Study Area based on the results of the background review and field investigations:

- Snapping Turtle: Suitable overwintering habitat was observed for Snapping Turtle in the stormwater management pond; however, Stormwater Management Ponds are not considered Significant Wildlife Habitat
- Monarch: Monarch was observed in the Study Area during August 7, 2025, botanical site visit. Up to 50 Common Milkweed plants (Monarch's larval host plant) were observed in the MEMM3 section of the THDM4-1/MEMM3 community

3.5.4 Significant Wildlife Habitat Screening

The potential presence of SWH in the Study Area was determined using the criteria outlined in the *SWH Technical Guide* (MNR 2000) and the *SWH Criteria Schedules for Ecoregion 7E* (MNR 2015). SOCC are also included in the SWH screening. The only SWH category identified in the study area was “Special Concern and Rare Wildlife Species” which identified that monarch was observed as noted above.

3.5.5 Vegetation Communities and Vascular Plants

The study area is located within the Niagara Forest Section of the Deciduous Forest Region and Ecoregion 7E: Lake Erie-Lake Ontario (MNRF 2023a). Forest communities in the Niagara Forest Section of the Deciduous Forest Region are dominated by broadleaved trees such as beech, sugar maple, basswood, red maple, red oak, white oak, and bur oak. The Niagara Forest Section of the Deciduous Forest Region contains the main distribution in Canada of black walnut, sycamore, swamp white oak, and shagbark hickory, as well as more widely distributed butternut, bitternut hickory, rock elm, silver maple, and blue beech.

3.5.5.1 Vegetation Communities

Vegetation community mapping for the study area was conducted according to the *Ecological Land Classification* (ELC) *System for southern Ontario* and where appropriate, the updated ELC Catalogue (2008). Vegetation communities were delineated on satellite photographs and verified in the field. Provincial significance of vegetation communities was based on the rankings assigned by the Natural Heritage Information Centre (NHIC). Approximately three-quarters of the area have been converted to pasture and cropland. Approximately 22% of the Niagara Ecodistrict supports natural cover, which is mostly comprised of deciduous forests scattered throughout the landscape.

Location information for the ELC communities can be found in the *Natural Environment Existing Conditions Report* in **Appendix F**.

3.5.5.2 Vascular Plants

A list of vascular plant species identified in the study area was compiled during vegetation surveys conducted during field investigations.

The 2022 City of Hamilton EIS Guidelines recommend three season botanical surveys to be completed in spring (May to early June), summer (July to August), and fall (September to October). Two botanical surveys were completed: October 17, 2024 and August 6, 2025. Based on results from the first visit in October, it was determined that a two season inventory would be sufficient to capture vegetation due to the limited natural features in the project extent, and that a survey in summer would best target peak growing season for most species.

In general, the purpose of May to early June surveys is to capture spring ephemeral species that are present in more established deciduous forest and woodland communities which were absent from the Study Area. May to early June surveys also tend to miss identifying wetland plant species, because wetland species tend to grow later in the season.

Through these investigations, approximately 57 vascular plants were recorded in the study area (35 native species, 22 exotic species and not native to Ontario). All native species recorded have a provincial ranking S4 or S5 (common in Ontario). All species observed, have a CC value below 8. There were several native species planted in the THDM4-1/MEMM3 community including Tulip Tree, Eastern Hemlock, and Wild Bergamot. Tulip Tree is identified as a locally rare species in the Natural Areas Inventory (HCA 2014).

3.5.6 Wildlife and Wildlife Habitat

3.5.6.1 Breeding Birds

A total of 17 bird species were observed in the Study Area during breeding bird surveys on June 2, 2025 and June 28, 2025. There was suitable breeding habitat available for all species in the Study Area with exception of Ring-billed Gull. All species observed have provincial breeding status ranks of S5 (Secure—Common, widespread, and abundant in the province) or S4 (Apparently Secure—Uncommon but not rare).

Barn Swallow (a provincial special concern species and a federally threatened species) was observed flying over BBS2 during the June 2, 2025, survey. There was no suitable breeding habitat observed from the road right-of-way (ROW); however, there is potential to Barn Swallow to breed in buildings outside of the ROW.

No migratory bird nests were identified in the project ROW. Migratory birds and their nests are protected under the *Migratory Birds Convention Act*, 1994 (MBCA) and are afforded protection on all lands. Structures within the study area may provide nesting habitat for Barn Swallow, which is a SOCC and protected by the MBCA.

3.5.6.2 Incidental Wildlife Observations

Incidental observations of Green Frog and Monarch were identified during fieldwork. Green Frog area common in Ontario. Monarch is an identified SOCC.

3.5.6.3 Bat Maternity Roosts

There were no suitable bat maternity roosts identified in or directly adjacent to the ROW during the bat maternity roost habitat assessment completed during leaf-off on October 17, 2024. The addition of new migratory SAR bat species (Eastern Red Bat, Hoary Bat, and Silver-haired Bat) that are more abundant across the Study Area increases the probability of finding SAR bats in areas not previously flagged using the Ministry of Natural Resources (MNR) survey protocols for Little Brown Myotis, Northern Myotis & Tri-Colored Bat, and introduces different habitat requirements for the new species (potential roosting habitat in foliage in saplings/shrubs in the understory for Eastern Red Bat and Hoary Bat). Shrubs and foliage in trees for Eastern Red Bat and Hoary Bat should therefore be considered as potential SAR bat habitat in addition to suitable bat maternity roost trees.

3.5.7 Fish and Fish Habitat

Two mapped intermittent watercourses occur in the Study Area, with no assigned thermal regime and no records of Provincial or Federally registered aquatic species at risk.

A single season fish habitat assessment was completed within the Study Area from the West 5th Street ROW to document existing conditions. Aquatic habitat observations made during the field investigation on October 17, 2024. A fish community survey was not completed based on the available information.

None of the identified features have the potential to provide fish habitat.

3.5.7.1 Feature A

This feature is mapped as an intermittent watercourse that crosses under West 5th Street. Urban development has resulted in alterations to this feature, including the creation of the William Connell Park stormwater management (SWM) pond and new development immediately east of West 5th Street as shown on Google Earth 2025.

The Geospatial Ontario database (MNR 2025a) indicates that there are fish community data from the SWM pond, although no fish species are listed. The information is likely from a SWM pond cleanout.

Investigations indicated that this feature is no longer present within the Study Area. A subsurface drain that connects the SWM pond to the construction site was observed. A

grass-lined ditch was also observed alongside the west side of the road, but it did not appear to connect to any other feature within the Study Area or the SWM pond.

This feature does not support fish, nor does it have the potential to provide fish habitat.

3.5.7.2 Feature B

This feature is mapped as an intermittent watercourse that runs alongside West 5th Street before turning west. A new residential subdivision has resulted in alterations to this feature at the point where it turns west from West 5th Street (Google Earth 2025). No fish community data were available for this feature.

Investigations indicated that this feature is a dry drainage ditch alongside West 5th Street which would convey water under driveways during rain events. The surface feature is no longer present where it formerly ran in a westerly direction. The area is being developed for residential properties, and the feature has been directed to a subsurface drain.

This feature does not support fish, nor does it have the potential to provide fish habitat.

3.5.8 Natural Heritage and Aquatic Features Summary

A summary of natural heritage features that have been confirmed or have the potential to be present within the study area are provided below in **Table 7.**

Table 7: Summary of Natural Heritage Features within the Study Area

Type	Species/Feature	In the Preferred Plan Footprint	Description
HCA Regulated Features	Mapped Intermittent Watercourses	Intermittent watercourses are no longer present in the Preferred Plan footprint.	Intermittent watercourses are no longer present in the Study Area outside of the Preferred Plan footprint.
UHOP Core Areas	Key Hydrological Features	Intermittent watercourses are no longer present in the Preferred Plan footprint; therefore, Core Areas are considered absent from the Preferred Plan footprint.	Intermittent watercourses are no longer present in the Study Area outside of the Preferred Plan footprint; therefore, Core Areas are considered absent from the Study Area.

Type	Species/Feature	In the Preferred Plan Footprint	Description
Suitable habitat for SAR	SAR Bats	SAR bats may use trees and shrubs in the Preferred Plan footprint to roost.	SAR bats may roost in trees, shrubs and buildings in the Study Area outside of the Preferred Plan footprint.
	Chimney Swift	Not present.	Chimney Swift may nest in chimneys in the Study Area outside of the Preferred Plan footprint.
Suitable habitat for SOCC	Snapping Turtle	Suitable habitat for Snapping Turtle occurs in the stormwater management pond in the Study Area outside of the Preferred Plan footprint; however, there is potential for Snapping Turtle to enter the Preferred Plan footprint to nest on the road shoulder.	Snapping Turtle: Suitable habitat for Snapping Turtle occurs in the stormwater management pond in the Study Area outside of the Preferred Plan footprint.
	Monarch	Not Present	Monarch: Up to 50 Common Milkweed plants (Monarch's larval host plant) were observed in the MEMM3 section of the THDM4-1/MEMM3 community in the Study Area outside of the Preferred Plan footprint.
Significant Wildlife Habitat	Candidate Habitat for SOCC	Refer to “Suitable habitat for SOCC”	
Breeding and Migratory Birds	Bird nests	Nests of breeding birds and migratory bird species listed on Schedule 1 of the MBCA may occur in the Preferred Plan footprint.	Nests of breeding birds and migratory bird species listed on Schedule 1 of the MBCA may occur in the Study Area outside of the Preferred Plan footprint.

Type	Species/Feature	In the Preferred Plan Footprint	Description
Fish Habitat	Mapped Watercourses/ Features	Not Present	Not Present

4 Problem and Opportunity Statement

West 5th Street from Stone Church Road West to Rymal Road West is currently a rural cross-section road surrounded by urban growth. The study area has inadequate transportation infrastructure to accommodate all multi-modal transportation needs, as there are discontinuous sidewalks and no cycling facilities. Previous studies have indicated a desire to reconstruct the street within the study area.

The segment of West 5th Street is experiencing significant neighbourhood changes from the recently built William Connell Park as well as new higher-density developments. Improvements to West 5th Street are required to accommodate existing and future transportation needs for pedestrians, cyclists, transit, and vehicles.

The City is seeking alternatives to implement a "complete streets" approach to enhance multimodal transportation, improve safety, increase tree canopy coverage, and support economic, stormwater management, social, and cultural connectivity in this rapidly evolving area. Improvements will also be evaluated to determine the preferred approach for traffic as well as active transportation (e.g., bike lanes, sidewalks, multi-use paths).

5 Alternative Solutions

Alternative solutions were developed and assessed to determine which solution would best address the objectives as defined by the Problem and Opportunity statement. As a result, the following five alternatives were identified for the study area:

- Alternative Solution 1: Do Nothing/ Limited Development
  - No improvements would be undertaken; only regular maintenance and minor planned improvements will be in place. The City could also consider policy changes such as implementing restrictions on development in the areas adjacent to the study area to prevent increased traffic congestion on the existing network.
- Alternative Solution 2: Operational Improvements
  - Implement localized measures to improve transit, active transportation, and localized roadway improvements to optimize accessibility and safety. These improvements can include cycling lanes, sidewalks, and crosswalks/crossrides.

- Alternative Solution 3: Improve Other Roadways
  - Widen/enhance municipal roads other than West 5th Street to improve capacity and operations and provide congestion relief on existing facilities through additional lanes to increase the performance of the transportation network.
- Alternative Solution 4: Improve West 5th Street
  - Widen/enhance West 5th Street to include a continuous (e.g. 3 lane cross-section) or intermittent left-turn lanes to improve traffic operations and safety given future travel demand. The right-of-way would be designed to accommodate pedestrians, cyclists, transit, vehicles, and commercial vehicles.

The alternative solutions were assessed in terms of how well they would address the problems and opportunities. The assessment was completed using factor groups, including transportation, socio-economic, natural, cultural, and engineering factors, as well as cost, as summarized in **Table 8**.

Table 8: Evaluation of Alternative Solutions

Evaluation Factors	Do Nothing / Limited Development	Operational Improvements	Improve Other Roadways	Improve West 5th Street
Natural Environment	**Most Preferred**	Moderately Preferred	Moderately Preferred	Moderately Preferred
Transportation/ Engineering	Least Preferred - no improvements to West 5th Street	**Most Preferred**	Least Preferred	**Most Preferred**
Cultural Environment	**Most Preferred**	Moderately Preferred	Moderately Preferred	Moderately Preferred
Socio-Economic Environment	Least Preferred – does not align with Official Plan	**Most Preferred**	Moderately Preferred	**Most Preferred**

Evaluation Factors	Do Nothing / Limited Development	Operational Improvements	Improve Other Roadways	Improve West 5th Street
Financial	Least preferred - costly to maintain older infrastructure without improvement	**Most Preferred**	Least Preferred	**Most Preferred**
Summary	Least Preferred ☒ **Does not** address the needs and opportunities for the study area. **Do not carry forward.**	**Most Preferred** ☑ Partially Addresses the needs and opportunities for the study area. **Carry forward.**	Least Preferred ☒ **Does not** address the needs and opportunities for the study area. **Do not carry forward.**	**Most Preferred** ☑ Addresses the needs and opportunities for the study area. **Carry forward.**

Following the assessment of the alternatives, two Alternative Solutions were determined to best address the problems and opportunities of the study area and were carried forward to Phase 3 of the MCEA study: Development of Design Alternatives.

- **Operational Improvements:** Implement localized measures to improve transit, active transportation, and roadway improvements to optimize accessibility and safety. These can include cycling lanes, sidewalks, and strategically located mid-block crosswalks/crossrides
- **Improve West 5th Street:** Widen/enhance West 5th Street to include a continuous (e.g. 3 lane cross-section) or intermittent left-turn lanes to improve traffic operations and safety given future travel demand. Update to an urban cross section with storm sewers. The right-of-way would be designed to accommodate pedestrians, cyclists, transit, vehicles, and commercial vehicles

6 Alternative Design Concepts

Phase 3 of the Municipal MCEA process involves the development and review of alternative design concepts for the recommended alternative solution. As part of the development of design alternatives, this section will assess and evaluate Alternative Design concepts for the corridor, based on the City of Hamilton's Complete Street Design Guidelines.

Through the analysis and evaluation of these design alternatives, a Recommend Design Alternative for the West 5th Street corridor will be identified.

6.1 Complete Streets Design Guidelines

To accommodate the additional demand, design strategies from the City of Hamilton's *Complete Streets Design Guidelines* are being adopted in the design of this corridor. The "Complete Streets" concepts seek to incorporate roadways for cars, as well as cycling and pedestrian infrastructure.

Complete Streets is an approach to right-of-way design that balances the needs of all users regardless of age, ability or mode of transportation in an equitable manner. It represents a shift from traditional street design approaches with their primary focus on moving vehicular traffic. The Complete-Livable-Better (CLB) Streets approach recognizes that no one-size-fits-all solution is appropriate for the right-of-way, and provides a range of design solutions, and a toolkit of options to be applied in various ways to meet the needs of all users.

West 5th Street is considered to be a Minor Arterial per the *Urban Hamilton Official Plan* (2025), and Collector per the CLB Streets Report. The maximum right-of-way width for the corridor is 26 m.

6.2 Alternative Road Corridor Concepts

Four Alternative Road Design Concepts were presented at Public Information Centre 2. The Alternatives included:

- Alternative Design 1: On Street Bicycle Facilities
- Alternative Design 2: Bicycle Facilities in Boulevards
- Alternative Design 3: Multi-Use Pathway (MUP) – Both sides of West 5th Street
- Alternative Design 4: Multi-Use Pathway (MUP) and Sidewalk

These Alternative Designs were assessed using the Evaluation Criteria identified in **Section 6.3**. Through the analysis and evaluation of these design alternatives, a Recommended Design Alternative for the West 5th Street corridor will be identified.

6.2.1 Alternative Design 1: On Street Bicycle Facilities

Alternative 1 includes on-street bicycle facilities, using a modified version of the typical connector cross-section from the Complete Streets Manual for a 26 m ROW. The road accommodates a 3.5 m two-way left-turn lane to better accommodate traffic flow and access. The alternative is similar to West 5th Street to the north of Stone Church Road by providing 1.8 m bicycle lanes directly on the roadway and 1.8 m sidewalks in the boulevards, though it includes separation of the bike lanes to the vehicle lanes.

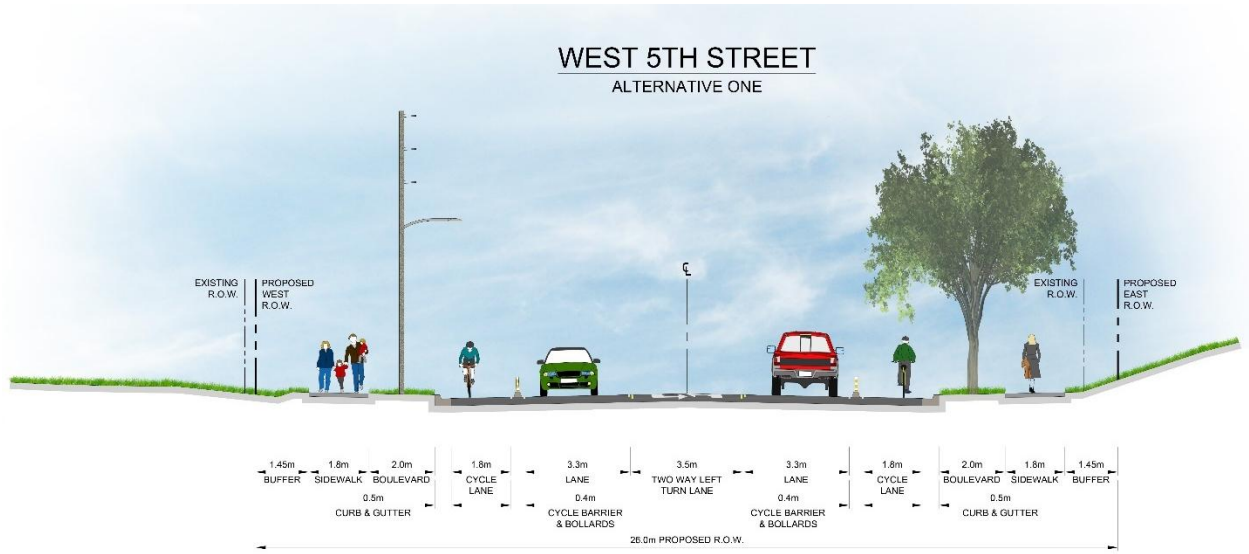

Figure 4: Alternative Design 1 Preliminary Cross-Section

6.2.2 Alternative Design 2: Bicycle Facilities in Boulevards

Alternative 2 uses a modified version of the typical connector cross-section from the Complete Streets Manual for a 26 m ROW. The road accommodates a 3.5 m two-way left-turn lane to better accommodate traffic flow and access. A 2.0 m uni-directional cycle track and 1.8 m sidewalk is provided on both sides of West 5th Street, with a buffer zone for separation between the cycle track and sidewalk.

Figure 5: Alternative Design 2 Preliminary Cross-Section

6.2.3 Alternative Design 3: Multi-Use Pathway (MUP) – Both sides of West 5th Street

Alternative 3 includes a modified version of the typical connector cross-section from the Complete Streets Manual for a 26 m ROW. The road accommodates a 3.5 m two-way left-turn lane to better accommodate traffic flow and access. A 3.0 m Multi-Use Path (MUP) is included that provides a dedicated shared path for both cyclists and pedestrians. The MUP would be on both sides of the road in the boulevard in lieu of a sidewalk.

Figure 6: Alternative Design 3 Preliminary Cross-Section

6.2.4 Alternative Design 4: Multi-Use Pathway (MUP) and Sidewalk

Alternative 4 features a modified cross-section from the Complete Streets Manual for a 26-meter right-of-way, incorporating a 3.5 m two-way left-turn lane to improve traffic flow and access. It includes a 3.0-meter Multi-Use Path (MUP) on the west side for shared pedestrian and cyclist use on the same side as William Connell Park, and a separate 1.8 m sidewalk on the east side dedicated to pedestrians. Additional pedestrian crossing points can be considered to facilitate access between the sidewalk and the MUP.

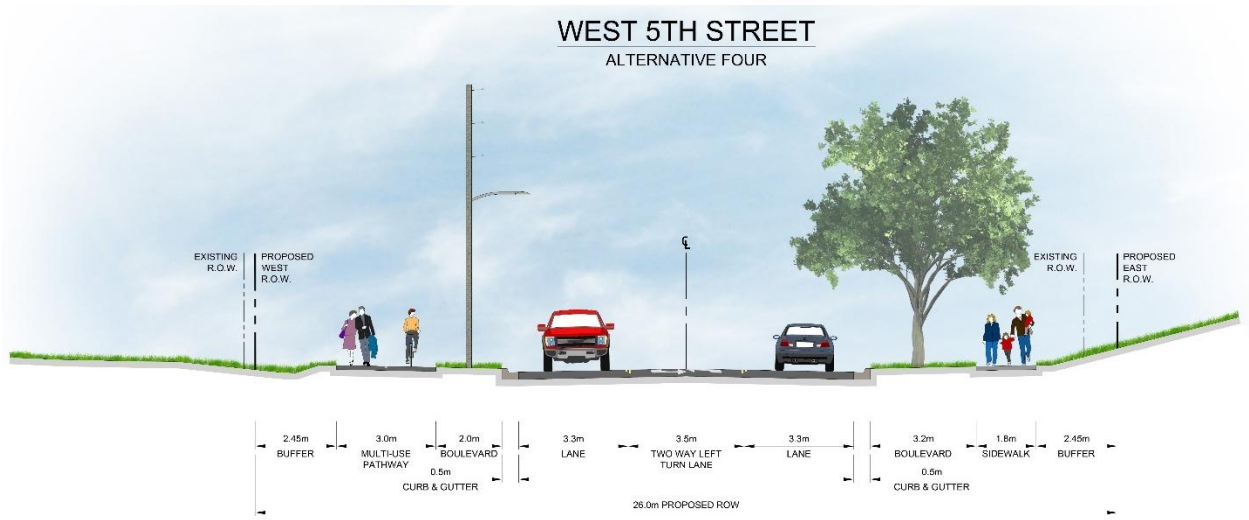

Figure 7: Alternative Design 4 Preliminary Cross-Section

6.3 Evaluation Criteria

To identify the recommended design alternative, a comprehensive assessment of all design concepts was conducted using a reasoned argument approach. This approach outlines the advantages and disadvantages of each alternative based on a set of defined evaluation criteria.

The following evaluation criteria were established to assess each alternative's ability to address the identified problems and opportunities and the Alternative Designs.

Transportation/Engineering:

- Accommodate future travel demands (capacity) for all modes
- Safety for all users (vehicles, pedestrians and cyclists)
- Public transit service
- Road network compatibility / connectivity
- Response times / access for emergency vehicles

Cultural Environment:

- Archaeological resources
- Built heritage / cultural landscape resources

Socio-Economic Environment:

- Impacts to business operations
- Noise Impacts
- Property and access
- Aesthetics and complete livable better streets
- Compatibility with existing and proposed developments

Natural Environment:

- Vegetation and Wildlife
- Water Resources
- Air Quality
- Climate Change
- Stormwater Management

Financial:

- Cost (i.e. capital cost, operational costs)

6.3.1 Evaluation of Alternative Designs

6.3.1.1 Preliminary Evaluation Summary at Public Information Centre 2

The following Alternative Designs were compared to assess their ability to address the problems and opportunities identified within the study area:

Table 9: Preliminary Evaluation of Alternative Designs Summary

Evaluation Factors	**Alternative 1:** On Street Bicycle Facilities	**Alternative 2:** Bicycle Facilities in Boulevards with sidewalks	**Alternative 3:** Multi-Use Pathways (MUP) on both sides	**Alternative 4:** Multi-Use Pathway and sidewalk
Transportation/ Engineering	**Least Preferred**	**Moderately Preferred**	**Moderately Preferred**	**Most Preferred**
Cultural Environment	**Most Preferred**	**Most Preferred**	**Most Preferred**	**Most Preferred**
Socio-Economic Environment	**Moderately Preferred**	**Moderately Preferred**	**Moderately Preferred**	**Most Preferred**
Natural Environment	**Least Preferred**	**Least Preferred**	**Moderately Preferred**	**Most Preferred**
Financial	**Most Preferred**	**Least Preferred**	**Moderately Preferred**	**Moderately Preferred**
Summary	Not preferred 	Not preferred 	Not preferred 	Most preferred 

As presented at PIC 2, Alternative 4 was the Preliminary Preferred Alternative for the following reasons:

- Increases connectivity to William Connell Park for cyclists and pedestrians
- Provides the safest and most inclusive option for all users –physically separating cyclists and pedestrians from vehicle traffic and each other.
- Significantly enhances safety and accessibility for people of all ages and abilities, including families, children, and seniors by providing a sidewalk option.
- Minimizes construction challenges with a simple facility design and best preserves future access to the boulevard.
- Best balances transportation safety with environmental considerations – increased road safety, less paved surfaces compared to other options, and allows for more tree planting within in the new 26 m right-of-way boundaries.

6.3.1.2 Post-PIC 2 Comments and Design Modifications

Following Public Information Centre 2 (PIC 2), feedback from both the public and the City of Hamilton transportation staff emphasized the importance of further improving safety and providing more transportation connectivity. The public specifically expressed a strong preference for a sidewalk on the east side of West 5th Street, which was lacking in Alternative 4 where a multi-use path (MUP) was proposed on the west side and a sidewalk on the east side of the street.

City Staff identified that Alternative 2 best aligns with roadway Safety and “Vision Zero” principles for cyclist collision safety by including separate cycle tracks, as this provides:

- Separation of all corridor users, including vulnerable users
- Reduced conflict points
- Reduced potential for severe pedestrian/cyclist collisions

City staff also recommended narrower lanes (3.5 m two-way left turn lane to 3 m; through lanes from 3.5 m to 3.30 m). The result is that it helps to offset the additional infrastructure in the boulevard. The City desired to reduce the potential for misuse of the centre two-way left turn lane for speeding based on City experience in other areas of the City.

Based on the wider boulevards, and similar grading profile needs to all alternatives, there is no significant difference for the natural environment for the alternatives.

6.3.1.3 Evaluation of Alternative Designs

Table 10 presents the revised Evaluation of Alternative Designs table, based on the additional City comments and feedback received from PIC 2.

Table 10: Revised Post-PIC 2 Evaluation of Alternative Designs

Factors/ Criteria	Alternative 1- On Street Bicycle Facilities	Modified Alternative 2 – Bicycle Facilities in Boulevards with sidewalks	Alternative 3 – Multi-use Pathways (MUP) on both sides of West 5th Street	Alternative 4 – Multi-use Pathway and Sidewalk
Transportation				
Accommodation of Future Multi-Modal Travel Demands • Potential to accommodate desired movements of pedestrians and all skill levels of cyclists (connectivity and accessibility) • Potential to accommodate future traffic volume demands and achieve acceptable travel times • Potential to improve response times / accessibility for emergency vehicles due to changes in travel time	**Least preferred** • Alternative has the ability to accommodate multi-modal demands, however on-street bike lanes are anticipated to deter less comfortable users compared to other alternatives. • All alternatives will accommodate emergency vehicles.	**Most Preferred** • Best accommodates multi-modal travel demands and all skill levels • All alternatives will accommodate emergency vehicles. Post-PIC: • No change. Accommodates multi-modal travel demands.	**Moderately preferred** • Accommodates multi-modal travel demands and all skill levels • All alternatives will accommodate emergency vehicles. Post-PIC modification: • Accommodates multi-modal travel demands, however lack of sidewalks – all active transportation is in the shared MUP is less accommodating for pedestrians in the presence of faster moving bicycles	**Most Preferred** • Accommodates multi-modal travel demands and all skill levels • All alternatives will accommodate emergency vehicles. Post-PIC: • No change. Accommodates multi-modal travel demands
Safety • Focus on equity (vulnerable road users) • Potential to improve traffic safety by reducing collision frequency and severity • Potential to provide safe street experience for all modes of travel, including pedestrian and cyclists	**Least preferred** • Cycling on the roadway with a bicycle lane may increase potential for collisions	**Most preferred** • Sidewalk and separated cycle track offered Post-PIC modification: • City of Hamilton transportation staff indicate that the Alternative best aligns with City roadside safety and cyclist safety programs such as Vision Zero. Best aligns with safety and connectivity goals expressed in public feedback in the PICs and public comments.	**Moderately preferred** • Multiuse pathway provided for active transportation in both directions • Provides safe street experience, although lanes are not separated Post-PIC: • No change. MUP has provides connectivity for cyclists and pedestrians, but users are on a shared MUP path present more potential for conflicts compared to Alternative 2.	**Moderately preferred** • Multiuse pathway provided on onside of West 5th Street. Sidewalk available for more vulnerable road users Post PIC modification: • MUP has provides connectivity for cyclists and pedestrians, but users on a shared MUP path present more potential for conflicts compared to Alternative 2.
Public Transit Service • Potential to improve the transit level of service (non-currently present) • Protection from mixed traffic (bus/ bicycle/pedestrian conflicts)	**Least preferred** • Higher conflict points, compared to other alternatives.	**Most preferred** Post-PIC modification: • Aligned. Alternatives 2, 3 and 4 can each accommodate future transit integration.	**Most preferred** Post-PIC modification: • Aligned. Alternatives 2, 3 and 4 can each accommodate future transit integration.	**Most preferred** Post-PIC modification: • Aligned. Alternatives 2, 3 and 4 can each accommodate future transit integration

Factors/ Criteria	Alternative 1- On Street Bicycle Facilities	Modified Alternative 2 – Bicycle Facilities in Boulevards with sidewalks	Alternative 3 – Multi-use Pathways (MUP) on both sides of West 5th Street	Alternative 4 – Multi-use Pathway and Sidewalk
Services / Utilities • Potential to impact existing services or utilities within the corridor • Potential to accommodate planned services / utilities	**Least preferred** • Roadway surface widened to accommodate the new bicycle lane with least ability to avoid road impacts for any future construction. Sidewalk is still required within the boulevard.	**Moderately Preferred** Post-PIC modification: • Originally considered to be the highest potential to impact existing services. Smaller turning lane width provides more boulevard space for this alternative, and potential impact to utilities is considered similar to Alternative 2, 3 and 4. • Each alternative includes an allowance of space in the boulevard for utilities.	**Moderately preferred** Post-PIC modification: • Aligned with Alternatives 2,3, and 4. Each alternative includes an allowance of space in the boulevard for utilities.	**Moderately preferred** Post-PIC modification: • Aligned with Alternatives 2,3, and 4. Each alternative includes an allowance of space in the boulevard for utilities.
Constructability • Potential for roadway design challenges • Compatibility of design with connecting roadway sections • Potential for significant construction staging impacts (i.e., road closures, land reductions, etc.)	**Least preferred** • Compatible with roadway design to the North on West 5th Street, but less alignment with current Complete Streets roadway design compared to other alternatives. • Most on-street work and more construction staging requirements while sidewalks are disrupted.	**Most preferred** Post-PIC modification: • Constructability enhanced by ability to close sidewalk, or cycling traffic independently. • Some compatibility with nearby bicycle lanes which would transition to the cycle track while sidewalk would be continuous. • Some complexity with integrating mid-block crossings, however this can be managed in detailed design.	**Moderately preferred** Post PIC: • No change. • Some flexibility for construction with two MUP sides, although any closure for operations would close a path for cyclists and pedestrians. • Some complexity with integrating mid-block crossings, however this can be managed in detailed design.	**Moderately preferred** Post-PIC modification: • Similar to Alternative 3, some flexibility exists for construction with one MUP and one sidewalk, although less options if closing the MUP for operational repairs as there is no similar option on the west. • Less continuous connectivity on the MUP side, and northbound cyclists must cross to the east side MUP. • Some complexity with integrating mid-block crossings, however this can be managed in detailed design.
Summary of Transportation	**Least preferred**	**Most Preferred**	**Moderately preferred**	**Changed to-Moderately preferred**
Cultural Environment				
Archaeological Resources • Conserves archaeological resources • Minimize potential impact to archaeological sites and areas of archaeological potential	**Most preferred** • Same property requirements for each alternative due to the same ROW and grading requirements • 80.8% of the study area retains low to no archaeological potential. • Areas requiring Stage 2 archaeological assessment were identified (approximately 18.8% of the study area) and will be examined in detailed design where project infrastructure or clearing may impact those areas.			

Factors/ Criteria	Alternative 1- On Street Bicycle Facilities	Modified Alternative 2 – Bicycle Facilities in Boulevards with sidewalks	Alternative 3 – Multi-use Pathways (MUP) on both sides of West 5th Street	Alternative 4 – Multi-use Pathway and Sidewalk

Built Heritage Resources and Cultural Heritage Landscapes
• Conserves built heritage resources and cultural heritage landscapes
• Minimize potential impact on known (e.g., previously recognized) and potential built heritage resources and cultural heritage landscapes
	Most preferred
	• Same impacts due to the same ROW and grading requirements.
	  ○ Four Built Heritage Resources were identified, and no CHLs.
	  ○ of which two (BHR-1 – 1002 West 5th Street and BHR-2 – 63 Stone Church Road West) are not impacted by the proposed new Right of Way of 26 m. No mitigation was required as the properties will be avoided.
	• Potential for direct or indirect impacts was identified for BHR-3 and BHR-4 based on the proposed ROW ultimate width of 26 m.
	  ○ BHR-3 – 1073 West 5th Street – Designated under Part IV of the Ontario Heritage Act
	  ○ BHR-4 – 1236 West 5th Street – Identified during field review
	• Mitigation replanting will occur for the tree removed within the new ROW limit at BHR-3.
	• Vibration monitoring will be incorporated for BHR-3 and BHR-4, as recommended in the Cultural Heritage Report.			

Summary of Cultural Environment	**Most preferred**	**Most preferred**	**Most preferred**	**Most preferred**
Socio-Economic Environment				
Impacts to Business Operations • Ability to support local businesses by better accommodating a larger cross-section of users • Ability to increase usage of corridor by all types of users (pedestrians, cyclists, transit riders) • Minimize disruptions to existing business operations	**Moderately preferred** • No change to parking or entrances. Improvements • Provides some improvement in active transportation access, but the on-street bicycle lanes may deter less confident users from accessing businesses	**Most preferred** • No change to parking or entrances. • Provides sidewalk and cycling infrastructure to access to homes and businesses by all modes.	**Moderately preferred** • No change to parking or entrances. • Provides some improvement in active transportation access, but the MUP does not provide separated sidewalks which are preferred for foot traffic.	**Most preferred** • No change to parking or entrances. • Provides some improvement in active transportation • Presence of a sidewalk on one side provides an alternative for accessibility by individuals that prefer separation from cyclists
Noise Impacts • Potential to impact noise sensitive areas (NSA) (i.e., residential dwellings, daycares)	**Most preferred** • There is no difference between the alternatives for potential noise impacts. • Dwellings with Outdoor Living Areas (OLAs) are present and are considered receptors in the noise assessment. No churches or schools were identified in the study corridor with OLAs. • 10 representative receptors were identified – associated with the residential townhouse developments with backyard Outdoor living areas facing West 5th Street. • Construction noise can be mitigated through the use of standard construction equipment and adhering to the applicable City of Hamilton Noise by-law timing for construction.			
Property and Access • Potential impacts to property along the corridor (e.g., property acquisition)	**Most preferred** • Each alternative will require property acquisition for properties needed to	**Moderately preferred** • Each alternative will require property acquisition for properties needed to accommodate the ultimate 26 m ROW.	**Moderately preferred** • Each alternative will require property acquisition for properties needed to accommodate the ultimate 26 m ROW.	**Moderately preferred** • Each alternative will require property acquisition for properties needed to accommodate the ultimate 26 m ROW.

Factors/ Criteria	Alternative 1- On Street Bicycle Facilities	Modified Alternative 2 – Bicycle Facilities in Boulevards with sidewalks	Alternative 3 – Multi-use Pathways (MUP) on both sides of West 5th Street	Alternative 4 – Multi-use Pathway and Sidewalk
	accommodate the ultimate 26 m ROW. • Limited localized grading is required in the boulevard to accommodate the Alternative.	• Higher potential to require temporary property access to accommodate grading. Grading plan to be determined in detailed design.	• Higher potential to require temporary property access to accommodate grading. Grading plan to be determined in detailed design.	• Higher potential to require temporary property access to accommodate grading. Grading plan to be determined in detailed design.
Aesthetics & Complete-Livable-Better Streets • Potential to impact streetscaping, and landscaped areas • Potential to integrate Complete-Livable-Better Streets elements including street trees, landscaping, sidewalks, cycling lanes • Ability to embellish green canopy by incorporating new green additions, such as additional trees	**Moderately preferred** Post PIC: • No change. Can accommodate street trees, however buffer curb/ reflective bollards for safety may be less desirable for aesthetics	**Most preferred** Post-PIC modification: • Best aligns with aesthetics and alignment with Complete streets and connectivity for each direction	**Moderately preferred** Post-PIC: • Ability to align with City complete streets approaches, although City preference for separated cycling infrastructure on both sides and shared infrastructure is less preferred	**Moderately preferred** Post-PIC modification: • Ability to align with City complete streets approaches, although City preference for separated cycling infrastructure on both sides and shared infrastructure is less preferred
Summary of Socio-Economic Environment	**Moderately preferred**	**Most Preferred**	**Moderately preferred**	**Moderately preferred**
Natural Environment				
Vegetation and Wildlife • Potential impact to wildlife and wildlife habitat • Potential to impact aquatic species and habitat	**Least preferred** Post-PIC modification: • No change – alternative involves widening West 5th Street, a wider bicycle lane to provide a safe separation, while still requiring a sidewalk within the boulevard.	**Moderately preferred** Post-PIC modification: • Modified to align with Alternative 3. Similar potential tree and vegetation clearing/grading required for all alternatives where habitat for wildlife or SAR habitat may be present. Mitigation measures are available to minimize vegetation removal to the extent possible. • No fish habitat is present. Wider boulevard due to the post-PIC modification providing more room for tree plantings, although less than Alternative 4.	**Moderately preferred** Post-PIC modification: • Modified to align with Alternative 3. Similar potential tree and vegetation clearing/grading required for all alternatives where habitat for wildlife or SAR habitat may be present. No fish habitat is present. Mitigation measures are available to minimize vegetation removal to the extent possible. • Wider boulevard due to the post-PIC modification providing more room for tree plantings, although less than Alternative 4.	**Most preferred** Post-PIC modification: • No change. Similar potential tree and vegetation clearing/grading required for all alternatives where habitat for wildlife or SAR habitat may be present. No fish habitat is present. Mitigation measures are available to minimize vegetation removal to the extent possible. • Provides the most boulevard space for tree planting as there is no MUP or cycle track on the east side of West 5th Street.

Factors/ Criteria	Alternative 1- On Street Bicycle Facilities	Modified Alternative 2 – Bicycle Facilities in Boulevards with sidewalks	Alternative 3 – Multi-use Pathways (MUP) on both sides of West 5th Street	Alternative 4 – Multi-use Pathway and Sidewalk
Air Quality • Potential to impact air quality and emissions	**Most preferred** • No difference between alternatives. No new sources of emissions as the road provides the same capacity. All alternatives provide active transportation to provide an alternative to vehicle emissions. • Construction-related dust to be managed with non-chemical dust suppression.			
Climate Change • Potential to improve climate change resiliency and vulnerability • Potential to mitigate greenhouse gas emissions through reduced personal vehicle use	**Most preferred** • No difference between alternatives. No new sources of emissions as the road provides the same capacity. • All alternatives provide active transportation to provide an alternative to vehicle emissions, which can contribute to the City's climate change goals to reduce vehicle emissions.			
Source Water Protection • Potential to impact Source Water Protection areas	**Most preferred** • Limited excavation for this project as there is no change in vertical profile for the road. Minimal potential to impact the Highly Vulnerable Aquifer (HVA) present.			
Stormwater Management • Potential to impact stormwater runoff	**Least preferred** Post-PIC: • More impervious area to accommodate an on-road bicycle lane. Water directed to catchments.	**Moderately preferred** Post-PIC modification: • Aligned Alternatives 2 and 3 as they have active transportation infrastructure on both sides of West 5th Street, and similar impervious area.	**Moderately preferred** Post-PIC modification: • Aligned Alternatives 2 and 3 as they have active transportation infrastructure on both sides of West 5th Street and similar impervious area.	**Most preferred** Post-PIC: • No change: Most permeable surface area maintained
Summary of Natural Environment	**Least preferred**	**Moderately preferred**	**Moderately preferred**	**Most preferred**
Financial				
Cost (i.e. capital cost, operational cost) • Capital cost • Operational cost	**Most Preferred** Post-PIC modification: • Most infrastructure is located within the paved roadway which may limit construction costs. Operational maintenance would be similar to the existing road.	**Moderately Preferred** Post-PIC modification: • Aligned Alternatives 2,3 and 4 as they have similar costs for each alternative.	**Moderately Preferred** Post-PIC modification: • Aligned Alternatives 2,3 and 4 as they have similar costs for each alternative.	**Moderately Preferred** Post-PIC modification: • Aligned Alternatives 2,3 and 4 as they have similar costs for each alternative.
Summary of Financial	**Most preferred**	**Moderately preferred**	**Moderately preferred**	**Moderately preferred**

Factors/ Criteria	Alternative 1- On Street Bicycle Facilities	Modified Alternative 2 – Bicycle Facilities in Boulevards with sidewalks	Alternative 3 – Multi-use Pathways (MUP) on both sides of West 5th Street	Alternative 4 – Multi-use Pathway and Sidewalk
Summary	Not preferred ☒	Most preferred ☑	Moderately Preferred ☒	Moderately preferred ☒

Table 11: Post-PIC 2 Evaluation Table Revisions Overall Summary

Evaluation Factors	Alternative 1: On Street Bicycle Facilities	Alternative 2: Bicycle Facilities in Boulevards with sidewalks (Post-PIC: modified smaller lanes)	Alternative 3: Multi-Use Pathways (MUP) both sides	Alternative 4: Multi-Use Pathway and sidewalk
Transportation/ Engineering	**Least Preferred**	**Most Preferred** Post-PIC: Modified to Most preferred as it provides the most transportation separation, connectivity and safety.	**Moderately Preferred** Post-PIC: Moderately preferred. Less separation for all modes compared to Alternative 2 (modified). Less alignment with roadside safety and Vision Zero.	**Moderately Preferred** Post PIC: Moderately preferred due to cycle lane on only one side of West 5th Street, and less separation for all modes compared to Alternative 2 (modified). Less alignment with roadside safety and Vision Zero.
Cultural Environment	**Most Preferred**	**Most Preferred**	**Most Preferred**	**Most Preferred**
Socio-Economic Environment	**Moderately Preferred**	**Most Preferred** Post-PIC: Similar connectivity, property impacts (same ROW) and potential for limited construction noise for alternatives 2,3 and 4. This alternative is Modified to Most preferred as it provides the most access to nearby residents and businesses, and best aligns with complete streets concepts for aesthetics, while best serving William Connell Park users of all modes.	**Moderately Preferred** Post PIC: No change. Similar connectivity, property impacts (same ROW) and potential for limited construction noise for alternatives 2,3 and 4. Some alignment with complete streets concepts, although less alignment due to with shared-use of the MUP which may challenge less-skilled users	**Moderately Preferred** Post-PIC: Similar connectivity, property impacts (same ROW) and potential for limited construction noise for alternatives 2,3 and 4. Some alignment complete streets concepts, although less due to shared-use of the MUP and no cycling option on the east side.
Natural Environment	**Least Preferred**	**Moderately Preferred** • Post PIC: Tree clearing/grading required for all alternatives. Offset by wider boulevard due to the post-PIC modification providing more room for tree plantings, although less than Alternative 4	**Moderately Preferred** • No change: Tree clearing/grading required for all alternatives. Offset by wider boulevard and room for tree plantings, although less than Alternative 4.	**Most Preferred** • No change: Tree clearing/grading required for all alternatives. Offset by wider boulevard and room for tree plantings. The east side has a sidewalk only, which provides additional space for tree planting compared to other alternatives.
Financial	**Most Preferred**	**Moderately Preferred** • Post-PIC: City indicated similar costs for each alternative.	**Moderately Preferred** • Post-PIC: City indicated similar costs for each alternative.	**Moderately Preferred** • Post-PIC: City indicated similar costs for each alternative.

Evaluation Factors	Alternative 1: On Street Bicycle Facilities	Alternative 2: Bicycle Facilities in Boulevards with sidewalks (Post-PIC: modified smaller lanes)	Alternative 3: Multi-Use Pathways (MUP) both sides	Alternative 4: Multi-Use Pathway and sidewalk
Summary	Not preferred ☒	Most preferred ☑	Least preferred ☒	Moderately preferred ☒

6.3.2 Preliminary Recommended Alternative Design Concept

Both Alternative 2 and Alternative 4 offer feasible alternatives for the West 5th Street Corridor. However, the increased roadside safety and connectivity offered by Alternative 2 is recommended as the preferred Alternative Design.

Alternative 2 (modified) was the Preliminary Preferred Alternative for the following reasons:

- Increases connectivity to William Connell Park for cyclists and pedestrians
- Provides the safest and most inclusive option for all users –physically separates the most users (vehicles, cyclists and pedestrians) on both sides of West 5th Street
- Significantly enhances safety and accessibility for people of all ages and abilities, including families, children, and seniors by providing a sidewalk and separated cycle track option on both sides of West 5th Street
- Less available space for tree planting compared to Alternative 4, however the modified Alternative 2 with a smaller centre two-way left turn lane (3m lane) minimizes this difference to the extent possible. Tree planting plans may be further enhanced in detailed design, with further input by City staff
- Similar construction costs as the other MUP alternatives. The City of Hamilton indicated its preference for the cycle track as offering enhanced safety and connectivity over the other alternatives

7 Project Description

As a result of the evaluation of alternative cross-sections, the preliminary design was further developed. This section describes the project recommendations for major elements of the preliminary design. This information should be reviewed in combination with **Section 6** of the ESR, which describes alternative design concepts and the recommended design alternative. The preliminary plan and profile are included in **Appendix I**.

During detailed design, some refinements to the design features recommended in the ESR may be necessary but should not alter the intent of the recommended undertaking or its components. During detailed design, there will be further consultation with technical agencies and stakeholders, such as HCA, MECP, utilities, Indigenous Communities, and affected property owners.

7.1 Road Design Elements

7.1.1 Horizontal Alignment

The existing horizontal alignment for West 5th Street was used to develop the preliminary preferred design. A best fit alignment was developed within the study area and is summarized in **Table 12**. It should be noted that this is approximate and will need to be confirmed during detailed design.

Table 12: West 5th Street – Existing Horizontal Alignment

Type	Start Station	End Station	Length	Radius
Line	0+000	0+043	43.139	
Curve	0+043	0+081	37.392	2000
Line	0+081	0+103	22.607	
Curve	0+103	0+141	37.392	2000
Line	0+141	0+150	9.774	
Line	0+150	0+904	753.588	
Curve	0+904	0+928	24.512	2000
Line	0+928	0+965	36.938	
Curve	0+965	0+987	21.611	2000
Line	0+987	1+012	24.706	
Line	1+012	1+025	13.317	

7.1.2 Profile

The existing vertical alignment for West 5th Street was used to develop the preliminary preferred design. The existing vertical curve geometry is summarized in **Table 13**. The profile of the roadway was generally maintained and smoothed out and improved where practical in conjunction with the overland drainage design.

It should be noted that these are approximate and will need to be confirmed during detailed design.

Table 13: West 5th Street – Existing Vertical Curves

Curve PVI Station	Profile Curve Type	Profile Curve Length	K Value
0+023.00	Sag	39.586	15.000
0+073.48	Crest	27.187	5.009
0+120.00	Sag	43.108	12.104
0+229.28	Crest	57.400	82.000
0+289.27	Sag	55.346	15.000
0+339.50	Crest	10.732	7.992
0+442.29	Crest	86.257	15.000
0+555.36	Sag	130.301	35.000
0+701.83	Sag	56.299	18.000
0+749.53	Crest	15.927	5.000
0+799.92	Sag	36.714	14.000
0+882.63	Crest	40.680	9.000
0+980.17	Sag	45.787	15.000

Based on the profile, the vertical conditions are considered to be relatively flat, with grades ranging from 0.2% to 4.6%.

7.1.3 Typical Cross-Sections

The proposed cross section for West 5th Street is a 26.0 m right-of-way. Two driving lanes are proposed with a center turning lane (one lanes in each direction) with curb and gutter on either side. Sidewalks will be implemented on both sides with a bicycle cycle track within each boulevard. The placement for the illumination will be reviewed and confirmed during detailed design and coordinated with the final utility relocations.

A summary of cross-section details is included below:

- 2 lane cross-section with 3.30 m lanes
- Addition of a continuous two-way left turn lane (3.0 m) from Stone Church Road to Rymal Road
- Provision for a 26 m right-of-way
- 2.0 m uni-directional cycle track in each boulevard
- 1.8 m sidewalk in each boulevard dedicated to pedestrians

- Remaining Boulevard is available for tree planting, streetlighting, and utilities (approximately 2.3 m)

The proposed cross-section for West 5th Street is generally represented by **Figure 8**.

7.2 Intersection Improvements

All existing intersections along the corridor will be modernized to accommodate the proposed sidewalk and cycle tracks. During detail design, the transitions of the cycle tracks at the intersections of Rymal Road (to the proposed MUP) and at Stone Church Road (to the existing on street bike lanes to the north) will be developed. The traffic signals at these intersections will require modification and modernized to integrate bicycle signals as part of those improvements. Additional intersection reviews and potential design configuration changes due to the intersection radii and crossing locations be assessed during the detailed design phase.

7.2.1 West 5th Street and Rymal Road

The proposed improvements at the West 5th Street and Rymal Road intersection includes the addition of a left turn lane on West 5th Street turning eastbound. The intersection configuration will be reviewed during detailed design for potential design configuration modifications and modernization.

7.2.2 West 5th Street and Stone Church Road

There are no currently proposed improvements at the West 5th Street and Stone Church Road intersection. The intersection configuration will be reviewed during detailed design for potential design configuration modifications and modernization.

7.3 Active Transportation

The active transportation facilities recommended within the West 5th Street corridor features a 2.0 m uni-direction cycle track and 1.8 m sidewalk on either side of the road corridor. This solution aligns with the guidelines set out within the CMP, CLB Streets and Hamilton TMP described in **Section 2**. The new active transportation facility promotes a multi-modal shift by providing safe, dedicated facilities for cyclists and pedestrians, ensuring equitable access for all users.

7.4 Utilities and Servicing

A preliminary review of potential utility impacts was completed. It is anticipated that the proposed work will impact various existing utilities throughout the corridor. The potential conflicts are identified on the Utility Composite Plan, provided in **Appendix J**.

Generally, the identified impacts relate to Hydro, gas, aerial communication, municipal infrastructure, and Bell. It should be noted that conflicts were identified with existing streetlight infrastructure and existing traffic signal infrastructure within the study area as well. Generally, the identified impacts are located in areas of reconstruction and widening to accommodate the additional travel lanes and active transportation improvements.

7.5 Staging

The following outlines the potential staging strategy for the proposed improvements. This does not include the relocation of existing utilities required to accommodate the work and it is assumed that any required utility relocations will be completed in advance of roadway construction.

Traffic along West 5th Street will shift to the west while the widening to the east is completed. Traffic will then be shifted to the east while the west side of the corridor is constructed. Two lanes of traffic are to be maintained during all stages of construction.

Stakeholders such as local property owners, hospitals, public, and agencies shall be notified of the construction schedule prior to the commencement of construction activities. Alternative staging strategies, such as full and partial closures, will be evaluated during detailed design as potential viable construction options. The final staging strategy confirmed during detailed design.

7.6 Drainage and Stormwater Management

As part of the overall design, existing culverts will be removed and replaced with stormwater management features. Stormwater management measures will be included along the corridor to mitigate impacts of the proposed improvements. Water quality and quantity controls will be implemented. The Stormwater Management report is provided in **Appendix G**.

Where possible, LID features (such as bioretention or enhanced grass swales) will be implemented where boulevard space and property permits. Underground infiltration chambers are a potential solution where space is limited. More traditional stormwater measures will also be considered, including storm sewers and oil and grit separators to meet quantity and quality control. The stormwater design will need to be coordinated to integrate the ongoing development in the area. Measures such as underground storage capacity may be required to accommodate stormwater flows within the system under limited cover at the time of design.

7.7 Property Requirements

Permanent property acquisition and dedication is anticipated throughout the study area corridor to accommodate the proposed roadway and active transportation

improvements. Some property acquisition will be required on the east and west sides of West 5th Street to achieve the new proposed 26.0 m ROW. The new ROW and associated property requirements will be confirmed and finalized during detailed design.

7.8 Preliminary Cost Estimates

A preliminary cost estimate has been developed for the construction of the proposed work. The capital costs are estimated to be approximately $8,005,000. A summary is provided in **Table 14**.

Table 14: Preliminary Cost Estimate

Capital Cost	Estimated $
Roadworks and Intersections	$4,000,000
Subsurface Infrastructure	$900,000
Sub Total	**$4,900,000**
Utilities (10% Roadworks)	$400,000
Contingency (20% Sub Total)	$980,000
Property (10% Sub Total)	$490,000
Environmental Mitigation	$500,000
Engineering (15% Sub Total)	$735,000
Total Estimated Cost	**$8,005,000**

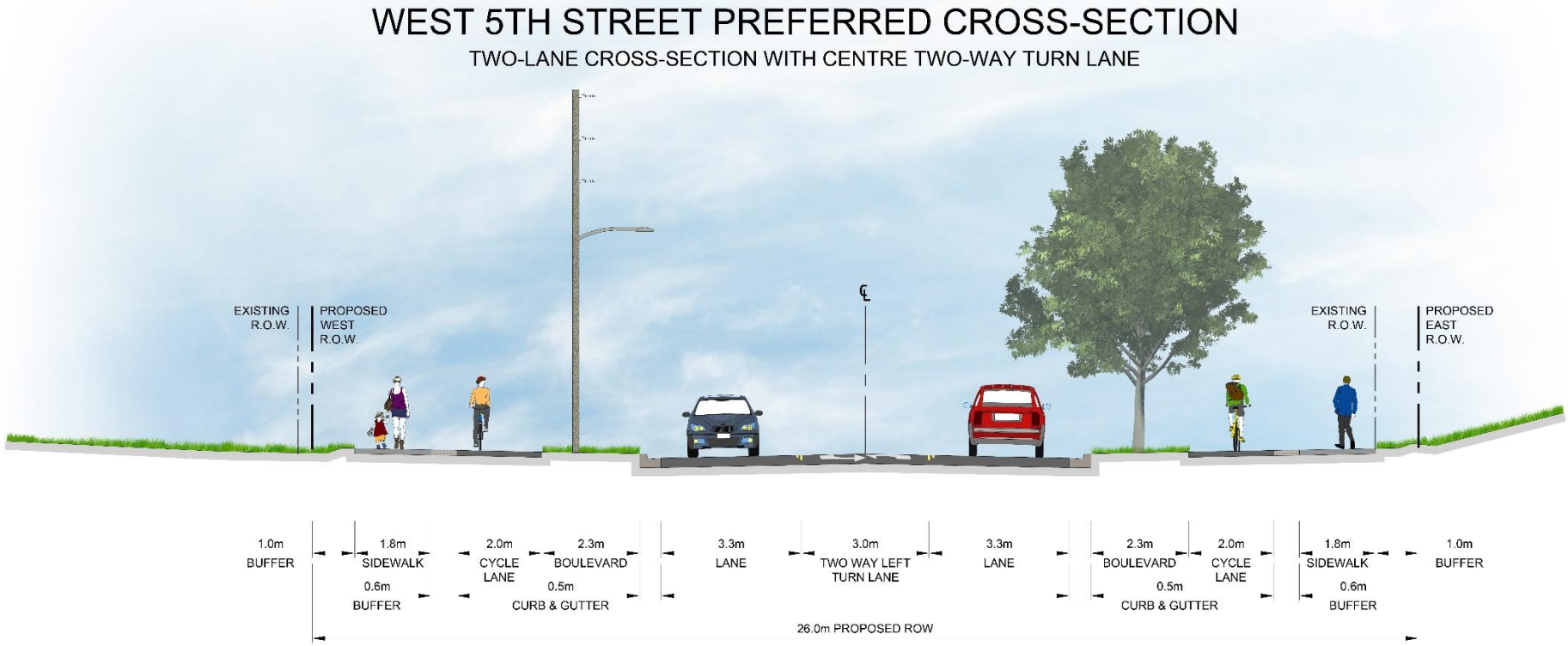

Figure 8: Recommended Plan Typical Cross-Section (Modified Alternative 2)

8 Engagement Plan

The main objective of the engagement plan for this study was to encourage two-way communication between stakeholders and City staff to add the development of the Environmental Assessment and recommended preliminary design.

The Project Team developed a stakeholder contact list at the outset of the study. This list included representatives from relevant government and regulatory agencies, utilities, community organizations, interested members of the public, businesses, landowners, developers, and Indigenous Communities.

The contact list has been maintained and updated by the Project Team throughout the study. Individuals responding to the Notice of Study Commencement, Public Information Centres and associated notifications, and the Notice of Study Completion were also added. Given protection of privacy legislation, names, addresses and telephone numbers of members of the public were not released beyond the Project Team. The list is provided in **Appendix K**.

8.1 Public Engagement

A key component of the MCEA process is public consultation, the documentation of how public input has influenced project planning, and how issues have been managed. The Project Team acknowledged and/or provided responses to all submitted comments.

For this study, the main points of public consultation were:

- Combined Notice of Study Commencement and Public Information Centre (PIC) 1
- Public Information Centre (PIC) 1 – held January 16, 2025
- Notice of Public Information Centre (PIC) 2 - June 3, 2025
- Notice of Completion

The combined Notice of Study Commencement/PIC 1 was published January 3, 2025 and January 10, 2025 in the Hamilton Spectator newspaper. The Notice of PIC 2 was published May 23, 2025 and May 30, 2025 also in the same newspaper. All notices were also distributed by mail to local residents of West 5th Street in the study area.

Notices and materials presented at the PICs are included in **Appendix K** and can be found on the project website: https://engage.hamilton.ca/west5thea.

8.1.1 Public Information Centre 1

The first PIC was hosted in-person on January 16, 2025, from 6:00 p.m. to 8:00 p.m. to present the problem/opportunity statement, the alternative solutions, and the recommended solution. The PIC displays and a video recording of the presentation were posted to the project website (https://engage.hamilton.ca/west5thea) on January

16, 2025 and were available until January 30, 2025. Six individuals attended the in-person PIC, one of which was Councillor JP Danko.

During the comment period (January 16, 2025 to January 30, 2025), One comment form was received in-person, one telephone call discussion with a resident, and three online comments were received. Two developers engaged the project team regarding properties on West 5th Street.

The following is an overview of the general theme of comments, areas of interest and verbal discussions held between the project team and PIC participants:

- Consider adding pedestrian crossings along Rymal Road West for individuals traveling across the street to access William Connell Park
- Flooding and ponding was noted in some low-lying areas associated with stormwater or nearby developments
- Individuals expressed safety concerns when crossing West 5th Street due to fast moving vehicles making right turns from Rymal Road West onto West 5th Street

A summary of written/ telephone comments received is below:

Table 15: Summary of PIC 1 Public Comments Received

Summary of Comments Received	Action/ Consideration
• PIC 1 Comment Sheet: "Would love to see dedicated bike lane, similar to Rymal (east & west of Garth), as well as on the west side of Garth" • Please add a sidewalk on West 5th so it is possible to walk to the William Connell Park without walking on the street. • Email supportive of the complete streets approach with cyclist infrastructure suitable for all ages and abilities. Supportive of providing access to William Connel Park and that access is currently limited by the current lack of continuous cycling North and South on West 5th Street. The comment also noted that the project aligns well with the Recreation Master Plan that proposes an east-west route that intersects with West 5th Street.	Comments noted by the project team.

Summary of Comments Received	Action/ Consideration
• Telephone call discussion held with a resident of the corridor concerned generally about property tax increases, but also that indicated an interest in having a sidewalk by along her property (west side) as she feels unsafe when walking.	General Property tax increase questions are addressed by other city departments. Sidewalk comment noted by the project team.
• A developer representative sought clarification about existing holding provisions for the Right of Way as they had an existing Conditional Site Plan for their properties on West 5th Street.	A meeting was held with the developer who noted the zoning application was already finalized. The meeting discussed that sanitary sewer is not included in the current project.
• A developer inquired about the project on January 9, 2025 about the future provision for cycling infrastructure and turning lane, and proposed construction in 2026.	An email response was provided December 19, 2025 to the second developer representative providing an overview of the project timeline to clarify that 2026 construction was not occurring, as detailed design would occur and likely last two years before any construction would be implemented – likely after 2028 if no delays are to happen.

The comments above were noted by the project team and considered further as the project proceeded to the Phase 3 Alternative Designs phase.

A copy of the materials presented as part of PIC 1 is provided within **Appendix K.**

8.1.2 Public Information Centre 2

The second PIC was hosted in-person on June 3, 2025, from 6 p.m. to 8 p.m. to present the preferred design alternatives and the associated evaluation process. A pre-recorded presentation was prepared and accessible on the project website (https://engage.hamilton.ca/west5thea). The project website was available anytime with a comment form available until June 17, 2025.

Seven individuals attended the in-person PIC. During the comment period (June 3, 2025 to June 17, 2025), approximately 2 comment forms were received in-person, and five electronic comments were submitted via the project website.

The following is an overview of the general theme of comments and areas of interest held between the project team and PIC participants:

Table 16: Summary of PIC 2 Public Comments Received

Summary of Comments Received	Action/ Consideration
Consider moving the MUP to the alternate side (east side) - concern about turning out of residential driveways/ conflicts with cyclists	Cycle track added on both sides and will be uni-directional; cyclists will approach from a consistent direction.
Speeding is an issue in the area	Centre turn lane narrowed to deter speeding/ mis-use as a through lane.
Need to maintain access to William Connell Park	Noted by the project team.
Is there an interest in on-street parking?	No on-street parking is planned. Businesses have existing lots.
Consider different sidewalk types (concern about gaps/ bumps)	Sidewalks to conform to city standards and accessibility.

The comments above were noted by the project team and considered as part of determining the preferred alternative for the project.

A copy of the materials presented as part of PIC 2 is provided within **Appendix K**.

8.2 Municipal Engagement

8.2.1 Technical Advisory Committees

A Technical Advisory Committee (TAC) was established at the onset of the study to meet at key study milestone and allow City staff to provide technical input into the existing study area conditions, confirm the requirements for the project and review and provide feedback on the alternatives and preliminary design. An invitation to join the TAC was distributed to City staff. Each meeting was held in advance of the two PICs to allow participants to provide valuable input to project planning and review the draft PIC displays.

The TAC meetings were held on the following dates:

- Technical Advisory Committee Meeting #1 – September 30, 2024
- Technical Advisory Committee Meeting #2 – December 11, 2024

- Technical Advisory Committee Meeting #3 – May 12, 2025
- Technical Advisory Committee Meeting #4 – September 4, 2025

Comments received at the TAC meetings were taken into consideration as the study progressed.

8.3 Agency Correspondence

The list of ministries, municipalities, agencies, and authorities contacted as part of this study is provided in **Appendix K**, along with relevant correspondence. All agencies were included in the study mailing list and updated regularly to ensure communication effectiveness.

Project correspondence was received from the following agencies consisting of letters or emails outlining their areas of jurisdiction and legislation:

- Ministry of the Environment, Conservation and Parks (MECP),
- Ministry of Natural Resources and Forestry (MNRF),
- Transport Canada (TC), and
- Ministry of Multiculturalism and Citizenship (MCM)

There are no navigable waters, railways, or opportunities for transport of dangerous goods are required for this project and therefore no applicable legislation for Transport Canada and they were removed from the mailing list as requested by the agency.

Applicable legislation or study requirements from MECP, MNRF, and MCM were adhered to in the preparation of this EA.

Hydro One Networks Inc. confirmed June 9, 2025 that there was no existing Hydro One Transmission assets in the subject area.

Hamilton Conservation Authority was provided project notices but was also sent a copy of the natural environment Terms of Reference on April 2, 2025. The organization acknowledged receipt of April 4, 2025 and that the information was provided to the planning and ecological staff. No response was received prior to completion of fieldwork in July and August 2025. HCA will continue to be engaged should any permits be required in detailed design.

Project agency correspondence is included in **Appendix K**.

8.4 Indigenous Community Engagement

The identification of Indigenous communities and/or organizations to contact concerning this study were identified based on desktop research during the initial stages of the MCEA process and in consultation with the MECP.

The following Indigenous communities were notified as part of this study as determined by the City of Hamilton in accordance with its standard EA contact list:

- Haudenosaunee Development Institute (HDI) for the Haudenosaunee Confederacy of Chiefs Council (HCCC)
- Huron-Wendat First Nation
- Métis Nation of Ontario
- Mississaugas of the Credit First Nation (MCFN)
- Six Nations of the Grand River Council (SNGR)

The first point of contact with the above communities was a Project letter and email sent by the City of Hamilton with a West 5th Street Project Summary attached. Within the letter, it identified that a Stage 1 archaeological assessment would be completed, and a natural heritage assessment, and it also provided a study area map.

- SNGR: October 3, 2024: The community requested a copy of the draft terms of reference for the natural environment study and asked to be added to the contact list. SNGR indicated its interest in the watercourse and potential wetland on the westside and small woodlot in the northeast. The City sent the terms of reference to guide the natural heritage study, but the NHA report was not yet available. The City could touch base after the consultant had a chance to complete a preliminary review. The Consultation Supervisor was added to the contact list. December 19, 2024: The City identified the NHA would be completed Fall 2025. The NHA is included in the ESR and will be available for review by SNGR.
- Huron-Wendat: October 17, 2025: The community thanked the project team for the introduction letter and providing a clear engagement plan that includes review of the archaeology report. They will be following development of the project.
- Haudenosaunee Confederacy Chiefs Council: On October 3, 2024, the organization indicated it would be pleased to meet with the City of Hamilton to discuss how and when Hamilton will begin to meet its engagement obligations on this project which it will impair the rights and interests of the Haudenosaunee as represented by the HCCC. It requested a copy of any delegation request from the MECP
    - December 20, 2024: A response was provided to the organization with a copy of the MECP delegation request

The second point of contact for the project with the HDI, Huron-Wendat First Nation, Mississaugas of the Credit First Nation and Six Nations of the Grand River Council was initiated with a letter and Notice of Study Commencement and PIC 1 sent by mail and email on January 2, 2025.

- No comments were received from the Indigenous Nations on the PIC 1 materials
- December 23, 2024: Haudenosaunee Confederacy Chiefs Council informed the City of Hamilton that it believes the proposed project will impair the rights and interests of the Haudenosaunee as represented by the HCCC. It requested a copy of any

delegation request from the MECP and requested a meeting and requested notices to be published the Turtle Island News

- January 6, 2025: A telephone was held to discuss with HCCC staff. Meeting dates were requested
- January 23, 2025: Meeting dates were provided by the City of Hamilton to HCCC staff. No response was received
- March 13, 2025: The City provided revised dates for meeting HCCC staff. No response was received
- May 26, 2025: Follow up discussion with HCCC staff, who indicated they would follow up with their team. No response was received

The third point of contact with the Indigenous Nations was the draft Stage 1 Archaeological Assessment. A request for a cost estimate for reviewing the report was circulated on February 21, 2025.

- MCFN and SNGR each reviewed the report. The communities indicated that they had no concerns with the report. SNGR indicated that it would be interested in Stage 2 archaeology work
- Huron-Wendat responded that due to its full schedule they would not be reviewing or providing comments on this report. Please continue to share project invitations and reports once they are ready and they would confirm if they will comment on them or not
- Haudenosaunee Confederacy Chiefs Council was sent a copy of the Stage 1 archaeological assessment; however, no comments were received

The City of Hamilton identified that no further comments were received on the Stage 1 archaeology report. The report was submitted to MCM for review. Indigenous communities, including SNGR, will be engaged during detailed design when Stage 2 archaeological investigations occur.

The fourth point of contact for the project with the HDI, Huron-Wendat First Nation, Mississaugas of the Credit First Nation and Six Nations of the Grand River Council was the Notice of PIC 2 sent by mail and email on May 14, 2025. No further correspondence was received.

Project notices were sent by email to the Indigenous Nations, including the MNO. A record of the correspondence carried out between Indigenous Nations is documented within **Appendix K**.

9 Impacts, Mitigation and Monitoring

This section outlines the potential environmental impacts, including natural environment, socio-economic environment, cultural environment, and transportation. Potential direct

and indirect impacts are described, including mitigation measures and commitments to future work during the detailed design and construction phases.

9.1 Natural Environment

The study area and road improvement design were overlaid on natural feature mapping in ArcGIS to assess direct and indirect impacts, including impacts associated with construction. Direct impacts are quantifiable effects and include loss of features by area, while indirect effects are qualitative in nature and may include effects such as sedimentation and noise impacts to wildlife on adjacent lands.

The road improvements along West 5th Street are located within the City of Hamilton in an urbanized area, and some properties are undergoing development as multi-storey buildings are being constructed.

Many of the environmental impacts related to this project were mitigated through the process by which the preferred design was developed and selected. Stantec's ecosystem team worked closely with the transportation design team as field data became available, to avoid natural heritage features and develop mitigation to reduce impacts, where possible.

Site-specific and standard mitigation are identified below to reduce potential impacts to natural features. Site-specific measures are recommended to address specific natural heritage features and functions identified for the study area, while standard measures address strategies that are typically required for construction including but not limited to erosion and sediment control, flagging and signage.

9.1.1 Vegetation

The project will result in a direct permanent loss of approximately 0.1 ha of natural vegetation within the Preferred Plan footprint. The road improvements along West 5th Street are primarily within the existing road allowance and the natural features that overlap with the Preferred Plan footprint are limited.

Natural environment impacts are shown in **Figure 9** and **Table 17**.

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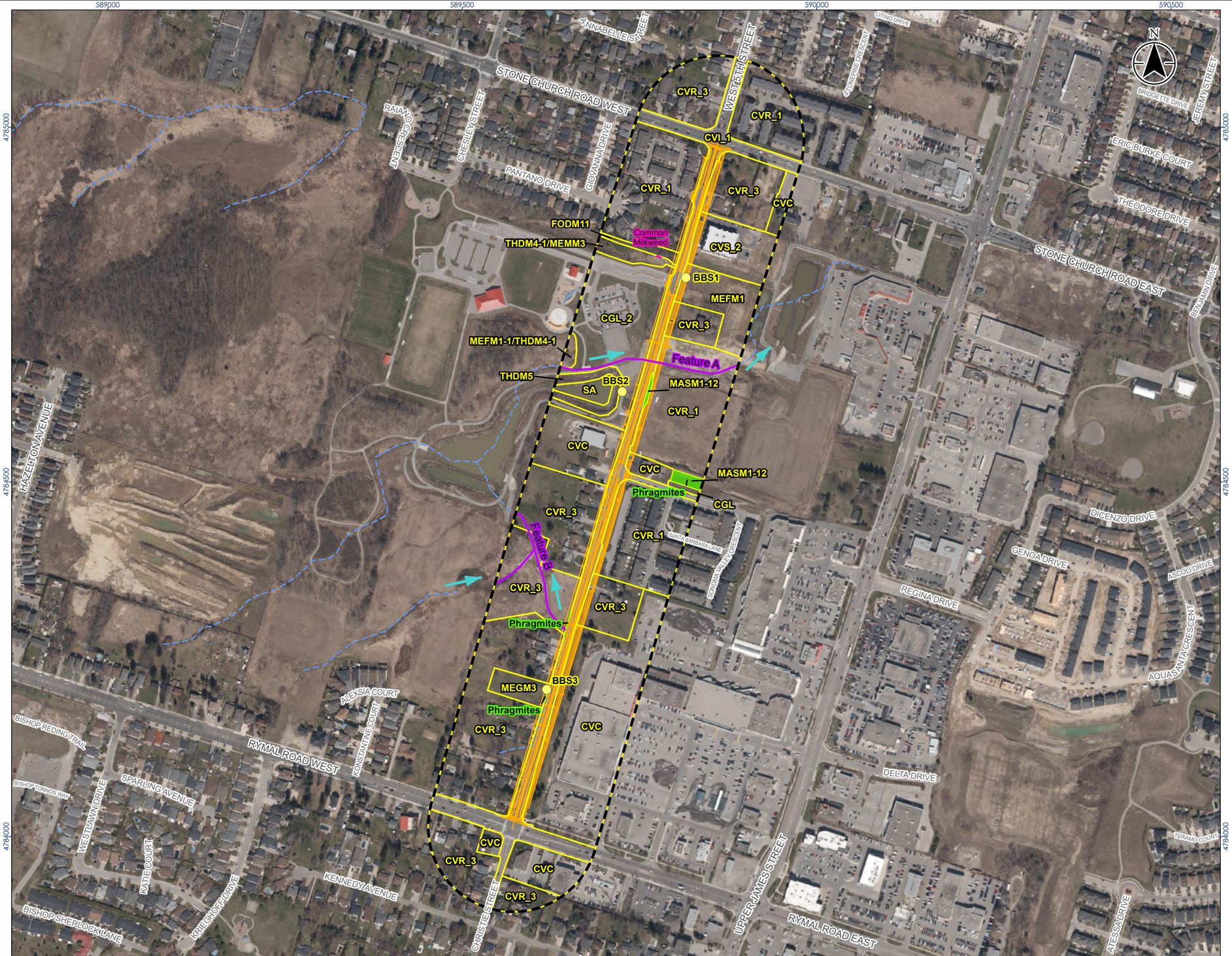

Stantec

Legend

- Preferred Plan
- Study Area
- Flow Direction
- Watercourse (Intermittent)
- Intermittent Feature - No Longer Present
- Ecological Land Classification (ELC)
- Phragmites
- Common Milkweed
- Breeeding Bird Survey Location

ELC Legend

CGL (Green Lands)
CGL_2 (Parkland)
CVC (Commercial and Institutional)
CVI_1 (Transportation)
CVR_1 (Low Density Residential)
CVR_3 (Single Family Residential)
CVS_2 (Health)
FODM11 (Naturalized Deciduous Hedge-row Ecosite)
MASM1-12 (Common Reed Mineral Shallow Marsh Type)
MEFM1 (Dry - Fresh Forb Meadow Ecosite)
MEFM1-1 (Goldenrod Forb Meadow Type),**THDM4-1** (Native Deciduous Regeneration Thicket Type)
MEGM3 (Dry - Fresh Graminoid Meadow Ecosite)
SA (Shallow Water)
THDM4-1 (Native Deciduous Regeneration Thicket Type),**MEMM3** (Dry - Fresh Mixed Meadow Ecosite)
THDM5 (Fresh - Moist Deciduous Thicket Ecosite)

0 100 200 Metres

1:5,500 (At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.
3. Orthoimagery © First Base Solutions, 2024. Hamilton Wentworth Region 2023

Project Location
City of Hamilton

165001381_REV6
Prepared by jsa on 2025-10-17
Technical Review by ABC on yyyy-mm-dd

Client/Project
CITY OF HAMILTON
MUNICIPAL CLASS EA FOR WEST 5TH STREET FROM STONE CHURCH ROAD WEST TO RYMAL ROAD WEST

Figure No.
9

Title
Natural Heritage - Existing Conditions

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Temporary, short-term indirect impacts to vegetation outside of the Preferred Plan footprint may also occur during construction. Potential indirect impacts to natural features that are adjacent to the Preferred Plan footprint include vegetation disturbance, soil compaction, sedimentation, contamination from spills, noise and dust generation. Indirect impacts associated with the construction phase of the Project can be addressed through the application of appropriate construction techniques and mitigation measures.

Table 17: Natural Vegetation Loss per ELC Ecosite Associated with the Project

ELC Code	ELC Ecosite	Vegetation Loss (ha)
FODM11	Naturalized Deciduous Hedge-row Ecosite	0.01
MASM1-12	Common Reed Mineral Shallow Marsh Type	0.02
MEFM1	Dry - Fresh Forb Meadow Ecosite	0.05
MEGM3	Dry - Fresh Graminoid Meadow Ecosite	0.02
	Total	**0.09**

The project Preferred Plan includes accommodation for planting of trees within the boulevard. A landscape planting plan is recommended to be prepared in the detailed design of this project.

Phragmites is an invasive species, and it was identified within areas of the project impacted by the West 5th Street Corridor improvements. It is recommended that invasive Phragmites management be implemented at the transition zone between the active vegetation removal and the remaining community to the extent possible. Phragmites management strategies will be developed during detailed design for the project and will be based on Best Management Practices developed by the Ontario Invasive Plant Council. Disposal methods for invasive Phragmites should follow the *Invasive Phragmites (Phragmites australis) Best Management Practices in Ontario* (Nichols 2020) and include leaving cut *Phragmites* biomass on the site where plant parts will not spread or disturb sensitive habitats or species, or bagging *Phragmites* into thick, industrial-grade garbage bags and disposing of the material at a municipal landfill facility, where permitted.

9.1.2 Erosion and Sediment Transport

Erosion and sediment transport is possible at all construction sites. The goal of erosion and sediment mitigation is to reduce the potential for erosion and subsequent sediment release through various methods of control.

In areas where erosion (wind, rain, slope erosion) has the potential to occur, reducing the extent of erosion and its advancement within the disturbed construction area is critical to reducing impacts on natural areas near the road improvement area.

Mitigation measures for sedimentation, erosion, and dust control should be implemented to reduce sediment and dust from entering sensitive natural features. The primary principles associated with sedimentation and erosion protection measures are to:

- Reduce the duration of soil exposure
- Retain existing vegetation where feasible
- Encourage re-vegetation
- Divert runoff away from exposed soils
- Keep runoff velocities low
- Trap sediment as close to the source as possible

To address these principles, the following mitigation measures are proposed:

- Silt fencing and/or barriers should be used along all construction areas adjacent to natural areas
- Equipment should not be permitted to enter natural areas beyond the vegetation protection fencing
- Exposed soil areas should be stabilized and re-vegetated promptly upon completion of construction activities through the placement of native meadow seed mixes and mulch or seed and an erosion control blanket
- Equipment should be re-fueled a minimum of 30 m away from all watercourses to avoid potential impacts if an accidental spill were to occur. Spill control materials, including absorbent barriers and mats, should be kept on site to immediately address accidental spills
- Additional silt fence should be available on site to provide a contingency supply in the event of an emergency

Sediment and erosion controls should be monitored regularly and properly maintained as required. Controls are to be removed only after the soils of the construction area have been stabilized and adequately protected or until cover is re-established.

Disturbed natural areas should be restored to pre-construction conditions, or better, where areas for restoration are available beyond the ROW. Re-vegetation should include only native plants that are suitable to site conditions.

The management of excess soil will be completed in accordance with Ontario Regulation (O. Reg.) 406/19 and the ministry's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices". All waste

generated during construction must be disposed of in accordance with the Ministry of the Environment and Energy requirements.

9.1.3 General Wildlife Mitigation

Reptiles, amphibians, and other ground-dwelling animals may occasionally enter work areas. Interaction with wildlife during construction may result in direct mortality. Wildlife interaction is more likely to occur where natural areas are present in the study area, including woodlands, wetlands and watercourse crossings.

Potential impacts to wildlife during construction include direct impacts (i.e., death, harm, or harassment) or indirect impacts to wildlife habitat (i.e., vegetation removal, erosion of sediment into natural features).

Sediment and erosion control fencing (geotextile fences) are effective for the temporary exclusion of amphibians and reptiles (MECP 2021). Light duty geotextile fences are suitable for construction duration lasting up to one season (MECP 2021). Heavy-duty geotextile fences are effective for up to two to three years (MECP 2021). Geotextile fencing with nylon mesh should be avoided due to the risk of entanglement by snakes.

Prior to work commencing in a new work area, a thorough visual search of the work area should be conducted by construction contractors to locate snakes or other wildlife, particularly between April 1 and October 31 when snakes are most active. If snakes or other wildlife are encountered during construction, work at that location will stop, and wildlife will be permitted reasonable time to flee the area on their own. If necessary, a biologist or other qualified professional can move wildlife to a location that is both safe and suitable. Temporary exclusionary fence to control wildlife that may attempt to find refuge in the construction zone can be effective in further reducing this potential threat to wildlife.

9.1.4 Migratory Bird Nests

There were no nests of breeding birds and/or migratory bird species observed in the Preferred Plan footprint during field investigations; however, nests of breeding birds and migratory bird species listed on Schedule 1 of the MBCA may occur in the Preferred Plan footprint in subsequent years.

The core nesting period for all migratory birds is identified as April 1 to August 31 (Government of Canada 2018). Clearing vegetation in migratory bird breeding habitat during nesting periods can destroy active nests and contravene the MBCA. If work must take place during the core nesting period and the area is small enough to be effectively searched for nesting birds, then a breeding bird survey can be completed by a Qualified Biologist. The area where vegetation is to be removed must be searched within five days prior to the work commencing. If breeding pairs are located, then they will be protected with a buffer until the nest is no longer active.

If an active nest is observed during construction, a designated buffer will be delineated within which no activity will be allowed to occur while the nest is active (i.e., with eggs or young). The radius of the buffer will be determined by a Qualified Professional. Once the nest is determined to be inactive (e.g., the young have fledged the nest), clearing and other activities in the area may proceed.

9.1.5 Species at Risk

Residential and commercial buildings in the Study Area have the potential to provide suitable chimneys for Chimney Swifts to nest. However, there are no structural impacts associated with this project. There is low potential for Chimney Swift to use trees for nesting due to the species preference for chimneys. Mitigation measures for migratory birds will be applied to avoid impacts to Chimney Swift.

Seven (7) SAR bats (Little Brown Myotis, Northern Myotis, Tri-coloured Bat, Eastern Small Footed Myotis, Eastern Red Bat, Hoary Bat, and Silver-haired Bat) have the potential to roost in trees > 10 cm in diameter at breast height (DBH), shrubs, and in buildings in the Study Area.

SAR bats and SAR bat habitat were identified as potentially occurring in the Preferred Plan footprint and has the potential to be impacted by the Project.

Trees and shrubs may be used by SAR bats during the active season for bats, which includes the bat maternity roosting season. The MECP has recommended a new timing window for the active season for bats to include migratory SAR bats later in the season from April 1 to November 30. MECP has also included an earlier active season for bats to include Small-footed Bat starting March 15. The new active season for bats that should be implemented for the Project to avoid potential contravention of the ESA is therefore recommended as March 15 to November 30 in the absence of bat acoustic surveys to identify the presence/absence of SAR bats.

Therefore, woody vegetation removal is proposed to occur outside of the active season for bats, to reduce the likelihood of harm to SAR bats. The installation of artificial bat maternity roost structures (e.g., bat rocket boxes or Branden Bark structures) may be considered to compensate for the removal of potential SAR bat habitat. Bat acoustic surveys can be completed prior to tree and shrub removal in accordance with MNR protocols to confirm presence/absence of SAR bats in the Preferred Project Footprint. Consultation with the MECP will be required if SAR bats are confirmed present to determine authorization requirements under the ESA or the new *Species Conservation Act*. If acoustic surveys are not completed, SAR bats will be assumed present, and consultation will also be required.

Bat acoustic surveys can be completed prior to tree and shrub removal in accordance with MNR protocols to confirm presence/absence of SAR bats in the Preferred Project Footprint. Consultation with the MECP will be required if SAR bats are confirmed present to determine authorization requirements under the ESA or the new *Species*

Conservation Act. If acoustic surveys are not completed, SAR bats will be assumed present, and consultation will also be required.

Regular requirements for SAR bats under the ESA are identified in **Section 10.3.3**.

9.1.6 Fish and Fish Habitat

Based on the background review and field investigation completed within the Study Area, there is no fish or fish habitat present, and as such, no anticipated impacts. As no fish or fish habitat is present, no Project works below the normal high-water mark are planned and the provisions listed in the *Fisheries Act* do not apply.

9.1.7 Standard Mitigation Measures for Construction

Potential indirect impacts from construction include inadvertent encroachment of heavy equipment, siltation and/or spills of deleterious substances, and dust migration into natural features. These impacts may alter species composition by compacting and smothering vegetation, introducing harmful substances to vegetation and wildlife, such as fuel used by construction vehicles, and causing the spread of invasive species. Additional disturbance may also be required to facilitate spill clean-up activities.

These potential indirect effects are common to various types of construction can be controlled using standard mitigation measures for erosion and sediment control as discussed previously.

The contractor will be required to abide by the municipal noise control by-laws and ensure that all construction equipment is kept in good working order to limit additional noise. The contractor will also ensure that the idling of construction equipment is kept to a minimum. Additional noise and vibration control measures will be addressed during detailed design and included in the construction contract, as required.

9.1.8 Clean Equipment Protocol

Standard measures for erosion and sediment control, and revegetation of disturbed areas will be implemented to reduce opportunities for invasive plants. A clean equipment protocol will be implemented during construction to reduce the potential for the introduction and spread of invasive plants. The protocol should be developed in consideration of the *Clean Equipment Protocol for Industry* (Halloran et al. 2013).

9.2 Noise and Vibration

9.2.1 Operational and Construction Noise

A noise impact assessment was completed to assess nearby noise sensitive areas (NSAs) to identify where noise mitigation measures may need to be applied. As noted in

Section 3.2.3, 10 noise receptors were identified as part of the Noise Assessment representing OLA of existing dwellings within the Study Area.

The assessment considered road traffic noise from West 5th Street and key crossroads, such as Stone Church Road, Rymal Road and Christie Street. Based on proximity to the receptors which contribute to road traffic noise in the NSAs.

The results show that Future Build Noise Levels increase by less than 5 dB over Future No-Build sound levels at all modelled receptors. Therefore, mitigation is not required for any of these receptors, even though sound levels at some exceed 55 dBA.

Construction activities will vary temporally and spatially as the Project progresses from one end to the other. Noise levels from construction at a given receptor location will also vary over time depending on the type of activities underway and their location within the right-of-way.

Most equipment expected for this type of municipal road project road can operate in compliance with the applicable MECP NPC-115/118 limits. However, paving machines have the potential to generate sound levels exceeding the permissible limits. Once equipment and construction schedules are finalized, the equipment sound levels should be reviewed during detailed design to confirm compliance. If the sound levels are higher than the limits, noise control options should be explored.

9.2.2 Vibration

A vibration impact assessment for the most impactful construction equipment was conducted using the methodology outlined in the FTA Manual. Heritage buildings considered in this assessment were identified from the Project Cultural Heritage Report (Stantec Consulting Ltd. 2025b).

Construction vibration impacts for the Project were evaluated by establishing equipment-specific vibration zone of influence (ZOI), which define setback distances within which vibration levels may exceed thresholds. ZOIs were calculated using building damage vibration limits: 5 mm/s for typical construction (e.g., non-engineered timber and masonry buildings) in accordance with the City of Toronto limit and 3 mm/s for heritage structures, based on the FTA limit.

Vibratory roller has the highest reference vibration level as presented in the FTA Manual and was used to calculate the vibration ZOI for this assessment.

- Typical Buildings – recommended setback limit distance 8 m, based on City of Toronto By-law 514
- Heritage Buildings – recommended setback limit distance 12 m, based on US FTA Manual

Residential buildings such as those southwest of the Stone Church Road intersection and heritage building BHR-4 fall within the vibration ZOI. Under the assumed worst-

case scenario, these vibration sensitive buildings could experience vibration levels exceeding the damage thresholds.

Minimum setback distances should be confirmed based on the actual construction equipment that will be used for the Project, as determined by the contractor. Maintaining these setbacks is recommended to prevent potential building damage from construction vibration. If maintaining the setbacks is not feasible, vibration monitoring should be conducted at the affected buildings to verify levels remain below the applicable limits and to identify any mitigation required.

9.3 Property Impacts

Permanent property acquisition and dedication is anticipated throughout the study area corridor to accommodate the proposed roadway and active transportation improvements. Property acquisition will be required on the east and west sides of West 5th Street to achieve the new proposed 26.0 m ROW. The new ROW and associated property requirements will be confirmed during detailed design.

The majority of the property required on the east side of the study corridor is located between Rymal Road West and the William Connell Park. The majority of the property required on the west side of the study corridor is located between Carmel Drive and Stone Church Road.

9.4 Cultural Environment

9.4.1 Archaeological Resources

As identified in **Section 3.3.1**, the Stage 1 Archaeological Assessment completed for this project found that approximately 80.8% of the study area retains low to no archaeological potential due to prior disturbances and past assessments that recommended no further work. The remaining 18.8% of the study area retains archaeological potential and will require a Stage 2 assessment.

In accordance with the MCM's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011), a Stage 2 AA is required for any portion of the project's anticipate construction which impacts an area of archaeological potential.

The results of the Stage 2 AA may trigger further stages of assessment for parts of the area it covers, and the outstanding archaeological assessment work will take place as

early as practicable in the detail design stage and well in advance of ground-disturbing activities. If archaeological resources are encountered during construction in spite of the completion of archaeological resources, work impacting the resources will cease, MCM will be notified, and an archaeologist licensed under the Ontario Heritage Act will be

engaged to assess the site. If the find includes human remains, the police and coroner should also be notified.

A copy of the Stage 1 Archaeological Assessment report is included in **Appendix C**.

9.4.2 Built Heritage Resources and Cultural Heritage Landscapes

As discussed in **Section 3.3.2**, the study area included four BHRs and no CHLs.

The Cultural Heritage Report: Existing Conditions and Preliminary Assessment – Municipal Class Environmental Assessment, West 5th Street (Stantec, 2025) included a review of proposed Project towards identifying preliminary impacts and proposed mitigation measures.

BHR-1 (1002 West 5th Street) and BHR-2 (63 Stone Church Road West) are not within the project ROW and are beyond 50 m. No mitigation measures were required for those properties as they will be avoided.

BHR-3 (1073 West 5th Street is within the property's boundaries. The proposed expansion of the ROW to 26 m extends into the existing property boundaries by approximately 1.8 m. Using the City's online ArcGIS map, the property has a frontage onto West 5th Street of approximately 30.5 m, and the property itself is approximately 1,860.7 square m (0.46 acres). The selected Alternative may include the construction of a sidewalk within the 1.8 m of the expanded ROW. The construction of the sidewalk will have direct impacts on the "spacious treed lot" of the property. The impact to the property will be minor, at an estimate loss of 54.9 square metres, less than 1 percent of the overall property. Two trees were identified for removal within and adjacent to the property as part of the proposed expansion of the ROW. These removals will have a minor direct impact on the identified CHVI of the "spacious treed lot."

BHR-4 (1236 West 5th Street) is within the property's boundaries and the property will be affected by the proposed expansion of ROW limits to 26 m. However, the CHR indicated that there are no landscape features, and the residence is setback far from the ROW and therefore direct impacts are not anticipated for the residence.

Following an assessment of impacts, potential direct impacts were identified for BHR-3, and indirect impacts were identified for BHR-3 and BHR-4. As such, mitigation measures were prepared, and recommendations include:

- **BHR-3 (1073 West 5th Street):** The trees for removal that are within the property boundary of BHR-3, should be replaced with the same species, if possible, or sympathetic historic species of 100-millimetre sapling diameter caliber stock. Placement of the new tree should maintain the tree line along the north boundary of the property, where possible. The proposed Alternative 2 includes a buffer area between the roadway and the cycle track. At detailed design, landscape plantings may be utilized to screen the urbanized roadway from the heritage property

- **Vibration Assessment for BHR-3 and BHR-4:** At detailed design, prior to construction activities, a qualified vibrations specialist or engineer should be retained to undertake an impact assessment to determine the zone of influence and the potential for impacts to the built heritage resources

Where the identified BHRs cannot be completely avoided, an alternative option is to mitigate the risk by having a qualified building specialist or engineer to develop a strategy to carry out condition surveys and vibration monitoring, where required. This mitigation measure will include a pre-condition survey to screen activities and identify critical properties and appropriate noise levels for these properties. This would then be followed by random confirmatory vibration monitoring during construction to ensure that activities are within the appropriate noise levels at critical properties. A postcondition survey should be carried out on an as-needed basis to be determined by a qualified building condition specialist or engineer following the completion of the construction phase of the project.

The *Cultural Heritage Report* is included in **Appendix D**.

9.5 Tree Removal and Preservation of Residual Plant Communities

To support the proposed design, the removal of some trees and vegetation will be required. Efforts will be made to minimize impacts by preserving existing natural features wherever feasible, particularly trees identified as significant wildlife habitat, such as potential bat maternity roost trees. These features will be assessed and considered during the detailed design phase, where opportunities for new plantings and landscape enhancements will also be explored to restore and improve the site's ecological and visual character.

A general tree inventory was completed in Fall 2024 to locate and tag any tree that was within the identified lands for proposed development. Data collected for each tree includes tree genus, specific epithet (where possible to accurately determine), trunk integrity, crown structure, crown vigour, general health condition, DBH, and dripline radius.

A total of 126 trees were inventoried within the Detailed Tree Inventory (DTI) and 52 stems were inventoried within the General Tree Inventory (GTI). All inventoried trees were located within the Right-of-Way (ROW) and within front yards of residential properties along West 5th Street.

There are 2 *Gymnocladus dioicus* - Kentucky coffee tree (#4919 and #4959) located within the proposed road works. Kentucky coffee tree is identified as a threatened *Species at Risk* within 7 geographic areas in southern Ontario, the city of Hamilton is *not* one of these areas. No butternut were observed within the study area.

The recommended design has the potential to impact approximately 114 which were recommended for removal as they are within the within the limits of construction. Eighty-three (83) trees from the DTI and 31 stems from the GTI will require removal.

At this preliminary phase, a total of 43 trees from the DTI and 21 stems from the GTI were recommended for some form of protection hoarding, or protection using a reduced Tree Protection Zone based on proximity to work areas.

The final list of trees and vegetation to be preserved or removed will be confirmed during detailed design.

9.6 Source Water Protection

As described in **Section 3.4.3,** the study area is located in a Highly Vulnerable Aquifer, however project activities are not considered a threat to that resource.

A review of the City's water supply details indicated 2 properties with occupied residences without a known water supply (1043 West 5th Street and 1172 West 5th Street). This could be an error in the dataset as provided to Stantec; however, it is recommended that for these two locations, a notification letter be delivered prior to construction to inform the landowner of the proposed work and request details of their water supply.

Determination of the need for a Permit to Take Water (PTTW) or EASR should be determined in detailed design, based on the need for de-watering during excavation of sub-surface works such as storm sewers.

9.7 Transportation

All modes of transportation will be accommodated within the planned improvements. The recommended preliminary design supports the long-term plan for transportation within the corridor.

Following the completion of the EA process, the West 5th Street roadway and intersection will be refined during the detailed design phase. These designs will adhere to the guidelines outlined in the Ontario Traffic Manual – Book 18 – Cycling Facilities.

Hamilton City Council approved the Hamilton Street Railway (HSR) long-range plan in September 2025. The plans includes service along West 5th Street within the study area (future Route 28) in anticipated to occur in 2031.The location of transit locations should be considered in discussion with City Hamilton Street Railway (HSR) transit staff during detailed design, as the City plans for transit service along this corridor in the future. Further investigations during the detailed design phase will be required to assess the grading impacts to accommodate the road profile and intersection improvements.

A copy of the Multi-Modal Transportation Assessment report is available within **Appendix A**.

9.8 Climate Change

The MECP's guide, Consideration of Climate Change in the Environmental Assessment Process, outlines two approaches for consideration and addressing climate change in project planning including:

- Reducing projects' impact on climate change (climate change mitigation)
- Increasing the projects and local ecosystems resilience to climate change (climate change adaptation)

The objectives of the climate change document have been considered in the generation and evaluation of alternatives, recommended design, and mitigation approaches.

The City of Hamilton has also committed to addressing climate change in response to City Council's declaration of a Climate Change Emergency in 2019. This commitment is reflected through their Climate Action Strategy, which consists of two key plans: the *Community Energy and Emissions Plan* (2022), which addresses climate mitigation through a reduction in greenhouse gases; and the *Climate Change Impact Adaption Plan* (2022), which addresses climate adaption by decreasing impacts and preparing for unavoidable impacts of climate change.

The City is in the process of developing further frameworks and policies to address climate change, including a Carbon Budget and Accounting Framework to integrate GHG emissions into financial planning, a Climate Justice Framework to ensure equity in climate action, and a Corporate Net Zero Policy to guide energy performance standards for new municipal buildings.

The proposed improvements along West 5th Street support the objectives of both City of Hamilton plans by incorporating infrastructure that promotes active transportation and climate resilience. The project includes the addition of sidewalks and cycling facilities, which encourage a shift away from single-occupancy vehicle use and reduce transportation-related emissions. These enhancements align with the City's goal of increasing the share of daily trips made by walking, cycling.

In the future, the City will consider implementing transit service on the West 5th corridor, which should be explored further in detailed design.

In addition, the project includes stormwater management upgrades and design considerations that improve the corridor's ability to withstand extreme weather events, such as flooding. By integrating these features, the West 5th Street Corridor improvements project contributes to both climate change mitigation and adaptation, supporting Hamilton's broader vision for a low-carbon, resilient transportation network.

10 Regulatory Compliance

10.1 Federal Policy Conformance and Regulatory Approval Requirements

10.1.1 Species at Risk Act

Terrestrial species regulated under the *Species at Risk Act* (SARA) are not considered in this report because the development does not occur on federal lands, and there were no aquatic species regulated by the SARA identified in the drainage features in the study area.

Migratory bird species that are listed as extirpated, endangered or threatened on Schedule 1 of the SARA and are also listed in the MBCA are regulated under the SARA. Should detailed design result in potential impacts to a regulated migratory bird species, consultation with ECCC is recommended to confirm authorization requirements under the SARA. Contravention of the SARA can be avoided by implementing measures (i.e., construction outside of breeding bird timing window) to prevent the disturbance, destruction, or taking of a nest as described for the MBCA.

10.1.2 Fisheries Act

The fish and fish habitat protection provisions of the *Fisheries Act* regulate works, undertakings or activities that risk harming fish and fish habitat. Specifically, they include the two core prohibitions against persons carrying on works, undertakings or activities that result in the “death of fish by means other than fishing” (hereafter referred to as the death of fish) (subsection 34.4(1)), and the “harmful alteration, disruption or destruction (HADD) of fish habitat” (subsection 35(1)).

Two watercourses within the study area were determined to not be fish habitat. As such fisheries impacts are not anticipated.

10.2 Migratory Birds Convention Act

Migratory bird habitat nesting habitat regulated by the MBR was not observed in the Study Area; therefore, permits or authorizations under the MBCA are not required to support the Project.

Migratory birds may be present within the study area. The core nesting period for all migratory birds is identified as April 1 to August 31 (Government of Canada 2018). Clearing vegetation in migratory bird breeding habitat during nesting periods can destroy active nests and contravene the MBCA. Mitigation measures to avoid impacts on migratory breeding birds are recommended in **Section 9.1.4**, which includes adhering to timing windows for tree removal.

10.3 Provincial Policy Conformance and Regulatory Approval Requirements

10.3.1 Provincial Planning Statement

The Provincial Planning Statement (PPS) offers the overriding policy to protect the natural heritage features and embody the goals and principles of the UHOP and RHOP.

The PPS represents minimum standards to protect natural heritage features; however, planning authorities can exceed these standards. PPS landscape policies (PPS sections 4.1.1, 4.1.2, and 4.1.3) have been discussed within Section 2.2.2 of the Natural Environmental Assessment Report (NEAR). The natural heritage policy features of the PPS have been documented for the study area, and impacts have been assessed for each feature.

SAR bats may use trees and shrubs in the Preferred Plan footprint to roost. Sections 4.1.6 and 4.1.7 of the PPS state that development and site alteration shall not be permitted in the habitat of endangered or threatened species, except in accordance with provincial and federal requirements. Consultation with the MECP will be required under the ESA or the new Species Conservation Act.

The assessment of natural heritage features provided in this report are consistent with the protection and policies for natural heritage in the PPS.

10.3.2 Environmental Assessment Act

This study follows the Municipal Engineers Association MCEA process for a Schedule 'C' project, as outlined in the MCEA 2024 document (October 2000, as amended in February 2024), which is an approved process under the Environmental Assessment Act. In addition, the *Conservation Authority Baseline Ecological Assessment Requirements for Municipal Class Environmental Assessments* (2011) and the *Environmental Impact Statement (EIS) Guidelines* (2015) have been followed.

10.3.3 Endangered Species Act

SAR Bats are protected by the ESA and have the potential to be impacted by the Project. Consultation with MECP through the submission of an Information Gathering Form (IGF) is recommended prior to woody vegetation removal to determine authorization and mitigation requirements under the ESA. The Ontario government has proposed changes to species at risk legislation in Ontario, replacing the ESA with a new Species Conservation Act (SCA). The SCA is expected to be enacted as early as late 2025 and may include a different authorization process. Bat acoustic surveys can be completed in accordance with MNR protocols to confirm presence/absence of SAR bats in the Preferred Plan footprint. Consultation with the MECP will be required if bat SAR are confirmed present to determine authorization requirements under the ESA or the new *Species Conservation Act*.

10.3.4 Conservation Authorities Act

Under Ontario Regulation 41/24 of the CAA, a permit may be required due to the overlap of proposed construction activities with mapped intermittent watercourses that are regulated by the HCA in the Study Area. The intermittent watercourses were not observed in the Preferred Plan footprint during field investigations; however, consultation with HCA is still required in detailed design to determine whether a permit is necessary.

10.4 Municipal Policy Conformance and Regulatory Approval Requirements

The recommended design was planned in accordance with the municipal planning and policies of the City of Hamilton, as discussed in **Section 2**. The assessment of impacts on natural heritage features and recommended mitigation measures to reduce impacts that are provided in this report are consistent with the policies to protect natural heritage features in the UHOP.

10.5 Permits and Approvals

Any permits required should be identified during detailed design. Prior to commencing construction, the following permits and approvals may be required:

- Notification to utilities
- Permit to Take Water for construction or Environmental Activity Sector Registry (EASR) for dewatering, as appropriate based on water volumes anticipated to be used – need to be determined in detailed design
- Permit for development or interference with wetlands and alterations to shorelines and watercourses under O. Reg. 41/24 to HCA
- Environmental Compliance Approvals for storm sewer infrastructure (MECP / City of Hamilton)

The City will continue to engage Indigenous communities, HCA, MECP, MTO, and the MNRF during detailed design.

10.6 Next Steps

The next steps in the Class EA process include filing the Environmental Study Report for public review. Interested persons are invited to provide written comments to our project team by the date indicated in the Notice of Completion.

All comments and concerns should be directed to Ms. Olivia Stanciu, City of Hamilton by mail or by email:

Olivia Stanciu
Project Manager – Capital Planning
City of Hamilton
71 Main Street West, Hamilton, ON L8P 4Y5
Email: Olivia.Stanciu@hamilton.ca

In addition, requests can be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (e.g., individual/comprehensive EA approval) or imposing conditions (e.g., further studies), but only if the order may prevent, mitigate, or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests should include the requester's contact information and full name for the ministry. The request should be sent in writing by mail or by email to:

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

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto, ON, M4V 1P5
EABDirector@ontario.ca

Stantec

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