



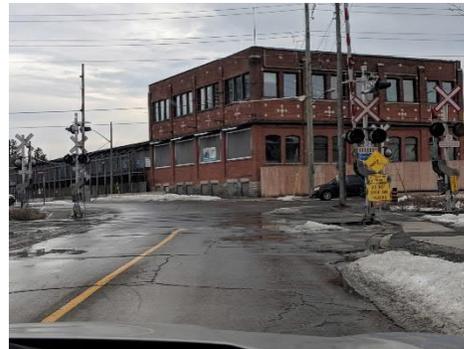
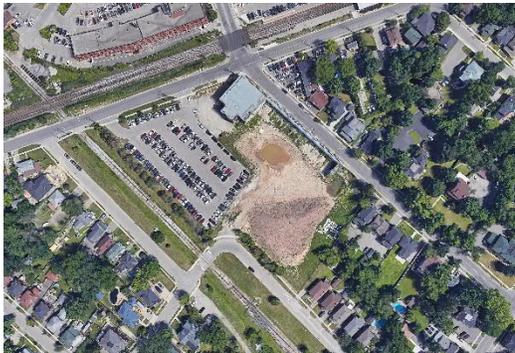
Associated
Engineering

GLOBAL PERSPECTIVE.
LOCAL FOCUS.

REPORT

Denison Avenue Extension Environmental Project Report

Denison Avenue Extension Park Street to Mill Street City of Brampton



MAY 2020

A Carbon
Neutral
Company



Platinum
member

CONFIDENTIALITY AND © COPYRIGHT

This document is for the sole use of the addressee and Associated Engineering (Ont.) Ltd. The document contains proprietary and confidential information that shall not be reproduced in any manner or disclosed to or discussed with any other parties without the express written permission of Associated Engineering (Ont.) Ltd. Information in this document is to be considered the intellectual property of Associated Engineering (Ont.) Ltd. in accordance with Canadian copyright law.

This report was prepared by Associated Engineering (Ont.) Ltd. for the account of Denison Avenue Extension Environmental Project Report. The material in it reflects Associated Engineering (Ont.) Ltd.'s best judgement, in the light of the information available to it, at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Associated Engineering (Ont.) Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

EXECUTIVE SUMMARY

The City of Brampton initiated a Schedule “B” Municipal Class Environmental Assessment (EA) Study in December 2018 for the extension of Denison Avenue from Park Street through to Mill Street as per the City of Brampton Transportation Master Plan (TMP) update, 2015. This initiative was identified as a “short-term” improvement to be implemented, if possible, by 2021.

The City retained Associated Engineering (Ont.) Ltd. to undertake the study and a Notice of Study Commencement was issued in January 2019 including contact of local area residents and property owners, utility agencies, stakeholders and the appropriate federal, provincial and regional oversight and approval agencies. A Project Team was assembled that consisted of City of Brampton and AE staff, as well as sub-consultants tasked with specific work related to the EA Study.

The Class EA study was carried out in accordance with the Municipal Engineers Association (MEA) Class EA guidelines, which is a process approved under Ontario’s Environmental Assessment Act. As such, the Study followed the following steps:

1. Development of a Problem and Opportunity Statement;
2. Identification and Evaluation of Alternative Planning Solutions to address the Problem including all appropriate Technical Studies to properly inform the evaluation of alternatives;
3. Selection of a Preferred Alternative Planning Solution;
4. Identification and Development of Design Options for the Preferred Alternative Planning Solution;
5. Evaluation of the Design Options including further Technical Studies and consultations with public, stakeholders and agencies;
6. Selection and confirmation of a Preliminary Preferred Alternative Design Option; and,
7. Completion of the Environmental Project Report

Early during the Study, it was determined that the extension of Denison Avenue between Park Street and Mill Street would not measurably improve vehicular traffic capacities and/or operations in the local area. As such, the Problem and Opportunity Statement was developed to incorporate the following Study goals for Denison Avenue Extension:

- Improving neighbourhood connectivity and moving people safely and efficiently through the Brampton downtown core, including new active transportation infrastructure;
- Accommodating existing and future area development and changes to land use;
- Meeting area transportation network demands of increasing population and employment growth; and,
- Minimizing impacts to existing Built Cultural Heritage resources within the Study Area.

Three alternative planning solutions were developed and evaluated:

- **Alternative #1 – ‘Do Nothing’:** The Do-Nothing alternative was the maintenance of the existing Denison Avenue – Park Street – Mill Street configuration with no proposed improvements. The Do-Nothing alternative is typically included in an evaluation of alternative solutions in an EA Study as a baseline used to compare against other alternative solutions for the Problem or Opportunity.
- **Alternative #2 – Improve Parallel Routes:** This alternative reviewed any opportunity to improve traffic capacity to adjacent parallel routes such as Railroad Street and/or Nelson Street without any extension of Denison Ave.

- **Alternative #3 - Extension of Denison Avenue, Including Active Transportation Improvements:** This alternative included the construction of an extension of Denison Avenue between Park Street and Mill Street and with active transportation infrastructure to support pedestrian and cyclist modes of transportation.

Of these alternatives, Alternative #3 was selected as the Preferred Planning Solution.

After the selection of Alternative #3, AE developed three Design Options for the extension of Denison Avenue between Park Street and Mill Street. Designs were done for Minor Collector roadway designation and using City of Brampton standards. The range of Design Options was limited by following factors;

- The horizontal alignment of the Denison Avenue extension was constrained to the north due to the 45 Railroad Street development (under construction at the time of the Study) and to the south due to the residential properties.
- The existing Orangeville-Brampton Railway at-grade crossing of Denison Avenue, directly west of Park Street, could not be crossed at a skew outside of a 70° to 110° range per Transport Canada design guidelines for at-grade crossings. As such, the geometric limitations resulted in large cost and property impact implications for any proposed realignment of Denison Avenue west of Park Street; and,
- The standard right-of-way width for a City of Brampton Minor Collector roadway is 23m wide. A 23m wide offset from the proposed north side right-of-way line established by the 45 Railroad Street site plan would have meant a full property taking of 45 Mill Street to accommodate the standard right-of-way width. Therefore, elements of the standard City of Brampton Minor Collector roadway cross-section were modified to allow construction of an extension roadway without impacting properties.

The three Design Options that were developed and evaluated were as follows:

- **Option #1 - Extension at South End of 45 Railroad Street:** This option utilized the proposed extension of Denison Avenue between Park Street and Mill Street at the south end of the 45 Railroad Street development, as shown in the approved site plan for the project.
- **Option #2 - Extension at South End of 45 Railroad Street with Realignment West of Park Street:** Option #2 utilizes the proposed extension alignment in the 45 Railroad Street plan, but also includes a realignment of Denison Avenue west of Park Street to improve roadway geometrics and provide an increased sense of continuity, rather than provide a jog in alignment as shown in Option #1. The option would include a new, at-grade crossing of the OBRAG rail line, compliant with Transport Canada guideline (70° to 110° skew range).
- **Option #3 - Extension through Middle of 45 Railroad Street Property:** Option #3 extended Denison Avenue straight through the 45 Railroad Street property, providing a more “typical” straight alignment for the extension between Park Street and Mill Street. This option would have required rescinding approval for the 45 Railroad Street development plan approved and in progress.

After reviewing the evaluations of each Design Option with the Project Team, Stakeholder’s Group and agencies, Option #1 was selected as the Preferred Design Option for the Denison Avenue Extension.

To further support the preliminary preferred design several technical studies were completed to document existing conditions and how they may or may not be impacted by the preferred design option, along with proposed mitigation measures. These included, but were not limited to the following:

- Transportation and Safety Assessment;
- Natural Environment;
- Stormwater Management and Drainage;

- Socio-Economic Assessment;
- Phase I Environmental Site Assessments;
- Stage I Archaeological Assessment;
- Built Cultural Heritage Assessment; and,
- Illumination Report

Subsequently to the completion of these technical studies and identification of Option #1 as the preferred design option, the City and AE held Stakeholder's Group and Public Information Centre Meetings in September 2019 to review the findings and recommendations of the Study with the public, stakeholders and agencies. Comments received were reviewed by the Project Team and incorporated into the final recommendations as found in this Environmental Project Report.

Finally, after reviewing comments from the public, stakeholders, utility and review agencies, Option #1 was finalized as the Preferred Design Option for the extension of Denison Avenue between Mill Street and Park Street. The preliminary preferred design option includes the following:

- A modified Local Minor Collector cross-section per City of Brampton standard, connecting Park Street to Mill Street. Modifications include the elimination of sidewalk along the south side and implementation of a ROW width less than 23m on the south side of the corridor close to the Mill Street intersection to avoid property impacts. A full ROW width may be accommodated in the future by acquiring additional property if and when available;
- Similarly, in lieu of on-road cycling lanes the two road lanes will be designated as "sharrow" lanes with the appropriate pavement markings and signage;
- Region of Peel 300mm dia. watermain to be installed along the new extension (to be coordinated with Peel Region during detailed design);
- Relocation of existing hydro pole at Mill Street, Bell pedestal at Park Street and extension of the existing Park Street gas main north, past the new intersection; and,
- Integration with proposed development of 45 Railroad Street property and street-level apartment entrances and/or steps as needed.

TABLE OF CONTENTS

SECTION	PAGE NO.
Executive Summary	iii
Table of Contents	vi
List of Tables	ix
List of Figures	x
1 INTRODUCTION	1-1
1.1 Study Background and Purpose	1-1
1.2 Planning and Policy	1-1
1.3 Description of Study Area	1-3
2 STUDY PROCESS	2-3
2.1 The Class Environmental Assessment Process	2-4
2.2 Study Documentation	2-5
2.3 Part II Order	2-6
2.4 Study Organization and Project Team	2-7
2.5 Communication and Consultation Process	2-8
2.6 Notice of Study Commencement	2-8
2.7 Agency and Stakeholder Consultation	2-8
2.8 Public Information Centre	2-9
2.9 Notice of Study Completion	2-10
2.10 Study Schedule	2-10
3 EXISTING CONDITIONS WITHIN THE STUDY AREA	3-10
3.1 Site Context and Transportation Assessment	3-10
3.2 Safety Assessment	3-11
3.3 Built Cultural Heritage Assessment	3-11
3.4 Heritage Impact Assessment for 45 Mill Street Property	3-11
3.5 Stage I Archaeological Assessment	3-12
3.6 Drainage and Stormwater Management	3-12
3.7 Natural Environment	3-12
3.8 Illumination Study	3-13
3.9 Phase I Environmental Site Assessment (ESA)	3-13
3.10 Socio-Economic Environment	3-14
3.11 Geotechnical Investigation	3-14
4 PROBLEM AND OPPORTUNITY STATEMENT	4-14
5 ALTERNATIVE PLANNING SOLUTIONS	5-15
5.1 Description of Alternative Planning Solutions	5-15

5.2	Evaluation of Alternative Planning Solutions	5-15
5.3	Preferred Alternative Planning Solution	5-20
6	ALTERNATIVE DESIGN OPTIONS FOR DENISON AVENUE EXTENSION	6-20
6.1	Design Criteria	6-20
6.2	Development of Alternative Designs	6-20
6.3	Descriptions of Alternative Design Options	6-22
6.4	Evaluation of Alternative Design Options	6-26
6.5	Preliminary Preferred Alternative Design	6-29
6.6	Preliminary Estimated Cost	6-32
7	POTENTIAL ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND MONITORING	7-34
7.1	Transportation Assessment	7-34
7.2	Safety Assessment	7-35
7.3	Built-Cultural Heritage Assessment	7-35
7.4	Heritage Impact Assessment – 45 Mill Street North	7-36
7.5	Stage 1 Archaeological Assessment	7-36
7.6	Drainage and Stormwater Management Report	7-37
7.7	Natural Environment Report	7-37
7.8	Illumination Analysis Report	7-38
7.9	Phase I Environmental Assessment Report	7-38
7.10	Socio-Economic Report	7-38
8	PERMITS AND APPROVALS	8-40
9	FUTURE COMMITMENTS AND DETAILED DESIGN CONSIDERATIONS	9-40
10	CLOSURE	10-41
	Appendix A – STUDY NOTICES	Error! Bookmark not defined.
	Appendix B – COMMUNICATIONS AND ISSUES MANAGEMENT PLAN	Error! Bookmark not defined.
	Appendix C – MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS NOTIFICATION	Error! Bookmark not defined.
	Appendix D – AGENCY AND STAKEHOLDER CONSULTATION	Error! Bookmark not defined.
	Appendix E – INDIGENOUS CONSULTATION	Error! Bookmark not defined.
	Appendix F – DESIGN CRITERIA	Error! Bookmark not defined.
	Appendix G - DESIGN OPTION DRAWINGS FOR DENISON AVENUE EXTENSION	Error! Bookmark not defined.
	Appendix H – TRANSPORTATION ASSESSMENT REPORT	Error! Bookmark not defined.
	Appendix I – SAFETY ASSESSMENT REPORT	Error! Bookmark not defined.
	Appendix J – BUILT CULTURAL HERITAGE REPORT	Error! Bookmark not defined.
	Appendix K – HERITAGE IMPACT ASSESSMENT REPORT	Error! Bookmark not defined.
	Appendix L – STAGE I ARCHAEOLOGICAL ASSESSMENT REPORT	Error! Bookmark not defined.
	Appendix M – DRAINAGE AND STORMWATER MANAGEMENT REPORT	Error! Bookmark not defined.
	Appendix N – NATURAL ENVIRONMENT REPORT	Error! Bookmark not defined.

Appendix O – ILLUMINATION ANALYSIS	Error! Bookmark not defined.
Appendix P – PHASE I ENVIRONMENTAL SITE ASSESSMENT	Error! Bookmark not defined.
Appendix Q – SOCIO-ECONOMIC ASSESSMENT REPORT	Error! Bookmark not defined.
Appendix R – UTILITY RELOCATION REPORT	Error! Bookmark not defined.
Appendix S – PROPERTY IMPACT REPORT	Error! Bookmark not defined.
Appendix T – MEETING MINUTES	Error! Bookmark not defined.
Appendix U – STAKEHOLDER GROUP CONSULTATION RECORD	Error! Bookmark not defined.
Appendix V – PUBLIC INFORMATION CENTRE CONSULTATION RECORD	Error! Bookmark not defined.

LIST OF TABLES

	PAGE NO.
Table 2-1 Study Project Team	2-7
Table 2-2 Study Points of Consultation	2-8
Table 2-3 Project Key Benchmark Dates	2-10
Table 5-1 Evaluation Criteria	5-15
Table 5-2 Evaluation Scale/Scoring	5-16
Table 5-3 Evaluation of Alternative Planning Solutions	5-17
Table 6-1 Evaluation of Alternative Design Options	6-27

LIST OF FIGURES

	PAGE NO.
Figure 1-1 Denison Avenue Class EA Study Area	1-3
Figure 2-1 Municipal Class EA Process	2-3
Figure 6-1 45 Railroad Street Development Site Plan	6-21
Figure 6-2 - Alternative Design Option #1	6-23
Figure 6-3 - Alternative Design Option #2	6-24
Figure 6-4 - Alternative Design Option #3	6-25
Figure 6-5 - Preliminary Preferred Alternative Design Option #1	6-29
Figure 6-6 Proposed Denison Avenue Typical Cross-Section for Preferred Design Option	6-30
Figure 6-7 Proposed Denison Avenue Plan and Profile for Preferred Design Option	6-31

1 INTRODUCTION

The City of Brampton retained Associated Engineering (AE) to conduct a Schedule “B”, Municipal Class Environmental Assessment (EA) for the extension of Denison Avenue, from Park Street to Mill Street. This project was identified in the City of Brampton Transportation Master Plan (2015) as a “short-term” network improvement targeted for implementation by 2021.

The Class EA study was carried out in accordance with the Municipal Engineers Association (MEA) Class EA Document, which is a process approved under Ontario’s Environmental Assessment Act. In May 2018 the Ministry of Environment, Conservation and Parks (MECP) provided guidelines for a “streamlined” EA process that was also utilized for this project.

1.1 Study Background and Purpose

The City of Brampton continues to evolve as a rapidly growing Greater Toronto and Hamilton Area (GTHA) municipality transitioning from a historically “suburban” to a more “urban” development context. To accommodate this growth, new infrastructure, transportation services, and travel demand management measures shall be provided that recognizes the capacity needs of planned growth and the objectives of protecting established communities and businesses. This must reflect direction from the Provincial Growth Plan and Brampton’s Planning Vision 2040 that speaks to curbing sprawl, developing “complete, sustainable and well-designed communities”, protecting employment lands, and fostering intensified development in greenfield and redevelopment areas.

Since 2004, which marked Brampton’s inaugural Transportation Master Plan (TMP) 2004, the City has made significant investments in public transportation infrastructure and service improvements. TMP Updates in 2009 and 2015, directed greater attention to the development of active transportation and travel demand management strategies. These are components of a more balanced approach to managing congestion and addressing increasing demands on the transportation network, which begin to address transportation capacity from the perspective of moving people and goods safely and efficiently, rather than “thru-putting” motor vehicles. Tied to this is the recognition that roads are defining physical elements that directly impact the livability and attractiveness of communities, and that they need to be designed as “Complete Streets” that balance the needs of all users, and that relate to their surrounding land use contexts.

Denison Avenue is an east-west collector road under the jurisdiction of the City, and consists of a 2-lane urban cross-section with a posted speed limit of 50 km/hr. The proposed extension of Denison Avenue is located at the easterly limit of Denison Avenue. As per the City of Brampton Official Plan (2015 Office Consolidation), this extension of Denison Avenue between Park Street and Mill Street is classified as a collector road with an ultimate right-of-way (R.O.W) of 23-26 meters.

1.2 Planning and Policy

Several municipal and provincial plans and policies were considered during the execution of this study. These included the following:

1.2.1 City of Brampton 2015 Transportation Master Plan (TMP)

The 2015 TMP recommends the extension of Denison Avenue from Park Street to Mill Street by 2021. The City identified, through the current TMP, the need for connectivity and additional capacity in the road network up to the planning horizon year of 2041, with individual improvements to be confirmed through Environmental Assessment Studies. The extension of Denison Avenue from Park Street to Mill Street was identified as a candidate in the 2015 TMP update. The connectivity/capacity improvements to this roadway requires satisfactory completion of all requirements of a Schedule ‘B’ Environmental Assessment Study.

1.2.2 City of Brampton's 2040 Planning Vision

The 2040 Planning Vision identifies transportation and connectivity as one of the core visions with emphasis on developing “complete, sustainable and well-designed communities”. The study area will support the City’s major downtown growth area, which is also identified in Brampton’s 2040 Vision.

1.2.3 2014 Provincial Policy Statement (PPS)

The 2014 PPS came into effect on April 30, 2014. It provides policy direction on matters of provincial interest related to land use planning and development. As a key part of Ontario’s policy-led planning system, the PPS sets the policy foundation for regulating the development and use of land. The PPS provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural environment. The PPS includes several initiatives and policies governing transportation systems, as well as transportation and infrastructure corridors.

Key policies relevant to this study include the following:

- 1.6 (Infrastructure and Public Service Facilities includes Sewage, Water, Stormwater and Transportation Systems);
- 2.6 (Cultural Heritage and Archaeology).

The above key policies were considered as part this study. Policy 1.6.7.1 states that transportation systems should facilitate the movement of people and goods in a safe and energy efficient manner to address projected needs. Policy 1.6.8.1 also outlines that transportation right-of ways are to be protected during the planning stages to meet current and projected needs.

The movements of users in a safe manner has been reviewed and considered by the Study Team.

PPS Policy 1.6.7.3 promotes multi-modal transportation (transit, pedestrian, cycling) and connectivity within and among transportation systems. The Traffic Analysis/Needs Assessment considered active transportation and road network connectivity.

1.2.4 City of Brampton's Official Plan (OP)

The City’s OP provides the strategic long-term vision for the City, guiding land use and development decision making to 2031. The City’s OP also identifies the associated infrastructure to support this development to 2041. The Plan was adopted in 2006 and was partially approved by the Ontario Municipal Board in 2008; The OP is undergoing review and will implement the City’s Planning Vision.

The key sections of the OP (2015 Consolidation) relevant to this study, among others, are as follows:

- 4.5 (Transportation);
- 4.10 (Cultural Heritage).

The ability to meet the City of Brampton’s OP goals and objectives was used a criteria indicator to evaluate Alternative solutions.

Section 4.5.2 of the OP provides the objectives and policies regarding the road network. The City’s road network is to be developed based on the following objectives:

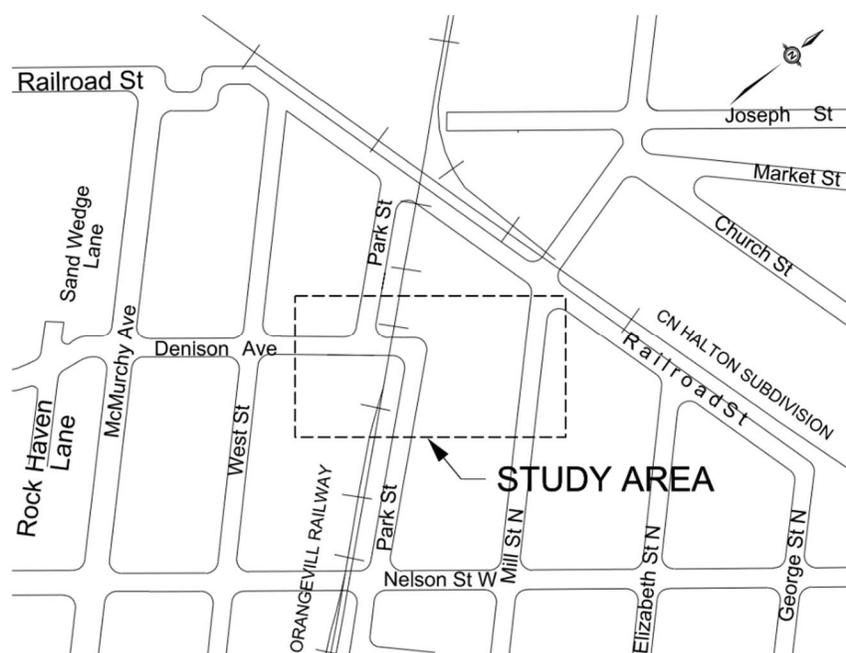
1. Facilitates safe, efficient and convenient movement of all modes on roads within the City;

2. Avoids, minimizes or appropriately mitigates adverse environmental impacts on natural heritage hazards and features including, functions and linkages and shall incorporate stormwater management measures and green infrastructure as appropriate;
3. Encourages the use of alternate modes of travel including cycling, walking and other forms of active transportation.

1.3 Description of Study Area

The proposed extension of Denison Avenue is at the easterly limit of Denison Avenue which is currently Park Street. It is located within the City of Brampton's Downtown Core and identified as being contained within the University North Precinct in the Brampton 2040 Vision plan. Refer to Figure 1-1 below for the general outline of the Study Area.

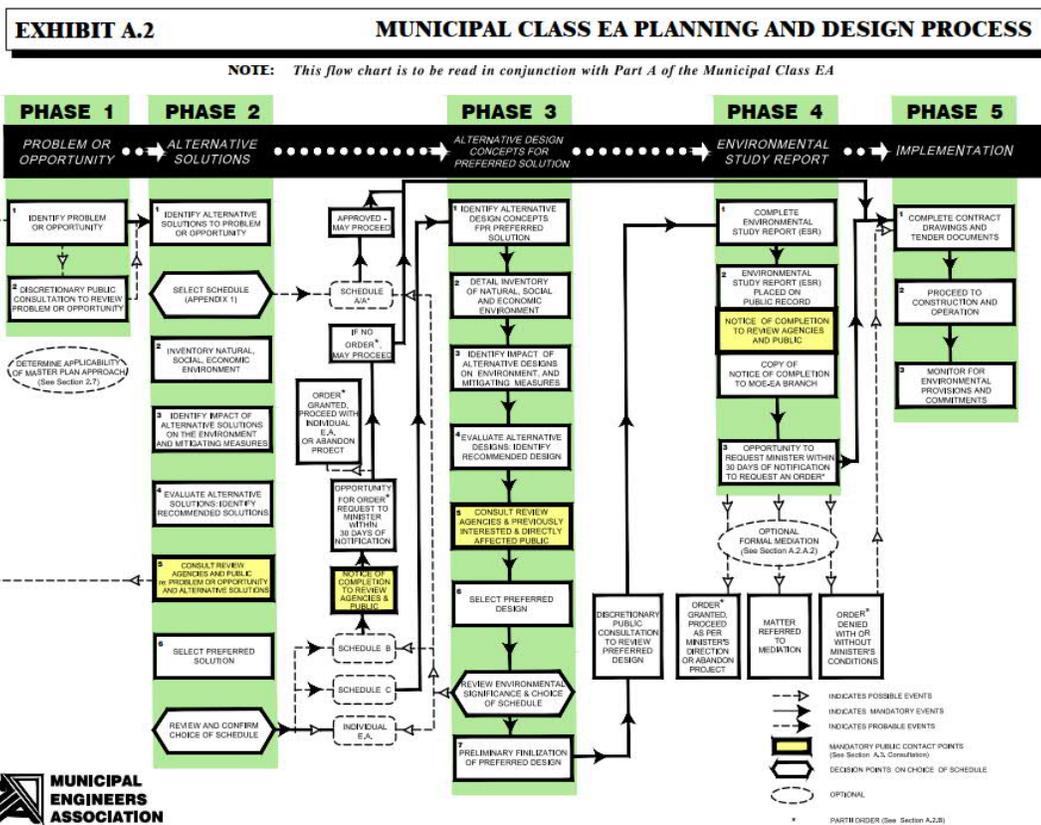
Figure 1-1
Denison Avenue Class EA Study Area



2 STUDY PROCESS

The Denison Avenue Extension Class EA is a Schedule 'B' undertaking pursuant to the Municipal Class Environmental Assessment (MCEA) document (MEA, 2000 as amended in 2007, 2011, and 2015). The Class EA process is a process used for the planning of municipal infrastructure projects (roads, water and wastewater, and transit) to ensure that project planning and pre-design proceeds in accordance with the Environmental Assessment Act. A Schedule 'B' project includes public and review agency consultation, an evaluation of alternatives, an assessment of the impacts of the preferred solution, and identification of measures to mitigate any adverse impacts. Figure 2-1 below outlines the MCEA process:

Figure 2-1
Municipal Class EA Process



2.1 The Class Environmental Assessment Process

Every municipality in Ontario is subject to the provisions of the Environmental Assessment Act (EAA) and its requirements to conduct an Environmental Assessment for most public works projects. The MEA's MCEA document provides municipalities with a five-phase planning procedure approved under the EAA which provides direction on how to plan and undertake all municipal projects that recur frequently, are usually limited in scale and have a predictable range of environmental impacts. Projects considered by the Class EA process include municipal roads and bridges, wastewater, storm water management, water and transit. The MCEA document also requires that the decision-making process followed by the municipalities in the planning and implementation of infrastructure is transparent and provides opportunity for public and stakeholder involvement.

Based on the MCEA document, projects are classified as either Schedule 'A', 'A+', 'B' or 'C' projects. Each of these classifications requires a different level of review to complete the requirements of the Class EA, and thus comply with the EAA, as noted below.

- **Schedule 'A'** projects are limited in scale, have minimal adverse environmental effects and include several municipal maintenance and operational activities. These projects are pre-approved and may be implemented without following the Class EA process.
- **Schedule 'A+'** projects are limited in scale and have minimal adverse environmental effects. These projects are pre-approved and may proceed directly to Phase 5 for implementation without following the other phases.

However, the public is to be advised prior to project implementation though there is no ability for the public to request a Part II Order.

- **Schedule 'B'** projects have the potential for some adverse environmental effects. The proponent (i.e. The City of Brampton in the case of this Class EA) is required to undertake a screening process involving mandatory contact with directly affected public, Indigenous groups and relevant government agencies to ensure that they are aware of the project and that their concerns are addressed. A Schedule 'B' activity requires the proponent to conduct two mandatory points of public contact during Phase 2. Additionally, the proponent may elect to undertake a discretionary public consultation at the end of Phase 1 to present the problem or opportunity identified.

Phases 1 and 2 of the Class EA process must be followed and an Environmental Project Report (EPR) must be prepared and submitted for review by the public. A Notice of Completion must be submitted to review agencies and the public and a period of 30 calendar days are provided for comment and input on the EPR

If there are no outstanding concerns raised by the public and/or relevant government agencies, the proponent may proceed to project implementation. However, should a person or party have a concern or objection, they are expected to consult with the proponent to try to resolve the concern. Alternatively, if concerns cannot be resolved, the person or party with the objection may request a Part II Order from the Minister of the Environment, Conservation and Parks. Further details on the process of requesting a Part II Order can be found in Section 2.3.

- **Schedule 'C'** projects are those that have the potential for significant adverse environmental impact and must proceed under the full planning and documentation procedures (Phases 1 to 5) specified in the MCEA document. A Schedule 'C' project is required to complete an Environmental Study Report (ESR), as opposed to an Environmental Project Report for Schedule 'B' undertakings.

The proponent is required to undertake consultation during multiple phases during the Class EA involving mandatory contact with directly affected public, Indigenous groups and relevant government agencies to ensure that they are aware of the project and that their concerns are addressed. Schedule 'C' projects involve 4 points of mandatory public contact: twice during Phase 2, once during Phase 3 and again during Phase 4 after the ESR document is placed on public record. Schedule 'C' projects require that an ESR be prepared and submitted for review by the public. If concerns are raised that cannot be resolved, then a Part II order can be invoked.

2.2 Study Documentation

This Environmental Project Report (EPR) documents the planning and design process followed to determine the recommended undertaking and environmentally significant aspects for the Denison Avenue Extension Class EA Study, in accordance with the procedures for Schedule 'B' projects, setting out the planning and decision-making process, including consultation with stakeholders, technical agencies and the public, which has been followed to arrive at the preferred solution. The EPR also sets out the mitigating measures proposed to avoid or minimize environmental impacts.

The EPR is organized chronologically in such a way as to clearly demonstrate that the appropriate steps have been followed. The report is intended to be a traceable and easily understood record of the proponent's decision-making process. The EPR generally describes the following:

- The problem or opportunity and other background information;
- A description/inventory of the existing/current environment;
- The alternative solutions considered, and the evaluation process followed to select the preferred solution;

- The mitigating measures and follow-up commitments, which will be undertaken to minimize environmental impacts including any monitoring necessary during construction; and,
- The consultation process and an explanation of how concerns raised by the public and review agencies have been addressed in developing the project.

2.3 Part II Order

Public, review agency and Indigenous consultation is a key part of the Class EA process. In a Schedule 'B' project, such as the road reconstruction considered under this Class EA Study, the proponent is required to provide opportunity for the public to be consulted about the proposed project. Consultation is intended to inform the public and other stakeholders about the proposed project, the various alternative solutions considered and their anticipated environmental impacts, as well as the preliminary preferred solution. It is also intended that the public be given opportunity to provide input or raise concerns prior to completion of the Class EA process. It is intended that issues be identified early into the project by means of public involvement and that resolutions between the proponent and the person or party with the objection be achieved through consultation.

It is incumbent on the public that concerns about the environmental effects of a proposed project or the planning process being followed are brought to the attention of the proponent early in the planning process, when the proponent has greater flexibility to accommodate changes in the project development and the process.

If the consultation process raises a concern that cannot be resolved between the proponent and the person or party raising the objection, then a Part II order can be invoked. However, prior to a Part II Order being requested, the person or party with the objection may request the proponent to voluntarily elevate a Schedule 'B' project to a Schedule 'C' project, or to elevate a Schedule 'B' or 'C' project to an individual environmental assessment. If the proponent declines this request, the person or party raising the objection may write to the Minister of the Environment, Conservation and Parks or delegate to request a Part II Order. A request for a Part II Order must be copied by the requester to the proponent while it is submitted to the Minister or delegate.

A Part II Order can be requested after the proponent issues the Notice of Completion and within the specified review period outlined in the Notice (30 calendar days from issuance of Notice of Completion). As of July 1, 2018, a person or party wishing to request a Part II Order must use a Part II Order Request Form which can be found on the Forms Repository website (<http://www.forms.ssb.gov.on.ca/>) by searching "Part II Order" or "012-2206E" (the form ID number). The form will require you to provide the following information:

- Your name and address;
- Project name;
- Proponent name;
- Specific reasons why the request is being made - concerns and issues;
- Why a higher level of environmental assessment would address your concerns;
- Information about efforts to date to discuss and resolve concerns with the proponent;
- The outcome you are seeking from the Minister; and
- Other matters relevant to the request.

Unless you state otherwise in your request, any personal information you provide will become part of the public record and will be released, if requested, to any person.

In your request, you must:

- Focus on potential environmental effects of the project or the Class EA process;

- Not focus on decisions outside the Class EA process (e.g., land-use planning decisions made under the Planning Act or issues related to municipal decision-making about the process); and,
- Not raise issues unrelated to the project.

Once completed, the form is to be sent to the Minister of Environment, Conservation and Parks, the Director of Environmental Assessment and Permissions Branch and the Proponent at:

Minister Ministry of the Environment, Conservation and Parks Floor 11, 77 Wellesley St. West Toronto, ON M7A 2T5 Minister.mecp@ontario.ca	Director, Environmental Assessment and Permissions Branch Ministry of the Environment, Conservation and Parks 135 St. Clair Ave. West, 1st Floor Toronto, ON M4V 1P5 enviopermissions@ontario.ca	Soheil Nejatian, P.Eng. Infrastructure Planning, Public Works and Engineering City of Brampton 1975 Williams Parkway Brampton, ON L6S 6E5 Soheil.Nejatian@brampton.ca
--	---	--

2.4 Study Organization and Project Team

The City of Brampton retained Associated Engineering (Ont.) Ltd. (AE) to conduct the Denison Avenue Extension Class EA Study. The Project Team, as outlined in the table below, consisted of City of Brampton staff, AE staff and sub-consultants providing specific knowledge and expertise to address requirements for this project in accordance with the Environmental Assessment Act.

Table 2-1
Study Project Team

Team Member	Role	Organization
Soheil Nejatian, P.Eng.	Project Engineer	City of Brampton, Infrastructure Planning
Marko Paranosic, P.Eng. PE	Project Manager (Consultant)	Associated Engineering (Ont.) Ltd.
Jeff Suggett, M.A.Sc.	Transportation Studies Lead	Associated Engineering (Ont.) Ltd.
Don McBrayne, P.Eng.	Drainage/SWM Studies Lead	Associated Engineering (Ont.) Ltd.
Eli Movafeghi, P.Eng.	Illumination Studies	Associated Engineering (Ont.) Ltd.
Eliza Brandy, M.A.Sc.	Archaeology Studies	Archaeological Services Inc. (ASI)
Johanna Kelly, M.A.Sc.	Cultural Heritage Studies	Archaeological Services Inc. (ASI)
Bobby Katanchi, P.Geo.	Phase I Environmental Site Assessments	Palmer Environmental Consulting Group (PECG)
Erin Donkers	Natural Environment/Arborist Studies	Palmer Environmental Consulting Group (PECG)
Mario Goolsarran, P.Eng.	Senior Project Engineer	City of Brampton, Infrastructure Planning
Bishnu Parajuli, P.Eng.	Manager	City of Brampton, Infrastructure Planning
David Monaghan	Supervisor	City of Brampton, Traffic Planning
Brian Lakeman	Policy Planner	City of Brampton, Transportation Planning
Maggi Liu	Manager	City of Brampton, Environmental Engineering
Lisa Lieu	Senior Coordinator	City of Brampton, Real Estate
Cassandra Jasinski	Heritage Planner	City of Brampton, Planning and Development
Tim Kocialek	Manager	City of Brampton, Engineering
Carmen Caruso	Planner	City of Brampton, Planning and Development

2.5 Communication and Consultation Process

As part of the Class EA Schedule “B” process, several steps have been completed to inform government agencies, affected landowners and the local community/ public of the nature and scope of the project and to solicit any comments.

A Communication and Issues Management Plan was developed at the early stages of the study to provide a framework for consultations with the public, review agencies and stakeholders throughout the course of the study ensuring that the study process and study objectives are met and that any issues and/or concerns are properly noted, catalogued for inclusion in the study report and dealt with appropriately. This plan is provided in **Appendix B – Communications and Issues Management Plan**.

Throughout the Study, public, stakeholder, Indigenous and agency notification included:

Table 2-2
Study Points of Consultation

Point of Consultation	Date
Notice of Study Commencement	January 25, 2019
Notice of Public Information Centre and Stakeholder’s Group Meetings	August 19-23, 2019
Stakeholder’s Group Meeting	September 10, 2019
Public Information Centre (PIC)	September 19, 2019
Notice of Study Completion	June 4, 2020
Environmental Project Report, 30 Day Review Period ending	July 20, 2020

The Ministry of Environment, Conservation and Parks (MECP) notification is provided in **Appendix C – MECP Notification**.

The Agency and Stakeholder Contact List, including responses received from those agencies to the Notice of Study Commencement, is provided in **Appendix D – Agency and Stakeholder Consultation**.

Following is a description of public consultations that were done as part of the Denison Avenue Extension study. As referenced previously, communications and consultations with the public, stakeholders and agencies, including utilities, followed the Communications and Issues Management Plan that was prepared at the outset of the study.

2.6 Notice of Study Commencement

A Notice of Study Commencement was mailed out to local area residents in addition to review and oversight agencies, utilities and institutional stakeholders such as the school boards.

A list of all agency and stakeholder recipients of the Notice of Study Commencement, in addition to their responses (if any were received) is provided in **Appendix – D**.

2.7 Agency and Stakeholder Consultation

2.7.1 Indigenous Consultation

As part of the response from the MECP, the Study was directed on which Indigenous would be appropriate to consult on this project, but it was identified as voluntary on behalf of the City. The City chose to inform all of the Indigenous identified by MECP, which were as follows:

- Mississauga’s of the Credit Indigenous;
- Huron-Wendat Indigenous;

- Haudensaunee Indigenous; and
- Six Nations of the Grand River.

Record of contact with the Indigenous identified is provided in **Appendix E – Indigenous Consultation**.

During the process of this Study no interest was received from the Indigenous consultation.

2.7.2 Technical Advisory Committee

Along with the Notice of Study Commencement distributed to agencies was an invitation to participate as a member of the Technical Advisory Group that would be invited to review the study findings and recommendations in advance of meetings with the public and stakeholders and provide additional technical input to the study.

Only the OBRAG representatives replied that indicated that their interest in participating in the Technical Advisory Group. As such, no Technical Advisory Committee was formed for this project and a stand-alone meeting with OBRAG representatives was held.

2.7.3 On-Site Meeting with OBRAG Representatives

City of Brampton and AE staff met with OBRAG representatives, Tony Dulisse and Bob Wilson, on-site on August 19, 2019 to review the proposed design options and discuss with them what, if any, operational, cost and regulatory constraints for each Design Option there might be from OBRAG's perspective.

OBRAG representatives indicated at the meeting that they had no immediate plans for improvements to the existing at-grade crossing of Denison Avenue. Any proposed reconstruction or relocation of the crossing would be at the City of Brampton's cost. Otherwise, OBRAG representatives had no significant concerns or comments with the options as presented.

2.7.4 Stakeholder Group Meeting

A Stakeholder Group Meeting was held on Tuesday, September 10th, 2019 at the Chris Gibson Recreation Centre, 125 McLaughlin Road North, Brampton, ON. Stakeholders were invited by letter and email based on responses to the Notice of Study Commencement wherein they would have indicated interest in participating in the Stakeholder's Group Meeting.

The intention of the meeting was to review the Study findings and recommendations, including the Preliminary Preferred Design Option and solicit comments and feedback from stakeholders prior to the Public Information Centre meeting to be held the following week.

A Stakeholder's Group Meeting report is provided in **Appendix U – Stakeholder's Group Consultation Record**.

2.8 Public Information Centre

A Public Information Centre (PIC) meeting was held on Thursday, September 19th, 2019 at the Chris Gibson Recreation Centre, 125 McLaughlin Road North, Brampton, ON.

Notices for the meeting were sent out in advance to all residents and property owners, stakeholders and agencies that were included in the initial Notice of Study Commencement and/or who would have identified themselves as being interested in response to the publication of the Notice of Study Commencement. In addition, another 60 letters were hand-delivered to residences in the area.

The City of Brampton also published notice of the PIC on their website, in addition to providing all the boards and information that was to be presented at the meeting. Following is a link to the website:

<http://www.brampton.ca/en/residents/Roads/Pages/road-works-details.aspx/2818/Denison%20Avenue%20Extension>

A Public Information Centre report is provided in **Appendix V – Public Information Centre Consultation Record**.

2.9 Notice of Study Completion

A Notice of Study Completion was prepared and distributed to stakeholders and review agencies. The Notice was published in the Brampton’s Guardian on June 4, 2020 and posted on the City of Brampton’s website.

The Notice of Study Completion informs the public and stakeholders of the completion of the Class EA and provides the locations where interested parties can review the Environmental Project Report. The notice also informs the public of the 30-day review period associated with the conclusion of the Class EA process and provides notification of the provision to request a Part II Order.

2.10 Study Schedule

The following table outlines the key milestone dates of the project to date and the projected completion.

Table 2-3
Project Key Benchmark Dates

Benchmark or Milestone	Date
Initiation of Class EA Study	December 17, 2018
Notice of Study Commencement	January 25, 2019
Stakeholder’s Group Meeting	September 10, 2019
Public Information Centre (PIC)	September 19, 2019
Completion of Public Review Period	July 20, 2020

3 EXISTING CONDITIONS WITHIN THE STUDY AREA

The following section documents technical studies that were undertaken as part of the study with the purposes of documenting existing/current conditions within the Study Area. The Technical Studies were initiated at the outset of the project and later modified to capture all impacts once the preliminary preferred design alternative was determined.

3.1 Site Context and Transportation Assessment

Denison Avenue is surrounded by residential land use at the north and south sides. There are some commercial areas north of Railroad Street and at the southwest corner of the intersection of Mill Street and Railroad Street. The development on 45 Railroad is expected to have 387 residential rental units, 496 m² of retail use, and 496 m² of a daycare use. The development of 45 Railroad will preserve the existing heritage two-level building. The Brampton Go Station is located on the north side of Railroad Street with the main parking lot. The Brampton Go Station secondary parking lot is located south of Railroad Street adjacent to the proposed development.

The existing conditions assessment includes a review of the existing road network, cycling network and pedestrian network. The traffic counts conducted for this study were presented and validated. This report includes the estimation of the annual traffic growth within the study area based on the EMME model outputs as provided by the City of Brampton. However, all background volumes used are based on the traffic counts conducted in 2019.

A Transportation Assessment Study was prepared as part of the EA study to provide study background, an overview of traffic assessment methodology, an assessment of the existing conditions and an analysis of the future conditions with

and without the proposed extension of Denison Avenue while considering future area growth and planned developments in the area. A multi-modal level of service (MMLoS) analysis was conducted to address the current and future transportation levels of service with the emphasis on “moving people” and prioritizing the safety of vulnerable road users and encouraging active modes of transportation. The Study reviewed the following modes of transportation: Pedestrian, Bicycle and Auto.

The Transportation Assessment is appended to this report in **Appendix H – Transportation Assessment Report**.

3.2 Safety Assessment

A Safety Assessment study was prepared as part of the EA study to provide an evaluation of existing safety concerns within the Study Area and identify potential improvements that could be made as part of the EA Study and implementation.

A road safety review was conducted on Denison Avenue and existing intersections within the Study Area using the Safe System approach to identify all road safety issues and any opportunities that may improve safety. This included a review of geometry, sightlines, conformance to engineering standards, pavement markings and signage. The project team also assessed the safety of the existing railway crossing, geometry, sightlines and its proximity to nearby intersections in accordance with Transport Canada’s Grade Crossing Standards.

Each safety issue identified will be described in addition to its potential collision type, severity along with the improvement recommendations to mitigate the safety issue, if applicable. This will be considered as an in-service safety review and will inform the next tasks for identifying the required improvements.

The Safety Assessment Report is provided in **Appendix I – Safety Assessment Report**.

3.3 Built Cultural Heritage Assessment

Archaeological Services Inc. (ASI) was retained by AE to conduct a Cultural Heritage Resource Assessment as part of the Environmental Assessment (EA) for the study area. The study area constituted a 50-metre buffer from the centre line of the proposed extension of Denison Avenue for which ASI conducted background research, data collection, and field review. In their investigation it was determined that there were seventeen (17) cultural heritage resources located within the study area that need to be protected in order to avoid any direct and indirect impacts to them by any alternative solution or preferred design. Specifically, the preferred alternative design solution is not anticipated to result in any direct impacts to cultural heritage resources. The ultimate road design, however, is anticipated to result in indirect impacts to several cultural heritage resources as a result of vibration due to demolition activities.

The Built Cultural Heritage Report is provided in **Appendix J – Built Cultural Heritage Report**.

3.4 Heritage Impact Assessment for 45 Mill Street Property

The property at 45 Mill Street North in the City of Brampton, Ontario is a rectangular shaped residential lot located on the southwest side of Mill Street North, between Railroad Street and Nelson Street West (Figure 2). The property contains a two-and-a-half storey Edwardian style red brick residence with a one-storey porch across the front elevation (Figure 3). As the property at 45 Mill Street North was not found to meet the requirements for designation under Ontario Regulation 9/06 based upon a review of existing heritage recognition, archival research, site visit, and comparative analysis therefore no statement of significance or list of heritage attributes have been prepared.

There are no listed or designated properties immediately adjacent to the subject property. The surrounding area consists of mostly residential properties with the exception of nearby 45 Railroad Street, a designated property on the City of Brampton’s Municipal Register of Cultural Heritage Resources, currently under construction for adaptive reuse as a high-rise apartment complex.

The industrial property at 45 Railroad Street and the residential property at 44 Mill Street North are designated under Part IV of the Ontario Heritage Act. Nearby, the property at 39 Mill Street is listed on the City of Brampton's Municipal Register of Cultural Heritage Resources, 'Listed' Heritage Properties.

The Heritage Impact Assessment (HIA) Report for 45 Mill Street North is provided in **Appendix K – Heritage Impact Assessment Report**.

3.5 Stage I Archaeological Assessment

ASI was also retained by AE to conduct a Stage I Archaeological Assessment for the Study Area. A Stage I Archaeological Assessment evaluates and maps the archaeological potential of an area and looks for features that may indicate archaeological potential such as previously identified archaeological sites, historic water sources (primary or secondary), early historic transportation routes and well-drained soils.

A Stage 1 property inspection was conducted on May 8, 2019 that noted that the proposed extension of Denison Avenue begins from Denison Avenue at Park Street and continues east to Mill Street.

Currently, Park Street extends south towards Denison Avenue and then continues south towards Nelson Street West within a primarily residential area. A former industrial building is located to the east of the existing railway and Park Street at 45 Railroad Street and is currently surrounded by hoarding and under construction. A railway corridor runs north-south along the west boundary of the study corridor to the east of Park Street while residential buildings are located along the west side of Park Street. Within and to the south of the Study Area along the east side of Park Street and the west side of Mill Street North are single-detached residential properties. A former industrial building adapted for commercial use is located along the north side of Railway Road, separated from the roadway by another railway line running east-west. The existing industrial building dominates the southwest corner of Railroad Street and Mill Street North, with residential properties extending along the east and west side of Mill Street North to the south. At the northeast corner of Mill Street North and Railway Street is the provincial heritage property at 27 Church Street, the Brampton GO Transit/VIA Rail Station.

The proposed extension of Denison Avenue will result in a new roadway between Park Street south of Denison Avenue to Mill Street North. The proposed roadway will extend through a currently vacant space adjacent to the south of a former industrial building, a designated heritage property, at 45 Railway Street.

The Stage I Archaeological Assessment is provided in **Appendix L – Stage I Archaeological Assessment Report**.

3.6 Drainage and Stormwater Management

AE conducted a Drainage and Stormwater Management (SWM) analysis for the Study Area to assess existing drainage conditions and characterize what (if any) changes in drainage and stormwater run-off volumes and rates may occur because of the Denison Avenue extension and to provide recommendations with respect to stormwater sewer infrastructure and quality and/or quantity control measures that may be necessary or required by current regulatory standards. Current drainage is captured by existing storm sewers and catchbasins on Park Street (375mm) and on Mill Street (525mm), to which future drainage will also be discharged and/or connect into.

The Drainage and Stormwater Management Report is provided in **Appendix M – Drainage and Stormwater Management Report**.

3.7 Natural Environment

Palmer Environmental Consulting Group (PECG) was retained by AE to assess the natural environmental conditions as part of the Denison Avenue Class EA Study. A Natural Environment Report was prepared to support the Class EA process as well as identify any necessary approval and permitting process. The report describes the background review,

agency consultation and field investigations undertaken to support the characterization of existing natural environmental conditions through the Study Area and the identification of potential impacts. As part of this collaborative process, input has been provided regarding ecological features and recommended general and site-specific mitigation measures to be advanced as part of the EA and detailed design.

The objectives of the ecological study were to inventory and evaluate the existing natural heritage features and ecological functions within the Study Area, including Ecological Land Classification (ELC) mapping, Species at Risk (SAR) habitat screening and assessment, evaluation of sensitive natural features, and assessment of wildlife habitat.

At the outset of the project, the Toronto Regional Conservation Authority (TRCA) had indicated to the City of Brampton that there were no environmental concerns to them (rivers, streams, floodplains, wetlands and/or shorelines) within the Study Area.

The Natural Environment Report is provided in **Appendix N – Natural Environment Report**.

3.8 Illumination Study

The City of Brampton requested that Associated Engineering complete a lighting assessment to add street lighting for the proposed Denison Avenue extension. The scope of the project includes approximately 100m of local roadway connecting Park Street and Mill Street.

A photometric analysis for this project, was prepared based on the following assumptions:

- The extension (and surrounding streets) were considered as local streets.
- The extension (and surrounding streets) were considered medium pedestrian conflict areas (11-100 people average annual peak hour of darkness, typically between 6-7 p.m.)
- Existing hydro poles and proposed lighting poles will be used for placing luminaires.
- Mounting height of luminaires will be 7.62m/25ft (standalone pole mounted).
- GE Evolve LED Roadway Streetlight – ERL1 (8000 lumen) fixtures/IES files has been used for all photometric analysis, based on previous projects completed for the city

The Illumination Study is provided in **Appendix O – Illumination Analysis Report**.

3.9 Phase I Environmental Site Assessment (ESA)

PECG was retained by Associated Engineering to undertake a Phase I ESA for properties within the Study Area. The Phase I ESA was conducted in accordance with Ontario Regulation 153/04 and identified past or present Potential Contaminant Activities (PCAs) and associated Areas of Potential Environmental Concern (APEC) in the Study Area.

The Phase One Properties are located at 45 Railroad Street, 45 and 47 Mill Street, and 34 and 36 Park Street, Brampton, Ontario. The Phase One Properties are located at the southwest corner of the intersection of Mill Street and Railroad Street, approximately 3.4 kilometres east of Highway 410. The Phase One ESA includes an assessment of adjacent and neighbouring lands within a 250-metre radius of the Phase One Properties (hereafter referred to as the “Study Area”).

The purpose of the Phase One ESA is to establish if potential environmental impacts are likely to be present on the Phase One Properties as a result of previous or current land use on or in the vicinity of the Phase One Property. The following key components were completed as part of the assessment:

- Review of historical information (i.e. previous reports, site operating records, fire insurance plans, aerial photographs, occupancy search, etc.);
- Request and review of applicable documents (i.e. maps, provincial and federal archives, etc.);
- Review of applicable federal and provincial databases;

- Site reconnaissance and interviews with knowledgeable site representatives;
- Collections of photographs showing the current and past uses of the Site and surrounding area, as well as potentially contaminating activities (PCAs) and areas of potential environmental contamination (APECs);
- Tables and maps summarizing and providing the location of each PCA and APEC;
- Evaluation of information from records review, interviews and site reconnaissance; and
- Completion of a conceptual site model (CSM).

The Phase I ESA report is provided in **Appendix P – Phase I Environmental Site Assessment**.

3.10 Socio-Economic Environment

As part of the study Associated Engineering (Ont.) Ltd. (AE) has completed a social and economic assessment of the Study Area to characterize the local economy and social environment. As part of this assessment a review of municipal planning documents, relevant policy, land use plans and available data has been included.

In addition, all utility agencies were contacted to inform them of the study, establish any above and below ground conflicts between existing plant and the proposed undertaking, identify any property easement requirements for utility infrastructure and establish the proposed location for any and all new utility plant within the Study Area.

A Socio-Economic Environment report was prepared for this Study which included an assessment of the existing relevant planning requirements and how the Study and recommendations of the Study would or would not comply with these requirements.

The Socio-Economic Report is provided in **Appendix Q – Socio-Economic Assessment Report**.

3.11 Geotechnical Investigation

As a result of on-going construction at 45 Railroad Street there has been significant disturbance to the existing property and the adjacent lands (47 Mill St N & 32 Park St) where the preliminary preferred alternative alignment of Denison Extension is to go through. Therefore, due to the existing ground disturbance, it is recommended that a geotechnical investigation be completed prior to initiating detailed design and subsequent to development activities for the 45 Railroad Street site.

4 PROBLEM AND OPPORTUNITY STATEMENT

The Problem Statement provides a clear statement of the problem or opportunities that need to be addressed for a specific undertaking. The various analyses (e.g. transportation and safety assessments, natural sciences review, drainage review) provide input for and contribute to the identification and description of the problem or opportunity.

The following Problem Statement was developed:

To further explore the recommendation as provided in the City's 2015 Transportation Master Plan to extend Denison Avenue between Park Street and Mill Street with the following goals;

- *Improving neighbourhood connectivity and moving people safely and efficiently through the Brampton downtown core, including new active transportation infrastructure;*
- *Accommodating existing and future area development and changes to land use;*
- *Meeting area transportation network demands of increasing population and employment growth; and,*
- *Minimizing impacts to existing Built Cultural Heritage resources within the Study Area.*

5 ALTERNATIVE PLANNING SOLUTIONS

Under Phase 2 of the Class EA planning and design process, all reasonable and feasible solutions to the problem are identified and examined. To address the Problem encompassing the deficiencies that were identified as part of the Class EA study, a range of reasonable and feasible “solutions” were identified as alternative ways to solve the Problem.

5.1 Description of Alternative Planning Solutions

For this study three (3) Alternative Solutions were considered:

Alternative #1 - ‘Do Nothing’: The Do-Nothing alternative was the maintenance of the existing Denison Avenue – Park Street – Mill Street configuration with no proposed improvements other than regular maintenance. The Do-Nothing alternative is typically included in an evaluation of alternative solutions in an EA Study as a baseline used to compare against other alternative solutions for the Problem.

Alternative #2 - Improve Parallel Routes: This alternative included the addition of traffic capacity to adjacent parallel routes such as Railroad Street and/or Nelson Street.

Alternative #3 - Extension of Denison Avenue, Including Active Transportation Improvements: This alternative included the construction of an extension of Denison Avenue between Park Street and Mill Street and with active transportation infrastructure to support pedestrian and cyclist modes of transportation.

5.2 Evaluation of Alternative Planning Solutions

The three alternative solutions were evaluated against evaluation criteria across five categories as follows in Table 4-1:

Table 5-1
Evaluation Criteria

Category	Description
Natural Environment	Does the alternative impact any terrestrial or aquatic features or habitats? Are there any impacts to confirmable Species-at-Risk?
Socio-Economic	Does the alternative impact any properties and/or future land uses? Is it consistent with various levels of planning policies? Does it impact existing or proposed accessibility and neighbourhood connections? Are there impacts to noise levels, air quality? And how does the alternative fit with climate change concerns?
Cultural Environment	Are there any impacts to potential or known archaeological sites or sites with cultural significance?
Technical	Does the alternative address transportation needs? Is the alternative constructible? Does it address identified safety concerns or requirements? Can it be designed to meet current standards and practices?
Cost	What is the potential cost of the alternative?

The comparative evaluation of the alternative solutions was undertaken to determine the overall positive and negative attributes of each solution. In comparing the alternative solutions, it is recognized that many of the potential solutions may resolve more than one problem and the feasibility of an alternative solution would depend, in part, on a range of factors (criteria) including but not limited to the nature and location of the transportation system, the nature and location of the problem, and comparative costing of alternative designs relative to the solution.

The three alternative solutions were evaluated against the evaluation [criteria](#) using a five-point scale as summarized in the table below:

Table 5-2
Evaluation Scale/Scoring

Score	Impact Ranking Scale	Description
1	Least Preferred	High Impact
2		Medium Impact
3		Low Impact/Neutral After Mitigation
4		No Adverse Impacts for this Criterion
5	Most Preferred	Beneficial or Lowest Impact/Ideal Conditions

The detailed evaluation of each alternatives is provided in Table 5-3.

Table 5-3
Evaluation of Alternative Planning Solutions



January-17-20

EVALUATION OF EXTENSION ALTERNATIVE PLANNING SOLUTIONS
Denison Avenue Extension Class EA Study
Project No. 2018-048

Legend

Score	Impact Ranking Scale	Score	Impact Ranking Scale
○	High Impact	○	
◐	Medium Impact	◐	
◑	Low Impact/Neutral After Mitigation	◑	
◒	No Adverse Impacts for this Criterion	◒	
◓	Beneficial Impact/Ideal Conditions	●	
			Least Preferred (Highest Impact)
			Most Preferred (Lowest Impact)

Potential Impacts			Alternative Solutions		
			Alternative #1	Alternative #2	Alternative #3
Description			"Do-Nothing"	Improve Parallel Routes	Extension of Denison Avenue Roadway including Active Transportation Improvements
			Maintain Denison Avenue/Park Street/Mill Street with no improvements other than regular maintenance	Add traffic and active transportation capacity to adjacent parallel roads (Railroad Street, Nelson Street)	Construction of an extension of Denison Avenue between Park Street and Mill Street and active transportation infrastructure to support pedestrian and cyclist modes of transportation.
Natural	1.1	Potential Impacts on Terrestrial and/or Aquatic Features (proximity to habitat features)	● • No Impacts	◑ • Impacts would be dependent on design of parallel road improvements.	◑ • Impacts would be conditional on design of Denison Avenue extension alternatives.
	1.2	Potential for Impacts to Confirmed Species at Risk (SAR) and/or Significant Wildlife Habitat (SWH)	● • No Impacts	● • Impacts would be dependent on design of parallel road improvements.	● • Impacts would be conditional on design of Denison Avenue extension alternatives.
Social/Economic	2.1	Property Impacts (Existing Residential, Commercial and/or Industrial Properties)	● • No Impacts	● • Minor impacts dependent on the scale of improvements implemented on parallel roads	◑ • Impacts dependent on design alternatives for this solution.
	2.2	Impact to Future Development Plans	● • No Impacts	● • No anticipated impacts	◑ • Impacts dependent on design alternatives for this solution.
	2.3	Consistency with Planning Policies	○ • Not consistent with goal of the City of Brampton 2015 Transportation Master Plan or Official Plan	○ • Not consistent with the goal of the City of Brampton 2015 Transportation Master Plan or Official Plan	● • Consistent with the goal of the City of Brampton's 2015 Transportation Master Plan to extend Denison Avenue between Park Street and Mill Street. • Consistent with other City of Brampton policies providing infrastructure that supports active transportation, livable communities and moving people and goods including the Official Plan, Brampton Vision 2040 and the City's Active Transportation Master Plan

EVALUATION OF EXTENSION ALTERNATIVE PLANNING SOLUTIONS
 Denison Avenue Extension Class EA Study
 Project No. 2018-048

Potential Impacts		Alternative Solutions		
		Alternative #1	Alternative #2	Alternative #3
Description		"Do-Nothing"	Improve Parallel Routes	Extension of Denison Avenue Roadway including Active Transportation Improvements
		Maintain Denison Avenue/Park Street/Mill Street with no improvements other than regular maintenance	Add traffic and active transportation capacity to adjacent parallel roads (Railroad Street, Nelson Street)	Construction of an extension of Denison Avenue between Park Street and Mill Street and active transportation infrastructure to support pedestrian and cyclist modes of transportation.
2.4	Access (Existing and Future Land Uses)	●	●	●
		• No Impacts	• No Impacts	• Impacts dependent on design alternatives for this solution.
2.5	Neighbourhood Connectivity	○	○	●
		• Does not improve upon existing disconnection between Park Street and Mill Street for pedestrians, cyclists or vehicles	• Does not improve upon existing disconnection between Park Street and Mill Street for pedestrians, cyclists or vehicles	• Improves connection between Park Street and Mill Street for pedestrians, cyclists and vehicle traffic.
Social/Economic	2.6	●	●	●
		• None of the alternatives would have any significant impact on noise levels		
	2.7	●	●	●
		• None of the alternatives would have any significant impact on air quality		
2.8	Climate Change	●	●	●
		• No reduction from existing carbon emissions.	• Improvement of traffic capacity and flows would potentially reduce emissions	• Improvement of traffic capacity and flows would potentially reduce emissions
Cultural Environment	3.1	●	●	●
		• No Impacts	• Impacts would be dependent on scope and design of improvements on alternative routes	• Impacts would be dependent on the design for Denison Avenue Extension.
3.2	Built Heritage	●	●	●
		• No Impacts	• Impacts would be dependent on scope and design of improvements on alternative routes	• Impacts would be dependent on the design for Denison Avenue Extension.
Technical	4.1	●	●	●
		• No capacity added to the local transportation network nor traffic reduction on parallel routes. However, existing and future traffic volumes are relatively low.	• Would improve local transportation network capacity through improvements on parallel roadways	• Would improve local transportation network by providing additional traffic capacity.
4.2	Traffic Safety	○	○	●
		• No Improvements are provided to existing traffic safety concerns as identified in the Safety Assessment	• No Improvements are provided to existing traffic safety concerns as identified in the Safety Assessment	• Opportunities to make improvements to identified traffic safety concerns.

EVALUATION OF EXTENSION ALTERNATIVE PLANNING SOLUTIONS
Denison Avenue Extension Class EA Study
Project No. 2018-048

Potential Impacts		Alternative Solutions		
		Alternative #1	Alternative #2	Alternative #3
Description		"Do-Nothing"	Improve Parallel Routes	Extension of Denison Avenue Roadway including Active Transportation Improvements
		Maintain Denison Avenue/Park Street/Mill Street with no improvements other than regular maintenance	Add traffic and active transportation capacity to adjacent parallel roads (Railroad Street, Nelson Street)	Construction of an extension of Denison Avenue between Park Street and Mill Street and active transportation infrastructure to support pedestrian and cyclist modes of transportation.
4.3	Provisions for Active Transportation	○	◐	●
		• None provided	• None provided	• Minor improvements to Active Transportation facilities
4.4	Design Criteria and Geometrics	○	○	●
		• No ability to upgrade the Denison Avenue corridor to adhere to applicable design standards and current practices	• No ability to upgrade the Denison Avenue corridor to adhere to applicable design standards and current practices	• Some ability to upgrade the Denison Avenue corridor to adhere to applicable design standards and current practices dependent on preferred design alternative
Costs	5.1 Estimated Capital Cost	●	○	○
		• No Capital Costs	• High capital costs associated with improvements to parallel corridors	• High capital costs would be required
Summary		Not Preferred	Not Preferred	Preferred
Discussion		<ul style="list-style-type: none"> Eliminated from further consideration Is not consistent with goals identified in the City of Brampton's Transportation Master Plan and the goal of improving neighbourhood connections, active transportation facilities and connections to local transit infrastructure 	<ul style="list-style-type: none"> Eliminated from further consideration Is not consistent with goals identified in the City of Brampton's Transportation Master Plan and the goal of improving neighbourhood connections, active transportation facilities and connections to local transit infrastructure 	<ul style="list-style-type: none"> Recommended as a Preferred Solution Consistent with goals of the City's Transportation Master Plan and goal of improving neighbourhood connections, active transportation facilities and additional local network transportation capacity

5.3 Preferred Alternative Planning Solution

Based on the completed evaluations, **Alternative #3 – Extension of Denison Avenue, Including Active Transportation Infrastructure** was identified as the preferred solution and was advanced to the next phase of the study.

6 ALTERNATIVE DESIGN OPTIONS FOR DENISON AVENUE EXTENSION

Based on the preferred planning alternative as described above, a series of alternative designs were developed and evaluated.

6.1 Design Criteria

Prior to the preliminary design of options for the Denison Avenue Extension, a set of engineering and planning design criteria was developed which is outlined in **Appendix G – Design Criteria for Denison Avenue Extension** provided with this report. The Design Criteria is based on the designated road classification for Denison Avenue as an urban Minor Local Collector roadway.

6.2 Development of Alternative Designs

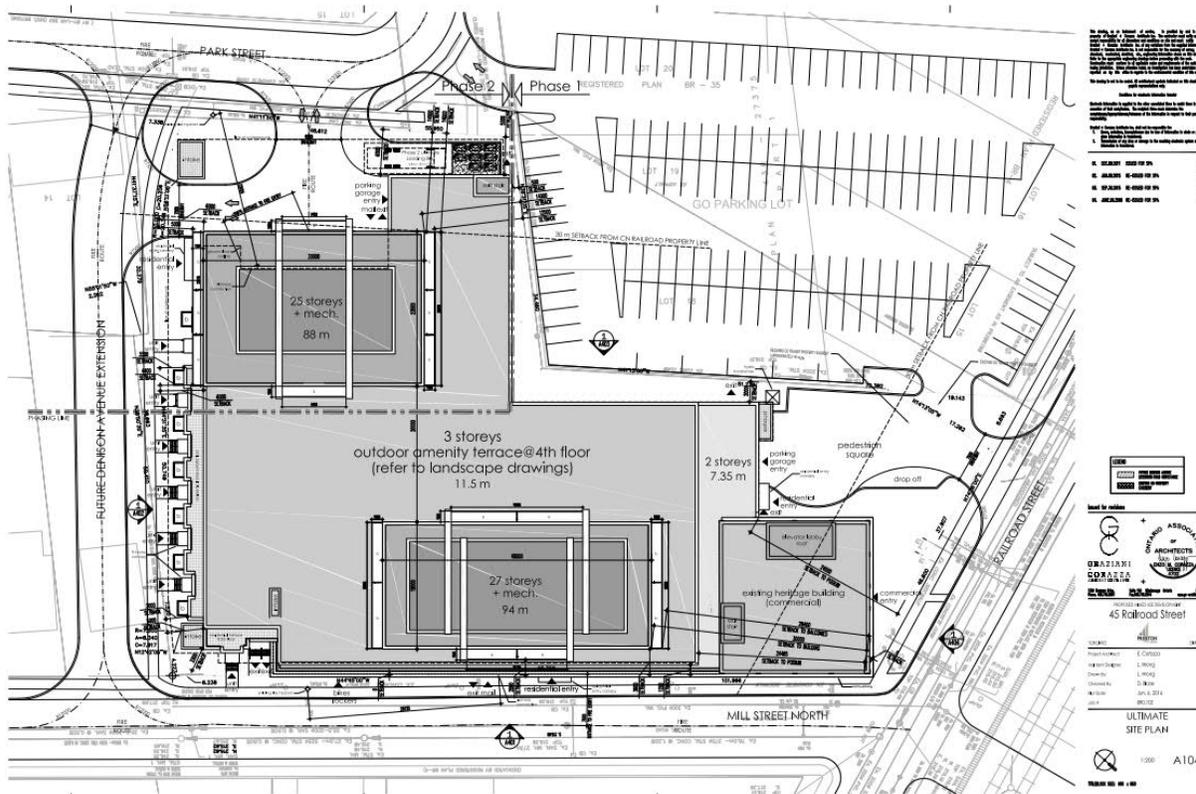
In developing the alternative design options for the Denison Avenue Extension, several elements were considered in addition to the Design Criteria and as described below.

6.2.1 Alignment

Alignment design options available to the extension were influenced by considerations for the following:

45 Railroad Street development - This pre-approved development is in the property parcel bounded by Railroad Street on the north side, Park Street, Mill Street and two properties on the south side which is adjacent to the proposed right-of-way for Denison Extension as shown in the Figure below 6-1. This development was under active construction prior to the commencement of the study; therefore, provided limited roadway alignments options to be evaluated.

Figure 6-1
45 Railroad Street Development Site Plan



As demonstrated in the drawing, the site plan allowed for a Denison Avenue extension, but at the south end of the proposed 45 Railroad Street development where the 36 Park Street and 47 Mill Street North properties had been located. 36 Park Street property was previously purchased by the City and 47 Mill Street through site plan agreement, the developer has agreed to convey the property to the City at City's request for the purpose of the Denison Avenue Extension.

Orangeville-Brampton Railway: West of Park Street, the existing Denison Avenue has an at-grade intersection with the Orangeville-Brampton Railway, operated by the Orangeville-Brampton Rail Authority Group (OBRAG). Concerns with the existing at-grade crossing in relation to the proposed extension were identified in the Safety Assessment Report-Appendix K (See Section 6.2, below).

In that report it was identified that any at-grade crossing of the rail line would be restricted by Transport Association Canada (TC) 2017 Grade Crossing Standards; according to the Standards, the grade crossing angle shall not be less than 70 degrees or greater than 110 degrees where the railway operating speed exceeds 15 mph and there is no active warning system (Section 6.5). This requirement is only intended for new crossings. Transport Canada has indicated that there will be no requirement for existing crossings to comply if sightlines are adequate. At a skew of 82 degrees, this crossing is currently in compliance with these standards. However, any realignment of Denison Avenue, west of Park Street, would be restricted in terms of crossing angle with the OBRAG rail line which would affect the east and west approach alignments.

6.2.2 Roadway Cross-Section

As described above, the approval of the Denison Avenue alignment at the south end of the proposed 45 Railroad Street development affected the range of alignment options available to the Study for the extension of the roadway. It also impacted the ability to apply the complete City of Brampton Standard Cross-Section for a Local Minor Collector roadway, as detailed in the Design Criteria. Application of the complete cross-section would have created property impacts on the 36 Park Street and 45 Mill Street property and/or require major revisions to the 45 Railroad Street site plan. Following is a summary of issues and modifications that were made to the standard cross-section in the development of design options for the Denison Avenue Extension:

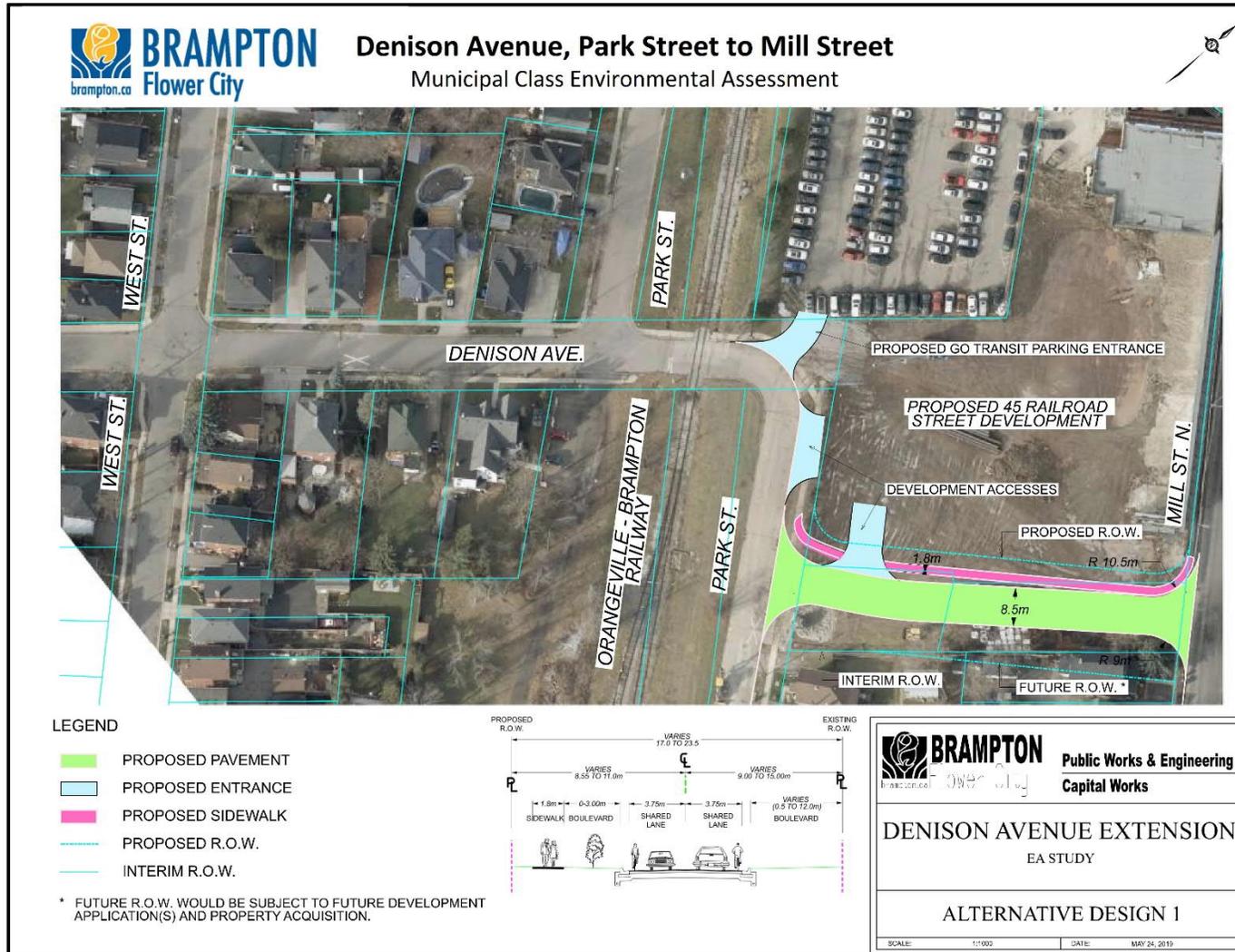
- **Interim vs. Future Right-of-Way:** The approved site plan for the 45 Railroad Street development establishes a north side Right-of-Way (ROW) line. The standard ROW width for a Local Minor Collector roadway is 23m. Offsetting the north ROW line 23m results in a property impact on 36 Park Street and a direct impact (complete taking) of the 45 Mill Street North property. To avoid any property impacts due to limited available right-of-way, AE developed design options with an “Interim ROW” that did not utilize the full 23m standard width and rather used the northern boundary (existing ROW) of the 36 Park Street and 45 Mill Street properties as a new, proposed south ROW for the extension roadway. However, the design options were developed showing a “future ROW” with a full 23m width. The intention is that, full ROW will be acquired if and when the impacted property (45 Mill Street N) redevelops in the future.
- **On-Road Cycling Lanes vs. Sharrow Lanes:** Denison Avenue is identified in the City of Brampton’s Active Transportation Plan as a planned on-road cycle lane route. When the roadway cross-section alternatives with on-road cycle lanes were being developed, the additional road lane width (1.5m on each side, for a total of 3m) resulted in property impacts. The Study reviewed the opportunity to implement dedicated on-road cycling lanes, however, due to the limited right-of-way and no existing dedicated cycling infrastructure to connect with a 3.75m wide sharrow lane was recommended as an interim solution. Sharrow lanes are slightly wider road lanes, shared by both cars and cyclists and clearly marked and signed as sharrow facilities.
- **Sidewalk on South Side:** The City of Brampton standard cross-section for a Minor Local Collector roadway includes 1.8m wide sidewalks on both sides of the roadway. Due to ROW constraints described above, accommodation of a sidewalk on the south side of the design options would have created property impacts for 45 Mill Street North. As such, after reviewing the connecting street sidewalks, it was concluded that the extension would function sufficiently with only a sidewalk on the north side, adjacent to the proposed 45 Railroad Street development.

6.3 Descriptions of Alternative Design Options

Following is a description of the design options for the Denison Avenue Extension that were developed based on the above cited Design Criteria and local context constraints:

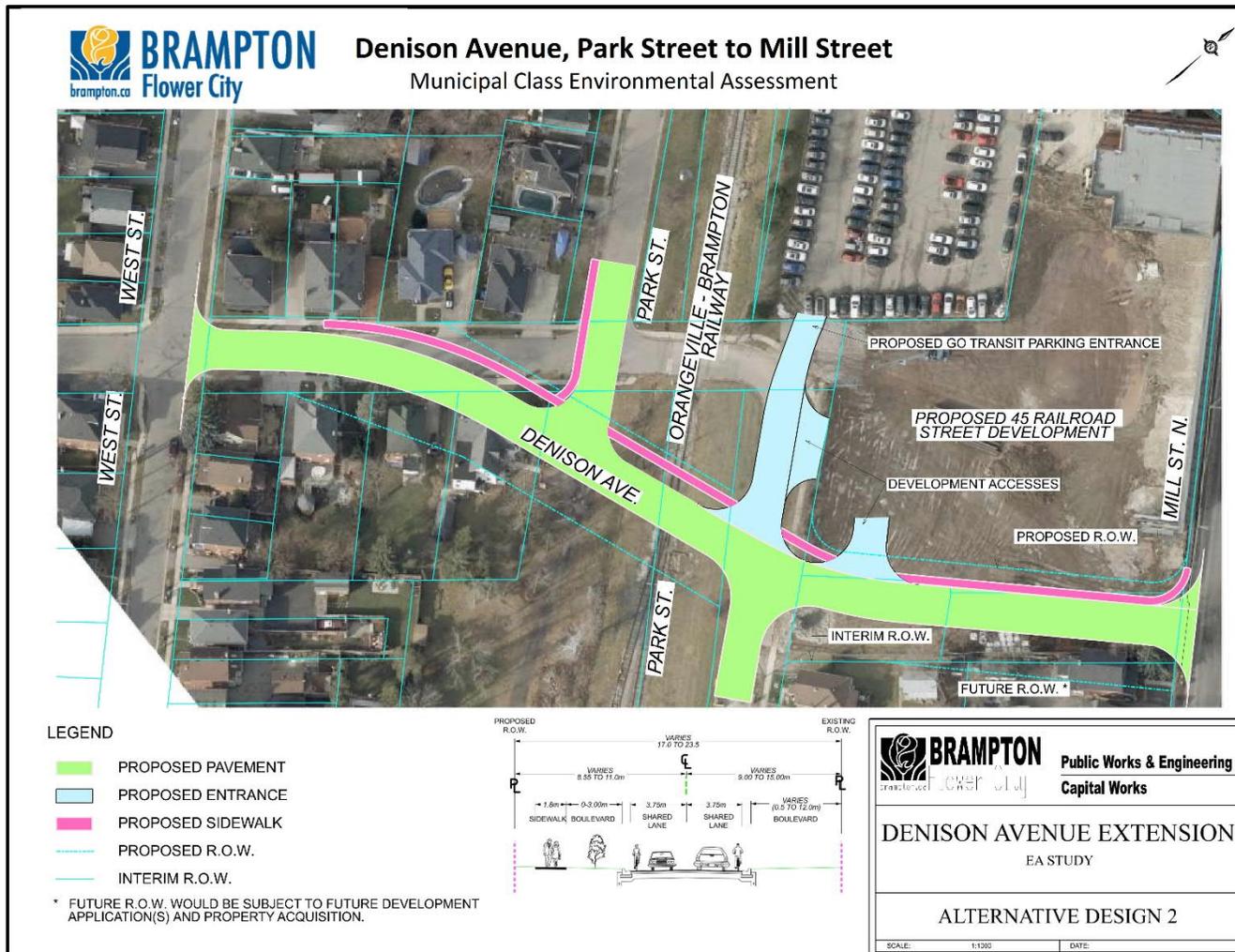
Alternative Design Option #1 – Extension at South End of 45 Railroad Street: This option utilized the proposed extension of Denison Avenue between Park Street and Mill Street at the south end of the 45 Railroad Street development, as shown in the approved site plan for the project.

Figure 6-2 – Alternative Design Option #1



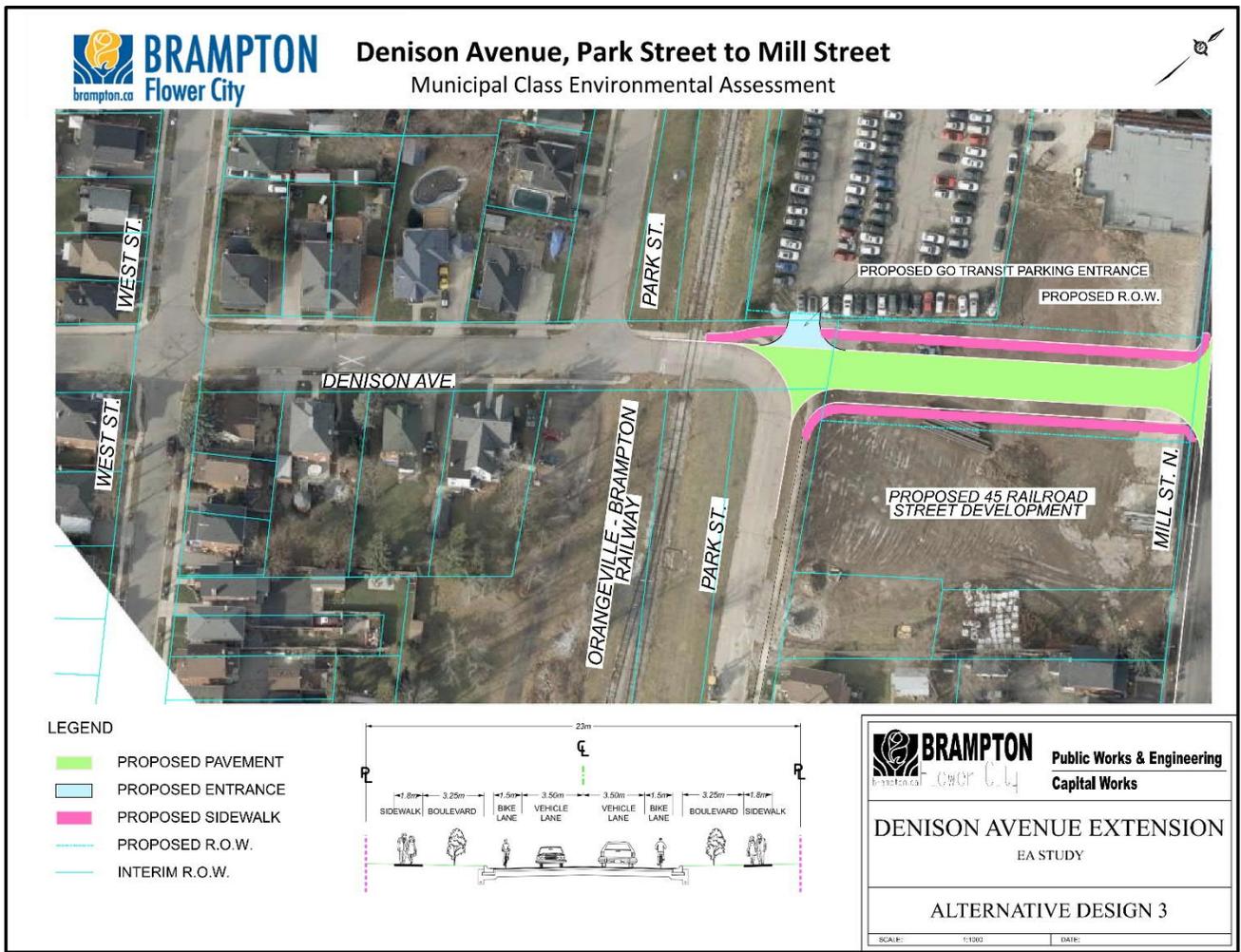
Alternative Design Option #2 – Extension at South End of 45 Railroad Street with Realignment West of Park Street: Building on Option #1, Option #2 utilizes the proposed extension alignment as conceptualized in the 45 Railroad Street development also includes a realignment of Denison Avenue west of Park Street to improve roadway geometrics and provide an increased sense of continuity, rather than provide a jog in alignment as shown in Option #1. The option would include a new, at-grade crossing of the OBRAG rail line, compliant with Transport Canada guideline (70° to 110° skew range).

Figure 6-3 – Alternative Design Option #2



Option #3 – Extension through Middle of 45 Railroad Street Property: Option #3 extended Denison Avenue straight through the 45 Railroad Street property, providing a more “typical” straight alignment for the extension between Park Street and Mill Street. For this Option a standard Local Minor Collector roadway cross-section was used because there were no constraints with regards to the south ROW limit (the northern property lines for the 36 Park Street and 45 Mill Street properties).

Figure 6-4 – Alternative Design Option #3



All the Design Options as described are shown in **Appendix G - Design Option Drawings for the Denison Avenue Extension**.

6.4 Evaluation of Alternative Design Options

The three alternative design options were evaluated against the same evaluation criteria with five categories as described in Table 4-1 above.

The detailed evaluation of each design option is provided in **Table 6.1** as follows.

Table 6-1
Evaluation of Alternative Design Options

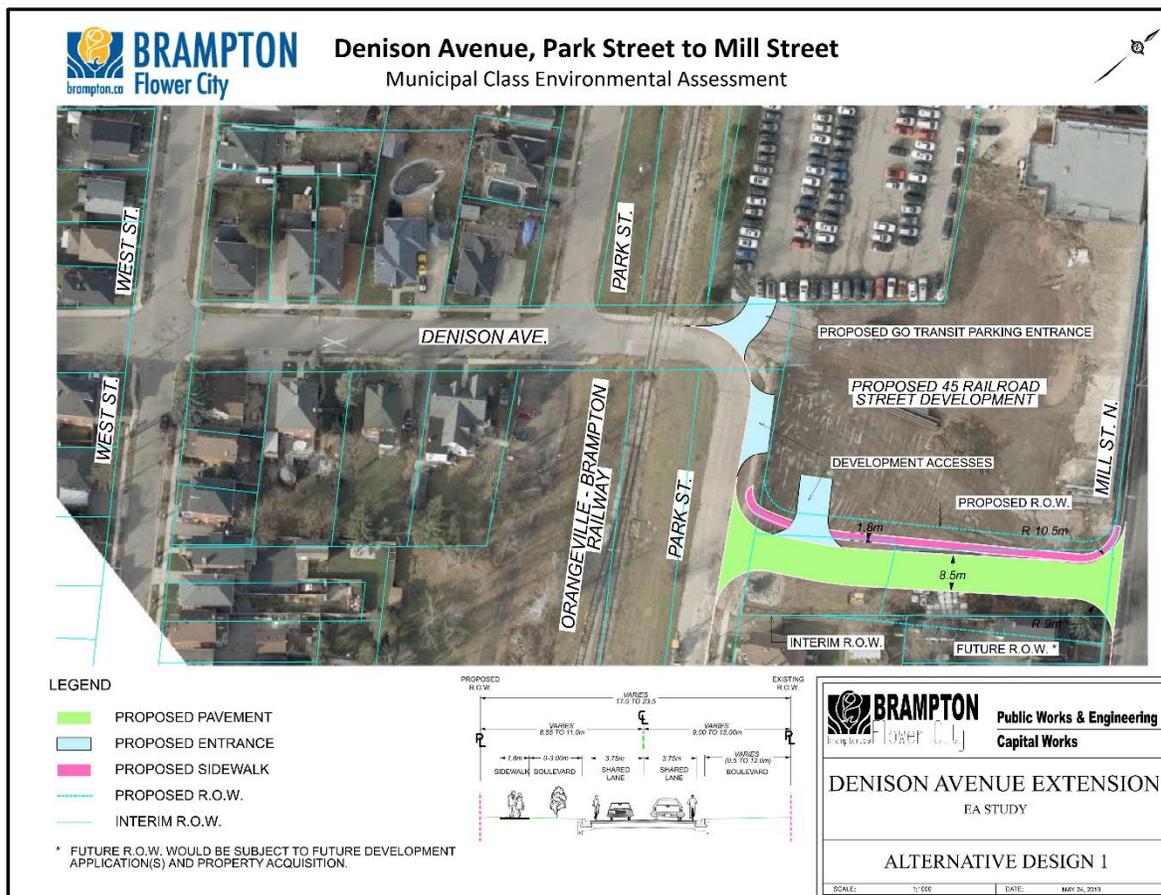
Potential Impacts		Design Alternatives			
		Alternative #1	Alternative #2	Alternative #3	
Description		Realignment at South End of 45 Railroad Street Property	Realignment West of Park, Across OBG Rail Line	Extension of Denison straight through 45 Railroad St. Property	
Natural	1.1	Potential Impacts on Terrestrial and/or Aquatic Features (proximity to habitat features)	●	●	●
		• None	• No Impacts Anticipated	• No Impacts Anticipated	
Natural	1.2	Potential for Impacts to Confirmed Species at Risk (SAR) and/or Significant Wildlife Habitat (SWH)	●	●	●
		• None	• No Impacts Anticipated	• No Impacts Anticipated	
Social / Economic	2.1	Property Impacts (Existing Residential, Commercial and/or Industrial Properties)	●	○	○
		• No Direct Impact or Displacement of any existing properties	• Displaces three (3) residential properties (1 Denison Avenue, 3 Denison Avenue, 5 Denison Avenue) required to accommodate the proposed 23m ROW required for new roadway.	• Direct impact to one (1) property (45 Railroad Street) to accommodate 23m ROW for new roadway. (see below for Impact to Future Development Plans)	
	2.2	Impact to Future Development Plans	●	○	○
		• Extension of Denison Avenue would be in alignment provided by developer of 45 Railroad Street property and has been accommodated by approved site plan design.	• Extension of Denison Avenue would be in alignment provided by developer of 45 Railroad Street property and has been accommodated by approved site plan design.	• High impact to current (approved and under construction) site development of 45 Railroad Street property. Site plan would require complete re-design.	
	2.3	Consistency with Planning Policies	●	●	●
		• Consistent with the City of Brampton Transportation Master Plan (2015) goal of extending Denison Avenue between Park Street and Mill Street; • Consistent with City of Brampton 2040 Planning Vision and Official Plan (2015) goals of providing infrastructure that supports active transportation, livable communities and moving people and goods.			
	2.4	Access (Existing and Future Land Uses)	●	●	●
		• The extension of Denison Avenue will provide better direct access for existing residents on Park Street and/or Mill Street. It will also provide more direct access for pedestrians and cyclists. • The extension of Denison Avenue at the south end of the 45 Railroad Street property will provide access to the south end of the development via a new driveway entrance.	• The extension of Denison Avenue will provide better direct access for existing residents on Park Street and/or Mill Street. It will also provide more direct access for pedestrians and cyclists. • The extension of Denison Avenue at the south end of the 45 Railroad Street property will provide access to the south end of the development via a new driveway entrance. • Some reconfiguration of the proposed west access to the 45 Railroad Street development and south access to the GO Transit parking lot would be required.	• The extension of Denison Avenue will provide better direct access for existing residents on Park Street and/or Mill Street. It will also provide more direct access for pedestrians and cyclists. • New access points would be required for the GO Transit parking area and revised site plan for 45 Railroad Street property	
2.5	Neighbourhood Connectivity	●	●	●	
	• Improves connection between Park Street and Mill Street for pedestrians, cyclists and vehicle traffic.	• Improves connection between Park Street and Mill Street for pedestrians, cyclists and vehicle traffic.	• Improves connection between Park Street and Mill Street for pedestrians, cyclists and vehicle traffic.		
2.6	Noise	●	●	●	
	• Proposed Denison Avenue extension at south end of 45 Railroad Street property will increase vehicular noise for abutting Park Street and Mill Street along south edge of new roadway.	• Proposed Denison Avenue extension at south end of 45 Railroad Street property will increase vehicular noise for abutting Park Street and Mill Street along south edge of new roadway.	• No impact to noise.		
2.7	Air Quality	●	●	●	
	None of the alternatives would have any impact on existing air quality.				
2.8	Climate Change	●	●	●	
	All the alternatives would improve traffic flow by adding capacity and reducing traffic on parallel routes which would provide an overall marginal improvement on carbon emissions				
Cultural Environment	3.1	Archaeology	●	●	●
		• No identified archaeological concerns for this alternative.	• Additional investigation (Stage 2 survey) would be required for realigned section of Denison Avenue.	• No identified archaeological concerns for this alternative.	
Cultural Environment	3.2	Built Heritage	●	○	○
		• No identified Built Cultural Heritage resource impacts.	• Impact to property listed on City of Brampton's Municipal Registry of Cultural Heritage Resources (1 Denison Avenue) • Impact to property identified by City of Brampton as Potential Property of Interest (3 Denison Avenue)	• Impact to 45 Railroad Street east façade (currently being preserved for incorporation into new development)	
Technical	4.1	Local Transportation Network and Operations	●	●	●
		• All the alternatives would improve local transportation network capacity and would reduce traffic on parallel routes. However, generally the existing and projected future traffic volumes are low. • Provides new connection between Park Street and Mill Street. Creates jog in Denison Avenue alignment west of Park Street and new roadway that is not ideal for connecting Denison Avenue west of Park Street with Mill Street.	• Provides new connection between Park Street and Mill Street. Eliminates jog in Denison Avenue alignment west of Park Street and new roadway. • Provides improved or new access for homes/properties along Denison including new development at 45 Railroad Street.	• Provides new connection between Park Street and Mill Street. Ideal for connecting Denison Avenue west of Park Street with Mill Street. • Does not provide additional connection for homes/properties along Denison. Eliminates proposed accesses for 45 Railroad Street development as well as GO Transit parking area.	
	4.2	Traffic Safety	●	●	●
	• Existing concerns regarding the proximity of the proposed GO Transit parking lot access to the at-grade rail crossing as well as the 45 Railroad Street development access onto the Park-Mill Street curve would remain, however opportunities to mitigate these concerns would be available	• Realignment of Denison Avenue west of Park Street would provide opportunities to address identify traffic safety concerns with the at-grade rail crossing and access points for GO Transit parking lot and 45 Railroad Street development.	• Realignment of Denison Avenue through the 45 Railroad Street property would provide an opportunity to review and revise access point for GO Transit parking lot area as well as the 45 Railroad Street development. Identified concerns with the existing at-grade rail crossing would still need addressing.		
4.3	Provisions for Active Transportation	●	●	●	
	• Alternatives provide provisions for active transportation facilities as per active transportation recommendations in the City's Transportation Master Plan and Active Transportation Plan.				

Potential Impacts		Design Alternatives			
		Alternative #1	Alternative #2	Alternative #3	
Description		Realignment at South End of 45 Railroad Street Property	Realignment West of Park, Across OBG Rail Line	Extension of Denison straight through 45 Railroad St. Property	
Technical	4.5	Design Criteria and Geometrics	<ul style="list-style-type: none"> The City of Brampton design criteria for a Minor Collector roadway were used to develop the roadway extension plan. Proposed ROW requirements and cross-section elements are based on the City's requirements and standards. The jog in the alignment would utilize the existing bend from Denison Avenue to Park Street which is sub-standard. The proposed 45 Railroad Street access onto the existing Park Street is on the curve and does not meet Safety Report recommendations. The proposed GO Transit parking area access onto Park Street/Denison Avenue is within 30 m of the rail crossing and would need to be relocated. 	<ul style="list-style-type: none"> The City of Brampton design criteria for a Minor Collector roadway were used to develop the roadway extension plan. Proposed ROW requirements and cross-section elements are based on the City's requirements and standards. The realignment of Denison Avenue west of Park Street would cross the existing OBR rail line at 110° to meet minimum standards. The proposed 45 Railroad Street access and proposed GO Transit parking area access would require revision. 	<ul style="list-style-type: none"> The City of Brampton design criteria for a Minor Collector roadway were used to develop the roadway extension plan. Proposed ROW requirements and cross-section elements are based on the City's requirements and standards. The proposed 45 Railroad Street access and proposed GO Transit parking area access onto Park Street/Denison Avenue would need to be relocated/adjusted
	4.6	Orangeville-Brampton Rail Line Crossing	<ul style="list-style-type: none"> No new or relocated crossing of OBR rail line would be required as part of this alternative design. Upgrades to the existing at-grade crossing to upgrade crossing to meet Transport Canada guidelines for at-grade rail crossings would still be required. 	<ul style="list-style-type: none"> Realignment of Denison Avenue, west of Park Street, would require a new relocated crossing of the OBR rail line. Design standards require that any new crossing of a rail line be between 70-110° angle per current Transportation Canada guidelines for at-grade rail crossings 	<ul style="list-style-type: none"> No new or relocated crossing of OBR rail line would be required as part of this alternative. Upgrades to the existing at-grade crossing to upgrade crossing to meet Transport Canada guidelines for at-grade rail crossings would still be required.
	4.7	Storm Water Management/Drainage	<ul style="list-style-type: none"> Opportunities to provide improvements to local drainage as part of new road construction to improve storm water management in the area. Improvements would be limited extension through 45 Railroad Street property only. 	<ul style="list-style-type: none"> Opportunities to provide improvements to local drainage as part of new road construction to improve storm water management in the area. 	<ul style="list-style-type: none"> Opportunities to provide improvements to local drainage as part of new road construction to improve storm water management in the area. Improvements would be limited extension through 45 Railroad Street property only.
	4.8	Utilities	<ul style="list-style-type: none"> Minor impacts to existing above-ground utilities (hydro, streetlighting) 	<ul style="list-style-type: none"> Minor impacts to existing above-ground utilities (hydro, streetlighting) 	<ul style="list-style-type: none"> Minor impacts to existing above-ground utilities (hydro, streetlighting)
Cost	5.1	Estimated Construction Cost	Est. \$340,000	Est. \$1,400,000	Est. \$840,000
	5.2	Property Costs (see also Property under Socio-Economic Impacts)	Moderate	High	High
	5.3	Construction Staging	<ul style="list-style-type: none"> Construction of roadway extension between Park Street and Mill Street could potentially be done in tandem with 45 Railroad Street development. Construction would have minor impacts to existing Denison, Park and/or Mill Street function and only minor interruption of OBR rail line operations while improvements to the existing crossing are made. 	<ul style="list-style-type: none"> Construction of roadway extension between Park Street and Mill Street could potentially be done in tandem with 45 Railroad Street development. Realignment of Denison Avenue, west of Park Street would require disruption to OBR rail operations for duration of work through rail ROW. Denison Avenue west of Park Street may require closure/restricted access for realignment and reconstruction. 	<ul style="list-style-type: none"> Construction of roadway extension between Park Street and Mill Street could potentially be done in tandem with 45 Railroad Street development (expected re-design of site)
		Summary	Preferred	Not Preferred	Not Preferred
		Reasoning	<ul style="list-style-type: none"> Option #1 provides an improvement on neighbourhood connectivity, active transportation facilities and access while avoiding major impacts to existing residential properties and/or proposed developments. However, concerns with the Denison alignment west of Park Street are not addressed and improve 	<ul style="list-style-type: none"> Option #2 provides improvement on neighbourhood connectivity, active transportation facility and access. However, the identified impacts to existing residential properties and the Orangeville-Brampton rail line at-grade crossing are significant and a significant cost. As such, this option is not preferred. 	<ul style="list-style-type: none"> Option #3 provides improvement on neighbourhood connectivity, active transportation facility and access. Option #4 also represents the ideal alignment for the Denison Avenue Extension. However, the identified impact to the proposed 45 Railroad Street development would be significant and require a complete redesign of that project at significant expense.

6.5 Preliminary Preferred Alternative Design

Based on the completed evaluations, **Option #1 – Extension at South End of 45 Railroad Street** was identified as the preliminary preferred design.

Figure 6-5 – Preliminary Preferred Alternative Design Option #1



Following is summarized description of the preliminary preferred design option:

6.5.1 Roadway Design

The extension alignment is between Park Street and Mill Street only, at the south end of the 45 Railroad Street development property (over what was formerly 36 Park Street and 47 Mill Street);

The proposed roadway cross-section is a modified Local Minor Collector per City of Brampton standard. Modifications include the elimination of sidewalk along the south side and implementation of a ROW width less than 23m at the Mill Street intersection to avoid property impacts; the City can develop 23 m cross-section by acquiring property from 45 Mill Street N if and when this property redevelops.

In lieu of implementing an on-road cycle lane, as recommended for Denison Avenue in the City of Brampton's Active Transportation Master Plan, 3.75m wide Sharrow lanes with appropriate pavement markings and signage will be constructed.

Figure 6-6
 Proposed Denison Avenue Typical Cross-Section for Preferred Design Option

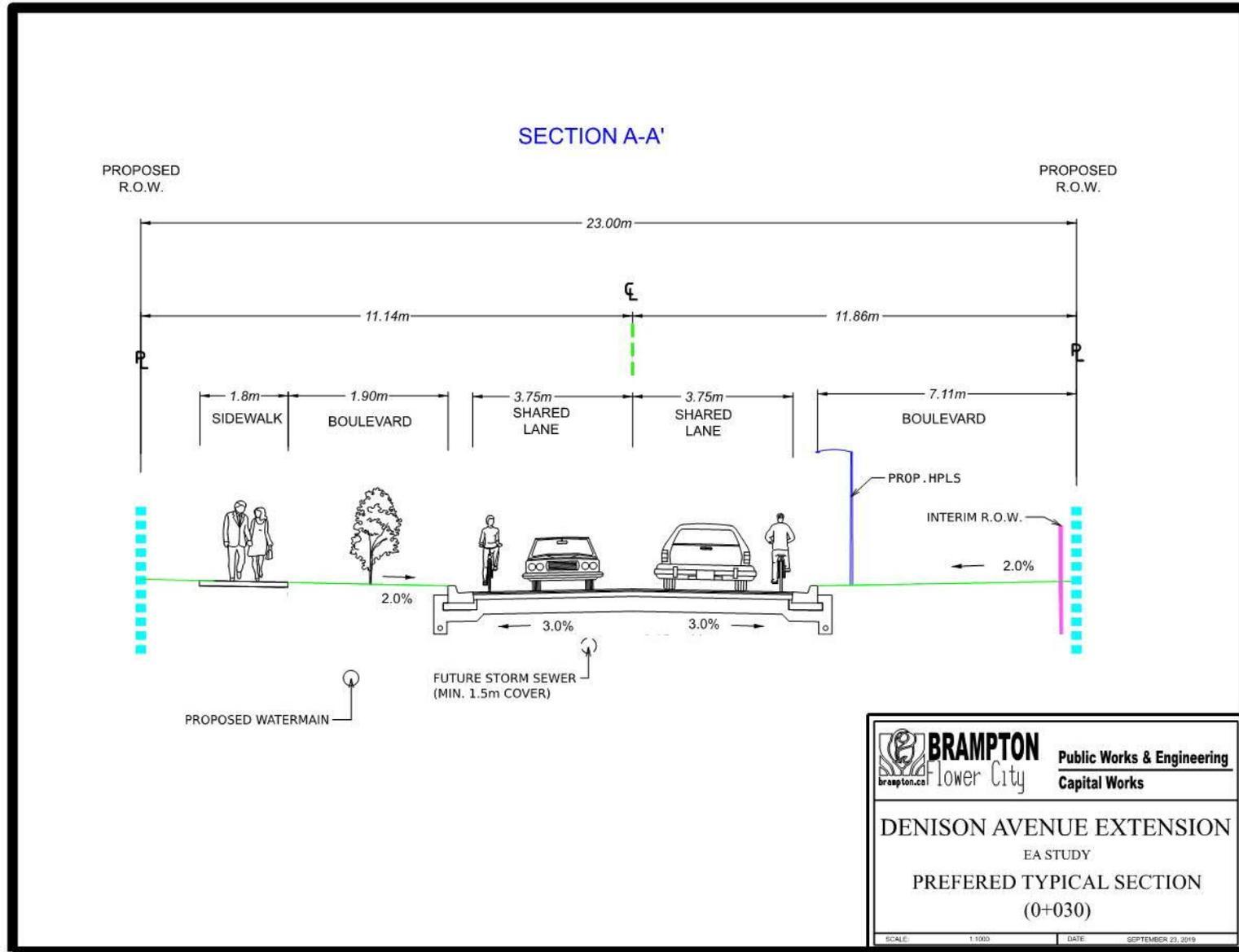
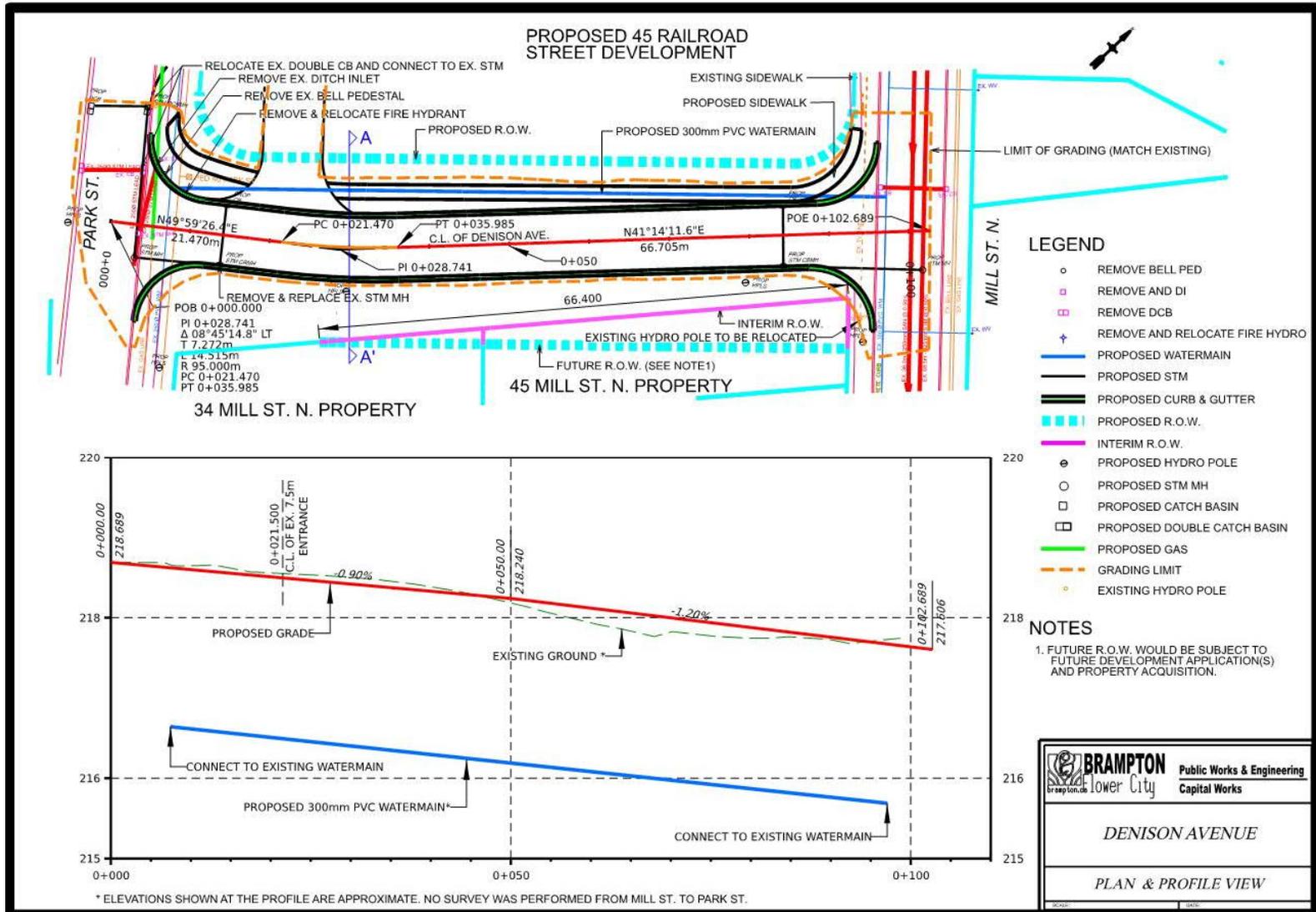


Figure 6-7
Proposed Denison Avenue Plan and Profile for Preferred Design Option



6.5.2 Storm Sewer Design

Due to the limited size of the road extension, it is recommended that catchbasins be placed at the curb returns at each intersection, with the road profile using a high point midway to drain the new roadway east and west. The new catchbasins are to connect to existing storm sewers on Park Street and Mill Street.

Opportunities for quantity and quality control are limited because of the size of the project. However, as part of detailed design it is recommended that goss traps, catchbasin shields and/or inlet control devices be examined for their ability to remove sediment and/or control the flows of storm water.

6.5.3 Region of Peel Watermain

During consultations with stakeholders and agencies, the Region of Peel identified the need to construct a 300mm dia. Watermain along the new alignment, connecting to watermains on Park Street and Mill Street, as part of the extension project. The new watermain would allow them to abandon the existing watermain connecting Park Street to Railroad Street through the Metrolinx parking lot.

6.5.4 Utility Relocations

A few utility relocations would be required as identified in **Appendix R - Utility Relocation report**. These include but are not limited to:

- Relocation of the existing hydro pole on the west side of Mill Street;
- Relocation of the existing Bell pedestal on the east side of Park Street; and,
- Accommodation of Enbridge proposed extension of the existing gas main on Park Street past the new intersection, as part of servicing for the future 45 Railroad Street development.

6.5.5 Pavement Design

A geotechnical investigation to recommend pavement design and/or groundwater management will be required prior to the start of detailed design.

In lieu of the geotechnical report, the standard City of Brampton pavement cross-section is recommended (to be confirmed during detailed design):

- 40mm HL3
- 85mm HL8
- 150mm Granular "A" (or 130mm of 20mm crusher run limestone)
- 380mm Granular "B" (or 300mm of 50mm crusher run limestone)

6.5.6 Illumination

The Illumination Analysis Report (Appendix O) prepared for this project recommended three (3) standard 7.62m high stand-alone poles be installed with GE Evolve LED Roadway Streetlight – ERL1 (8000 lumen) fixtures mounted. These are standard luminaires for use with City of Brampton road projects.

6.6 Preliminary Estimated Cost

A preliminary estimated cost for the preferred design Option #1 is as follows:

Denison Avenue Extension Municipal Class EA Study

Preliminary Cost Estimate for the Preferred Design Alternative



Item No.	Item	Unit	Quantity	Unit Price	Total
1	Remove Existing Sewer Structures (All Sizes and Types)	ea	2	\$ 500.00	\$ 1,000.00
2	Remove Sewer Pipe (All Sizes)	m	10	\$ 150.00	\$ 1,500.00
3	Asphalt Removal, Partial Depth (50mm)	m2	60	\$ 7.50	\$ 450.00
4	Earth Excavation and Grading	m3	550	\$ 35.00	\$ 19,250.00
5	HL3 (40mm)	t	75	\$ 100.00	\$ 7,500.00
6	HL8 (85mm)	t	150	\$ 90.00	\$ 13,500.00
7	Granular "A" (150mm)	t	280	\$ 18.00	\$ 5,040.00
8	Granular "B" (380mm)	t	550	\$ 18.00	\$ 9,900.00
9	Concrete Sidewalk	m2	170	\$ 75.00	\$ 12,750.00
10	Concrete Curb and Gutter, All Types (OPSD 600.040, 600.110, 608.110)	m	110	\$ 125.00	\$ 13,750.00
11	Topsoil (150mm Depth)	m2	100	\$ 35.00	\$ 3,500.00
12	Landscaping	L.S.	1	\$ 25,000.00	\$ 25,000.00
13	SICB 600mm Dia. (OPSD 705.010, 400.080)	ea	4	\$ 3,400.00	\$ 13,600.00
14	300mm Dia. PVC Storm Sewer, Type I, Class 3 Bedding, Granular Backfill	m	30	\$ 260.00	\$ 7,800.00
15	150mm Dia. Perforated Sub-Drain	m	110	\$ 25.00	\$ 2,750.00
16	300mm PVC Watermain	m	70	\$ 400.00	\$ 28,000.00
17	Line Painting and Signage	L.S.	1	\$ 5,000.00	\$ 5,000.00
18	Streetlighting	ea	3	\$10,000	\$ 30,000.00
Sub-Total					\$ 200,290.00
15%	Topographic and Legal Surveys				\$ 30,043.50
	Property Acquisition				\$ 250,000.00
15%	Utility Relocations				\$ 30,043.50
10%	Geotechnical Investigation				\$ 20,029.00
20%	Engineering				\$ 40,058.00
15%	Construction				\$ 30,043.50
7%	Contract Administration				\$ 14,020.30
20%	Contingency				\$ 40,058.00
TOTAL					\$ 454,295.80

7 POTENTIAL ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND MONITORING

Environmental concerns, anticipated impacts and proposed mitigation measures as they relate to the Denison Avenue Extension project, have been described in this report. Many of the concerns that were identified have been mitigated through the process by which the recommended design was selected.

Per the findings in the Natural Environment, Phase I ESA and Stormwater Management and Drainage reports, there is minimal impact to the existing environment. The proposed road extension will pass through previously developed properties and/or lands currently being disturbed by ongoing construction activities. No significant increase in noise or air pollution is anticipated.

7.1 Transportation Assessment

The technical memorandum provided in Appendix H summarizes the transportation study, background, existing and proposed land uses within the study area, the analysis methodology, and existing and future traffic conditions of the MMLoS assessment. The assessment included a review of the existing road network, cycling network and pedestrian network, the results of which are summarized as follows:

7.1.1 Vehicular Analysis

In 2041, with the Denison Avenue extension:

- The Railroad Street, Mill Street and Nelson Street segments will have a Level of Service of F
- The intersection of Mill Street North and Nelson Street West will have an overall Level of Service of F with a failing eastbound/southbound movement (Level of Service F)
- The intersection of Mill Street North and Railroad Street will have an overall Level of Service of F with a failing eastbound movement (Level of Service F).

7.1.2 Pedestrian Analysis

Pedestrian movements at the study intersections show a generally low demand throughout the study area except for the intersection of Railroad Street and Mill Street where GO Station pedestrians' volumes are high (113 pedestrians crossing the south leg). For pedestrians' demand to and from the Go Station, the proposed alignment for the Denison Avenue extension would marginally reduce the walking distance. However, the extension will generally reduce the walking distance for other pedestrians in the neighbourhood.

7.1.3 Cyclist Analysis

The BLOS of the study intersections and segments is "B" which meets the target BLOS with and without the extension. Cyclists currently share the roads within the study area with vehicles and there are no dedicated bike lanes. However, the number of observed/counted cyclists were generally low which was less than 3 cyclists per directions in either the AM or PM peak hour. The low number of cyclists is likely due to the time of year that the traffic count was conducted (January).

The City's Active Transportation Master Plan is proposing a "shared roadway" bike facility on Denison Avenue, connecting to a proposed "protected bike lane" on McLaughlin Road and to "protected bike lanes" on Railroad Street and on Queen Street via a "shared roadway" facility on Mill Street. These improvements are anticipated to increase cyclist demand.

7.1.4 Summary

Overall, the Transportation Assessment determined that the extension of Denison Avenue would improve the connectivity of the local transportation network with minimal improvements for the vehicular traffic in the 2031 and 2041 horizon years. Pedestrians and cyclists may benefit from the extension, but additional improvements are identified within the study area which would likely complement the benefits of the extension. There are generally no negative transportation impacts identified from the extension.

7.2 Safety Assessment

The Safety Assessment provided some recommendations within the Study Area vicinity for improvements to be undertaken as part of either the proposed Denison Avenue extension project and/or other future infrastructure repair or improvement projects in the area. The following recommendations were provided:

General

- Install a 1.5 metre sidewalk on Denison Avenue between Park Street and West Street (both sides) as part of a future reconstruction project;
- In the short term, replace damaged sections of sidewalk on the southwest corner of Denison Avenue and Park Street;
- As part of future reconstruction, review opportunities to remove fixed objects within 1.2 – 1.8 metres of edge of roadway as specified in report tables; and
- Provide stop bars at all stop-controlled intersections.

Railroad Street and Mill Street

- To improve sightlines at the intersection of Railroad Street and Mill Street for eastbound motorists and address the issue with jaywalking, it is recommended to:
 - Removing the pedestrian walkway on the west side of Railroad Street at the GO Train tracks, given its condition and AODA non-compliance
 - Removing the crosswalk on the west approach; and,
 - Installing zebra crosswalks on the south and east approaches to the intersection.

7.3 Built-Cultural Heritage Assessment

Background research, data collection, and field review was conducted for the Study Area and it was determined that a total of 17 cultural heritage resources are located within the Denison Avenue Extension EA study area. Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid impacts to the identified cultural heritage resources. No-go zones should be established adjacent to the identified cultural heritage resources and instructions to construction crews should be issued in order to prevent impacts.
2. Where feasible, staging and construction activities and no-go zones should be suitably planned to avoid vibration impacts to 43 Mill Street North (CHR 5).
3. Where indirect impacts including grading, property acquisition and subsequent demolition are anticipated on properties adjacent to identified cultural heritage resources and occurring within 50 m of buildings identified as potential cultural heritage resources, the impacts of the vibrations should be investigated through an engineering assessment and any necessary mitigation measures should be implemented prior to construction. Properties identified as potentially being indirectly impacted as a result of construction activities include:

Project File Report

- a. 39 Mill Street North (CHR 2)
- b. 40 Mill Street North (CHR 3)
- c. 41 Mill Street North (CHR 4)
- d. 43 Mill Street North (CHR 5)
- e. 44 Mill Street North (CHR 6)
- f. 48 Mill Street North (CHR 8)
- g. 50 Mill Street North (CHR 9)
- h. 52 Mill Street North (CHR 10)

If any structural and/or geotechnical concerns arise subsequent to this Cultural Heritage Resource Assessment the recommended distance will have to be re-evaluated and reconfirmed upon discovery of any arising concern.

4. Should future work require an expansion of the study area, a qualified heritage consultant should be contacted to confirm the impacts of the proposed work on potential heritage resources.

After the selection of the preliminary preferred design alternative for the Denison Avenue extension, ASI was retained by AE to undertake a Heritage Impact Assessment on 45 Mill Street North property due to the direct impact resulting from the "Future" right-of-way (23 m wide) for the roadway. Overall, the HIA determined that the property on 45 Mill Street North did not have any cultural heritage value or interest as determined by the criteria in Ontario Regulation 9/06 of the Ontario Heritage Act.

7.4 Heritage Impact Assessment – 45 Mill Street North

The proposed development for the Denison Avenue extension involves the interim construction of a paved roadway, entrances and a sidewalk between 45 Mill Street North and 45 Railroad Street. The ultimate solution involves the acquisition and demolition of the residence at 45 Mill Street North in order to construct the full 23 metre right of way required. This HIA has evaluated the existing property at 45 Mill Street North using Ontario Regulation 9/06 and determined that the property does not have cultural heritage value or interest. As such there are no impacts to heritage resources anticipated as a result of the proposed interim and/or ultimate works.

7.5 Stage 1 Archaeological Assessment

The Stage 1 background study determined that one previously registered archaeological site is located within one kilometre of the Study Area. The property inspection determined that parts of the Stage 1 Study Area exhibit archaeological potential. The Preferred Alternative Design Concept does not include areas of archaeological potential and the following archaeological recommendations were provided:

- 1) The Study Area exhibits archaeological potential. These lands require Stage 2 archaeological assessment test pit survey at five metre intervals, if impacted, prior to any proposed construction activities.
- 2) The remainder of the Study area, including the Preferred Alternative Design Concept area, does not retain archaeological potential on account of deep and extensive land disturbance. These lands do not require further archaeological assessment; and,
- 3) Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

Overall, the assessment determined that parts of the Study Area exhibit archaeological potential and that those areas would require Stage II assessments prior to any land disturbing activities. However, the preferred design alternative

concept for the Denison Avenue Extension did not impact any of these identified areas and, as such, no Stage II assessment work will be required.

7.6 Drainage and Stormwater Management Report

The proposed road connection of Denison Street between Park Street and Mill St. N. is a challenge to meet all targets for stormwater management as a result of its small size and existing infrastructure limitations. Proposed stormwater management targets are met through:

- **Quantity Control** – Proposed conditions match existing conditions peak flow rates, no storage required, and best efforts are achieved.
- **Utility Treatment** – Limited to downstream inlet catchbasin treatment and existing end-of-pipe controls. No onsite treatment methods are feasible.
- **Retention** – Topsoil depth increased to 300mm to promote increased retention within boulevards for sidewalk runoff. No retention of road surface runoff can occur within the study area.

During the detailed design stage, providing it would be possible to connect to existing adjacent storm sewers, a new set of catchbasins at each end of the proposed road would be sufficient to meet quality treatment effectively for such a small, controlled area. The addition of goss traps and/or inlet control devices (CoB standard orifice plates/plugs) would further increase the effectiveness of treatment through separate of oils/grits, restricting flow and promoting sediment setline within the catchbasin sumps. It is also recommended that any propose storm inlet structures also be outfitted with a Storm Shield or similar device to prevent re-suspension of sediment within the storm floe events

7.7 Natural Environment Report

Through the finalization of the detailed design and construction, mitigation and protection measures must be implemented. All of these measures are to be detailed and conveyed as part of the final tender document for appropriate understanding and implementation by the contractor under the supervision of the Contract Administrator. The following general mitigation and enhancement measures are provided:

- In compliance with the Migratory Bird Convention Act, vegetation removal is to be avoided within the “regional nesting period” for this area (generally late April to late July), unless a survey by a qualified avian biologist indicates: an absence of actively nesting breeding birds, or appropriate mitigation/protection measures to be implemented as needed, including delaying tree removal until nest(s) are inactive.
- In the unlikely event that SAR are encountered, work will stop and the Ministry of Environment, Conservation and Parks (MECP) will be contacted for specific advice and direction.
- To minimize the potential for erosion and off-site transport of sediment into the natural environment, the project will implement Best Practices related to erosion and sediment control (ESC). ESC measures used by the contractor on all construction should meet guidelines as outlined in Erosion and Sediment Control Guideline for Urban Construction, December 2006 (ESC Guideline), prepared by the Greater Golden Horseshoe Area Conservation Authorities (GGHACA), or equivalent standards. Runoff from stockpiles or site dewatering through an appropriate device, such as filter bags/silt sock.
- All exposed and newly constructed surfaces should be stabilized using appropriate means in accordance with the characteristics of the exposed soils. These surfaces should be fully stabilized and re-vegetated as quickly as possible following the completion of the works.
- All activities, including the maintenance of construction machinery, should be controlled to prevent the entry of petroleum products, debris, rubble, concrete or other deleterious substances into the natural environment.

Based on the above, no implications to natural heritage policy have been identified. In general, the Report found no significant natural environment features in the area that would potentially be impacted by a proposed extension of Denison Avenue. Furthermore, the proposed tree preservation plan and compensation measures ensure conformity to the City's Tree Preservation By-Law (317-2012) and Tableland Tree Assessment Guidelines (2018).

The findings of this study are the result of a background review, ecological field surveys, and an analysis of data using current scientific understanding of the ecology of the area and natural heritage policy requirements. This information has been used to support the development of the proposed road extension design and provide guidance on natural heritage mitigation recommendations and implementation.

7.8 Illumination Analysis Report

Reviewing the results of the photometric model, the horizontal pavement luminance and uniformity ratios (Average/Min & Max/Min) of the roadway are acceptable and adhere to RP-8-14 (Guide to Roadway Lighting) requirements. To achieve optimum roadway uniformity and lighting, we recommend proceeding with the luminaire design provided in the report (Appendix O).

7.9 Phase I Environmental Assessment Report

The scope of this Phase One ESA conforms to the general requirements outlined in O.Reg. 153/04. The objectives of the Phase One ESA were to identify the likelihood of the presence or absence of PCA's and their associated APECs and PCOCs, in support of the Municipal Class B EA for the Denison Road extension. The results of the Phase One ESA are documented in this report and reflect site conditions observed at the time of the site reconnaissance.

Based on the information obtained as part of the Phase One ESA, it is concluded that fifty (50) PCAs were identified on at least one of the Phase One Properties and within the Phase One Study Area and contributing to five APECs:

- One (1) on 45 Railroad Street,
- Zero (0) on 45 Mill Street,
- One (1) on 47 Mill Street,
- One (1) on 34 Park Street, and
- Two (2) on 36 Park Street

Associated PCOCs including PHCs, PAHs, VOCs, metals and inorganic parameters (As, Sb, Se, Na, B-HWS, Cl-, CN-, Cr(VI), HG, low or high pH, EC and SAR), and Organochlorinated Pesticides were identified.

Based on the findings of the Phase One ESA, current and historical PCAs which could adversely affect environmental condition of the Site were identified; therefore, a Phase Two ESA is recommended to fully characterize soil and groundwater quality for due diligence purposes.

7.10 Socio-Economic Report

The future socio-economic environment for the local area was evaluated in the context of the preferred design Alternative 1, as shown in the drawing appended to this report.

Socio-Economic Criteria	Potential Impacts	Mitigation
Future Land Use	There would be no impact to potential future land uses as identified in the Official Plan and/or	None.

Denison Avenue Extension 7 - POTENTIAL ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND MONITORING

Project File Report

Socio-Economic Criteria	Potential Impacts	Mitigation
	Secondary Plan Amendments for the Downtown Brampton area.	
Property Impacts	<p>There would be property impacts to 45 Mill Street North and 34 Park Street should the standard 23m wide right-of-way be implemented in the future. This would be subject to development applications involving those properties.</p> <p>Otherwise there are no anticipated impacts to existing residential land uses in the study area.</p>	The future ROW would be subject to future development applications and property acquisition.
Development Activities	<p>The extension of the roadway is compatible with future land uses and development activities (45 Railroad Street) in the project area and would potentially alleviate traffic within the adjacent residential neighbourhood.</p> <p>The extension would support future diversification of adjacent land uses and/or rezoning by creating increased connectivity and improving access for local traffic.</p>	None.
Active Transportation	Area residents will be able to use the new Denison Avenue Extension as an alternate route for cyclists and pedestrians, both residential and commuter.	None.
Quality of Life (Health and Safety)	The extension of Denison Avenue will not create any long-term impacts to air quality; dust from construction will be temporary. Noise levels are not anticipated to be any higher because of the road extension.	Street tree plantings in the boulevard of the proposed road extension, in addition to landscaping included with the 45 Railroad Street Development will improve local air quality in addition to providing minor noise buffers.
Construction	Construction will be necessary.	Measures to reduce and/or limit disturbances to area residents during construction should be implemented including, but not limited to, restriction of work to a single season, restrictions on working days/times and strict enforcement on truck hauling routes, vibration monitoring and equipment cleaning prior

Socio-Economic Criteria	Potential Impacts	Mitigation
Aesthetics/Streetscaping	New roadway will provide additional streetscaping and place-making opportunities, including increased plantings and potential spaces for public art and or street furniture.	Detailed design will provide tree planting/landscaping plans.
Neighbourhood Connectivity	Neighbourhood connectivity will be improved because of providing an additional road and sidewalk connection between Park Street and Mill Street.	None.
Emergency Access	Emergency access will be improved as a result of providing an additional connection between Park Street and Mill Street.	None.

8 PERMITS AND APPROVALS

Permits anticipated for this project are limited due to relatively small size. The TRCA and other agencies, through consultation during the study identified no concerns or interest. As such permits may include the following:

- Ministry of Environment, Conservation and Parks – Environmental Compliance Application (ECA) for the installation of storm sewer(s); and,
- Ministry of Environment, Conservation and Parks – Form 1, Record of Future Alteration for Watermains, for the installation of the proposed Region of Peel watermain along the new alignment.

9 FUTURE COMMITMENTS AND DETAILED DESIGN CONSIDERATIONS

This section provides a list of specific commitments to be carried forward into the Implementation Phase (i.e. completion of contract drawings and tender documents, construction and operation and the monitoring for environmental provisions and commitments). Additional works to be completed during the detail design phase of this project, prior to construction, include but are not limited to, the following:

- Completion of engineering survey on completion of the adjacent site development and restoration of ROW for Denison Avenue
- Liaison with all utilities and identify conflicts and potential relocations prior to the start of detailed design;
- Road design and implementation should be coordinated with Region of Peel proposed 300mm Ø watermain along the Denison Avenue Extension connecting to watermains on Mill Street and Park Street;
- Confirm pavement structure design through geotechnical investigation and recommendations report
- Alectra should be contacted regarding the relocation of an existing hydro pole in conflict with the proposed intersection of Denison Avenue and Mill Street;
- Street lighting detailed design to be coordinated as part of detailed design for the road.
- Relocation of the existing Bell pedestal that will conflict with the proposed intersection of Denison Avenue and Park Street;

- Development of a complete detailed construction staging and traffic management plan
- A Phase 2 ESA should be completed during detailed design of the preferred design option to characterize soil and groundwater conditions for due diligence purposes.

10 CLOSURE

In conclusion, this EPR recommends that the City of Brampton proceed with the implementation of **Design Alternative Option #1**, as described herein, for the extension of Denison Avenue, between Mill Street and Park Street. This Environmental Project Report was prepared for the City of Brampton to satisfy requirements of the Municipal Class EA process for a Schedule "B" project and the Environmental Assessment Act, and to set the stage for detailed design and construction of the Preferred Design Option as discussed herein.

The services provided by Associated Engineering (Ont.) Ltd. in the preparation of the report were conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made.

Respectfully submitted,
Associated Engineering (Ont.) Ltd.

Peter Lejcar, P. Eng.
Manager, Transportation and Infrastructure