

Hamilton Transit

BUS MAINTENANCE & STORAGE FACILITY

Environmental Project Report

July 5, 2019

*DRAFT FOR
INITIAL REVIEW*



Draft Environmental Project Report (July 2019) - About this Document

This draft Environmental Project Report (EPR) has been prepared to satisfy the requirements of the Transit Project Assessment Process (TPAP, O. Reg. 231/08).

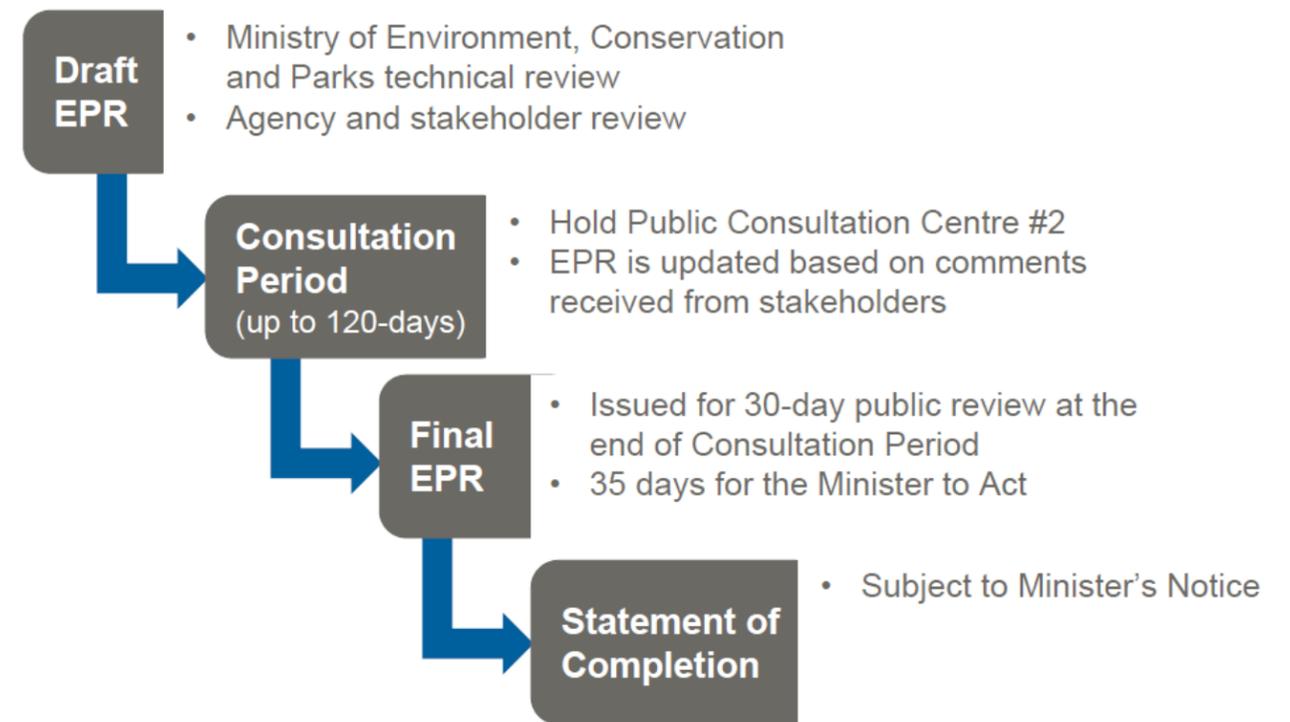
This document is a draft and will undergo technical review by the Ministry of Environment, Conservation and Parks (MECP). However, this report has been prepared as if it is the final EPR, with the intent of streamlining the review process.

As a result, select sections are in progress and will be updated before and during the consultation phase, including:

- **Section 5:** Consultation during the 120-day TPAP process will be conducted to allow the public and stakeholders more opportunity to review and provide input on the design. This will include a second Public Consultation Centre. Comments from the public, stakeholders, technical and regulatory agencies and Indigenous communities will be collected, considered and incorporated into the EPR during the up to 120-day consultation phase.
- **Sections 2, 4 and Appendix A:** Design refinements may be incorporated based on feedback received from the public, stakeholders, technical and regulatory agencies and Indigenous communities.
- **Sections 4, 6 and 7:** Permits, approvals, and commitments to future work will be updated based on feedback received from the public, stakeholders, technical and regulatory agencies and Indigenous communities.
- **Appendices:** Several technical supporting studies were prepared and are currently under review by City staff and provincial Ministries. When comments from these bodies are received, the appendices will be updated.

At the end of the up to 120-day consultation period, the final EPR will be published, and the 30-day public review period will commence. Interested persons will be able to review the final EPR and submit written objections to the Minister of MECP on matters of provincial importance or on a constitutionally protected Aboriginal or treaty right. This process is illustrated in Exhibit 1.

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AODA – Accessibility for Ontarians with Disabilities Act
CNG – Compressed Natural Gas
GHG – Greenhouse Gas
GGH – Greater Golden Horseshoe
GTHA – Greater Toronto and Hamilton Area
HCA – Hamilton Conservation Authority
HSR – Hamilton Street Railway (Hamilton Transit)
LID – Low Impact Development
MECP – Ministry of the Environment, Conservation and Parks
MNRF – Ministry of Natural Resources and Forestry
MSF – Maintenance and Storage Facility
PCC – Public Consultation Centre
PPS – Provincial Policy Statement
RTP – Regional Transportation Plan
SWM – Stormwater Management
tCO₂e – Tonnes of Carbon Dioxide Equivalent
TIS – Traffic Impact Study
TPAP – Transit Project Assessment Process
TMP – Transportation Master Plan

1 Introduction

The City of Hamilton (the City) is located in southern Ontario and is Canada's tenth most populous city, with a population of 536,917¹. The City owns and operates the local public transit agency, Hamilton Street Railway (HSR), which is improving and expanding local transit service to keep pace with the City's growth and renewal.

All of HSR's transit services are currently operated from the Mountain Transit Centre maintenance and storage facility (MTC facility) at 2200 Upper James Street. This facility was constructed in 1983 and designed to accommodate 200 buses, along with space for approximately 600 employees. Since the time of construction, the transit fleet has continued to grow with 256 buses and over 720 employees as of 2018. The Mountain Transit Centre is now operating well beyond its design capacity with over 50 buses being stored outside, resulting in challenges to effectively and efficiently maintain and operate transit services.

The City of Hamilton and HSR are seeking to develop a new MSF to supplement the Mountain Transit Centre, and offer greater capacity for vehicles and staff. The City of Hamilton and HSR followed the Transit Project Assessment Process (TPAP) per Ontario Regulation 231/08. This Environmental Project Report (EPR) describes the project and details the consultation undertaken before and during the TPAP. The draft EPR was circulated to the Ministry of Environment, Conservation and Parks (MECP) and relevant provincial ministries for review and comment prior to initiating the TPAP.

1.1 Purpose

The resources required by HSR to deliver transit services in terms of vehicles and staff have increased beyond the capacity of the Mountain Transit Centre. With population and economic growth projected to continue in the City over the next 25 to 30 years along with plans to significantly improve and expand transit services, there will be corresponding increases in the bus fleet and employee complement to deliver these services. As a result, HSR has identified the need for a second MSF with suitable capacity and facilities for its expanding bus fleet.

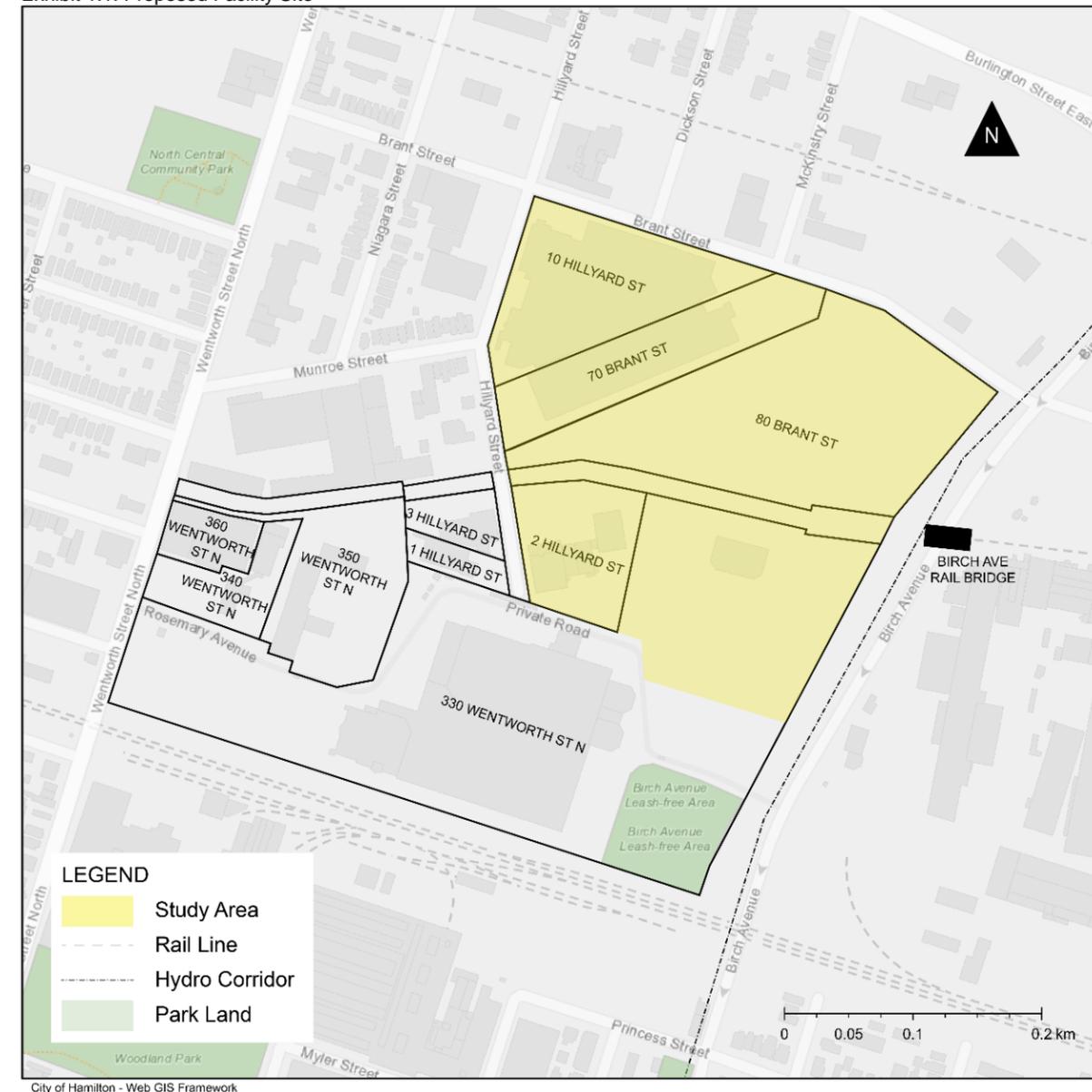
1.2 Facility Site and Study Area

The Study Area is located in the northern end of Hamilton in the Keith/Industrial Sector B neighbourhood, just south of Burlington Street East and Hamilton Harbour. The Study Area is limited to the proposed facility site, located on lands at 2 Hillyard Street, 10 Hillyard Street, 70 Brant Street, 80 Brant Street, and the northern portion of 330 Wentworth Street West, as shown in Exhibit 1.1. The site is bound by Brant Street to the north, Birch Avenue to the east, Hillyard Street to the west, and the City of Hamilton Wentworth Street Operations Centre to the south.

The CN Grimsby Subdivision rail corridor runs to the south of the Study Area, and the Southern Ontario Rail Grimsby Subdivision runs to the north. A CP Rail spur in the Hamilton Subdivision, which formerly bisected the Study Area, now terminates at the eastern limits at the Birch Avenue Rail Bridge. A 115 kV transmission line runs along the east side of the site, parallel to Birch Avenue, with Hydro One Network's Birmingham Transformer Station located across the street.

The Study Area lands have been occupied by industrial uses since the early 1900s. The southern portion of 330 Wentworth Street North is currently occupied by the City as a fleet yard for municipal vehicles. The lands at 80 Brant Street and the former rail corridor are generally clear, predominately covered with low grasses and trees along the perimeter. The Birch Avenue Dog Park is the closest park area, located south of the site.

Exhibit 1.1: Proposed Facility Site



¹ Statistics Canada. 2017. Hamilton, CDR [Census division], Ontario and Ontario [Province] (table). Census Profile. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017.

<https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E> (accessed May 2, 2019).

1.3 Background

The City has adopted a policy foundation aimed at expanding the mobility choices available in Hamilton. Recent plans support enhancing local transit as part of Hamilton’s multi-modal transportation system.

Hamilton Transportation Master Plan (2018)

City Council endorsed the Hamilton Transportation Master Plan (TMP) in August 2018. The plan “provides a comprehensive and attainable transportation blueprint for Hamilton as a whole that balances all modes of transportation to become a healthier city. The success of the plan will be based on specific, measurable, achievable, relevant and programmed results.” The local transit aspirational target for 2031 is set at 12% of daily trips, up from 5% in 2001.



The TMP identifies transit as a component of a sustainable and balanced transportation system, and that “continuing the commitment to fund transit initiatives... is essential in order to continue working towards the aspirational transit ridership targets of the TMP.”

Ten Year Local Transit Strategy (2015)

The Ten Year Local Transit Strategy establishes four actions to improve local transit between 2015 and 2025:

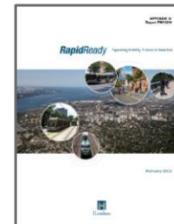
1. Address current deficiencies in the system;
2. Align services with updated service standards;
3. Accommodate ongoing growth; and,
4. Promote ridership through the introduction of additional express bus service on the BLAST corridors.



The Strategy plans to add 422,000 new service hours annually (+52%), and grow the existing fleet by 126 buses (+57%) by 2025. The strategy states that a second MSF will be required to store and maintain the growing fleet.

Rapid Ready: Expanding Mobility Choices (2013)

The Rapid Ready establishes a vision for an integrated transportation system that is centred around the Hamilton B-Line LRT. To become rapid ready, the plan identifies actions for the City. This includes improving transit frequency, duration of service, and the service area coverage. The plan states that a second transit garage is required, preferably below the escarpment.



The plan recommends other supporting strategies including:

- Developing a multi-modal active transportation network connecting transit, walking, cycling, inter-regional transportation, carpool, car share, bike share and park n’ ride;
- Adjusting how the local transit network feeds into the rapid transit corridors; and,
- Working to integrate local, rapid, and interregional transportation networks.

1.4 HSR (Re)envision Campaign

The *(Re)envision the HSR* campaign aims to map out the road ahead to create a local transit system that moves at the speed of Hamilton. The is based on the principle that transit is vital to helping the City achieve its vision of being the best place to raise a child and age successfully.

The campaign engaged Hamilton residents from winter to summer 2019, to find out how they feel about the current service and what they need from the HSR in the future. The feedback and suggestions will help inform the design

and reconfiguration of the existing local bus network, which is planned for fall 2019/winter 2020. Recommendations on a new network are expected to go to Council in spring 2020.

1.5 Project Proponent

The proponent for this maintenance and storage facility project is the City of Hamilton. The Public Works Department, Energy, Fleet & Facilities Management, is responsible for the development and delivery of all aspects of this project on behalf of HSR. HSR is responsible for the operation, repair, control and management of the municipal transit system on behalf of the City.

A consultant team led by IBI Group was selected to guide the study through the TPAP. The team is comprised of technical specialists from a range of disciplines including:

- IBI Group – Project management, civil engineering, landscaping, architecture, traffic analysis, public and agency consultation, Indigenous engagement, stormwater management, noise.
- Ortech – Air quality.

Collectively, the City of Hamilton, HSR, and the consultant team formed the core Project Team.

Past studies completed for the Study Area have also been used to support this EPR, including archaeological and cultural heritage studies completed by Archaeological Service Inc., WSP Global, and Stantec Consulting Ltd, and geotechnical engineering and hydrogeology by WSP Global.

1.6 Transit Project Assessment Process

This study was completed in accordance with Ontario Regulation 231/08: Transit Projects and Metrolinx Undertakings (Transit Projects Regulation), under the Environmental Assessment Act (Ontario). The Transit Projects Regulation defines the TPAP, and exempts these projects from Part II (Environmental Assessments) and Part II.1 (Class Environmental Assessments) of the Environmental Assessment Act.

The TPAP requires consultation, identification of potential impacts, mitigation measures, and corresponding documentation for the selected transit project. Matters of provincial importance that relate to the natural environment, or have cultural heritage value or interest, or a constitutionally protected Indigenous treaty or right, are important considerations for the TPAP. Matters of provincial importance include, but are not limited to:

- A park, conservation reserve or protected area;
- Extirpated, endangered, threatened, or species of special concern and their habitat;
- A wetland, woodland, habitat of wildlife or other natural heritage area (e.g. prairie);
- An area of natural or scientific interest (earth or life science);
- A stream, creek, river or lake containing fish and their habitats;
- An area or region of surface water or groundwater, or other important hydrological feature;
- Areas that may be impacted by a known or suspected on-site or off-site source of contamination, such as a spill, a gasoline outlet, an open or closed landfill site, etc.;
- Protected heritage property (not restricted to property meeting the criteria as set out under the Ontario Heritage Act in Ontario Regulation 10/06, Criteria for Determining Cultural Heritage Value or Interest of Provincial Significance);
- Built heritage resources (not restricted to property meeting the criteria as set out under the Ontario Heritage Act in Ontario Regulation 10/06, Criteria for Determining Cultural Heritage Value or Interest of Provincial Significance);

- Cultural heritage landscapes (not restricted to property meeting the criteria as set out under the Ontario Heritage Act in Ontario Regulation 10/06, Criteria for Determining Cultural Heritage Value or Interest of Provincial Significance);
- Archaeological resources and areas of potential archaeological interest (not restricted to property meeting the criteria as set out under the Ontario Heritage Act in Ontario Regulation 10/06, Criteria for Determining Cultural Heritage Value or Interest of Provincial Significance);
- An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the Niagara Escarpment Planning and Development Act;
- Property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the Oak Ridges Moraine Conservation Act, 2001 applies; and,
- Property within an area described as a key natural heritage feature or a key hydrologic feature in the Protected Countryside by the Greenbelt Plan under the Greenbelt Act, 2005.²

- **Up to 120-Day Consultation Period**, started by a Notice of Commencement for the TPAP, which includes consultation with the public, regulatory agencies, Indigenous communities and identified stakeholders, and preparation of the EPR;
- **30-Day Public Review Period**, started by a Notice of Completion of the EPR, which provides review time for public, regulatory agencies, Indigenous communities and other interested parties. Objections to the project may be submitted to the Minister of MECP during this period; and,
- **35-Day Ministerial Review Period**, started by conclusion of the previous period. The Minister of the MECP reviews any objections and determines if the project may proceed, may proceed with conditions, or if the proponent must conduct additional work and submit a revised EPR to the Minister.

During the consultation period, ____ formal consultation events were held to allow the public to review and provide feedback on the preliminary preferred design, including _____. Meetings were held with stakeholder groups including _____. Individual meetings were held with _____.

Comments could also be submitted by _____.

Agencies were invited to review the draft EPR. Feedback was received from _____. More information is provided in Section 5.

The MECP does not have the authority to approve or refuse a transit project; however, the Minister does have the authority to act if the transit project may have a negative impact on the above-noted matters of provincial importance, or on a constitutionally protected Indigenous Treaty Right. Should the Minister act within the 35-day period, one of three notices may be given to the proponent:

- A notice to proceed with the transit project as planned in its EPR;
- A notice that requires the proponent to take further steps, which may include further study or consultation; or,
- A notice allowing the proponent to proceed with the transit project subject to conditions.

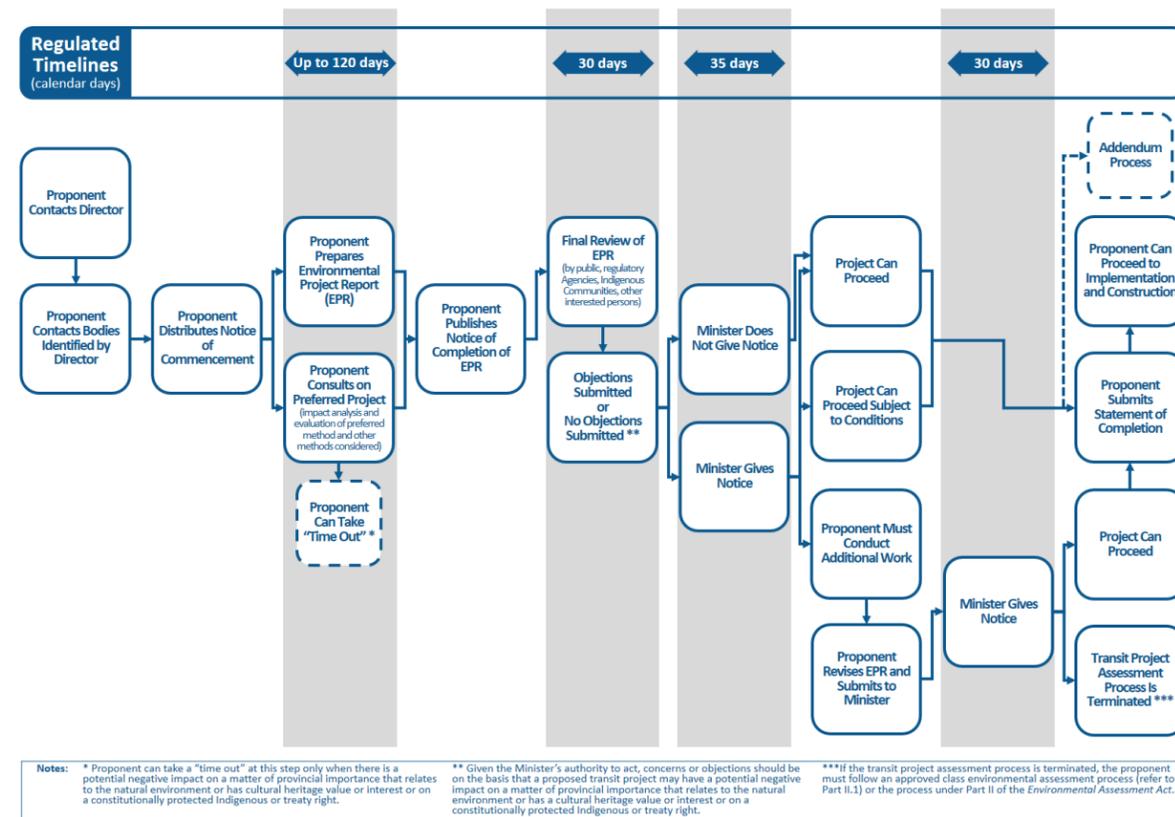
In light of the fixed timeline, proponents typically complete much of the work required for the TPAP prior to initiating the process, during a pre-planning phase. Section 1.5.1 discusses the work completed during the pre-planning phase of this project.

1.6.1 Pre-Planning Activities

To complete the process within the prescribed 120-day time limit, pre-planning activities were undertaken prior to the issuance of the Notice of Commencement for the TPAP. The following is a summary of pre-planning activities that were completed prior to TPAP:

- Analysis of future bus fleet requirements, development and evaluation of design alternatives, and selection of a preferred Site Plan (as discussed in Section 2.1.1);
- Additional or advancement of technical studies, including transportation, natural heritage, cultural heritage and archaeological, geotechnical, air quality, and noise (as discussed in Sections 3 and 4);
- Consultation with MECP staff (as discussed in Section 5.2.5) to discuss timelines and requirements for this project under the TPAP, and review and confirm identified Indigenous communities, and stakeholder groups to be consulted;
- Advancement of the recommended facility design (as discussed in Section 2.2);
- Preparation and implementation of a consultation program (discussed in Section 5), which included:
 - Consultation with technical and government agencies;

Exhibit 1.2: Transit Project Assessment Process²



The TPAP is a proponent-driven, self-assessment process that is required to be completed within six months of being initiated, unless a "time out" is initiated. The obligation to stay within that timeline is borne by both the proponent and the regulatory agencies overseeing the project. The six-month period is comprised of three parts, as illustrated in Exhibit 1.2:

² Ontario Ministry of the Environment, Conservation and Parks, Guide to Environmental Assessment Requirements for Transit Projects, <https://www.ontario.ca/page/guide-environmental-assessment-requirements-transit-projects>

- Consultation with community stakeholders;
- Correspondence and Consultation with Indigenous communities;
- Consultation with elected officials;
- A Public Consultation Centre (PCC); and,
- Correspondence and Consultation with the general public and property owners;
- Identification of matters of provincial importance within the Study Area (discussed in Section 4); and,
- Identification of other potential provincial or federal EA requirements.

1.6.2 Transit Project Assessment Process Activities

During TPAP, the following activities were completed:

[To be completed]

1.7 Planning Context and Previous Studies

Policies and legislation established at both the provincial and municipal levels have shaped and directed the development of the project. This section provides an overview of other policy and studies as they related to the MSF.

Provincial Policy Statement (2014) – The Provincial Policy Statement (PPS) is issued under the Planning Act through a multi-ministry initiative led by the Ministry of Municipal Affairs and Housing (MMAH) to provide policy direction on matters of provincial interest related to land use planning and development. The PPS focuses on the efficient use of land and infrastructure in settlement areas through intensification and redevelopment, and encourages the protection of resources of provincial interest, public health and safety, and the quality of the natural and built environment. Improved access to transit and active modes of transportation serve to support this focus while preserving or improving these resources and interests.

The MSF is consistent with the PPS by helping to facilitate the safe, and energy efficient movement of people. The facility will also help enable HSR to enhance transit service to existing and future communities.

Growth Plan for the Greater Golden Horseshoe (2017) – The Growth Plan, also known as Places to Grow, provides a framework for managing growth in the Greater Golden Horseshoe (GGH). It establishes a long-term guide for where and how growth will take place while acknowledging the realities of what municipalities and the province can and cannot influence. The plan states that public transit will be the first priority for transportation infrastructure planning, with the focus on moving people and goods rather than vehicles. The plan says that all transit planning and investments must be made with a focus on increasing transit capacity to support strategic growth areas, expanding transit service to areas that have, or are planned to, achieve transit-supportive densities, and to increase transit mode share. It states that by 2041, Hamilton will be home to 780,000 residents and 350,000 jobs.

The MSF supports the Growth Plan by enabling local transit expansion that will move residents and workers efficiently and sustainably.

Regional Transportation Plan (2018) – The Regional Transportation Plan (RTP) was developed and adopted by Metrolinx. The plan provides a mobility blueprint for the Greater Toronto and Hamilton Area (GTHA), and contains long-term network plans related to rapid transit, frequent transit, and regional cycling.

This Project supports the RTP by helping to strengthen and support local transit service within Hamilton. The HSR will play a key role in providing first and last mile connections to the regional transit system.

HSR Fleet Needs Assessment (2018) – This report, prepared by IBI Group, forecasts the HSR fleet requirements to 2048, using population growth scenarios. The assessment determined that a new MSF should be designed to be able to accommodate approximately 300 single bus equivalents (SBEs). The assessment supports expanding

the MSF site to incorporate 70 Brant Street and 10 Hillyard Street, and recommends that fleet forecasts be updated every five years.

The MSF incorporates the findings of the assessment into the design requirements to ensure that the facility can support the long-term fleet.

Feasibility Study for the New HSR Maintenance and Storage Facility at Birch Avenue and Brant Street

(2017) – The Feasibility Study was prepared by Grguric Architects Incorporated. Its purpose was to determine if an MSF could be constructed on a site consisting of the 330 Wentworth Street, 2 Hillyard Street, and 80 Brant Street properties. The study presents a draft conceptual design for a facility that can support up to 200 buses. The report notes that due to site configuration, there would be a limited amount of onsite parking for employees. This study does not incorporate 70 Brant Street or 10 Hillyard Street, which are included within the scope of this environmental assessment.

The MSF documented within this EPR builds upon the work done in the initial feasibility study.

1.8 Study Organization

The requirements of the TPAP and corresponding sections of this EPR are outlined in Exhibit 1.3. This exhibit has been prepared to facilitate the review of the EPR by outlining where the information is located within the report.

Exhibit 1.3: EPR Requirement Table

EPR Requirement	EPR Section
A statement of the purpose of the transit project and a summary of any background information relating to the transit project	Sections 1.1,0, 2.1
A final description of the transit project including a description of the preferred design	Section 2.2
A description of any other design methods that were considered once the project commenced the TPAP (Note: Does not include any alternatives considered during pre-planning as TPAP starts with a transit project and is focused on an impact assessment of that project)	Section 0
A map showing the site of the transit project	Section 1.2
A description of the local environmental conditions at the site of the transit project	Section 3 (Existing Conditions)
A description of all studies carried out, including a summary of all data collected or reviewed and a summary of all results and conclusions	Section 3 (Existing Conditions) and 4 (Impact Assessment, Mitigation and Monitoring)
The assessments, evaluation and criteria for any impacts of the preferred design method and any other design method (described above) that were considered once the project's TPAP commenced (does not include pre-planning work)	Section 4 (Impact Assessment, Mitigation and Monitoring) and Appendices B to G.
A description of any proposed measures for mitigating any negative impacts the transit project might have on the environment	Section 4 (Impact Assessment, Mitigation and Monitoring)
If mitigation measures are proposed, a description of the proposal for monitoring or verifying the effectiveness of the mitigation measures	Section 4 (Impact Assessment, Mitigation and Monitoring)
A description of any municipal, provincial, federal, or other approvals or permits that may be required	Section 6 (Permits and Approvals)

EPR Requirement	EPR Section
<p>A consultation record, including:</p> <ul style="list-style-type: none"> • A description of the consultation and follow up efforts carried out with interested persons, including Indigenous communities • A list of the interested persons, including Indigenous communities who participated in the consultation • Summaries of the comments submitted by interested persons, including Indigenous communities • A summary of any discussions with Indigenous communities including discussions of any potential impacts of the transit project on constitutionally protected Indigenous or treaty rights, and copies of all written comments submitted by Indigenous communities • A description of what the proponent did to respond to concerns expressed by interested persons, including Indigenous communities 	<p>Section 5 (Consultation) and Appendix H</p>
<p>If a "time out" is taken during the TPAP, a summary of each issue including: a description of the issue; a description of what the proponent did to respond to the issue and the results of those efforts and, the dates that notices for the "time out" were given to the Director and the Regional Director.</p>	<p>TBD</p>

2 Design Approach and Project Description

This section discusses the facility requirements and development process, and provides a description of the project. It defines the principle elements of the planned MSF and discusses requirements for project implementation.

2.1 Facility Requirements and Development

Requirements of the new facility were developed as part of the feasibility study, and refined in consultation with the Project Team. Program requirements of the facility include, but are not limited to:

- **Bus Storage and Maintenance** – the facility needs to be able to store and maintain a minimum of 200 single bus equivalents (SBEs) on opening day, with expansion space that can accommodate up to 100 additional SBEs. Maintenance functions need to include repair and service bays, washing bays, paint and body shops, degreasing bays, other functional area, and material storage.
- **CNG Compressor Station and Generators** – an exterior compressed natural gas (CNG) tank farm, and back-up natural gas generator for peak shaving and to maintain operations in the event of a power disruption.
- **Staff and Visitor Parking** – an appropriate number of automobile parking spots is required for staff and visitors to the site, either at surface level or in a parking structure.
- **Operational Space** – adequate areas to support operational functions such as a control centre/dispatch, training, meeting and fitness areas, and office space for staff in administrative, support, and management roles.
- **Separation of Traffic** – minimizing the number of conflict points between bus, vehicular, and pedestrian traffic on-site to increase safety.
- **Sustainable Design** – reducing the impact on the environment, and adhering to the City's Corporate Energy Policy.
- **Urban Design** – ensuring that the new building contributes to the overall appearance and visual cohesiveness of the urban fabric and local community.

2.1.1 Development of the Preferred Concept

The design process aimed to minimize potential impacts to the surrounding community from the start, particularly the residential neighbourhood located to the west/north-west of the site. Four schematic options were developed and assessed during pre-planning. These reflected the program requirements discussed in Section 2.1. The integrative design approach has helped to identify opportunities for synergies across discipline and building systems, and will continue into the detail design phase.

The options included various orientations and siting of features, including the locations of parking, access points, offices, and storage and maintenance locations.

To select a preliminary preferred alternative, the concepts were assessed using criteria related to:

- Orientation and Siting;
- User Needs;
- Operational Flow;
- On-site Flow and Access;
- Car Flow;

- Pedestrian Flow; and,
- Urban Design.

Stakeholders were consulted on the concepts, evaluation, and preliminary preferred design. Feedback from the public was in support of the preliminary preferred design. Features of the design are discussed in the next section. Details on pre-planning consultation is provided in Section 5.2.

2.2 Project Description

The MSF will be approximately 40,590 m², and will be located in the centre of the approximately 95,000 m² property. The facility will operate 24 hours a day, seven days a week. At full build-out, there will be approximately 820 staff, including: 140 maintenance staff, 640 bus operators, and 40 office and support staff reporting to this facility. At peak times, the facility is expected to have 307 employees reporting to the site. Most office and program space (e.g. training rooms) will be located in an elevated bridgeway that will connect the MSF to the parking structure and allow bus circulation. A conceptual layout of the preferred design is shown in Exhibit 2.1. Design drawings are available in Appendix A.

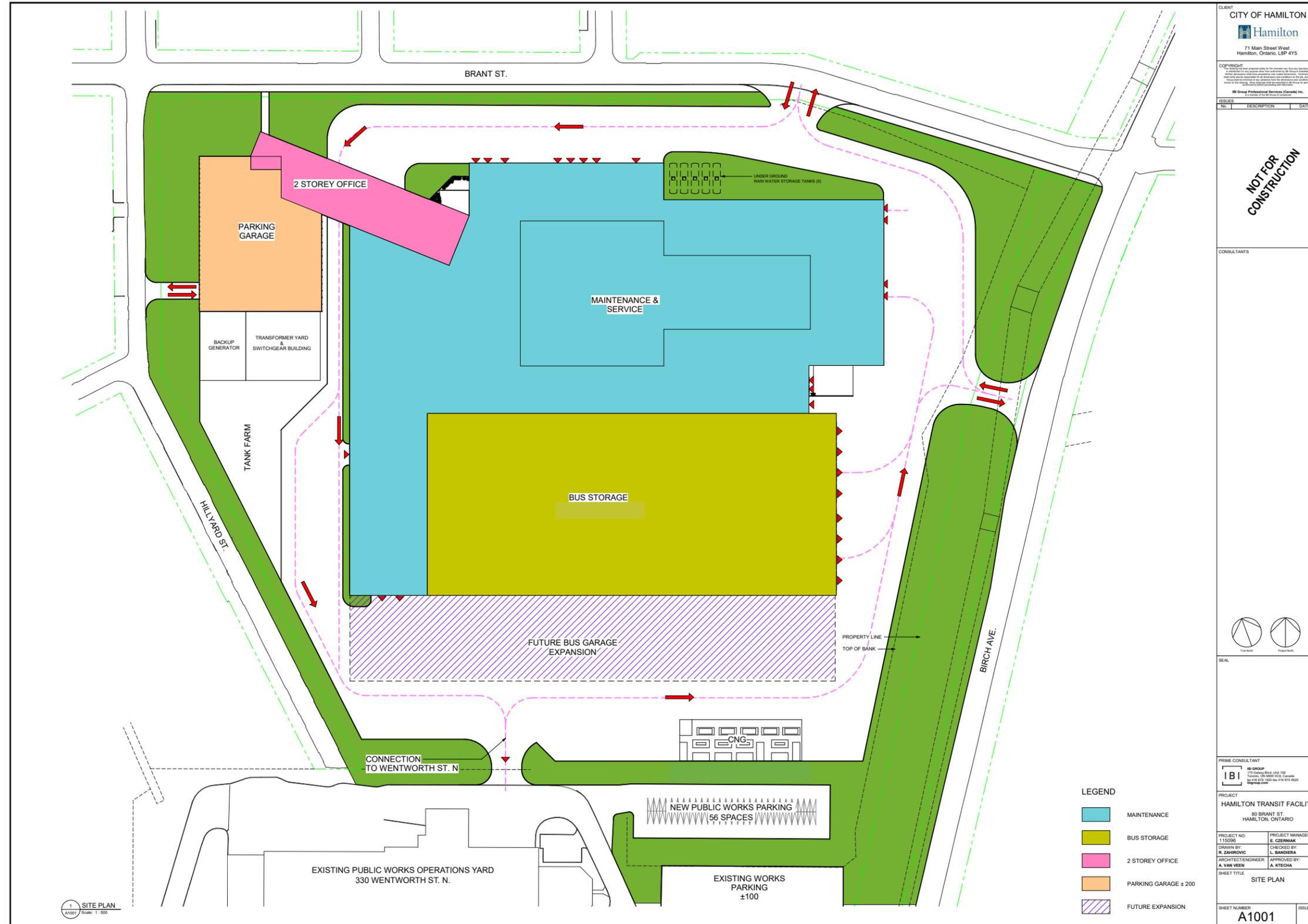
The MSF site will include the following elements:

- Office space, meeting/breakout space, and storage for transit operations including dispatch and control, training, and administrative functions;
- Indoor storage for 304 single bus equivalents (SBEs). On opening day, there will be space for approximately 200 SBEs, while the balance will be part of a future expansion that will take place based on growth;
- A 30 bay maintenance space, including a 30 repair bays (15 articulated buses and 15 standard buses), 60 foot and 120 foot inspection pits, paint shop, body shop, welding shop, tire repair bay, degrease and lube bay, sandblast room, compressor room, and appropriate materials storage space;
- Two bus wash and service lanes;
- Stock keeping store area, including two recessed loading docks, and secured storage area;
- Employee amenities such as male/female lockers, showers & washrooms, unisex washrooms, quiet room, fitness room, first aid room, bicycle storage, and staff lunchrooms;
- CNG compressor farm;
- Natural gas generator for peak shaving and backup power;
- Perimeter landscaping with naturalized open space to buffer the development along frontages;
- Exterior lighting consisting of building mounted and pole mounted lighting will be used to limit light trespassing into neighbouring properties;
- A dedicated access point to the car parking garage on the west side (off Hillyard St.), and a primary access point for buses on the east side (off Birch Ave.), and secondary access point on the north (off Brant St.). Additional access to the Public Works facility located at 330 Wentworth will be available on the south side; and,
- Appropriate building systems (HVAC, plumbing, electrical, communications, sprinkler/water, etc.).

Other major elements of the project include:

- **Car Parking Structure:** A four-level car parking structure will contain staff and visitor spaces, and is located in the north-west corner of the site. There will be approximately 400 parking spots. Access to and from the parking structure will be from Hillyard Street. The parking garage will be connected directly to the facility through the bridgeway, therefore limiting conflicts between buses and pedestrians. Ten (10) spaces will be barrier-free.

Exhibit 2.1: Preferred Design Site Plan (Conceptual)



CLIENT
 CITY OF HAMILTON

 71 Main Street West
 Hamilton, Ontario, L8P 4Y5

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ISSUES

No.	DESCRIPTION	DATE

NOT FOR CONSTRUCTION

CONSULTANTS

PRIME CONSULTANT

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PROJECT
 HAMILTON TRANSIT FACILITY
 80 BRANT ST.
 HAMILTON, ONTARIO

PROJECT NO: 115036	PROJECT MANAGER: E. CZERNIAK
DRAWN BY: R. ZAMBRICH	CHECKED BY: L. BANDESKA
ARCHITECT/ENGINEER: A. VAN VEEN	APPROVED BY: A. KTECHA

SHEET TITLE
 SITE PLAN

SHEET NUMBER
A1001

ISSUE

- **Rooftop Equipment:** Rooftop equipment and exhaust fans will be located towards the centre of the roof, when possible, to minimize visual and noise impacts. Provisions are included to support a green vegetative roof above the office component and for solar panel installation on the storage area.
- **Storage Tanks:** The site is proposed to have three storage tank areas. The first will be rain water storage tanks located underground on the north side of the maintenance and storage areas. The second tank area will store CNG, and will be located in the south-eastern corner of the site. The third tank area will store engine oil, washer fluid, coolant, and waste fluids. These are located on the east side of the facility.
- **HVAC System:** The office area will use hydronic heating and a variable air volume system with rooftop units. The bus storage garage will use indirect fired units. The supply air will be distributed through ducts at lower levels within the garage, while overhead ducts will collect exhaust. Low-level exhaust ducts will be provided in areas where fumes heavier than air, in areas where it's required for safety reasons, and where it is more efficient to do so.

2.2.1 Sustainability

The City of Hamilton's Corporate Energy Policy (2014) encourages City-owned facilities to be designed to LEED standards when practical. Based on preliminary design work, the facility is currently aiming to achieve a LEED Silver design, pending a life cycle cost assessment as part of detail design process.

Other sustainability features that can be incorporated into the facility include:

- Provisions for a green vegetative roof over the office area;
- Necessities to support solar panels on the rooftop of the maintenance and storage facility;
- Rainwater storage tanks, that can allow grey water to be used for internal functions where potable water is not needed;
- Space provisions to enable future conversion to support electric buses.

These features will be confirmed during detail design.

2.2.2 Site Servicing

Connections to the municipal water, sewer, and stormwater systems are required. A preliminary review indicates that the existing available utilities will be adequate to support the facility. The connections will be designed according to City of Hamilton standards.

2.3 Design Standards and Guidelines

The following design standards and other code requirements were used to develop the preliminary design and will guide the detail design of the facility:

- Accessibility for Ontarians with Disabilities Act, 2005;
- City of Hamilton's Barrier Free Design Guidelines, 2006;
- City of Hamilton's Engineering Guidelines for Servicing Land Under Development Applications, 2012;
- National Fire Protection Association 13 - Standard for the Installation of Sprinkler Systems;
- Ontario Building Code;
- Ontarians with Disabilities Act, 2001;
- CSA B108-18 – Natural Gas Refuelling Stations Installation Code; and,
- Other Technical Standard and Safety Authority Requirements.

2.4 Project Implementation

The following identifies aspects required to implement the project, and the planned phasing of construction. Aspects that will be dealt with prior to construction include: land and property requirements, zoning, and funding.

2.4.1 Land and Property Requirements

The Project site uses all of, or parts of the following five properties, known municipally as:

- 330 Wentworth Street North;
- 2 Hillyard Street;
- 10 Hillyard Street;
- 70 Brant Street; and,
- 80 Brant Street.

The City of Hamilton currently owns all of the properties except 70 Brant Street. Negotiations are ongoing to acquire that property. The properties are shown in Exhibit 1.1 on page 1.

2.4.2 Planning Issues

The Hamilton Official Plan identifies that the properties are zoned as follows:

- M5 – 80 Brant Street (eastern portion);
- M6- 10 Hillyard Street, 330 Wentworth Street North; and,
- M6 with Exception – 70 Brant Street (zoning exception 355), 80 Brant Street (western portion, zoning exception 387).

The site will need to be rezoned as the Project spans multiple lots and by-law zones. Rezoning is anticipated to commence once 70 Brant Street has been acquired.

2.4.3 Project Funding

Funding for the construction of the first phase of the facility is not currently available. It is anticipated funding decisions will be made once the Public Transit Infrastructure Fund (PTIF) Phase 2 or Investing in Canada Infrastructure Program (ICIP) funding is available to municipalities. The City of Hamilton's 2019 Development Charge Background Study includes potential recoverable costs related to the MSF. As of May 2019, the updated by-law has not been approved by City Council.

2.4.4 Construction Phasing

Construction of the facility will be done in two phases:

- The first phase includes construction of the maintenance area, the office bridgeway, the parking structure, and the bus garage to accommodate approximately 200 SBEs.
- The second phase will be an expansion of the indoor bus storage area that will add capacity for approximately 100 additional SBEs, bringing the total capacity to 304 SBEs.

The timing of the second phase expansion depends on the timing of the transit fleet expansion. Based on current fleet forecasts, the expansion will be required in the mid to late 2020s, however this will require review. Expansion is contemplated by this environmental assessment.

3 Existing Conditions

This section discusses the existing conditions within the Study Area in the context of the built, natural, socio-economic, and cultural environments. These conditions were used to establish a baseline to compare and evaluate the anticipated effects of the project. Certain components of this section have been informed by technical studies, which are provided in the following appendices:

- Appendix B: Natural Heritage
- Appendix C: Cultural Heritage & Archaeology
- Appendix D: Noise
- Appendix E: Air Quality
- Appendix F: Physical Environment
- Appendix G: Traffic Impact

3.1 Natural Heritage

The Study Area is located within an industrialized area, which has been highly disturbed through past development/redevelopment. As such, there are limited natural features.

3.1.1 Aquatic Species and Habitat

The Study Area is located on the former Sherman Inlet, which was part of the original Hamilton Harbour shoreline. The Sherman Inlet was infilled during the early twentieth century, and there are currently no water bodies within the Study Area. The nearest water body, a small stream connecting to Hamilton Harbour, is over 200m north of the site.

3.1.2 Trees and Vegetation

The majority of the Study Area has been previously cleared of vegetation, much of which is either currently or has been previously occupied by a building or paved area. Trees are generally limited to the perimeters of the parcels that make up the Study Area and along the fencing that separates the former rail spur and 80 Brant Street and the fencing line between 70 Brant Street and 80 Brant Street. Much of the Study Area is also made up of overgrown areas of grasses and brush.

A tree inventory was completed for the Study Area. The inventory identifies the condition of existing trees, and if they are invasive. A total of 553 trees were identified throughout the Study Area, of which 27 were dead, and 451 were invasive species (56 were both dead and invasive).

The dominant trees species found within the Study Area include:

- Tree Of Heaven
- Staghorn Sumac
- Siberian Elm
- Manitoba Maple
- Norway Maple
- Hawthorn Tree
- Cottonwood Tree
- Basswood
- Bitternut Hickory
- Eastern White Pine
- Austrian Pine
- Oakleaf Mountainash
- Bur Oak
- Red Oak
- White Spruce
- Sargent Cherry

Tree of Heaven is an invasive species and is the most dominant species observed.

The tree inventory is included in the Tree Protection Plan in Appendix B. There are no Areas of Natural Scientific Interest (ANSIs) within 30m of the site.

3.2 Cultural Heritage

3.2.1 Archaeology

A Stage 1 Archaeological Assessment was completed in 2013 as part of a previous Class EA for the Study Area, included in Appendix C.

Over the course of the nineteenth and twentieth centuries the area experienced substantial change and development, including the infill of the Sherman Inlet and complete alteration of the Hamilton Harbour shoreline, as well as industrial, commercial and residential development.

The Stage 1 Archaeological Assessment determined that there are no archaeological sites have been registered within 1 km of the Study Area. Given the lack of registered archaeological sites and the extent of disturbance, the Stage 1 Archaeological Assessment concluded that the Study Area lands have not retained any archaeological potential, and no further study was recommended.

3.2.2 Built Heritage and Heritage Landscapes

A Cultural Heritage Assessment was completed in 2012 as part of a previous Class EA for the Study Area, excluding the area north of the former rail spur (10 Hillyard Street, 70 Brant Street, and 80 Brant Street) and a rail bridge over Birch Avenue. The report identified that there is a remaining potential cultural heritage landscape remaining on the west side of Hillyard Street. It is outside of the Study Area and is not expected to be impacted by this project. The Cultural Heritage Assessment report is included in Appendix C.

The sites at 10 Hillyard Street and 70 Brant Street were both screened for cultural heritage potential using the Ministry of Tourism, Culture and Sport's *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes (2016)* and the *Standards and Guidelines for Consultant Archaeologists (2011)*. Through this screening process it was identified that no further assessment was required for these sites. The memorandums detailing the results of the screening are included in Appendix C.

A Cultural Heritage Evaluation Report and Cultural Heritage Impact Assessment were completed for the Birch Avenue rail bridge (Bridge #331). The rail bridge is located just beyond the eastern limit of the Study Area. The bridge is no longer in use, and the rail line connected to the bridge has been removed. The Cultural Heritage Evaluation Report determined that the bridge has Cultural Heritage Value or Interest, Class C structure under Ontario Regulation 9/06, and moderate heritage value under the Hamilton Bridge Guidelines. The bridge is being reviewed as part of a separate Municipal Class Environmental Assessment that the City of Hamilton is initiating in 2019. That EA will review two-way traffic conversation and stormwater improvements on Birch Avenue from Burlington Street to Barton Street. The Cultural Heritage Impact Assessment Report identified that the City of Hamilton is planning to decommission the bridge. This may include relocating it, salvaging the bridge, or demolishing the bridge and installing a commemorative plate. It is not anticipated that the bridge will be impacted by this project.

The Cultural Heritage Evaluation Report and Cultural Heritage Impact Assessment for the rail bridge are both included in Appendix C.

3.3 Socio-Economic Environment

The MSF is located in the neighbourhood known as Industrial Sector B/Keith. The neighbourhood is included in the City of Hamilton's Neighbourhood Action Strategy, which identifies areas of Hamilton where social and economic

inequalities are having impacts on residents' health. The Social Planning and Research Council of Hamilton prepared a neighbourhood profile³ of the area that identifies challenges the neighbourhood faces:

- There is a larger proportion of residents with activity limitations than in the City (29% vs. 21%);
- The poverty rates in the area are more than double the city average. More than four in ten Keith residents (43%) are living in poverty. Almost seven in ten children are living in poverty, while close to half of the senior population (45%);
- The rate of students not completing high school (17.4%) is more than three times the city-wide median, while the number of residents aged 25-64 with less than a high school education is 37%, or 2.3 times the city median; and,
- The average age of death is 65.6 years, which is 9.7 years younger than the Hamilton median.

3.4 Noise

The MECP noise guideline NPC-300 "Stationary and Transportation Sources – Approval and Planning" identifies four classifications for where a noise receptor can be located. The Study Area is representative of a "Class 1 area" which is an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as "urban hum."

The MECP criteria for noise levels resulting from stationary noise sources for a Class 1 area are in Exhibit 3.1. MECP also specifies noise criteria for emergency generators that operate during non-emergency times, such as testing and maintenance. The noise level criterion is 5 dBA greater than those for stationary noise listed in Exhibit 3.1.

Exhibit 3.1: Stationary Noise Level Criteria

Time Period	Location	Class 1
0700 – 1900	Outdoor Living Area	50 dBA
1900 – 2300	Outdoor Living Area	50 dBA
0700 – 1900	Plane of Window	50 dBA
1900 – 2300	Plane of Window	50 dBA
2300 – 0700	Plane of Window	45 dBA

The guideline limits can be simplified into three categories:

- 50 dBA limit during daytime hours;
- 45 dBA limit during nighttime hours; and,
- 55 dBA during daytime hours when testing and maintaining the on-site emergency generators.

Sensitive receiver locations were identified to facilitate analysis of noise levels (Exhibit 3.2). All receivers were located at the *worst-case* locations, which is typically the most exposed residential lot and building surface for daytime and nighttime noise. As all receivers for this analysis are two storey residential buildings, the receiver locations are situated flush with the building façade on each floor of the building to represent the outside of bedroom and living room windows.

In terms of Outdoor Living Areas (OLAs) receiver locations, all are considered to be located at the most exposed building location and coincide with the building façade receiver locations. If noise levels exceed maximum allowed levels, on-site mitigation must be provided to protect the entire property from noise impacts, not only at the specific receiver locations.

Exhibit 3.2: Receiver Locations (Off-site)

Receiver	Location	Represents
Receiver A	13 Dickson Street	Façade Floors 1-2, OLA
Receiver B	21 McKinstry Street	Façade Floors 1-2, OLA
Receiver C	429 Wentworth Street North	Façade Floors 1-2, OLA
Receiver D	27 Munroe Street	Façade Floors 1-2, OLA
Receiver E	64 Munroe Street	Façade Floors 1-2, OLA
Receiver F	22 Imperial Street	Façade Floors 1-2, OLA
Receiver G	247 Gibson Avenue	Façade Floors 1-2, OLA

3.5 Air Quality

To assess the existing air quality conditions, the following guidelines were referenced to help identify potential contaminants of interest:

- **MECP Air Contaminants Benchmarks (ACB) List:** itemizes contaminants and their corresponding benchmarks, and is used to assess a facility's potential contribution of contaminants to the air. The benchmarks are based on a maximum ground-level concentrations; and,
- **MECP Ambient Air Quality Criteria (AAQC):** provides emission concentration guidelines for air contaminants to protect against adverse effects on health and the environment. The AAQC value for each contaminant and its applicable averaging period is used to assess the maximum predicted effect at off-site receptors derived from dispersion models.

Many of the potential contaminants of interest produced by MSF-related activities will be emitted in small quantities. As such, a screening-out assessment was conducted in accordance with MECP Guideline A-10 "Procedure for Preparing an Emission Summary and Dispersion Modelling Report Version 4.1" (dated March 2018). Emission rates for each potential contaminant were assessed against their respective threshold using an urban dispersion factor at 20 metres, the smallest separation distance provided in the guideline. If the rate was less than the threshold then the contaminant was determined to be negligible and not assessed further. The assessment is available in Appendix E.

The contaminants found to be significant (i.e. not negligible) through the assessment are:

- Nitrogen dioxide (NO₂);
- Carbon Monoxide (CO); and,
- n-butyl acetate.

Existing air quality for the Study Area is best characterized by the MECP-operated Hamilton Downtown station (NAPS ID #60512) that is located approximately 2 km south-west of the Study Area. The most recent five years of ambient air quality monitoring data publicly available from the station was reviewed for the contaminants of interest for the desired averaging periods and compared against the relevant guidelines (Exhibit 3.3). For both nitrogen dioxide and carbon monoxide, the area has consistently remained below their respective AAQC guidelines. Data for n-butyl acetate was not available from any MECP or NAPS ambient monitoring stations.

The highest maximum value over the 5-year period for each contaminant and averaging period was selected to represent ambient (i.e. existing) concentrations in the area. Using the maximum value is a very conservative assumption because it represents the absolute worst-case scenario, which could have only occurred for one hour or day during the five-year period.

³ http://www.sprc.hamilton.on.ca/wp-content/uploads/2012/03/2012-Report-Neighbourhood_Profiles_March.pdf

Exhibit 3.3: Hamilton Downtown Monitoring Station Data for Significant Contaminants (Existing)

Contaminant (Averaging Period)	Guideline (µg/m3)	Statistic	Ambient Monitoring Data (µg/m3)					Max.	% of Guideline
			2012	2013	2014	2015	2016		
NO ₂ (1 hr)	400	Maximum	51	57	67	59	61	67	17%
		90 th Percentile	25	25	24	24	24	25	6%
		Mean	12	12	12	12	12	12	3%
NO ₂ (24 hr)	200	Maximum	34	36	48	34	41	48	24%
		90 th Percentile	21	22	21	21	20	22	11%
		Mean	12	12	12	12	12	12	6%
CO (1 hr)	36,200	Maximum	1.7	2.0	2.9	1.3	1.4	2.9	<1%
		90 th Percentile	0.4	0.4	0.4	0.4	0.4	0.4	<1%
		Mean	0.3	0.3	0.3	0.3	0.2	0.3	<1%
CO (8 hr)	15,700	Maximum	0.9	1.0	1.0	1.0	1.1	1.1	<1%
		90 th Percentile	0.4	0.4	0.4	0.4	0.4	0.4	<1%
		Mean	0.3	0.3	0.3	0.3	0.2	0.3	<1%

The ambient concentrations of contaminants determined to be negligible were also assessed. At the Hamilton Downtown monitoring station, particulate matter and benzene were determined to have ambient concentrations exceeding their respective guidelines. As the proposed facility will emit particulate matter and benzene in negligible amounts, it is unlikely that there will be an increase in the number of these exceedances due to the proposed facility operations. Exhibit 3.4 provides the average, 90th percentile and maximum concentration for PM_{2.5}, PM₁₀, and benzene compared to their respective AAQC guidelines.

Exhibit 3.4: Hamilton Downtown Monitoring Station Data for Contaminants that Exceed the Guidelines (Existing)

Contaminant (Averaging Period)	Guideline (µg/m3)	Statistic	Ambient Monitoring Data (µg/m3)					Max.	% of Guideline
			2012	2013	2014	2015	2016		
PM _{2.5} (24 hr)	30	Maximum	41	47	45	37	31	47	157%
		90 th Percentile	17	18	19	19	14	19	63%
		Mean	8	10	11	10	8	11	37%
PM _{10.0} (24 hr)	50	Maximum	76	87	83	68	57	87	174%
		90 th Percentile	31	33	35	35	26	35	70%
		Mean	15	19	20	19	15	20	41%
Benzene (24 hr)	2.3	Maximum	6.2	4.3	4.0	2.9	2.1	6.2	269%
		90 th Percentile	2.1	2.7	1.9	1.8	1.4	2.7	117%
		Mean	1.0	1.1	0.9	1.1	0.7	1.1	50%
Benzene (Annual)	0.45	Mean	1.0	1.1	0.9	1.1	0.7	1.1	253%

The Air Quality study was completed by Ortech Consulting. A copy of the report is available in Appendix E.

3.6 Physical Environment

3.6.1 Subsurface Conditions

The Study Area has several areas where there is existing concrete and asphalt, ranging in thickness between 150 to 200 mm, and 50 to 150 mm respectively. The Study Area, including these areas, is underlain by soils that are highly varied in composition, generally made up of the materials presented in Exhibit 3.5. Detailed subsurface conditions are provided in Soils Profile and Data Collection in Appendix F.

Exhibit 3.5: Study Area Subsurface Conditions

Material Layers (from Surface Down) 	Sand and Gravel Fill Followed by Clayey Silt Fill	
	Depth: down to 1.5 to 9.4 m below surface Compaction: very loose to very dense Other materials: contains wood pieces, trace slag, and trace brick pieces	
	Compressible peat and organic soils	
	Depth: down to 2.1 to 8.4 m below surface Compaction: very soft to firm/stiff	
	Clayey Silt (in some locations)	Silty clay (in some locations)
	Compaction: very stiff to hard	Compaction: stiff to very stiff
	Weathered Shale Bedrock (in some locations)	
	Depth: starts at 13.7 to 15.0 m below surface	

3.6.1 Groundwater

As part of the site investigation, eight monitoring wells were installed, in addition to nine pre-existing monitoring wells within the Study Area. Groundwater levels in the Study Area were observed at elevations between 72.8 to 78.8 m above sea level, or 0.5 to 7.0 m below the ground surface. The highly varied subsurface materials have highly varied hydraulic conductivities, accordingly. The silty clay material has a low permeability and acts a confining layer to groundwater flow. Groundwater flow patterns are influenced by the materials associated with the infill of the Sherman Inlet, generally flowing northeast toward Hamilton Harbour. Detailed subsurface conditions are provided in Soils Profile and Data Collection in Appendix F, and the Phase I and II Environmental Site Assessment reports in Appendix F.

There are no active wells within 500 m of the Study Area.

3.6.2 Site Contamination

Contamination within the Study Area is widespread, and includes contaminant levels that exceed MECP Table 3: Full Depth Generic Site Condition Standards (SCS) as outlined in the *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (April 15, 2011). The following contaminants were identified to have exceeded the SCS limits for metals, inorganics, polycyclic aromatic hydrocarbons, conductivity, lead, cyanide, benzo(a)pyrene and dibenzo(a,h)anthracene, and vinyl chloride. Details on the contaminant types, locations, and levels are provided in the Phase I and II Environmental Site Assessment reports in Appendix F.

3.6.3 Stormwater

Stormwater from the Study Area is discharged into the municipal storm sewers located under Brant Street, Birch Avenue and Hillyard Street. The total imperviousness within the Project limits is approximately 81% with an overall

runoff coefficient of 0.78. There are currently no stormwater management measures on site for water quantity and/or quality controls. Further details can be found in the Stormwater Management Brief in Appendix F.

3.6.4 Source Water Protection

The project area is within the Hamilton Region Source Protection Area in the City of Hamilton, therefore the applicable source protection policies established under the Clean Water Act (CWA), 2006 are to be considered. This Protection Area is in the Halton-Hamilton Source Protection Region and falls under the Source Protection Plan for Halton and Hamilton Regions. The plan's objective is to protect existing and future drinking water sources, and prevent or stop identified threats.

The plan also includes general policies that establish timelines and designate land uses and activities in relation to drinking water threat policies, threat policies based on prescribed and local threats, and other policies set out to achieve the Plan's objectives.

3.7 Transportation

3.7.1 Road Network

The following road network is adjacent to the Study Area:

- **Burlington Street** is an east-west major arterial road. It connects central Hamilton to the Queen Elizabeth Way, a 400-series highway. Burlington Street is a two to four lane road and has a posted speed limit of 50 km/h from Wentworth Street N to McKinstry Street and a posted speed limit of 60 km/h from McKinstry to Sherman Avenue N. It predominantly serves employment areas.
- **Birch Avenue** is a southbound one-way minor arterial road. It connects Burlington Street to Wilson Street. Birch Avenue is a three lane road with an assumed speed limit of 50 km/h, and serves an employment area. Birch Avenue has the potential to be converted to a two-way street.
- **Barton Street** is an east-west minor arterial road. It connects central Hamilton to the community of Winona, located west of the City. Barton Street is a four lane road, and has an assumed speed limit of 50 km/h. It services neighbourhoods.
- **Wentworth Street** is a north-south minor arterial road. It has a four lane cross section, and has an assumed speed limit of 50 km/h. It connects the Hamilton Harbour at its north end and turns into Charlton Avenue East at its south end. Wentworth Street mostly services employment locales within the Study Area.
- **Brant Street** is a local east-west two lane road. It connects Wentworth Street to Sherman Avenue, both minor arterial roads. It serves an employment area and has an assumed speed limit of 50 km/h.
- **Niagara Street** is a local north-west two lane road that serves employment and residential areas. A speed limit of 50 km/h is assumed.
- **Hillyard Street** is a local north-west two lane road that serves an employment area. A 50 km/h speed limit is assumed.
- **Munroe Street** is a local east-west two lane road. It has an assumed speed limit of 50 km/h and serves an employment area, as well as a small section zoned for residential use.

3.7.2 Active Transportation

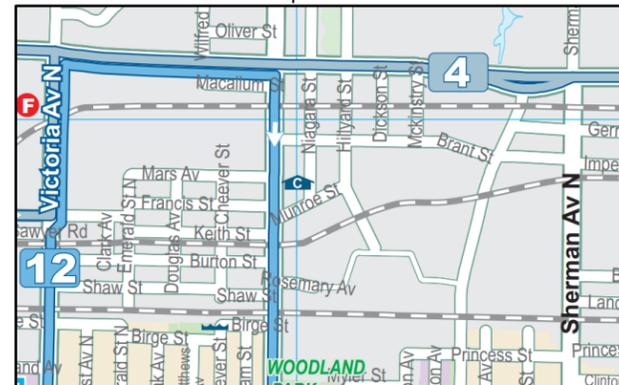
There is a well-established sidewalk network surrounding the site. The existing Hamilton bicycle network does not connect to the site location. The closest existing bike lane runs on Victoria Avenue North, several blocks west of the site. The City of Hamilton's Transportation Master Plan shows planned bike routes running along Burlington Street and Birch Avenue, which will significantly improve connectivity of this site to the larger City of Hamilton bike network.

3.7.3 Transit System

The following transit is available in the nearby area:

- **Route 12 (Wentworth):** travels in the south direction along Wentworth Street with stops at intersections of Burlington Street, Mars Avenue and Burton Street. Service runs only on weekdays from 6:30 AM to 7:30 PM. The route is served every 30 minutes.
- **Route 4 (Bayfront):** travels in both the east and west direction along Burlington Street with stops at Wentworth Street, Hillyard Street, McKinstry Street and Birch Avenue. Service runs on weekdays, weekends and holidays with schedule service every 15 minutes during peak hours and every 30 minutes during off-peak hours. Service runs from approximately 5:00 AM to 2:00 AM the next day.

Exhibit 3.6: HSR Transit Map



3.7.4 Existing Traffic Assessment

The primary metric for traffic flow performance is level-of-service (LOS). It is a measure of intersection performance based on the average delay experienced by drivers (Exhibit 3.7).

Exhibit 3.7: Intersection LOS Reference

HCM Level of Service (LOS)	Control Delay Per Vehicle (S)	
	Signalized	Unsignalized
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Intersection operations analysis was conducted using Synchro (version 9) and following Highway Capacity Manual (HCM 2000) methodologies of intersection analysis. The weekday a.m. and p.m. traffic peak hours were analyzed, when general background traffic is considered highest. A summary of existing volumes is found in Exhibit 3.8.

Based on the results, all intersections in the Study Area currently operate well, with the signalized intersections operating at LOS A or B. No intersections, signalized or unsignalized, experience any critical movements in either peak periods, indicating stable and free-flow traffic conditions. The road network has capacity for additional traffic generated by the MSF. Existing traffic analysis for the a.m. and p.m. peak hours is provided in Exhibit 3.9.

The full Traffic Impact Study is available in Appendix G.

Exhibit 3.8: 2019 Existing Conditions Traffic Volumes

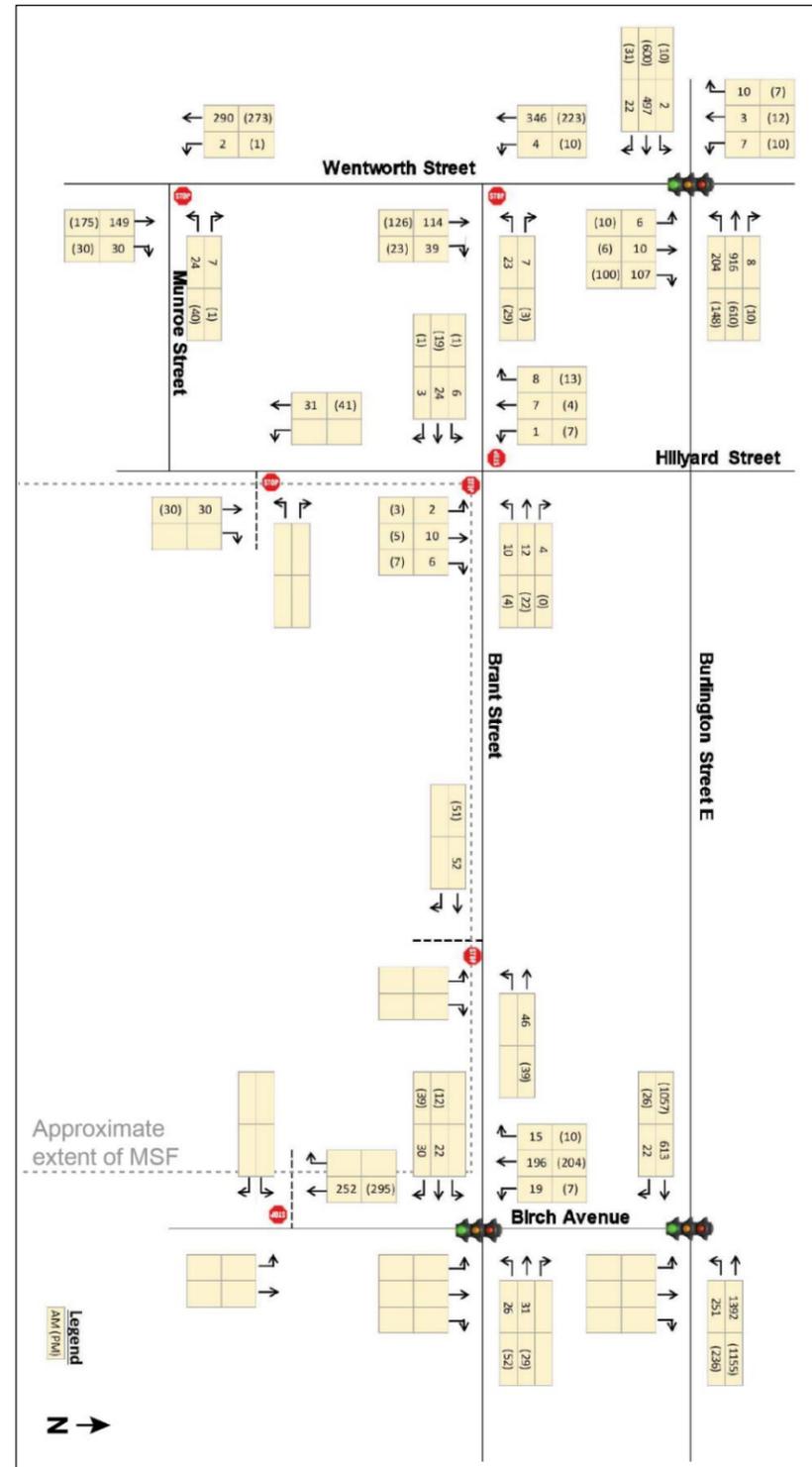


Exhibit 3.9: Existing Traffic Analysis (All Movements) Summary

Intersection Name	Control Type	Int LOS	All Movements				
			Mvmt	LOS	Delay (s)	V/C Ratio	95 th Percentile Queue (m)
AM PEAK							
Wentworth St N/ Burlington St E	Signalized	B	EBL	C	20	0.01	2
			EBTR	C	26	0.53	56
			WBL	B	15	0.47	30
			WBTR	B	16	0.60	77
			NBTLR	C	21	0.07	7
			SBTLR	C	21	0.03	6
Burlington St E/ Birch Avenue	Signalized	A	EBTR	B	17	0.24	42
			WBL	C	28	0.33	30
			WBT	A	0	0.33	-
Birch Avenue/ Brant St	Signalized	A	EBTR	B	14	0.06	9
			WBTL	B	15	0.09	13
			SBTLR	A	8	0.13	21
Wentworth St N/ Brant St	Unsignalized	-	WBLR	B	11	0.05	1
			SBTL	A	0	0.00	0
			NBTR	A	0	0.00	0
Brant St/ Hillyard St	Unsignalized	-	EBTLR	A	1	0.00	0
			WBTLR	A	3	0.01	0
			NBTLR	A	9	0.02	1
			SBTLR	A	9	0.02	1
Munroe St/ Wentworth St N*	Unsignalized	-	WBLR	B	11	0.05	1
			SBTL	A	0	0.00	0
			NBTR	A	0	0.00	0
PM PEAK							
Wentworth St N/ Burlington St E	Signalized	B	EBL	B	19	0.05	5
			EBTR	C	27	0.62	69
			WBL	B	15	0.41	22
			WBTR	B	13	0.39	45
			NBTLR	C	21	0.07	7
			SBTLR	C	21	0.06	9
Burlington St E/ Birch Avenue	Signalized	A	EBTR	B	14	0.38	59
			WBL	C	30	0.35	30
			WBT	A	0	0.29	-
Birch Avenue/ Brant St	Signalized	A	EBTR	B	12	0.04	7
			WBTL	B	13	0.13	16
			SBTLR	A	6	0.13	13
Wentworth St N/ Brant St	Unsignalized	-	WBLR	B	11	0.05	1
			SBTL	A	1	0.01	0
			NBTR	A	0	0.00	0
Brant St/ Hillyard St	Unsignalized	-	EBTLR	A	0	0.00	0
			WBTLR	A	1	0.00	0
			NBTLR	A	9	0.02	0
			SBTLR	A	9	0.03	1
Munroe St/ Wentworth St N ⁴	Unsignalized	-	WBLR	B	11	0.07	2
			SBTL	A	0	0.00	0
			NBTR	A	0	0.00	0

⁴ Currently operates with an intersection pedestrian signal (IPS) – City staff reported that the signal is to be removed in 2019

4 Impact Assessment, Mitigation and Monitoring

Construction of the MSF will change the Study Area, and has potential to have impacts beyond the area. These changes were considered during the review of alternative design options in pre-planning for TPAP and during TPAP to develop the preliminary engineering design. The following sections provide:

- An assessment and evaluation for potential impacts of the preferred design in 2.2. This does not include details on the alternative design options considered during pre-planning;
- A description of proposed measures for mitigating potential negative impacts the transit project might have on the environment; and,
- A description of the proposal for monitoring or verifying the effectiveness of the mitigation measures.

The potential impacts assessed include shorter-term impacts associated with construction activities and longer-term impacts associated with on-going operation and maintenance of the facility. This section is structured to parallel Section 3, discussing the impacts of the project in the same contexts: the built, natural, socio-economic, and cultural environments. The supporting technical studies are provided in Appendices B to G.

4.1 Natural Heritage

4.1.1 Aquatic Species and Habitat

4.1.1.1 *Potential Impacts*

No impacts to aquatic species or habitat are anticipated, given the lack of aquatic features within and around the Study Area.

4.1.2 Trees and Vegetation

4.1.2.1 *Potential Impacts*

Of the 553 trees identified within the survey area, 48 will be preserved and the remaining 505 will be removed. Of the trees to be removed, 413 are invasive species and the remainder tend to be in poor condition or dead. A complete list of trees to be preserved and removed is provided in the Tree Protection Plan, included in Appendix B.

The remaining vegetation, which has not been previously cleared, will largely be cleared prior to construction.

4.1.2.2 *Mitigation*

Proposed mitigation measures include:

- Planting approximately 200 additional deciduous trees on the site and within the road right-of-way. Tree species and diversification rates will be based on City of Hamilton guidelines.
- Minimizing vegetation clearing where possible, and when clearing, delineating vegetation clearing zones and vegetation retention zones (i.e. using silt fencing or tree protection fencing) on both the construction drawings and in the field with the Contractor prior to clearing and grading.
- Stabilizing and re-vegetating exposed surfaces as soon as possible upon completion of works.
- Using protection measures for trees and vegetation to be retained. Tree protection should follow the Tree Protection Plan (Appendix B). Vegetation protection measures should be detailed on contract drawings and implemented to ensure encroachment is limited to the construction footprint.

- Developing an invasive species management strategy, which will include a clean equipment protocol, removal of invasive species using best management practices established by the Ontario Invasive Plant Council, and the development of an ecological restoration plan using appropriate native species.
- Compliance with the Migratory Birds Convention Act (MBCA) for tree removal and clearing of any vegetation. The MBCA protects the nests, eggs and young of migratory birds. Compliance measures will include seasonal avoidance of bird nesting season (March 25 to August 31), or nest surveys by a qualified biologist to search for and avoid active nests during nesting season.

4.1.2.3 *Net Effects*

Net effects are limited to a minor loss of disturbed vegetation within the right-of-way, and the opportunity for positive effect where there is removal of invasive species.

4.1.3 Terrestrial Wildlife and Birds

4.1.3.1 *Potential Impacts*

Potential impacts to wildlife would be directly associated with impacts to vegetation, which comprises their habitat. Given the highly industrialized Study Area, potential impacts to wildlife are limited, and may include:

- Permanent removal of existing vegetation may result in habitat loss;
- Noise, dust and vibrations associated with construction activities potentially causing short-term disturbance to wildlife, and potentially leading to certain wildlife abandoning or avoiding the area;
- Clearing of trees potentially impacting birds during nesting periods; and,
- Building demolition impacting bats during roosting periods.

Long-term impacts are not expected as the facility is proposed in an area that is already developed and the proposed works do not involve a change in land use.

4.1.3.2 *Mitigation*

Proposed mitigation measures include:

- Compliance with the Migratory Birds Convention Act (MBCA) for tree removal and clearing of any vegetation. The MBCA protects the nests, eggs and young of migratory birds. Compliance measures will include seasonal avoidance of bird nesting season (March 25 to August 31), or nest surveys by a qualified biologist to search for and avoid active nests during nesting season.
- Avoidance of the summer season for building demolition and/or building inspection prior to demolition to confirm that no bats and bat young-of-the-year are roosting within it.
- Avoiding the disturbance of any animal found within the construction area, and allowing it to leave on its own. Photos for identification should be taken of animals observed onsite, if possible. If Threatened or Endangered species are discovered during site preparation or construction, activities will stop, or be modified to avoid negative impacts to SAR until further direction is provided by the MNR. In the event of such a discovery, MNR Guelph District office should be contacted promptly.
- Confirmation of nest presence/absence prior to commencement of works so that appropriate measures can be taken to ensure compliance with the ESA.

4.1.3.3 *Net Effects*

Potential net effects are limited to limited loss in wildlife habitat. Long-term impacts are not expected as the facility is proposed in an area that is already developed and the proposed works do not involve a change in land use.

4.2 Cultural Heritage

4.2.1 Archaeology

4.2.1.1 *Potential Impacts*

No archaeological impacts are anticipated, as no archaeological sites have been identified in the Study Area.

4.2.1.2 *Mitigation*

In the event that artifacts are encountered at any point, the following response protocol will be implemented:

- All site alteration activities must cease immediately and the Quality Assurance / Environmental Administrator and Construction Manager will be contacted;
- The Construction Manager will contact the Owner and the Environmental Manager;
- A Licensed Archaeologist will be retained to examine the findings and determine their significance;
- Any significant findings will be documented by the Archaeologist and reported to MTCS; and,
- Site alteration activities will not be reinstated at the site until clearance from the above noted authorities has been provided.

In the event that human remains are encountered at any point, the following response protocol will be implemented:

- All site alteration activities must cease immediately and the Quality Assurance / Environmental Administrator and Construction Manager will be contacted;
- The Construction Manager will contact the Owner and the Environmental Manager;
- Notification of the remains will be undertaken in accordance with the Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, C.33, which requires that any person who discovers human remains notify the police or coroner, and the Registrar of Cemeteries at the Ministry of Government and Consumer Services;
- The site will be secured until such time that the Police or Coroner's Office assume control of the site;
- Should it be determined that the remains are Indigenous, the Indigenous community with cultural affiliation to the remains will be notified; and,
- Site alteration activities will not be reinstated at the site until clearance from the above noted authorities has been provided.

4.2.1.3 *Net Effects*

No archaeological net effects are anticipated, as no archaeological sites have been identified in the Study Area.

4.2.2 Built Heritage and Heritage Landscapes

4.2.2.1 *Potential Impacts*

The potential for impact to known cultural heritage resources is limited to the Birch Avenue rail bridge, located adjacent to the Study Area.

4.2.2.2 *Mitigation*

Construction activities will be limited to the Study Area, with the limits delineated (i.e. using silt fencing or tree protection fencing) on both the construction drawings and in the field with the Contractor prior to clearing and grading. The Birch Avenue rail bridge will be isolated from construction activities. During construction or excavation adjacent to known or potential cultural heritage resources, vibration impact will be monitored and work will stop immediately if vibration thresholds are exceeded.

4.2.2.3 *Net Effects*

No built heritage or heritage landscape net effects are anticipated, as no resources have been identified within the Study Area.

4.3 Socio-Economic

4.3.1 *Potential Impacts*

Business and residents operating and living in close proximity to the Study Area may experience disruptions due to construction, such as road closures, signage and visibility issues, noise and vibration, garbage pick-up, snow removal and/or sidewalk closures. The existing business operating at 70 Brant will need to relocate, which may result in employment opportunities moving out of the community.

4.3.2 *Mitigation*

Communication with residents and businesses will be take place during detail design and construction to mitigate the potential impacts of the project. City staff will work with potentially impacted residents and businesses to coordinate on communication, and ensure a consistent and holistic approach to activities and messages, building upon proven strategies and tools used for other projects. This will include working with businesses that will need to relocate to determine if there may be other suitable locations in Hamilton.

4.3.3 *Net Effects*

There may be a temporary disruption to nearby residents and businesses during construction. The business operating at 70 Brant may face temporary disruption while they relocate. Overall, there will be net increase in the number of jobs in the community as a result of the MSF.

4.4 Noise

4.4.1 *Potential Impacts*

To assess how future noise levels will be impacted by MSF operations, future sounds levels were modelled with Cadna A v2019 MK1 software package and compared to MECP noise guidelines NPC-300 "Stationary and Transportation Sources – Approval and Planning" noise criteria for a Class 1 area. The approach uses "worse-case" operational assumptions for the facility, including a diesel bus engine fleet. The on-site noise sources include air-handling units, office air-conditioning units, compressors, the bus fleet, and emergency generators. The full methodology, sound power levels and other assumptions are available in Appendix D.

Daytime and nighttime noise levels produced by the on-site noise sources at the existing off-site residential receivers defined in Section 3.4 are summarized in Exhibit 4.1. Compared to the noise limits discussed in Section 3.4, the unattenuated noise levels (i.e. with no mitigation) for the daytime period are all below the 50 dBA limit. For the nighttime period, three receivers will be above the 45 dBA limit. Acoustic barriers will therefore be required to screen each HVAC unit.

Exhibit 4.1: Predicated Off-Site Noise Levels, Unattenuated (no mitigation) and Attenuated (with mitigation)

Receiver	Unattenuated Noise Levels Off-Site (dBA)			Attenuated Noise Levels Off-Site (dBA)		
	Daytime	Nighttime	Exceed Limits	Daytime	Nighttime	Exceed Limits
A – 13 Dickson St.	49.2	48.8	Nighttime	45.0	44.8	---
B – 21 McKinstry St.	48.7	48.4	Nighttime	44.7	44.5	---
C – 429 Wentworth St. N.	39.3	38.1	---	37.9	37.7	---
D – 27 Munroe St.	42.2	42.2	---	40.6	40.5	---
E – 64 Munroe St.	46.4	46.3	Nighttime	44.5	44.4	---
F – 22 Imperial St.	41.4	41.3	---	40.8	40.7	---
G – 247 Gibson Ave.	43.5	43.4	---	43.4	43.3	---

When acoustic screens are added, the attenuated noise levels (i.e. with mitigation) for both the daytime and nighttime periods are below the respective limits at all receivers modelled.

The software modelling package was used to predict the noise levels produced by the proposed on-site emergency generators during testing and maintenance activities during daytime periods. As noted in Section 3.4, MECP guidelines permit an additional 5 dBA of noise related to these testing and maintenance activities on top of the daytime limit. Assuming this will only be completed during the daytime, the maximum is 55 dBA.

As shown in Exhibit 4.2, the noise levels produced by five proposed emergency generators while in operation during testing, assuming daytime hours, do not exceed the 55 dBA at any of the off-site receiver locations. Therefore, no mitigation is required.

Exhibit 4.2: Emergency Generator Predicated Off-Site Noise Levels, Unattenuated

Receiver	Unattenuated Noise Levels Off-Site (dBA)	
	Daytime	Exceed Limits
A – 13 Dickson St.	38.7	---
B – 21 McKinstry St.	25.6	---
C – 429 Wentworth St. N.	42.3	---
D – 27 Munroe St.	50.5	---
E – 64 Munroe St.	52.5	---
F – 22 Imperial St.	14.4	---
G – 247 Gibson Ave.	26.2	---

4.4.2 Mitigation

Noise mitigation will be required to bring on-site noise sources within this transit facility into compliance with the MECP noise criteria. Screening of the rooftop HVAC equipment will be required to mitigate nighttime noise at off-site receivers. Acoustic barriers should fully screen each HVAC unit, and be constructed with no holes or gaps, with a material of minimum density of 20 kg/m².

4.4.3 Net Effects

The identified mitigation measures are expected to keep noise levels below the thresholds identified in the MECP NPC-300 noise guidelines at the modelled receivers which are representative of the "worst-case" residential locations under the "worst-case" operating conditions.

4.5 Air Quality

4.5.1.1 Potential Impacts

An air quality assessment was undertaken following MECP Guideline A-10 "Procedure for Preparing an Emission Summary and Dispersion Modelling Report Version 4.1" dated March 2018 ("Guideline A-10"). The assessment considers the emissions from three activities: bus operations, natural gas heating equipment/standby generators, and paint booth/shop areas.

A screening-out assessment of containments generated by MSF-related activities was conducted to remove those with negligible levels based on Guideline A-10. This is discussed in greater detail in section 3.5. The assessment determined there are three contaminants of interest:

- Nitrogen oxides (NO_x);
- Carbon Monoxide (CO); and,
- n-butyl acetate.

The past five years of ambient air quality data from the Hamilton Downtown Monitoring Station was reviewed to determine existing background conditions. The maximum ambient monitoring data for the desired averaging periods of 1, 8 and 24 hours was selected to represent existing conditions. Using the maximum value is a very conservative assumption because it represents the absolute worst-case scenario, which could have occurred for one hour or day during the five-year period. The nearest sensitive receptor location is the residences located directly to the west of the site, on the west side of Hillyard Street.

Exhibit 4.3: Hamilton Downtown Monitoring Station Data for Significant Contaminants (Existing)

Contaminant (Averaging Period)	Statistic	Ambient Monitoring Data (µg/m ³)					
		2012	2013	2014	2015	2016	Max.
NO ₂ (1 hr)	Maximum	51	57	67	59	61	67
	90 th Percentile	25	25	24	24	24	25
	Mean	12	12	12	12	12	12
NO ₂ (24 hr)	Maximum	34	36	48	34	41	48
	90 th Percentile	21	22	21	21	20	22
	Mean	12	12	12	12	12	12
CO (1 hr)	Maximum	1.7	2.0	2.9	1.3	1.4	2.9
	90 th Percentile	0.4	0.4	0.4	0.4	0.4	0.4
	Mean	0.3	0.3	0.3	0.3	0.2	0.3
CO (8 hr)	Maximum	0.9	1.0	1.0	1.0	1.1	1.1
	90 th Percentile	0.4	0.4	0.4	0.4	0.4	0.4
	Mean	0.3	0.3	0.3	0.3	0.2	0.3

The assessment captures the following operating conditions. More detail on each of these, including assumed emission rates, are described in Appendix E:

- **Bus Operations:** the emissions relating to bus operations capture vehicles idling inside the storage garage, vehicles idling in the maintenance bay, emissions from driving inside the storage garage and maintenance area, and emissions from driving outside of the building but still onsite.
- **Natural Gas Heating Equipment and Generators:** the facility will contain natural gas-fired make-up air units, water heaters and boilers. A conservative assumption was taken and assumed all heating equipment is running continuously at maximum capacity. The facility will also have four back-up generators and two life safety generators. The standby generators will be used for standby power only with periodic testing. The emissions from the standby generators will be considered negligible per Guideline A-10.
- **Paint Booth and Shop Areas:** emissions from the paint spray booth, welding stations and paint shop sanding booth were all considered.

The EPA's AERMOD dispersion model was used to predict air quality impacts from the MSF based on a Gaussian plume equation. The model inputs include background concentrations (e.g. the maximum conditions in Exhibit 4.3), local building information, topography, sensitive receptor locations, meteorology, emission rates, and stack parameters. The AERMOD model uses the information to calculate 1 hour, 8 hour and 24 hour averages for the contaminants of interest at off-site receptor locations.

The maximum ambient concentration for each contaminant as a result of the proposed facility and current worst-case ambient concentrations are shown in Exhibit 4.4. This maximum concentration is the highest at any off-site receptor in the model. The results show that all levels are below their respective AAQC Guideline.

Exhibit 4.4: Emissions Summary Table

Contaminant	Averaging Period	Current Max. Ambient Concentration (µg/m ³)	Max. Ambient Concentration with MSF (µg/m ³)	AAQC Guideline (µg/m ³)	Limiting Effect	Percent of Guideline (%)
Nitrogen dioxide	1 hr	67	234	400	Health	58.5%
	24 hr	48	113	200	Health	56.3%
Carbon Monoxide	1 hr	2.9	103	36,200	Health	0.3%
	8 hr	1.1	23	15,700	Health	0.1%
n-butyl acetate	10 min	n/a	38	1,000	Odour	3.8%
	1 hr	n/a	23	15,000	Health	0.2%

4.5.1.2 Mitigation

It is recommended that the design team plan the generator exhausts in accordance with O. Reg. 524/98 section 1.6.3 (e.g. vertical, uncapped stacks). An Air Quality Management Plan will be prepared during detail design.

4.5.1.3 Net Effects

The maximum concentrations of contaminants occur at, or next to the property line, and decrease with greater distance from the facility. Therefore it is anticipated that the surrounding community air quality will not be adversely impacted by the emissions from the facility.

The maximum combined concentrations for each contaminant and averaging period are all below their maximum respective guidelines. The emissions estimates were modelled under a "worst-case" conservative scenario suggesting that typical levels will be much lower than predicted from modelling.

No n-butyl acetate background data was available. However, their modelled concentrations are well below their respective health and odour guidelines (<4% of guideline) with no background concentration considered, so it is not expected the proposed facility will cause exceedances.

4.5.1.4 Monitoring

Construction activities should be monitored by a qualified Environmental Inspector to frequently review the efficacy of the air quality mitigation measures and construction best management practices to confirm they are functioning as intended. In the event that mitigation is found to not be effective, revised mitigation measures designed to improve effectiveness will be implemented.

4.6 Geotechnical and Hydrogeology

4.6.1 Groundwater and Site Contamination

4.6.1.1 Potential Impacts

Groundwater levels could be reduced by construction activities, such as deep foundation and large excavation. However, there are no known active wells within 500 m of the Study Area.

The improper handling and storage of fuel and other chemicals during construction can pose a risk to groundwater. Discharge from construction activities could also potentially impact groundwater quality.

4.6.1.2 Mitigation

Construction at or near the groundwater level may require treatment of discharge from dewatering activities.

During detail design, potential chemical impacts are to be noted in the tender documents along with appropriate mitigation measures that the contractor is to implement.

Further characterization of the groundwater is recommended at the time of construction if construction dewatering is required. Sampling and analysis should be carried out, and the requirements of the City of Hamilton sewer use bylaw should be met. Treatment or disposal of groundwater will also need to be considered.

Monitoring wells within the Study Area that are no longer in use should be decommissioned prior to the commencement of construction activities by a licenced well contractor in accordance with *Ontario Regulation 903*. If any of these existing wells are retained for continued monitoring and sampling purposes, they should be clearly marked and protected during proposed construction activities.

4.6.1.3 Net Effects

There will be a positive net effect on groundwater as a result of site remediation activities to remove contaminants.

4.6.1.4 Monitoring

The need for ongoing monitoring of groundwater quality will be determined during detail design.

4.6.2 Source Water Protection

4.6.2.1 Potential Impacts

The Source Protection Plan for Halton and Hamilton Regions identifies 19 drinking water quality threats, as well as two water quality threats listed under *Ontario Regulation 287/07*. Of these listed threats, the following may potentially apply to this project:

- Sewage systems: their establishment, operation, or maintenance

- Potential impacts exist when establishing, operating or maintaining a system that collects, stores, transmits, treats or disposes of sewage such as Stormwater management facilities designed to discharge stormwater to land or surface water; and sanitary sewers and related pipes.
- Road salt: application
 - The application of road salt can pose a risk to drinking water sources. This impact occurs as a result of salt being used for winter maintenance on all Hamilton right-of-way corridors, and properties with driveways, walkways, sidewalks and parking lots. This impact does not solely apply to the new operations and maintenance facility.
- Fuel: handling and storage
 - The improper handling and storage of fuel and other chemicals during construction and operation of the facility can pose a risk to any drinking water sources.
- Dense non-aqueous phase liquid: handling and storage
 - See fuel
- Organic solvent: handling and storage.
 - See fuel

4.6.2.2 **Mitigation**

Sewage Systems

The project will discharge into existing sanitary, storm and/or onsite storage tank network, and no new discharges are anticipated. If any new storm or sanitary sewers are required, approval from MECP through an ECA will be required prior to construction. This gives approval under *Section 53 of the Ontario Water Resources Act (OWRA)*. This approval applies for all new sewers and stormwater management facilities proposed as part of the project, and will need to be obtained at the detail design stage prior to construction.

Road Salt

The City maintains best practices in regards to road salt management, as outlined in the City of Hamilton Road Salt Management Plan. The City follows legislation that exists to ensure that these items do not become a risk to drinking water sources.

Fuel and other Chemicals

During detail design of the operations and maintenance facility, potential chemical uses and impacts are to be noted in the tender documents along with appropriate mitigation measures that the contractor is to implement. Potential chemical uses and impacts for the facilities operation will be considered and any required approvals will be obtained prior to the start of operations.

4.6.2.3 **Net Effects**

Sewage Systems

No net effects to source water from the new sewers are anticipated as existing storm and sanitary discharges will be used, which will have no net effect. If new storm or sanitary sewers are required, they will be subject to ECA approval, which will ensure the protection of sources of municipal drinking water against existing and potential impacts.

Road Salt

No net effects to source water are anticipated, given the limited increase in area where road salt may be used, relative to all other surfaces in the City.

Fuel and other Chemicals

No net effects to source water are anticipated, given the appropriate handling of fuel and other chemicals during both construction and operation.

4.6.2.4 **Monitoring**

The contract administrator will monitor construction activities to ensure that no intentional discharges occur to the environment. This information is to be included in the Environmental Plan for approvals and should include such items as the following:

- Refueling and cleaning of equipment is to occur away from any watercourse;
- Fuel spill equipment should be available for emergency spills of deleterious substances; and,
- A contact list for any further required equipment or materials should be prepared and made available for emergency use.

4.6.3 **Stormwater**

4.6.3.1 **Potential Impacts**

The proposed facility will increase impervious surface areas within the Study Area, reducing infiltration of precipitation and increased runoff.

4.6.3.2 **Mitigation**

A storm sewer network will be constructed and used to collect and convey runoff from the site with its ultimate discharge into the existing Birch Avenue storm sewer. The site will be graded to contain surface runoff from the major drainage system (storm events in excess of the 5-year storm, up to and including the 100-year storm) within the site and direct it towards the municipal storm sewer system. Stormwater runoff in excess of the 100-year design storm event will be directed overland towards the Birch Avenue ROW.

Water Quantity Control

Water quantity control is required to address the increased impervious surface area and resulting runoff. Since proposed runoff is collected and conveyed by the storm sewer system and then ultimately discharged into the existing municipal storm sewer along Birch Avenue, the 100-year post-development peak flow will be required to be controlled to the 5-year pre-development flow rate. For the entire site, approximately 1280 m³ of storage is required. The required storage will be provided on the rooftop of the new operations and maintenance facility, and within the storm sewer system. A maximum ponding of 150 mm is proposed on rooftop. An orifice plate will be used to control discharge into the existing Birch Avenue storm sewer.

Water Quality Control

As stipulated in the City of Hamilton Comprehensive Development Guidelines and Financial Policies Manual (2018), quality control measures within the Urban Hamilton watershed (outletting to Hamilton Harbor) must achieve Level 1 Enhanced Protection through the long-term removal of 80% suspended solids. Water quality control is required for the proposed site as a result of the increase in impervious cover. Quality control will be achieved through the use of an Oil/Grit Separator (OGS) unit (just upstream of the location where the proposed storm sewer

discharges into the existing Birch Avenue storm sewer) to ensure that runoff is treated prior to entering the receiving system.

4.6.3.3 **Net Effects**

No net effects to stormwater are anticipated, as both water quantity and quality will be addressed through design measures.

4.6.3.4 **Monitoring**

A monitoring strategy will be developed as part of detail design to ensure implemented stormwater management infrastructure meets design requirements.

4.7 **Transportation**

4.7.1 **Potential Impacts**

The Traffic Impact Study assessed traffic conditions for two horizon periods: 2022 which represents the expected opening year of the facility, and 2027 which characterizes the potential impacts five years later. These are standard horizon years for a traffic impact study. For both periods, the assessment compared future traffic conditions with background traffic growth (i.e. no MSF) with the future total (i.e. background traffic growth and MSF). The assessment was conducted following the City of Hamilton's Traffic Impact Study guidelines, in consultation with City staff. The full study is available in Appendix G.

For the 2022 horizon year, all study intersections continue to operate well with no critical movements or capacity concerns compared to existing conditions:

- Average delay increases by 1 to 2 seconds at some intersections (Exhibit 4.5), with the majority remaining unchanged compared to existing conditions, due to additional traffic generated by the MSF. During the p.m. peak, the Wentworth Street and Burlington Street intersection moves from LOS B to LOS C, and during the a.m. peak the Birch Street and Brant Street intersection moves from LOS A to B. The LOS at other intersections and peak hours remains the same; and,
- For the site accesses (Exhibit 4.6), all individual/shared movements operate well with LOS B or better. During both peak periods, some exiting movements operate at LOS B with delays less than 10 seconds.

For the 2027 horizon year, all study intersections continue to operate well with no critical movements or capacity concerns compared to 2022 conditions:

- Average delay increases by 1 to 2 seconds at most intersections (Exhibit 4.7) SF. During the a.m. peak, the Wentworth Street and Burlington Street intersection moves from LOS B to LOS C and during the p.m. peak the Birch Street and Burlington Street intersection moves from LOS A to B. The LOS at other intersections remains the same; and,
- For the site accesses (Exhibit 4.8), all individual/shared movements operate well with LOS B or better. During both peak periods, exiting movements operate at LOS B with delays less than 10 seconds.

In both horizon years, some site generated traffic may travel on residential streets. The additional volumes are expected to be low (e.g. less than 26 per hour in 2027). Most of these trips will be made during off peak periods.

4.7.2 **Mitigation**

An all-way stop control is recommended at the Hillyard Street and Brant Street intersection. A review using OTM Book 5 (Regulatory Signs) guidelines identified that the vehicle volume split warrant will be met. An all-way stop control at the intersection may provide safety and sight line improvements, and will result in an average

intersection delay of 2-3 seconds higher than the existing two-way stop control. The warrant analysis is included in the Traffic Impact Study available in Appendix G.

4.7.3 **Net Effects**

Future intersection delays during the peak periods are expected to be minimal on average (i.e. 1-2 seconds higher). All study intersections are expected to continue to operate well with no critical movements or capacity concerns.

4.7.4 **Monitoring**

It is recommended that the HSR and City of Hamilton develop an appropriate access route plan for employees accessing the MSF to limit usage of residential streets. This is aligned with the City's Traffic Calming / Management Policy (updated 2013) that considers management plans to be preferable than street-by-street traffic calming measures which may inadvertently shift problems to adjacent roadways.

During construction, traffic patterns and behaviours on residential roads should be monitored to determine if changes are needed to construction site access.

Exhibit 4.5: 2022 Future Total Traffic Analysis Summary – Study Intersections

Intersection Name	Control Type	Int LOS	All Movements				
			Mvmt	LOS	Delay (s)	V/C Ratio	95 th Percentile Queue (m)
AM PEAK							
Wentworth St N /Burlington St E	Signalized	B	EBL	C	20	0.01	2
			EBTR	C	27	0.57	61
			WBL	B	16	0.52	32
			WBTR	B	16	0.64	84
			NBTLR	C	21	0.07	8
			SBTLR	C	21	0.04	7
Burlington St E/ Birch Avenue	Signalized	A	EBTR	B	18	0.26	45
			WBL	C	29	0.38	34
			WBT	A	0	0.35	-
Birch Avenue/ Brant St	Signalized	B	EBTR	B	14	0.07	9
			WBTL	B	15	0.10	13
			SBTLR	A	8	0.14	23
Wentworth St N/ Brant St	Unsignalized	-	WBLR	B	11	0.07	2
			SBTL	A	1	0.01	0
			NBTR	A	0	0.00	0
Brant St/ Hillyard St	Unsignalized	-	EBTLR	A	1	0.00	0
			WBTLR	A	6	0.04	1
			NBTLR	A	10	0.04	1
			SBTLR	A	10	0.02	1
Munroe St/ Wentworth St N	Unsignalized	-	WBLR	B	11	0.06	2
			SBTL	A	0	0.00	0
			NBTR	A	0	0.00	0
PM PEAK							
Wentworth St N/Burlington St E	Signalized	C	EBL	B	19	0.05	5
			EBTR	C	28	0.67	74
			WBL	B	16	0.45	23
			WBTR	B	13	0.42	49
			NBTLR	C	21	0.08	8
			SBTLR	C	21	0.06	9
Burlington St E/ Birch Avenue	Signalized	A	EBTR	B	14	0.40	64
			WBL	C	31	0.39	33
			WBT	A	0	0.30	-
Birch Avenue/ Brant St	Signalized	A	EBTR	B	12	0.07	8
			WBTL	B	13	0.13	17
			SBTLR	A	6	0.14	12
Wentworth St N/ Brant St	Unsignalized	-	WBLR	B	11	0.10	3
			SBTL	A	1	0.01	0
			NBTR	A	0	0.00	0
Brant St/ Hillyard St	Unsignalized	-	EBTLR	A	0	0.00	0
			WBTLR	A	4	0.02	1
			NBTLR	A	9	0.10	3
			SBTLR	A	9	0.03	1
Munroe St/ Wentworth St N	Unsignalized	-	WBLR	B	12	0.13	3
			SBTL	A	0	0.00	0
			NBTR	A	0	0.00	0

Exhibit 4.6: 2022 Future Total Traffic Analysis Summary – Site Access

Site Access	Control Type	Int LOS	All Movements				
			Mvmt	LOS	Delay (s)	V/C Ratio	95 th Percentile Queue (m)
AM PEAK							
Birch Ave & Site Access #1	Unsignalized	-	EBL	A	0	0.00	0
			EBR	B	10	0.01	0
			SBTR	A	0	0.00	0
Brant Street & Site Access #2	Unsignalized	-	NBL	A	0	0.00	0
			NBR	A	10	0.00	0
			EBTR	A	0	0.00	0
			WBTL	A	0	0.00	0
Hillyard St & Site Access #3	Unsignalized	-	WBLR	A	9	0.02	0
			SBTL	A	6	0.06	2
			NBTR	A	0	0.00	0
PM PEAK							
Birch Ave & Site Access #1	Unsignalized	-	EBL	A	0	0.00	0
			EBR	B	10	0.01	0
			SBTR	A	0	0.00	0
Brant Street & Site Access #2	Unsignalized	-	NBL	A	0	0.00	0
			NBR	A	0	0.00	0
			EBTR	A	0	0.00	0
			WBTL	A	0	0.00	0
Hillyard St & Site Access #3	Unsignalized	-	WBLR	A	9	0.13	4
			SBTL	A	4	0.03	1
			NBTR	A	0	0.00	0

Exhibit 4.7: 2027 Future Total Traffic Analysis Summary – Study Intersections

Intersection Name	Control Type	Int LOS	All Movements				
			Mvmt	LOS	Delay (s)	V/C Ratio	95 th Percentile Queue (m)
AM PEAK							
Wentworth St N/ Burlington St E	Signalized	C	EBL	C	20	0.01	2
			EBTR	C	28	0.63	68
			WBL	B	19	0.61	35
			WBTR	B	18	0.70	98
			NBTLR	C	21	0.08	8
			SBTLR	C	21	0.04	7
Burlington St E/ Birch Avenue	Signalized	A	EBTR	B	19	0.28	51
			WBL	C	30	0.41	37
			WBT	A	1	0.39	-
Birch Avenue/ Brant St	Signalized	B	EBTR	B	14	0.07	10
			WBTL	B	15	0.11	15
			SBTLR	A	8	0.15	25
Wentworth St N/ Brant St	Unsignalized	-	WBLR	B	12	0.08	2
			SBTL	A	1	0.01	0
			NBTR	A	0	0.00	0
Brant St/ Hillyard St	Unsignalized	-	EBTLR	A	1	0.00	0
			WBTLR	A	6	0.04	1
			NBTLR	A	10	0.04	1
			SBTLR	A	10	0.03	1
Munroe St/ Wentworth St N	Unsignalized	-	WBLR	B	12	0.08	2
			SBTL	A	0	0.00	0
			NBTR	A	0	0.00	0
PM PEAK							
Wentworth St N/ Burlington St E	Signalized	C	EBL	B	20	0.06	5
			EBTR	C	30	0.73	84
			WBL	B	18	0.53	26
			WBTR	B	13	0.46	55
			NBTLR	C	21	0.08	8
			SBTLR	C	22	0.07	10
Burlington St E/ Birch Avenue	Signalized	B	EBTR	B	15	0.45	72
			WBL	C	31	0.43	36
			WBT	A	0	0.34	-
Birch Avenue/ Brant St	Signalized	A	EBTR	B	12	0.07	9
			WBTL	B	13	0.15	18
			SBTLR	A	6	0.16	13
Wentworth St N/ Brant St	Unsignalized	-	WBLR	B	12	0.11	3
			SBTL	A	1	0.01	0
			NBTR	A	0	0.00	0
Brant St/ Hillyard St	Unsignalized	-	EBTLR	A	0	0.00	0
			WBTLR	A	4	0.02	1
			NBTLR	A	10	0.11	3
			SBTLR	A	9	0.03	1
Munroe St/ Wentworth St N	Unsignalized	-	WBLR	B	13	0.13	4
			SBTL	A	0	0.00	0
			NBTR	A	0	0.00	0

Exhibit 4.8: 2027 Future Total Traffic Analysis Summary – Site Access

Site Access	Control Type	Int LOS	All Movements				
			Mvmt	LOS	Delay (s)	V/C Ratio	95 th Percentile Queue (m)
AM PEAK							
Birch Ave & Site Access #1	Unsignalized	-	EBL	A	0	0.00	0
			EBR	B	10	0.01	0
			SBTR	A	0	0.00	0
Brant Street & Site Access #2	Unsignalized	-	NBL	A	0	0.00	0
			NBR	A	10	0.00	0
			EBTR	A	0	0.00	0
			WBTL	A	0	0.00	0
Hillyard St & Site Access #3	Unsignalized	-	WBLR	A	9	0.02	0
			SBTL	A	6	0.06	2
			NBTR	A	0	0.00	0
PM PEAK							
Birch Ave & Site Access #1	Unsignalized	-	EBL	A	0	0.00	0
			EBR	B	10	0.01	0
			SBTR	A	0	0.00	0
Brant Street & Site Access #2	Unsignalized	-	NBL	A	0	0.00	0
			NBR	A	0	0.00	0
			EBTR	A	0	0.00	0
			WBTL	A	0	0.00	0
Hillyard St & Site Access #3	Unsignalized	-	WBLR	A	9	0.13	4
			SBTL	A	4	0.03	1
			NBTR	A	0	0.00	0

4.8 Extreme Weather

The GTHA has increasingly borne the brunt of extreme weather. The impacts of it are affecting many aspects of daily life as the frequency of extreme events increases. Recognizing this threat, Hamilton City Council voted in March 2019 to unanimously declare a climate emergency. As part this declaration, Council directed staff to develop an action plan that will make the City have net zero carbon emissions by 2050.

4.8.1 Potential Impacts of Extreme Weather on the Project

The most significant climate change risk facing the MSF is precipitation and its impact on the SWM system as the intensity of precipitation events is increasing. Depending on how the precipitation falls (liquid, frozen, mixture) and the ambient temperature, the volume of liquid discharge to the SWM system can be significant, and could potentially cause flooding on the site.

Along the same lines, climate change is accelerating erosion and sedimentation. More intense storms are causing higher levels of erosion through winds, water, and moving ice. The sediment laden run off is having detrimental impacts on aquatic habitats. The risk or erosion is a large risk during construction when dirt layers are exposed.

4.8.2 Mitigation for Extreme Weather on the Project

To mitigate the impact of climate change on the Project:

- **A SWM plan will be developed during detail design to manage the runoff from precipitation events.** Low impact development (LID) measures, where appropriate, will be implemented. This will include minimizing paved surfaces wherever possible, the installation of a rainwater capture system for use in the bus wash, absorbent landscapes, and provisions for a vegetative roof over the office area. Minimizing the on-site catchment of liquids will help reduce the risk of localized flooding and ensure the facility can continue to operate during inclement weather by minimizing the risk of flooding; and,
- **An Erosion and Sediment Control (ESC) Plan will be developed.** The plan will adhere to the ESC Guidelines for Urban Construction Guidelines produced by the Greater Golden Horseshoe Area Conservation Authorities, the City of Hamilton Development Engineering Guidelines and relevant provincial guidelines. Proper ESC measures will be implemented during construction and monitored regularly. Possible measures could include sediment traps, vegetation screens, and catch basin filter bags. The ESC Plan, once approved by the City and Hamilton Conservation Authority, will form part of the Development Agreement.

4.8.3 Potential Impacts of the Project on Climate Change

The Toronto Atmospheric Fund estimates that 50% of Hamilton's per capita non-industrial emissions are from transportation, or 2.8 tCO₂e per capita⁵. The construction of the facility will enable the City of Hamilton and HSR to expand their fleet and increase local transit service levels, potentially leading to higher transit usage as envisioned in City policy (see Section 1.3). More people using transit can help reduce carbon emissions caused by private automobile travel, and support transportation demand management efforts to cope with traffic congestion and eliminate the need for new road infrastructure.

The City of Hamilton's Corporate Energy Policy (2014), sets City-wide energy and emission targets (Exhibit 4.9), and defines policies for capital investments related to energy efficiency and minimizing GHG emissions.

Exhibit 4.9: Corporate Energy Intensity and Emission Targets (2005 Base Year)

Year	Energy Policy Reduction Target	Emission Reduction and Offset Target
2020	20%	20%
2030	45%	50%
2050	60%	80%

The policy states that the reducing energy needs is integral to achieving the City's broader environmental goals, and explicitly discusses the need to reduce fuel consumed by City-owned vehicles. The Project supports the policy's objective to minimize environmental impact and climate change as the MSF is:

- Designed to operate a CNG fueled fleet (no diesel buses);
- Designed to be retrofitted to support electric buses in the future which will help reduce emissions related to operations; and,
- Aiming to achieve a LEED Silver design to further encourage energy reductions, and reduce environmental impacts. Specific measures will be identified during detail design and procurement, and will likely incorporate aspects related to sourcing of materials, construction methods and waste, energy and water efficient equipment, and operations and management.

The City of Hamilton's environmental sustainability policy guidelines, and the application of LEED practices assist in meeting not only the City's emission targets, but also contribute to Canada's goal of a low-carbon economy.

⁵ Table 3 of http://taf.ca/wp-content/uploads/2018/09/TAF_GTHA_Emissions_Inventory_Report_2018-Final.pdf

Exhibit 5.3: List of Elected Officials

Position	Electoral District	Official
Member of Parliament	Hamilton Centre	David Christopherson
Member of Provincial Parliament	Hamilton Centre	Andrea Horwath
Mayor	City of Hamilton	Fred Eisenberger
Ward 3 Councillor	Ward 3	Nrinder Nann

5.1.3 Indigenous Communities

A letter was sent by the City of Hamilton to the Director, Environmental Assessment and Approvals Branch of MECP on March 6, 2019, per O. Reg 231/08. The letter requested the Ministry's assistance to confirm the potentially interested Indigenous communities that have been identified by the City of Hamilton as part of previous environmental assessment studies, and to help identify any other communities that may have an interest in this study. Additional information was provided to the Ministry on March 14, 2019.

The following communities were identified and confirmed, and included in the project mailing list:

- Haudenosaunee Confederacy Council;
- Huron-Wendat Nation Council;
- Metis Nation of Ontario;
- Mississaugas of New Credit First Nation;
- Six Nations Eco-Centre; and,
- Six Nations of the Grand River Territory.

Communication with Indigenous communities was done through email, mailed letters, and phone calls. They were provided with all notices, access to materials, in addition to community-specific engagement opportunities. Refer to the consultation record in Appendix H for more detail.

5.2 Pre-Planning Consultation

The Project Team conducted consultation in the pre-planning phase, before issuing the Notice of TPAP Commencement. This included contacting and engaging with all of the groups identified in Section 5.1.2.

5.2.1 Comment and Response Table

Correspondence between the Project Team and stakeholders was tracked in comments tables. Tables are organized in the following groups:

- Public and Community;
- Public Agencies and Utilities; and,
- Indigenous communities.

These are provided in Appendix H.

5.2.2 Project Website

A webpage was created on the City of Hamilton's website⁶. During the pre-planning phase, the page included:

- A summary of the Project;
- A map of the Study Area;
- Notice of Public Consultation Centre #1 (PCC #1), published two weeks in advance of the meeting;
- PCC #1 Meeting Boards, published the day after the event;
- PCC #1 Summary Report; and,
- Project Team contact information.

The website was updated regularly throughout the pre-planning phase as relevant materials became available.

Exhibit 5.4: Screenshot of the Project Website during pre-planning

Hamilton Transit Bus Maintenance and Storage Facility Design
Home > City Planning > Master Plans & Class EAs > Hamilton Transit Bus Maintenance and Storage Facility Design

The City of Hamilton has retained IBI Group to undertake the study and design of a new bus maintenance and storage facility (MSF) for use by Hamilton Transit (HSR) on Birch Avenue. The purpose of the project is to increase maintenance and storage capacity for existing and new buses which are required to improve transit service across Hamilton. The facility will include a storage area, a maintenance garage, administrative offices, and staff parking.

The new facility will support mobility goals and objectives set-out in the [City's Wide Transportation Master Plan \(2018\)](#), [Ten Year Local Transit Strategy \(2015\)](#), and [Rapid Ready Plan \(2013\)](#).

Study status: Currently in the pre-planning phase of the Ontario Transit Project Assessment Process (TPAP) as prescribed in Ontario Regulation 231/08.

TPAP is an approved environmental assessment process that includes consultation, assessment of potential impacts, identification of measures to mitigate the effects, and the completion of an environmental project report. It is anticipated that the TPAP will begin in spring 2019. A formal notice of commencement for the TPAP will be issued at that time.

How the project is implemented: The project is currently in the pre-planning phase of the TPAP process. The design work and environmental assessment are jointly funded by the City of Hamilton and Phase 1 of the Government of Canada's Public Transit Investment Fund (PTIF).

Classification: Transit Project Assessment Process

Media releases and notices

- [Notice of Public Consultation Centre #1](#) (PDF, 126 KB)

Public consultation

Public Consultation Centre
Held March 26, 2019
Presented information on the study, emerging findings and potential site concepts for the new bus maintenance and storage facility.
[Display panels](#) (PDF, 7 MB) [Summary](#) (PDF, 7 MB)

Contact us
Shaba Shringi
Phone: 905-546-2424 ext. 3142
Email: shaba.shringi@hamilton.ca

⁶ <https://www.hamilton.ca/city-planning/master-plans-class-eas/hamilton-transit-bus-maintenance-and-storage-facility-design>

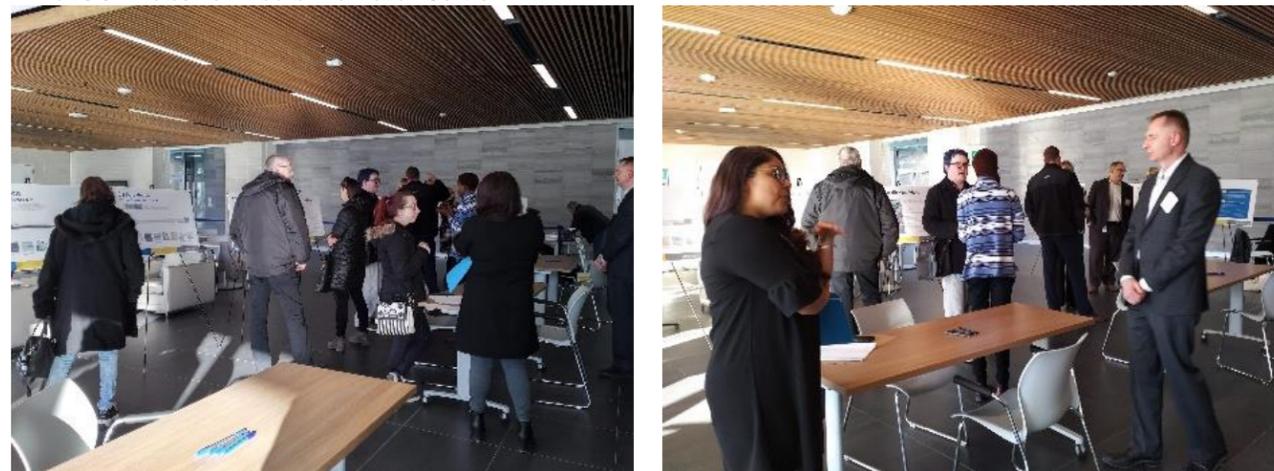
5.2.3 Public Consultation Centre #1 (PCC #1)

The first public meeting, PCC #1, was held on Tuesday, March 26, 2019, at the Bernie Morelli Recreation Centre (876 Cannon St. E., Hamilton) from 6:00 to 8:00 p.m. The objectives of the event were to:

- Introduce the study to the public and other stakeholders;
- Review four alternative design concepts and present the preferred design for comment;
- Provide an opportunity to participate in the planning and decision-making process;
- Provide comments to the Project Team; and,
- Discuss the project one-on-one with the Project Team.

Photos of the event are shown in Exhibit 5.5. Details are available in Appendix H.

Exhibit 5.5: Photos from Public Information Centre #1



5.2.3.1 Notification

Notice of PCC #1 was provided to stakeholders, residents, and the broader public through a variety of channels. A summary of the channels used to disseminate the notice is provided in Exhibit 5.6.

5.2.3.2 Event Format

The event had a drop-in format, and members of the Project Team and the Ward 3 Councillor were in attendance. Attendees were:

- Asked to sign-in and were asked to indicate if they wanted to join the project mailing list;
- Able to review 21 presentation boards that provided information on the facility. Boards were posted to the website the following day;
- Provided comments forms for written feedback and questions. They are provided in Appendix H;
- Invited to ask questions and give input to the Project Team in-person;
- Invited to submit any additional comments, questions, or feedback to the Project Team by email, mail, or phone by April 11, 2019.

Event details are summarized in Exhibit 5.7.

Exhibit 5.6: Notification Details for Public Consultation Centre #1

Channel	Date	Stakeholder Group
Hamilton Spectator Newspaper	March 15 and 22, 2019	General public; other interested parties
Mail (Canada Post)	March 11, 2019: property owners/occupants within 30 metres of the Study Area (178 total) March 11, 2019: Indigenous communities	Property owners and occupants; Indigenous communities
Email	March 11, 2019: community groups and associations, elected officials, members of the public March 11, 2019: Indigenous communities March 11 and 12, 2019: public agencies and utilities	Elected officials; public agencies and utilities; Indigenous communities; members of the public that requested notification
Telephone	March 14, 2019	Indigenous communities
Twitter	March 22 and 26, 2019: HSR (@HSR) March 25, 2019: Ward 3 Councillor (@NrinderWard3)	General public; other interested parties
Project Website ⁷	March 12, 2019	General public; other interested parties
City of Hamilton Public Meeting Calendar ⁸	March 12, 2019	General public; other interested parties

Exhibit 5.7: Summary of PCC #1 Meeting Details

Attribute	Details
Date and Time	March 26, 2019; 6:00 p.m. to 8:00 p.m.
Location	Bernie Morelli Recreation Centre 876 Cannon St. E., Hamilton
Number of Attendees that Signed-In	28
Feedback Forms Received	8
Information Presented	<ul style="list-style-type: none"> • Purpose of the PCC and background information on the need for a second MSF • Alternatives considered, assessment of them, and the preferred site concept. • Design Vision of the preferred concept, including conceptual renderings. • Overview of the Environmental Project Report, and the technical studies that will be completed • Next Steps and Project Team contact information

⁷ <https://www.hamilton.ca/city-planning/master-plans-class-eas/hamilton-transit-bus-maintenance-and-storage-facility-design>

⁸ <https://www.hamilton.ca/government-information/news-centre/public-meetings-consultations>

5.2.3.3 **Feedback at PCC #1**

Recurring themes and findings from the questions, comments and feedback indicate that:

- There was support for the preferred design (Alternative 'C' in the materials) from those who provided feedback;
- Opportunities to incorporate sustainability features and measures should continue to be investigated;
- Minimizing impacts to greenspace is vital to the community;
- There were concerns about the potential effects on traffic, noise, and air quality; and,
- It would be desirable to include community benefits in the facility, such as art or publicly accessible interior or exterior spaces.

A summary report of PCC #1 is available in Appendix H.

5.2.4 **Other Public Submissions**

Additional comments were received from the public during pre-planning:

- Concerns about the impact on noise, pollution, and traffic, mainly from trucks and buses idling and encroaching into local neighbourhoods;
- Clarification on the potential impact to a business operating on the site (70 Brant) that will need to relocate;
- Support for more greenspace, neighbourhood access, and community benefits;
- That the site is too close to downtown Hamilton and its construction may impact the image of the area; and,
- General support for enhancing transit in Hamilton.

These submissions are included in Appendix H.

5.2.5 **Public Agencies and Utilities Consultation**

The purpose of consultation with public agencies and utilities during the pre-planning phase centred on the following topics:

- Introduce the Project to relevant stakeholders;
- Seek guidance on agency requirements for the MSF; and,
- Understand each agency's desired level of involvement and fulfill any data requests.

All agencies received a letter via email during pre-planning that:

- Introduced the Project and outlined the Study Area;
- Invited them to PCC #1 and to review the information boards once they were posted to the website;
- Provided contact information of the Project Team; and,
- Invited them to confirm their involvement, and if alternate contacts may need to be included.

A summary of contact with agencies is summarized in Exhibit 5.8. Correspondence with these groups can be found in Appendix H.

Exhibit 5.8: Summary of Agency Consultation during Pre-Planning Phase

Agency	Comments	Response
Ministry of Environment, Conservation and Parks.	Requested additional information on the context; provided information on potentially interested Indigenous communities	Provided additional information on March 14, 2019.
Ministry of Northern Development and Mines	Indicated they had no interest in the Project and asked to be removed.	Removed from mailing list.
Ministry of Tourism, Culture and Sport	Provided preliminary comments and advice; requested additional information for the Archaeological and Cultural Heritage assessments.	Provided information on May 14, 2019.
CN Rail	Noted that they operate a rail corridor to the south of the site. Requested to receive a copy of the Traffic Impact Study once it's available.	[To be provided during TPAP]
Hamilton Conservation Authority	HCA identified that they have no concerns from a natural heritage and hazard perspective. Recommend implementing Level 1 Quality Control Measures for stormwater management.	Level 1 Quality Control Measures have already been identified.
Ministry of Natural Resources and Forestry	Based on the information provided in the Notice, the MNRF does not have any comments or concerns with the project at this time.	Acknowledged message.

5.2.6 **Elected Officials Consultation**

Local elected officials at the municipal, provincial, and federal levels received notifications of PCC #1 via email. The Ward 3 Councillor attended the event.

5.2.7 **Indigenous Communities Consultation**

During pre-planning, City of Hamilton staff directly engaged with Indigenous communities that had been identified by MECP. The intent was to understand:

- Their level of interest in the Project;
- Identify any concerns they may have; and,
- Determine the community's consultation needs and requirements.

The Project Team provided each community with an opportunity to participate in the consultation process. The Project Team aimed to be flexible to meet the specific and unique needs of each community.

Consultation with Indigenous communities included:

- Mailing and emailing all of the identified communities a letter that included a map of the Study Area, an overview of the Project, contact information for the City's Project Manager, and an invitation to PCC #1. The letter noted the boards would be available on the website following the meeting;
- Follow-up telephone calls to ensure that they were aware of the Project, and had received the invitation; and,
- Providing relevant documentation and materials, when requested.

A summary of comments received from Indigenous communities received is in Exhibit 5.9. A copy of all correspondence is provided in Appendix H.

Exhibit 5.9: Summary of Indigenous Consultation during Pre-Planning Phase

Indigenous Community	Comments	Response
Huron-Wendat Nation	Asked if any archaeological assessments were planned as part of the EA.	The City provided the Stage 1 Archaeological Assessments for 330 Wentworth and 80 Brant.

5.3 TPAP Consultation

5.3.1 Notice of Commencement

[To be completed]

5.3.1 Public and Community Consultation

5.3.1.1 Project Website

[To be completed]

5.3.1.2 Public Consultation Centre #2

[To be completed]

5.3.1.3 Other Submissions

[To be completed]

5.3.2 Public Agencies and Utilities Consultation

[To be completed]

5.3.3 Elected Officials Consultation

[To be completed]

5.3.4 Indigenous Community Consultation

[To be completed]

5.4 Summary of Key Comments and Responses

[To be completed]

5.5 Incorporation of Stakeholder Comments

[To be completed]

5.6 Notice of EPR Completion and Review Period

[To be completed]

6 Permits and Approvals

6.1 Federal

At the federal level, no permits or approvals are anticipated to be required for this project. The MSF project is not a "designated" project as defined in the Regulations Designating Physical Activities under the Canadian Environmental Assessment Act (CEAA), as amended in 2014⁹.

The Minister of the Environment may designate a project not currently identified in the regulations if the project may cause adverse environmental effects or there are public concerns about such effects. If required, the City will prepare a project description for review by the Canadian Environmental Assessment Agency during detail design.

6.2 Provincial

At the provincial level, the following permits and approvals may be required during detail design and construction:

- Ministry of the Environment, Conservation and Parks:
 - Permit to Take Water under the Ontario Water Resources Act.
 - Environmental Compliance Approvals (ECA) for new/relocated sanitary sewers, new/relocated storm sewers and outfalls, stormwater quality controls, sewer use for discharge of dewatering effluent (in compliance with s. 53 of the Ontario Water Resources Act and relevant the Ministry of the Environment, Conservation and Parks guidelines), as appropriate. Should potable water lines be relocated, ECA will be sought from MECP prior to relocation.
 - Excess Soil Management Strategy.
- Ministry of Natural Resources and Forestry:
 - If species at risk are identified within the construction influence zone, MNRF will be contacted to determine how specimens should be treated.
- Hydro One:
 - Approval for the proposed driveway access from Birch Avenue, located under the Hydro One 115 kV transmission line corridor.
 - Any works adjacent to Hydro One infrastructure may require review and approval from the utility.
- Technical Standards & Safety Authority (TSSA):
 - Approval for any fuel and/or chemical storage tanks, if required.

6.3 Municipal

At the municipal level, the following permits and approvals may be required:

- Hamilton City Council approval.
- Tree Protection By-law.
- Demolition permits.
- Building Permits and Site Plan Approval and any other related permits from the City, as required.
- Noise exemption permits, if necessary.

6.4 Utilities

The MSF will need to connect with adjacent utilities to service the site. The following agreements will be sought:

- Utility crossing agreements.
- Hydro connection applications and service agreements.
- Gas connection applications and service agreements.
- Telecommunication connection service agreements.

6.5 Mechanism for Changes to the Approved Plan

This project was assessed under the Transit Project Assessment Process (O.Reg. 231/08). This document forms the summary of the planning and design process, assessment of impacts and associated mitigation measures, and commitments to future work.

The project presented in this EPR is not a static plan, nor is the context in which it is being assessed, reviewed, approved, constructed, and used. Given the potential for changes to the project resulting from the approvals, detail design, and construction processes, it is prudent to include in the EPR a comment on the responsibilities of the proponent, should changes be required. The following sections outline how such changes will be addressed.

6.5.1 Design Refinement

This EPR identifies and presents the impacts associated with the project, and the property envelope within which the project can feasibly be constructed. The actual layout of project elements (e.g. building locations, paved surface areas, driveway locations, etc.) are subject to detail design. Any variation from that shown in this EPR, unless it results in an environmental impact which cannot be accommodated within the committed mitigation measures, does not require additional approval under O. Reg 231/08.

6.5.2 Environmental Project Report Addendum Process

After the Statement of Completion, if a change is made to the project that is inconsistent with this EPR, or the types of design refinements noted in Section 5.5.1, an Addendum to the EPR must be issued, and include the following information:

1. A description of the change;
2. The reasons for the change;
3. The proponent's assessment and evaluation of negative impacts that the change might have on the environment;
4. A description of any measures proposed by the proponent for mitigating the negative impacts that the change might have on the environment; and,
5. A statement of whether the proponent is of the opinion that the change is a significant change to the transit project, and the reasons for the opinion.

If the proponent is of the opinion that the proposed change to the transit project is significant, then the proponent must publish a Notice of EPR Addendum in a manner similar to a Notice of Completion, as well as a notice on its website. The Notice of EPR Addendum must also be provided to the Director of the Environmental Assessment and Permissions Branch, the MECP Regional Director, every property owner within 30 m of the site change, Indigenous communities, and any other person who, in the proponent's opinion, may be interested, and every person who has made a written request for notices about the project.

⁹ <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2012-147/page-3.html#h-1>

6.5.3 Environmental Project Report Addendum Timelines

The process and timelines for making objections and for the Minister to act with respect to the proposed change are similar in the addendum process as in the process leading to the Notice of Completion:

- 30 Day Public Review Period, started by Notice of EPR Addendum, that provides review time for public, regulatory agencies, Indigenous communities and other interested parties. Objections to the project may be submitted to MECP during this period.
- 35 Day Ministerial Review Period, started by conclusion of the previous period. The Minister reviews any objections and determines if the project may proceed, may proceed with conditions, or if the proponent must conduct additional work and submit a revised EPR to the Minister.

7 Commitments to Future Works

A number of commitments have been made to carry out work prior to, during and post construction to satisfy O. Reg. 231/08. The potential impacts, mitigation measures, and net effects have been described in other sections of this EPR. All commitments to future work should be reviewed during detail design and prior to project construction.

7.1 Property Acquisition

The City of Hamilton is in negotiations to acquire 70 Brant Street. All other land has been assembled. The MSF will stay within the Study Area limits identified in Section 1. Any changes to this will be subject to further assessment and revision to this EPR, as per the process described in Section 6.5.

7.2 Future Consultation

The City of Hamilton is committed to continue consulting with stakeholders and Indigenous communities after the completion of the TPAP. During the pre-planning and TPAP process, the consultation program described in Section 5 helped to inform the development of this project. The Project Team worked with a wide range of stakeholders and interested persons to identify and resolve issues and concerns. However, given the nature of planning and preliminary design, there are issues that should be carried forward to the next design phase.

The following commitments to future consultation are noted by the Project Team are contained in

Exhibit 7.1: Commitments to Future Work for Social, Cultural and Natural Environment

Phase	Commitment
Detail Design	On-going consultation with the public, business owners, nearby property owners, agencies, public bodies, utilities, elected officials and Indigenous Communities to advance and finalize the design and construction plan
Construction	Continued communication with nearby residents and businesses throughout construction.
	Establish a complaint response protocol for nuisance effects, such as dust, for local residents, property owners, and businesses to provide feedback.
Post-Construction	Consider marketing opportunities for the opening of the facility (e.g. Doors Open Hamilton).
Ongoing	Presentations and updates through municipal committees and City Council.

7.3 Environmental Monitoring

Environmental monitoring measures will be identified during the design stage and incorporated into the construction contract. During the design phase, all design-related commitments will be fulfilled and built into the contract package for construction. The Contractor will be responsible for meeting the necessary EPR and contract requirements during construction. The contractor will be required to meet all relevant commitments related to mitigation of construction effects while the City, or its agent, will monitor the Contractor's actions.

The commitments in Exhibit 7.2 will be carried out during detail design and prior to/during construction.

Exhibit 7.2: Commitments to Future Work for Environmental Monitoring During Design and Construction

Phase	Commitment
Detail Design	Develop procedures for disposal of excavated materials, including excess soil, in accordance with MECP requirements.
	Submit a comprehensive environmental controls and methods plan to address effluent control and other elements.
	Potential chemical impacts are to be noted in the tender documents along with appropriate mitigation measures that the contractor is to implement.
	General noise control measures (not sound level criteria) will be referred to, or placed into the City of Hamilton contract documents.
Prior to/During Construction	Identify temporary staging areas for construction materials, and other potential temporary works.
	Manage any brownfield sites in accordance with Ontario Regulation 153/04 as amended.
	Monitor construction activities to ensure that no unintentional chemical discharges occur to the environment. This information is to be included in the Environmental Plan for approvals and should include such items as the following: <ul style="list-style-type: none"> Fuel spill equipment should be available for emergency spills of deleterious substances; and, A contact list for any further required equipment or materials should be prepared and made available for emergency use.
	A regular program of geotechnical inspections, monitoring and materials testing should be carried out to confirm that the subsurface conditions encountered are consistent with those encountered during design and that contract compliance is achieved.
	The disposal of contaminated materials will be directed to an MECP approved soil treatment site or waste disposal site. The monitoring of these facilities is the jurisdiction of the MECP.
	Construction activities should be monitored by a qualified Environmental Inspector to frequently review the efficacy of the air quality mitigation measures and construction best management practices to confirm they are functioning as intended. In the event that mitigation is found to not be effective, revised mitigation measures designed to improve effectiveness will be implemented.
	Construction activities should comply with the requirements of MOE Publication NPC-207. Noise emissions from construction equipment are to be in compliance with the limits set out in NPC-115 and NPC-118.

7.4 Social, Cultural and Natural Environment

A list of the future works related to the social, cultural and natural environment to be completed during detail design and construction is summarized in Exhibit 7.3.

Exhibit 7.3: Commitments to Future Work for Social, Cultural and Natural Environment

Matter of Importance	Phase	Environmental Concern	Commitment
Archaeology	Construction	Impacts to archaeological features	Should previously unknown or unassessed deeply buried archaeological resources be uncovered, work will cease on the site and a licensed archaeologists will be engaged to carry out archaeological field work, in compliance with Section 48 (1) of the Ontario Heritage Act. Any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Consumer Services. Relevant Indigenous communities will be informed of Archaeological Assessment findings.
Cultural Heritage	Detail Design	Impact to cultural heritage features	Prior to construction, identified cultural heritage resources, such as the Birch Avenue bridge, should be documented, and archived in advance of landscape alteration. This should include photographic documentation of individual resources with representative views, histories, mapping, and historic photographs where available and appropriate.
	Construction	Vibration during construction	During construction and excavation, monitor for vibration impacts and stop work immediately if vibration thresholds are exceeded. Where vibration impacts are anticipated, a pre-construction condition assessment will be conducted. Should any heritage attribute or CHVI of a property of known cultural heritage resource be damaged as a result of construction vibration, the repair or restoration of the damaged elements would be guided by the Statement of CHVI.
Natural Environment	Detail Design	Species at Risk	Additional screening as required based on future changes to species' listing or habitat regulations of the ESA.
	Detail Design	Species at Risk	Overall benefit permits will be obtained where required by the MNR.
	Detail Design	Vegetation	A tree removal, restoration and compensation plan will be developed.
	Detail Design	Vegetation	Determine areas where compensation for vegetation loss may be required in consultation with the HCA. Determine quantity and type of species to be used, and identify sites where restoration efforts would be maximized.
	Construction	Vegetation	Tree protection zones will be established and protective materials will be installed prior to construction to prevent damage including, but not limited to, root destruction and soil compensation in compliance with City of Hamilton Tree Protection Guidelines (2010).
	Construction	Species at Risk	Vegetation clearing will take place outside of bird timing window. An ecologist will confirm that nests are no longer active, if encountered during clearing.
	Construction	Species at Risk	Confirm nest presence/absence prior to commencement of works so that appropriate measures can be taken to ensure compliance with ESA.
Noise and Vibration	Construction	Noise	Communication protocol will be developed to inform affected persons of timing and duration of construction activities including anticipated noise effects. Nighttime construction activities will be avoided to reduce the potential impact of construction noise. Noise emissions from construction equipment are to be in compliance with the limits set-out in NPC-115 and NPC-118.
	Construction	Vibrations	Vibration mitigation and monitoring measures will be included in construction contract documents.
Air Quality	Construction	Air Quality	Dust suppressant measures will be used and disturbed areas will be re-vegetated to mitigate potential impacts. Equipment will be washed and mud mats used where practical at construction site exits to limit the migration of soil and dust. Soil and other friable materials will be stockpiled in locations that are less exposed to wind and away from sensitive receptors, where possible. Dust-generating activities will be minimized during conditions of high wind.
	Detail Design	Air Quality	Prepare an Air Quality Management Plan during detail design. To be submitted to the Ministry of Environment, Conservation and Parks (MECP) for review prior to commencement of construction.
	Construction	Air Quality	Construction activities should be monitored by a qualified Environmental Inspector to frequently review the efficacy of the air quality mitigation measures and construction best management practices to confirm they are functioning as intended. In the event that mitigation is found to not be effective, revised mitigation measures designed to improve effectiveness will be implemented.
Drainage and Stormwater Management	Detail Design/ Construction	Increase in erosion and sedimentation during construction	An Erosion and Sediment Control plan will be developed prior to construction, which complies with prevailing HCA and City of Hamilton water guidelines and requirements.
	Construction	Increase in stormwater runoff quantity	Low impact development measures will be implemented to promote infiltration, when appropriate.
Traffic	Construction	Traffic	Monitor traffic patterns and behaviours on residential roads to determine if changes are needed to site access.
	Post-Construction	Traffic	Monitor traffic patterns and behaviours on residential roads to determine if traffic calming measures are required.