Project File Report

for the

Angeline Street North
Municipal Class Environmental Assessment

City of Kawartha Lakes

Prepared by Ainley Group

August 2025

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Executive Summary

The City of Kawartha Lakes has retained Ainley Group to undertake an environmental assessment (EA) for the improvements to Angeline Street North (Angeline Street). This project has been classified as a Schedule 'B' undertaking in accordance with the *Municipal Class Environmental Assessment* (MCEA; March 2023). This Project File Report was prepared in accordance with the MCEA guidelines, and documents the process involved in the selection of the Preferred Alternative for the improvements of Angeline Street.

In accordance with a Schedule 'B' undertaking, Phase 1 and Phase 2 of the MCEA were carried out. Phase 1 requires identification of the problem/opportunity statement, while Phase 2 requires identifying existing conditions, carrying out an environmental screening, identifying preliminary alternative solutions and the preferred recommended solution, and consulting with the public and agencies on the project. Public Information Centres (PICs) were held on February 28, 2019 and May 9, 2024 where design options and the Preferred Alternative for the improvements of Angeline Street were presented. Comments from agencies and the public were accepted, and replies were provided to those who requested to receive responses.

The City of Kawartha Lakes is projected to be home to an estimated 100,000 residents by 2031, which is an anticipated increase of 33% from 2011 population values. In 2012, the City of Kawartha Lakes completed a Transportation Master Plan which identified a number of areas with limited or insufficient traffic capacity to accommodate anticipated 2031 traffic demands, including along the Kent Street West (Kent Street) and Colborne Street West (Colborne Street) corridors. To further assess existing and future needs along these corridors, standalone MCEA studies were completed in 2016 and 2017 (under separate study) which identified preferred solutions for the corridor as a whole, and provided recommendations for each intersection with Angeline Street.

The preferred solution as presented in the *Kent Street Schedule B Class Environmental Assessment and Corridor Study* (HDR, 2016) identified the following recommended intersection improvements for the Kent/Angeline Street intersection to be carried forward for further review.

- Widening of Angeline Street from a three-lane cross-section including centre two-way left turn-lane, to a five-lane cross section including a centre two-way left turn lane.
- Addition of an exclusive eastbound right-turn lane.
- Addition of an exclusive southbound right-turn lane.
- Addition of another northbound left-turn lane, for dual northbound left-turn lanes.

Review of the above intersection configuration was recommended as part of a stand-alone MCEA, with Options provided for implementation of the above in consideration of intersection widening and a westward shift, and intersection widening with an eastward shift. The above lane configuration is referred to as 'full build-out' for the purposes of this study.

The preferred solution as presented in the *Colborne Street Class Environmental Assessment and Corridor Study* (HDR, 2017) identified the following recommended intersection improvements for the Colborne/Angeline Street intersection to be carried forward for further review.

- Widening of Angeline Street from a three-lane cross-section including centre two-way left turn-lane, to a five-lane cross section including a centre two-way left turn lane.
- Addition of an exclusive eastbound right-turn lane.
- Addition of an exclusive westbound right-turn lane.

Review of the above intersection configuration was recommended as part of a stand-alone MCEA for best-fit options and a more detailed review of potential impacts.

To further review and address capacity constraints at both the Kent/Angeline Street, and Colborne/Angeline Street intersections, and the Angeline Street corridor from Kent Street to Colborne Street, this environmental impact study was completed to review existing conditions, reevaluate potential intersection improvement options, consult with stakeholders, and define recommended alternatives for each respective location.

Existing condition reviews were carried out for the corridor and included natural heritage, Stage 1 and 2 archaeological assessments, vibration analysis, air quality review, review of corridor properties and constraints, and review of existing utilities and infrastructure. In consideration of the above, stakeholder consultation was completed via two (2) PICs in February 2019 and May 2024. In addition to the PICs, consultation with adjacent property owners was completed through targeted stakeholder meetings (i.e. Ross Memorial Hospital) to receive additional project information, and comments regarding the project, including project specific impacts to public service infrastructure.

In addition to existing condition reviews, the original alternatives as presented in the previous MCEA's were refined to an initial list of four alternatives for consideration as part of this MCEA:

- **Alternative 1** – Westward Shift of Alignment at Kent Street Intersection with a 'full build-out' lane configurations of:
    - **Kent Street Intersection**
        - **Northbound Lanes (NB) –** 2x Left-Turn Lane (LT), 1x Through-lane (Thru), 1x Thru/Right-Turn Lane (RT)
        - **Southbound Lanes (SB) –** 1x LT, 2x Thru, 1x Dedicated RT
        - **Eastbound Lanes (EB) –** Existing Conditions + 1x Dedicated RT
        - **Westbound Lanes (WB) –** Existing Conditions
    - **Angeline Street Corridor**
        - **NB –** 2x Thru
        - **SB –** 2x Thru
        - **Centre lane –** 1x Shared LT
- **Alternative 2** – Eastward Shift of Alignment at Kent Street Intersection with 'full build-out' lane configuration as Alternative 1.
- **Alternative 3** – Eastward Shift of Alignment at Kent Street Intersection with a reduced lane configuration.
    - **Kent Street Intersection**
        - **NB –** 2x LT, 1x Thru, 1x Thru/RT
        - **SB –** 1x LT, 1x Thru, 1x Dedicated RT
        - **EB –** Existing Conditions + 1x Dedicated RT
        - **WB –** Existing Conditions
    - **Angeline Street Corridor**
        - **NB –** 2x Thru
        - **SB –** 2x Thru
        - **Centre lane –** 1x Shared LT
- **Alternative 4** – Eastward Shift of Alignment at Kent Street Intersection with a reduced lane configuration.
    - **Kent Street Intersection**
        - **NB –** 2x LT, 1x Thru/RT
        - **SB –** 1x LT, 1x Thru, 1x Dedicated RT
        - **EB –** Existing Conditions + 1x Dedicated RT
        - **WB –** Existing Conditions
    - **Angeline Street Corridor**
        - **NB –** 2x Thru
        - **SB –** 2x Thru
        - **Centre –** 1x Shared LT

Initial review of the above alternatives screened out Alternatives 3 and 4 as they did not meet the study objectives with respect traffic capacity, and Alternative 2 was noted to be initially preferred. However, further review of existing infrastructure within the Kent Street/Angeline Street intersection area, including ventilation structures, parking, and vehicle access for the Ross Memorial Hospital, commercial buildings, and underground parking infrastructure, prompted further review of alternative 2 to address constraints, and resulted in development of Alternatives 2A and 2B for the Kent/Angeline Street Intersection.

- **Alternative 2A** – Eastward Shift of Alignment at Kent Street Intersection with 'full build-out' lane configuration.
- **Alternative 2B** – Eastward Shift of Alignment at Kent Street Intersection with reduced northbound lanes (1x LT, 1x Thru, 1x Thru/RT), and all other lane configurations the same.

The shortened list of alternatives above were evaluated through a comparison of impacts to specific environments such as transportation, social/economic, natural, cultural, and cost, along with associated policy and design requirements such as traffic operations, roadway safety, noise, property impacts, landscape, surface water, species at risk, built/archaeological resources, utility relocations, and preliminary construction costs.

Through review of the above, Alternative 2B was selected as the technically preferred solution to address the traffic capacity concerns at the Angeline/Kent intersection and the Angeline Street corridor as a whole.

The reduction in northbound lanes for Alternative 2B was evaluated through a traffic study and evaluation in 2023 (Ainley, 2023) to confirm suitability to meet the project objects and future traffic demands, and it was determined to provide a suitable level of service for the project horizon.

Alternatives at the Colborne Street/Angeline Street intersection were also reviewed, with consideration of a recommended lane configuration of 1x LT, 1x Thru, 1x Dedicated RT at all legs of the intersection. Alignment of the intersection was evaluated under westwards shift, centered, and eastward shift, in consideration of the existing alignment. Through a review of the same environments and policy/design requirements, the alignment shift to the east at Colborne Street was determined to the technically preferred solution.

Although being initiated following commencement of this MCEA, due regard was also provided to the City of Kawartha Lakes Active Transportation Master Plan, and a feasibility assessment for proposed improvements was completed to determine options that may be implementable as part of the Preferred Alternative. Based on the feasibility assessment, it was determined that a multi-use path (MUP) on the east side of Angeline Street

(northerly from the hospital) would be possible, with connection to an east-west oriented MUP on Colborne Street, on the west side of Angeline Street.

At each respective part of the corridor, and throughout the study limits, the technically preferred solution is considered to be a cost-effective approach that meets current standards, and addresses the problem and opportunity statement by meeting the long-term traffic needs and improving the safety conditions within the study area.

A Notice of Study Completion has been issued concurrently with this posting of the Project File Report on the public record, which will mark the beginning of the 30-day review period.

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

Requests should specify what kind of order is being requested (request for additional conditions or a request for an individual/comprehensive MCEA), how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statement in the request. This will ensure that the Ministry is able to efficiently begin reviewing the request.

The requests should be sent in writing or by email to the contacts below and a copy to the City of Kawartha Lakes.

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

And,

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

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1.0 Introduction

1.1 Background and Purpose

The City of Kawartha Lakes is projected to be home to an estimated 100,000 residents by 2031, which is an anticipated increase of 33% from 2011 population values. In 2012, the City of Kawartha Lakes completed a Transportation Master Plan (TMP) which identified a number of areas with limited or insufficient traffic capacity to accommodate anticipated 2031 traffic demands, including along the Kent Street West (Kent Street) and Colborne Street West (Colborne Street) corridors. To further assess existing and future needs along these corridors, standalone Environmental Assessment (EA) studies were completed in 2016 and 2017 (under separate study) which identified preferred solutions for the corridor as a whole, and provided recommendations for each intersection with Angeline Street North (Angeline Street).

The preferred solution as presented in the *Kent Street Schedule B Class Environmental Assessment and Corridor Study* (HDR, 2016) identified the following recommended intersection improvements for the Kent/Angeline Street intersection to be carried forward for further review.

- Widening of Angeline Street from a three-lane cross-section including centre two-way left turn-lane, to a five-lane cross section including a centre two-way left turn lane.
- Addition of an exclusive eastbound right-turn lane.
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Review of the above intersection configuration was recommended as part of a stand-alone MCEA, with Options provided for implementation of the above in consideration of intersection widening and a westward shift, and intersection widening with an eastward shift. The above lane configuration is referred to as ‘full build-out’ for the purposes of this study.

The preferred solution as presented in the *Colborne Street Class Environmental Assessment and Corridor Study* (HDR, 2017) identified the following recommended intersection improvements for the Kent/Angeline Street intersection to be carried forward for further review.

- Widening of Angeline Street from a three-lane cross-section including centre two-way left turn-lane, to a five-lane cross section including a centre two-way left turn lane.
- Addition of an exclusive eastbound right-turn lane.
- Addition of an exclusive westbound right-turn lane.

Review of the above intersection configuration was recommended as part of a stand-alone MCEA for best-fit options and a more detailed review of potential impacts.

Based on the capacity constraints of Angeline Street and the Kent Street and Colborne Street intersections, the City of Kawartha Lakes has retained Ainley Group to undertake the MCEA, which includes preliminary and detail design phases, to determine a Preferred Alternative to address vehicular traffic improvements, as well as opportunities to incorporate access, improve safety, and enhance other modes of transport.

This project has been classified as a Schedule 'B' undertaking in accordance with the *Municipal Class Environmental Assessment* (MCEA; 2023) planning process. This Project File Report has been prepared in accordance with the MCEA guidelines, and documents the MCEA study completed for the improvements of Angeline Street.

Upon completion of the MCEA process, detail design elements will be completed including all required approvals, and construction will be permitted to proceed (pending funding).

1.2 Study Area

The study area is located within the community of Lindsay, in the City of Kawartha Lakes. The project limits encompass a portion of Angeline Street from Colborne Street West to Roosevelt Street, all of which is within the Ministry of Natural Resources (MNR) – Peterborough District.

Within the project limits, Angeline Street is currently a three-lane configuration, which conveys local and tourist traffic north and south, within Lindsay. Angeline Street is currently posted as a 50 km/h speed limit and has on average a 22 m wide right-of-way (ROW). Angeline Street also provides access to residential, commercial and institutional properties within the study limits.

The general study area and project limits are shown in **Figure 1**.

Figure 1: Key Map – Angeline Street from Colborne Street West to south of Kent Street West

1.3 Municipal Class Environmental Assessment Process

As part of the design process, municipal infrastructure projects in Ontario must meet the requirements of the *Environmental Assessment Act (EAA)* or, more specifically, the MCEA (March 2023, as amended in 2007, 2011, and 2015). The MCEA applies to a group or "class" of municipal water, wastewater, and roadway projects which occur frequently and have relatively minor and predictable impacts. As long as these projects are planned, designed, and constructed in accordance with the requirements of the MCEA, the projects are approved under the *EAA*. The specific requirements of the MCEA depend on the type of project, including the project's complexity and anticipated environmental impacts. The four categories of MCEA projects are known as Exempt, Exempt based on Screening, 'B', and 'C'".

The environmental assessment for the Angeline Street improvements is proceeding per the requirements of a Schedule 'B' project in accordance with the MCEA.

To meet the requirements of a Schedule 'B' project, Phases 1 and 2 of the MCEA process are to be followed. These phases are identified as follows:

- Phase 1: Identification of the Problem/Opportunity Statement
- Phase 2: Development and evaluation of Alternative Solutions and Selection of a Preferred Solution to address the Problem/Opportunity Statement.

The phases of the MCEA process are shown on **Figure 2**.

To fulfill the requirements of the MCEA and to avoid/minimize adverse environmental impacts, the Schedule "B" screening process involves the following:

- Preparing a screening level inventory of the environment potentially affected by the project,
- Consulting with the public and agencies,
- Reviewing potential impacts of the preferred solution, and identifying potential mitigation measures,
- Documenting the MCEA process with a Project File Report, and
- Making the Project File Report available to the public for a 30-day review period.

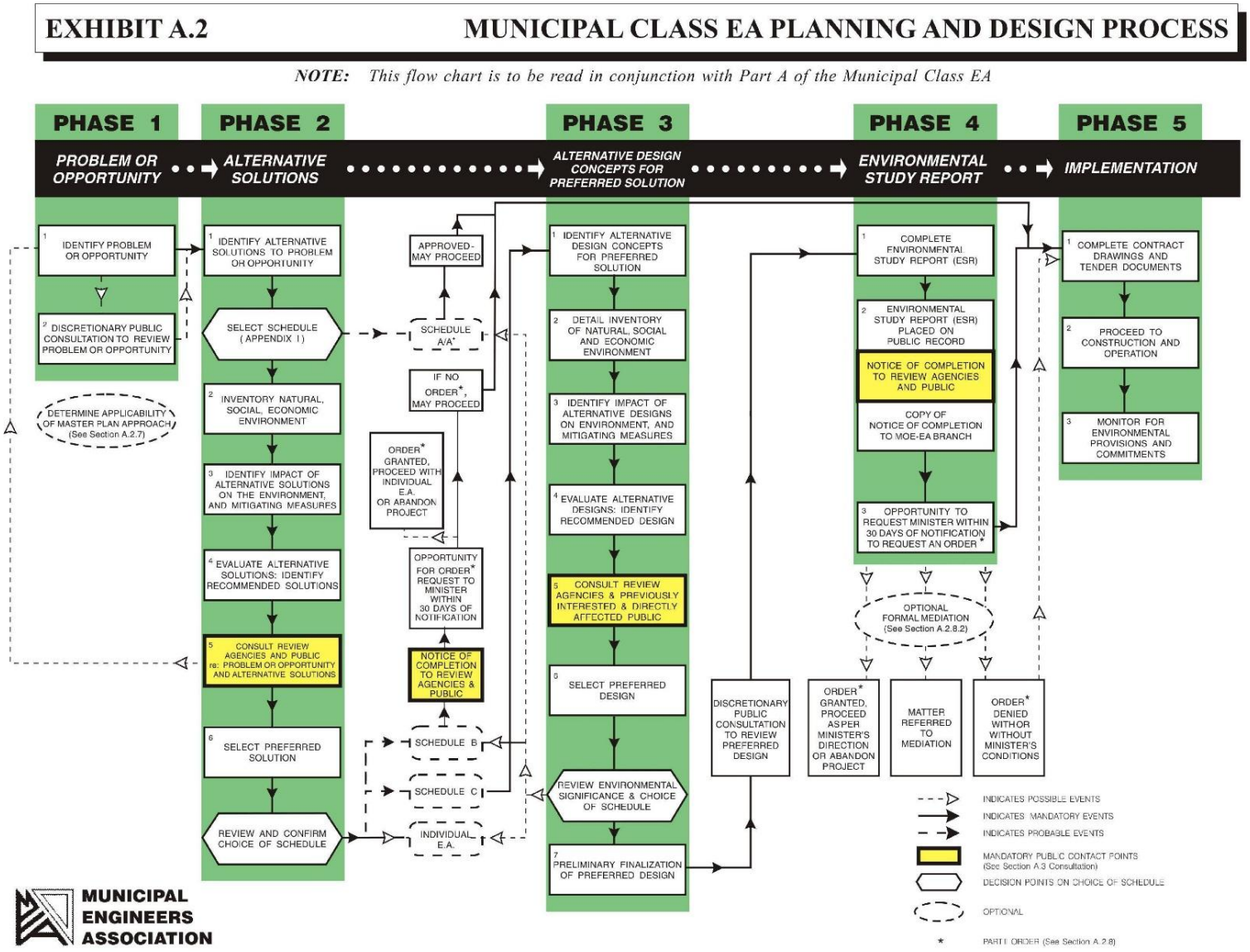


Figure 2 – MCEA Process Flow Chart (Source: Municipal Engineers Association)

2.0 Problem and Opportunity Statements

The City of Kawartha Lakes is projected to be home to an estimated 100,000 residents by 2031, which is an anticipated increase of 33% from 2011 population values. In 2012, the City of Kawartha Lakes completed a TMP which identified a number of areas with limited or insufficient traffic capacity to accommodate anticipated 2031 traffic demands, including along the Kent Street and Colborne Street corridors. To further assess existing and future needs along these corridors, standalone MCEA studies were completed in 2016 and 2017 (under separate study) which identified preferred solutions for the corridor as a whole, and provided recommendations for each intersection with Angeline Street, along with further study requirements.

The Problem/Opportunity Statement outlines the need and objective for the study, which for the Angeline Street North Reconstruction is identified as follows:

> "*The City of Kawartha Lakes is projected to be home to an estimated 100,000 residents by 2031, which is an anticipated increase of 33% from 2011 population values. As a result of the projected growth, the 2012 Transportation Master Plan identified transportation capacity constraints on Kent Street West and Colborne Street West, with recommended improvements. Stand-alone corridor and Environmental Assessment studies for these intersections provided preferred intersection improvements which will be considered as part of this study for the Angeline Street North corridor.*"

The Angeline Street North Reconstruction Opportunity Statement is as follows:

> "*The Angeline Street North corridor will be reviewed for potential vehicular traffic improvements to meet the project 2031 traffic demands. In addition, opportunities to incorporate access, improve safety, and enhance other modes of transport for existing and future residents will also be review. The reconstruction also provides an opportunity to review the condition of and replace watermain, sanitary sewer, and storm sewer infrastructure where warranted.*"

3.0 Existing Conditions

3.1 Roadway/Built Environment

The existing Angeline Street corridor is a three-lane cross-section, with one northbound, one southbound, and a two-way centre left turn lane. Between Kent and Colborne Streets, properties adjacent to Angeline Street include a mix of institutional, commercial, and residential properties.

The Kent Street intersection at Angeline, currently has dedicated left-turn lanes, and a shared thru-lane/right turn lane in both the north and southbound approaches. The eastbound and westbound approaches on Kent Street both have dedicated left turn lanes, one thru lane, and shared thru and right turn lanes. The Kent Street/Angeline Street intersection is heavily developed with commercial property in the northwest corner, the Ross Memorial Hospital (RMH) in the northeast corner, and multi-level apartment buildings in both the southeast and southwest quadrants of the intersection.

The Colborne Street intersection at Angeline Street is similar to Kent Street, in that existing lane configurations include dedicated left turn lanes, one thru lane, and one shared thru and right turn lane at each leg of the intersection. Areas adjacent to the intersection are built out with residential uses on the west side of Angeline, transitioning to commercial to the north, and the Colborne Lodge and Fairview Baptist Church on the east side of Angeline Street at the intersection.

3.2 Natural Environment

As part of Phase 2 of the MCEA, an inventory of existing conditions and environmental screening is required. Environmental investigations for the Angeline Street improvements included a background review and field assessment on October 26, 2018.

To evaluate existing natural heritage and environmental conditions, the following tasks have been undertaken:

- A review of available and relevant background information including reference to the Natural Heritage Information Centre (NHIC), Ontario Reptile and Amphibian Atlas, Atlas of Breeding Birds, and other available natural heritage information sources as available.
- Given that the project area is located within a predominantly urban corridor, the field assessments found no significant terrestrial or aquatic environments, and no species at risk are interpreted to be encountered within the study limits.
- Field data collection for natural heritage features and existing trees and woody vegetation within the study limits was completed on October 26, 2018. A tree inventory report is included in **Appendix F**, which provides a summary of observed roadside trees, with general ratings of their health and potential hazards.

The following sections provide additional details regarding environmental characteristics within the study limits.

3.2.1 Topography/Soils

The topography in the study area is generally characterized by rolling terrain with a gentle slope towards the south. The area is primarily flat with subtle undulations, typical of the region, with no significant changes in elevation within the study area itself.

The subject property is identified as within the Peterborough Drumlin Field physiographic region, which is a generally characterized by gently rolling hills and the presence of numerous drumlins formed by glacial processes during the Wisconsinan glaciation (Chapman and Putnam, 1984). As the study area falls within a built-up area of the City of Kawartha Lakes, soils are consistent with topsoil and fill materials expected on developed lands. Bedrock within the study area consists of limestone, dolostone, shale, arkose, and sandstone (Ontario Geological Survey, 1991).

3.2.2 Vegetation

The study area is located in the 6E Lake Simcoe-Rideau Ecoregion within the Mixedwood Plains Ecozone, which is typically dominated by cropland, pasture, and abandoned fields, with deciduous, coniferous, and mixed forests present in small quantities (MNRF, 2009); however, the study limits for this project are included in the urban area of Lindsay. Vegetation was limited to urban roadside trees and vegetation within the Angeline Street corridor. To characterize and quantify vegetation within the ROW, field surveys were conducted by the Ainley Group on October 26, 2018, documented a survey of roadside trees, including assessments of their health and potential hazards.

During the field survey, a total of 95 trees were inventoried within the project limits, representing 17 species, including 11 deciduous and 6 coniferous. The majority of trees (65%) were in good health, with 21% in fair health. Only 10% exhibited poor or poor/fair health. Eight trees (8%) were identified as having moderate to moderate/high hazard levels, with one dead White Spruce considered a high hazard. The remaining 82% were deemed low hazard. No SAR were found, but some large diameter trees may be of higher value to the City and could be prioritized for preservation. As part of the planned improvements, select trees will require removal to accommodate new roadway infrastructure, and/or will be impacted by construction activities. Availability of space for new landscape trees following construction will be evaluated as part of detail design activities for the corridor.

3.2.3 Herpetofaunal, Bird, and Wildlife Use

Field assessments did not identify significant herpetofaunal, bird, or other wildlife use within the project area, which can be attributed to the urban and built-up nature of the project area. Urban backyard birds can be expected during the breeding window within

woody vegetation within the ROW; however, no notable species or habitats were observed during the environmental review.

3.2.4 Surface Water, Drainage, and Fisheries

No surface water features, including wetlands, watercourses, or waterbodies are present within the study area, and as such, no fish or fish habitat, or aquatic SAR have the potential to be impacted by the proposed undertaking. In addition, the study area is not interpreted to have any hazard lands that would be regulated or require permitting from Kawartha Conservation.

Minimal changes to surface water drainage areas are anticipated. Since widening and intersection improvements are proposed, some existing grassed areas will become paved or concrete surfaces which will in turn lead to more runoff drainage. However, local drainage will be routed to catch basins which are connected to the City's storm sewer system to provide optimum drainage for the new designs of the Angeline Street corridor. All disturbed areas that do not consist of pavement or concrete will be revegetated.

3.2.5 Species at Risk

As the project area is located within a predominantly urban corridor, there is limited potential for SAR to exist, nor is there suitable habitat to support them. A review of available background information indicates that while some SAR have been reported in the general region, the urban environment of the project area does not provide the necessary habitat for these species. No SAR were observed during the field assessments, and the conditions on-site are not conducive to their presence.

3.2.6 Other Significant Features

3.2.6.1 Significant Wetlands/Significant Coastal Wetlands

There are no provincially significant wetlands or significant coastal wetlands within the project limits.

3.2.6.2 Significant Woodlands

There are no significant woodlands within the study area or general project area and vegetation was noted to consist mainly of urban trees within the ROW.

3.2.6.3 Significant Valleylands or Areas of Natural and Scientific Interest (ANSI)

No significant valleylands or ANSI are present within the study limits.

Significant Wildlife Habitat

In accordance with the *Natural Heritage Reference Manual* (MNR, 2010), there are four categories of significant wildlife habitat including the following:

- Rare vegetation communities or specialized habitat for wildlife.
- Habitat of species of conservation concern.
- Animal movement corridors.
- Habitats of seasonal concentrations of animals.

Based on the location of the proposed undertaking (urban environment dominated by high density residential and commercial buildings), none of the above noted habitat types are anticipated to exist. As such, no impacts to significant wildlife habitat are anticipated as a result of the proposed undertaking.

3.3 Socio-Economic

As part of the existing conditions review for the project, a review of the socio-economic environment was completed. Factors considered as part of the socio-economic review included:

- Socio-economic Structure;
- Community, Traffic, and Emergency Services;
- Environmentally Sensitive Areas;
- Noise;
- Adjacent Land Use; and
- Commercial Properties.

The following sections provide a summary of the above-noted components for the Angeline Street study area.

3.3.1 Socio-Economic Structure

The project limits encompass a portion of Angeline Street from Colborne Street to south of Kent Street at Roosevelt Street. Within the project limits, Angeline Street is currently a three-lane configuration, which conveys local, tourist, and commercial traffic north and south, through Lindsay. Angeline Street also provides access to residential and commercial properties within the study limits.

3.3.2 Community and Emergency Services

Fire services within the study areas are provided by the Kawartha Lakes Fire Rescue Service, with the closest fire station located at 9 Cambridge Street, approximately 1.1 km east of the project limits. Ambulance and paramedic services are provided to the area by the City of Kawartha Lakes Paramedic Services, and the RMH is located immediately north of the Angeline Street/Kent Street intersection.

Local school boards servicing the area include the Trillium Lakelands District School Board, Peterborough – Victoria – Northumberland and Clarington Catholic District School Board, Conseil Scolaire Viamonde, and Conseil Scolaire Catholique MonAvenir. Transportation services are provided by the Student Transportation Services of Central Ontario.

3.3.3 Noise

The existing noise environment in proximity to the project limits is dominated by traffic-related noise. Other sources of noise in the vicinity are considered to be generally insignificant. Any construction related noise associated with the improvements of Angeline Street North will be of a temporary nature throughout the duration of construction. All construction works shall conform to the City of Kawartha Lakes Noise by-law.

3.3.4 Adjacent Land Use

Adjacent land use consists of commercial, community use, and residential properties. Community use properties are concentrated along Angeline Street, particularly near the intersection with Kent Street West, where the northeast quadrant features the RMH, designated as a major community facility. Commercial uses, including the Town and Country Centre shopping mall, with a variety of outlets within including Giant Tiger, a pharmacy, ReStore, and Wholesale Club, and a variety of other dental and medical service outlets are located along the corridor, contributing to a mixed-use urban character. Numerous other commercial establishments are also present within a 500-metre radius of the project limits, with several retail, restaurant, and fast-food establishments located to the west along Kent Street.

Residential properties currently front Angeline Street at the connection with Chadwin Drive, at the northwest quadrant of the intersection with Colborne Street, and south of the Kent Street/Angeline Street intersection. A vacant parcel of land is currently present on the east side of Angeline Street between Chadwin Drive and the Colborne Lodge, which is anticipated to be developed in the future.

The mix of community, commercial, and residential uses in the area, along with established neighbourhood fabric to the south of the Angeline/Kent Street intersection

support local demand for improved traffic carrying capacity, active transportation, and access to nearby services.

The City of Kawartha Lakes Official Plan identifies the land use designations along Angeline Street as including Residential, Community Facility, and Commercial land use areas. The Commercial land use designation supports the concentration of retail and service-oriented uses along primary corridors and nodes. The Residential land use designation identifies areas intended for low- and medium-density housing forms, while the Community Facility designation applies to significant institutional uses such as the RMH.

3.3.5 Utilities

Overhead hydro and bell infrastructure is present throughout the project limits, primarily along west side of Angeline Street; however, overhead service crossings are present in select locations including at Chadwin Drive, Kent Street, and Colborne Street. These overhead utilities are pole mounted and are interpreted to provide hydro and telecommunication distribution.

At this time, detailed information regarding underground utilities such as gas, Bell, or hydro was not available; however, based on the urban context and the presence of adjacent commercial and institutional properties, it is anticipated that underground services (including gas, telecommunications, and water/sewer) are also likely to be present within the corridor. Utility locates and coordination with service providers will be required to confirm the presence and alignment of all underground infrastructure prior to construction.

Utility relocations, where required, will be conducted in advance of corridor and intersection improvements to accommodate proposed roadway modifications and ensure continued service delivery throughout construction.

3.3.6 Source Water Protection

Background research noted that work on Angeline Street will partially be occurring within the Intake Protection Zone for the City of Kawartha Lakes drinking water system (includes Intake Protection Zone 2). **Exhibit 1** shows the location of Intake Protection Zone 2 for the City of Kawartha Lakes drinking water system within the project area.

The source water protection program governs land use policies that may have influence on source water intakes for the Trent Conservation Coalition Source Protection Region. Contaminants released within the above noted area have the potential to impact the intake protection zone. Communication with the Trent Conservation Coalition Source Protection Region staff identified that they do not foresee the project posing a significant drinking

water threat that must be managed; however, extra care was urged when operating machinery and completing work within the vulnerable area (**Appendix G, H, I**).

Mitigation measures (including those recommended by Trent Conservation Coalition Source Protection Region staff) to limit potential impacts to source water protection features are also noted in **Section 8.0**.

Exhibit 1 – Intake Protection Zone 2 of Drinking Water System within Project Area

3.3.7 Archaeological/Built-Cultural Heritage Impacts

A Stage 1 archaeological assessment was completed for the project area in March 2021. The assessment indicated that the area has archaeological potential for both pre-contact and post-contact First Nations and Euro-Canadian archaeological resources, due to factors such as proximity to Scugog River, the Kirkfield Outlet, and historic roads like Colborne Street and Angeline Street. The presence of early Euro-Canadian settlements (Town of Lindsay) and three registered archaeological sites within 300 meters further supports this potential.

That said, large portions of the project area have been disturbed by the construction and maintenance of infrastructure, such as watermain, storm and sanitary sewer, and

roadworks. These areas of disturbance reduce the archaeological potential for resource recovery, however, areas with low or no disturbance were identified for further review of archaeological potential.

A Stage 2 archaeological assessment for the Angeline Street corridor areas with identified archaeological potential was completed in 2021 and 2022. The results of the study indicated that no archaeological or cultural materials were found. The assessment adhered to the standards set by the Ontario Ministry of Citizenship and Multiculturalism (2011), including proper survey coverage of the property, testing at five-meter intervals, and conducting the survey under suitable weather and lighting conditions. As no archaeological resources were found, the recommendation of the Stage 2 report was that the project area be cleared of archaeological concerns.

A copy of the archaeological assessment reports is included in **Appendix D**.

3.3.8 Conservation Authority

The project limits are within the Kawartha Conservation Authority; however, no alterations to watercourses, shorelines, or wetlands are proposed as part of the intersection improvements, thereby indicating that a permit under Ontario Regulation 174/06 "*Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation*" will not be required.

3.3.9 Traffic

The existing Angeline Street corridor is a three-lane cross-section, with one northbound, one southbound, and a two-way centre left turn lane. Between Kent and Colborne Streets, properties adjacent to Angeline Street include a mix of institutional, commercial, and residential properties.

Traffic patterns in the area are influenced by users accessing community services such as the hospital, commercial outlets, and residential areas, along with throughfare traffic travelling through the project area to access other parts of the City.

All other intersections are stop controlled on local streets with a single-lane approach (i.e. Roosevelt Street, Chadwin drive, RMH Entrance, Town and Country Centre entrance and Service Ontario entrance).

A 50 km/h speed limit is posted on Angeline Street in front of the RMH.

3.3.10 Existing Intersection Operations

The following sections provide an overview of intersection traffic functionality based on data collected as part of the previous Kent Street and Colborne Street corridor study and

MCEAs (HDR; 2016 and 2017, respectively), and the *Kent Street and Colborne Street Corridor Study Environmental Assessment – Existing Conditions Report* (HDR, 2013).

3.3.10.1 Kent Street/Angeline Street Intersection

As part of previous traffic reviews (HDR; 2016), traffic counts were collected at the Kent Street/Angeline Street intersection in 2013, and Synchro traffic modelling was developed to assess operations of the road network based on weekday PM peak hour traffic volumes. Updated traffic counts were completed in 2016 to verify any changes, with results indicating that the existing and future traffic volume estimates based on 2013 data remain valid.

Based on 2013 (and supplemental 2016) traffic count data, the level of service for the Kent Street/Angeline Street intersection was noted to be operating with a level of service 'C' during peak hours. A level of service 'C' is recognized as the intersection as operating with some delay during the peak hours.

The existing conditions report (HDR, 2013) also notes that the Kent Street/Angeline Street intersection is a collision prone location, with the predominant collision type being associated with turning or rear-end collisions.

3.3.10.2 Colborne Street/Angeline Street Intersection

As part of previous traffic reviews (HDR; 2017), traffic counts were similarly collected at the Colborne Street/Angeline Street intersection in 2013, and Synchro traffic modelling was developed to assess operations of the road network based on weekday PM peak hour traffic volumes.

Based on 2013 traffic count data, the level of service for the Colborne Street/Angeline Street intersection was noted to be operating with a level of service 'C' during peak hours. A level of service 'C' is recognized as the intersection as operating with some delay during the peak hours.

The existing conditions report (HDR, 2013) also notes that the Colborne Street/Angeline Street intersection is a collision prone location, with the predominant collision type being associated with rear-end collisions.

3.3.11 Future Intersection Operation Review/Classification (2031 Horizon)

The following sections provide an overview of intersection functionality and level of service using forecasted traffic demands to a 2031 horizon, and based on data collected as part of the previous Kent Street and Colborne Street corridor study and MCEAs (HDR; 2016 and 2017, respectively), and the *Kent Street and Colborne Street Corridor Study Environmental Assessment – Existing Conditions Report* (HDR, 2013). Future land use

at the time of the study indicated that half of residential development was considered to be 'intensification' of existing land uses, and the remaining half of development would be a result of greenfield areas. Commercial growth was anticipated to focus around existing areas of commercial development, and no changes to the overall land use structure was anticipated.

Future traffic projections at the time of study assumed a 1.0% growth rate per annum, along with consideration for traffic growth associated with residential development in consideration of the City of Kawartha Lakes Growth Management Strategy and Municipal Master Plan Project – Volume 3: Transportation Master Plan (UEM, February 2012). Commercial growth as part of future volume projections was accounted for via review of proposed commercial developments and available traffic impact studies. Trip generation estimates for residential and commercial development were estimated to provide projected 2031 traffic volumes.

3.3.11.1 Kent Street/Angeline Street Intersection

Projected traffic volumes for the Kent/Angeline Street intersection were formulated in the previous studies on the basis of the principles described in **Section 3.3.5**. The 2031 forecast traffic volumes from the corridor and MCEA study are shown in **Exhibits 2 and 3**.

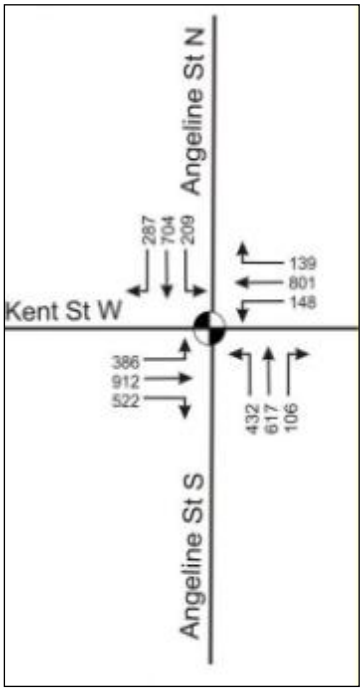


Exhibit 2 – 2031 Forecast Traffic Volumes, Kent Street/Angeline Street Intersection (HDR, 2016)

Utilizing the forecasted 2031 traffic volumes, the 2016 study (HDR) concluded that in a 'Do Nothing', i.e. no intersection improvements to accommodate increased traffic volumes, the Kent Street/Angeline Street Intersection would be operating within all movements (exception to westbound thru-right movement) with a level of service 'F', indicating higher delays.

To accommodate for future traffic volumes, the 2016 study (HDR) recommended the full build out scenario, with widening along Angeline Street from a three-lane cross-section, to a five-lane cross-section (including two-way centre left turn lane), adding an exclusive eastbound right turn lane, an exclusive southbound right turn lane, and an additional northbound left turn lane, for dual northbound left-turn lanes. The full build out scenario was carried forward for review as part of the current MCEA for the Angeline Street corridor.

3.3.11.2 Colborne Street/Angeline Street Intersection

Projected traffic volumes for the Colborne/Angeline Street intersection were formulated in the previous studies on the basis of the principles described in **Section 3.3.5**. The 2031 forecast traffic volumes from the corridor and MCEA study are shown below.

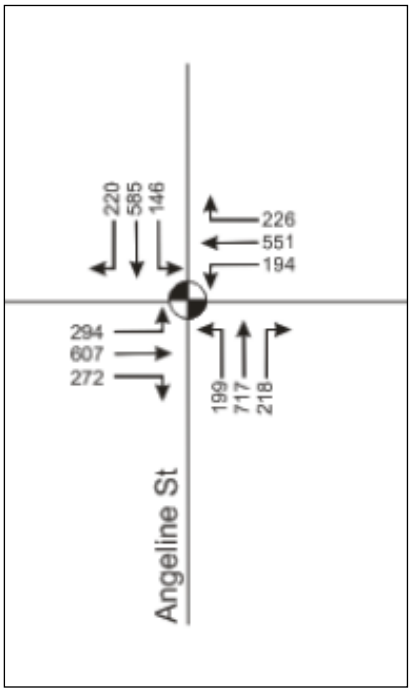


Exhibit 3 – 2031 Forecast Traffic Volumes, Colborne Street/Angeline Street Intersection (HDR, 2016)

Utilizing the forecasted 2031 traffic volumes, the 2017 study (HDR) concluded that in a 'Do Nothing', i.e. no intersection improvements to accommodate increased traffic volumes, the Colborne Street/Angeline Street Intersection would be operating with an overall intersection level of service 'F', indicating higher delays.

To accommodate for future traffic volumes, the 2017 study (HDR) recommended modifications to the intersection configuration including addition of exclusive eastbound and westbound right-turn lanes, along with widening of Angeline Street from a three-lane cross-section, to a 4cross-section (including two-way centre left turn lane). The lane configuration as recommended in the 2017 report has been carried forward for review as part of the current MCEA for the Angeline Street corridor and the Colborne Street intersection.

4.0 Consultation

As part of the MCEA process, consultation was completed with federal and provincial agencies, authorities with jurisdictional involvement, and interest groups to provide information on the project, and acquire feedback.

A Notice of Study Commencement and Public Information Centre (PIC), detailing the project and providing information on the time and location for the first PIC (PIC #1; held February 28, 2019), was mailed to the appropriate ministries, agencies, stakeholders, and residents on February 15, 2019. A Notice of the Second PIC (PIC #2; held May 9, 2024), detailing the location of the posted material and the time period for review, was mailed to the appropriate ministries, agencies, stakeholders, and residents on April 26, 2024. Notices were published in local newspapers (Kawartha Lakes This Week, Kawartha Promoter) and/or posted on the City of Kawartha Lakes website. Copies of external group correspondence are provided in **Appendix G, H,** and **I**.

The following external ministries, agencies, businesses, and stakeholders were consulted regarding the study:

- MNR – Resource Management Coordinator – Peterborough, ON
- MNRF – Conservation Programs Advisor – Peterborough, ON
- MECP – Environmental Assessment – Kingston, ON
- MECP – Environmental Planner/Environmental Assessment Coordinator – Kingston, ON
- MECP – Supervisor – Peterborough, ON

(list continued on following page)

- MECP – Water Compliance Supervisor– Peterborough, ON
- Ministry of Municipal Affairs – Municipal Services Office – East – Kingston, ON
- MNRF – Aggregate Technical Specialist – Peterborough, ON
- Infrastructure Ontario – Toronto, ON
- City of Kawartha Lakes – CAO – Lindsay, ON
- City of Kawartha Lakes – Director of Engineering and Assets – Lindsay, ON
- City of Kawartha Lakes – Senior Engineering Technician – Lindsay, ON
- City of Kawartha Lakes – Traffic Management Supervisor, Engineering and Corporate Assets – Lindsay, ON
- City of Kawartha Lakes – Mayor – Lindsay, ON
- City of Kawartha Lakes – Ward Councillors – Lindsay, ON
- City of Kawartha Lakes – Deputy Mayor – Lindsay, ON
- Kawartha Lakes Fire Rescue Service – Fire Chief – Lindsay, ON
- City of Kawartha Lakes – Paramedic Service Chief – Lindsay, ON
- Kawartha Lakes Police Service – Chief of Police – Lindsay, ON
- MPP – Haliburton – Kawartha Lakes – Brock – Lindsay, ON
- Ontario Provincial Police – City of Kawartha Lakes Detachment – Lindsay, ON
- Ontario Provincial Police – Research & Program – A/Research Analyst – Orillia, ON
- Lindsay and District Chamber of Commerce – Lindsay, ON
- Lindsay Downtown BIA – Lindsay, ON
- Haliburton, Kawartha, Pine Ridge District Health Unit – Lindsay, ON
- Trillium Lakelands District School Board – Communications Officer – Lindsay, ON
- Peterborough - Victoria - Northumberland and Clarington Catholic District School Board – Manager of Purchasing, Planning and Facility Administration – Peterborough, ON
- Peterborough - Victoria - Northumberland and Clarington Catholic District School Board – Director of Education – Peterborough, ON

(list continued on following page)

- Conseil Scolaire Viamonde – Director of Communications and Marketing – Toronto, ON
- Conseil Scolaire Catholique MonAvenir – Communications Advisor – Toronto, ON
- Student Transportation Services of Central Ontario – Peterborough, ON
- Bell Canada – Access Network Coordinator
- Cogeco
- Enbridge
- Hydro One
- Rogers
- Kawartha Conservation Authority – Resources Planner – Lindsay, ON
- Kawartha Conservation Authority – RMO/Source Protection Technician – Lindsay, ON

The following Indigenous Groups were notified of the study:

- Alderville First Nation – Alderville, ON
- Algonquins of Ontario Consultation Office – Pembroke, ON
- Algonquins of Pikwakanagan – Pikwakanagan, Golden Lake, ON
- Beausoleil (Chimnissing) First Nation – Christian Island, ON
- Chippewas of Georgina Island – Sutton West, ON
- Coordinator for Williams Treaties First Nations – Barrie, ON
- Chippewas of Rama First Nation – Rama, ON
- Curve Lake First Nation – Curve Lake, ON
- Hiawatha First Nation – Keene, ON
- Huron-Wendat Nation – Wendake, ON
- Metis Consultation Unit – Metis Nation of Ontario – Ottawa, ON
- Metis Nation of Ontario – Peterborough and District Wapiti Metis Council - Peterborough, ON
- Mississaugas of Scugog Island First Nation – Port Perry, ON

(list continued on following page)

- Mississaugas of the New Credit First Nation – Hagersville, ON
- Mohawks of Akwesasne – Akwesasne, QC
- Mohawks of the Bay of Quinte – Tyendinaga Mohawk Territory, ON
- Kawartha Nishnawbe First Nation – Big Cedar, ON
- Shabot Obaadjiwan First Nation – Sharbot Lake, ON

In addition to the above, notices were mailed to all property owners within the project limits. Prior to posting of this Project File Report on the public record, notification will be provided identifying locations where the Project File Report may be reviewed and comments provided.

4.1 Public Information Centres

4.1.1 Public Information Centre #1

PIC #1 was held on Monday, February 28, 2019 from 4:30pm to 6:30pm in the Community Room at the Lindsay Recreation Complex, 133 Adelaide Street South, Lindsay. Five (5) representatives of agencies/stakeholders and ten (10) plus members of the public attended the PIC. One (1) comment was received prior to the PIC, and seventeen (17) comments were received at and after the PIC. A summary report detailing PIC #1 is provided in **Appendix H**. The following provides a summary of the comments received at and following PIC #1 (note: the following list spans several pages):

- Respondent stated that they own a business within the project limits and are concerned about the loss of property and trees from the expansion to four-lanes. The respondent was also concerned about the interruption to their business during the construction process and would like to meet with the City of Kawartha Lakes prior to the PIC to discuss the project.
- Chippewas of Rama First Nation provided a response that at this time they do not have any concerns or comments regarding the project. They identified that Hiawatha, Curve Lake, and Scugog First Nation should be contacted regarding the project; however, they still have interests in activities in the area and asked to continue to be contacted.

- Mohawks of the Bay of Quinte (MBQ) noted that they would be concerned if the preliminary archaeological investigations found artifacts or burial remains in the study areas, and that there is a traditional process that must be followed for the repatriation or re-interment of remains. MBQ requested that any completed Archaeological Assessments be forwarded and that the project be carried out in an environmentally sensible manner that is consistent with the laws and regulations governing the project. They appreciate the efforts to determine proper use of lands of interest to the community, the prevention or mitigation of anticipated and non-anticipated effects of the proposed project, and efforts to ensure maximum benefit to the community.
- Curve Lake First Nation (CLFN) noted that the project is situated within the Traditional Territory of Curve Lake First Nation, which is incorporated within the Williams Treaties Territory. CLFN strongly suggests contacting the William Treaty First Nation Claims Coordinator as the obligation to consult may also extend to the other First Nations of the Williams Treaties. CLFN's concerns with the project included: possible environmental impact to drinking water; endangerment to fish and wild game; impact on Aboriginal heritage and cultural values; and to endangered species; lands; savannahs etc. The CLFN would also like to make arrangements to discuss these matters in more detail. Should excavation unearth bones, remains, or other such evidence of a native burial site then the nearest First Nation Government or other community of Aboriginal people must be notified. CLFN also have available Cultural Heritage Liaisons who are able to actively participate in the archaeological assessment process.
- MNRF provided a response which included general information and technical advice for consideration, including information on wetlands, ANSI's, fisheries, Species at Risk, regulatory provisions, significant woodlands, significant wildlife habitat, aggregate resources, and applicable Acts and approvals.
- Respondent noted concerns about elderly pedestrians crossing Angeline Street from Chadwin Drive and the increase of traffic that uses Chadwin Drive to avoid the Colborne Street/Angeline Street intersection.
- Respondent noted that they are not in favour of any of the options as ingress/egress for their driveway with the existing three lanes of traffic is currently difficult. They noted the existing road noise is very loud and they do not want to lose the trees in the front yard by bringing the road closer. The respondent indicated that they small children that do not need to be any closer to traffic while playing in the front yard. It was noted that bringing the road closer to houses will decrease property values and impact planned landscaping projects that are intended to raise property values.

- Fairview Baptist Church provided a response that they are willing to work with the designers as they realize that the entrances and trees at the corner of Angeline Street and Colborne Street will be impacted.
- A local business provided a response that Options 1 and 2 would be catastrophic and would require selling the business/building, while Option 3 is workable with input, and Option 4 is the best. The business also noted concerns with the potential for business disruption during the construction phase. A formal response was also submitted.
- The respondent inquired as to the extent of the north of Colborne Street and Angeline Street widening to four lanes. The respondent also inquired as to which side of Angeline Street property acquisition would be required.
- The respondent noted that any redesign must incorporate accommodation for bicycle and E-bike use as there will be future increases in active transportation. It was noted that existing infrastructure for cyclists currently directs users onto Thunderbridge Road and Angeline Street, while west of Angeline Street, St. Josephs Road incorporates bike lanes.
- The respondent noted that the driveway into the mall on Angeline Street should be moved to the south about 30 m as the driveway for the medical building and the mall are confusing for motorists. Another concern noted is the lack of bike paths in this section and as new construction will be taking place there should be plans to connect to downtown Lindsay, the Scugog River paths, the Trans Canada Trail, Victoria Rail Trail, and any other trails in the area. The respondent also noted that sidewalks should be constructed on both sides of Angeline Street to keep with the 2014 Provincial Policy Statement.
- The respondent noted that access to the medical building on Angeline Street has been awkward and dangerous for many years due to the crossing traffic going into the medical building and mall parking lot. The respondent suggests moving the north mall parking lot access to the south to increase the safety at this location.
- A local trails alliance provided a response noting an objection that no bike lanes are being planned in the initial design and that this should be included in the MCEA. Due to the lack of support in the past the City of Kawartha Lakes does not have an Active Transportation, Living Plan, or Cycling Plan so citizen input, City of Kawartha Lakes policy, and Provincial Policy should be depended on for direction. It was noted that the on-line scope of the MCEA plan shows the development is planned from Roosevelt Street to Colborne Street; however, if planning for the future, then the MCEA assessment scope should be extended to Springdale Gardens or in ten years' time more MCEA planning will be necessary.

- The respondent noted that conceptual drawings were provided for the corner of Colborne Street and Angeline Street. It was noted that the lot currently has a house and an entrance on Angeline Street which was requested to be maintained as an option.
- The respondent noted concerns about the proposed changes between Kent Street and Roosevelt Street which included the corner of Roosevelt Street and Broad Street and how merging four lanes of traffic at this corner will significantly increase accidents. The respondent also noted concerns for their driveway as it is a steep hill and visibility of pedestrians is presently difficult. It was noted that an existing wall is present, and if removed and a high wall remains, there will be concerns about the grade, high drop and hazards with mowing the lawn. Concerns about the proposed plan and the lack of current traffic levels to support the immediate change were also noted. It is believed that the proposal will not alleviate the accident rates at Kent Street and Angeline Street as left turn lanes currently exist.
- The respondent noted that the preferred option should be one that improves traffic flow but also has minimum impacts on the adjacent properties. It was noted that the diagrams and explanatory material at the PIC did not clearly show how much land would be required for each of the four options and that they are opposed to the extensive removal of trees along Angeline Street. Concerns were noted with merging the southbound lanes from two lanes to one in such a short distance before Broad Street, as it is believed this will encourage aggressive driving and increase the risk of accidents. The respondent noted that the safety of pedestrians and cyclists using the Kent/Angeline Street intersection is paramount for whatever option is chosen.
- The respondent requested a brief summary regarding the project as they were unable to attend the PIC. The respondent's only concern is a large bump in front of their residence on Angeline Street as it causes vehicles to make a lot of noise when travelling over the bump. The respondent is also concerned about whether or not the wall in front of residence will be touched during construction.

All comments were considered as part of the MCEA process and responses were provided where necessary. All responses have been included in **Appendix G**. As a summary, responses generally included:

- Accommodation of meetings to discuss the project.
- Preferred alternative not yet selected; however, will consider comments provided.
- Preferred alternative not yet selected; however, will consider the recommendations of the Active Transportation Master Plan.
- Studies included the completion of Stage I and II Archaeological investigations. Ultimately, the Stage II Archaeological Assessment recommended that the project area be cleared of archaeological concerns.

4.1.2 Public Information Centre #2

PIC #2 was held on Thursday, May 9, 2024 from 5:00pm to 7:00pm in the Victoria Room of City Hall, at 26 Francis Street, Lindsay, ON, K9V 5R8. Two (2) representatives of agencies/stakeholders and five (5) plus members of the public attended the PIC. Ten (10) individuals/stakeholders filled out a comment sheet or provided an email or phone response at/after the PIC. A summary report detailing PIC #2 is provided in **Appendix I**. The following provides a summary of the comments received at, and following PIC #2 (note: the following list spans several pages):

- Algonquins of Ontario stated that the study limits were not located within the Algonquins of Ontario Settlement Area and recommended that other indigenous groups be contacted.
- Algonquins of Pikwakanagan acknowledged receipt of the PIC #2 notification.
- Metis Nation of Ontario acknowledged receipt of the PIC #2 notification.
- Shabot Obaadjiwan First Nation acknowledged receipt of the PIC #2 notification.
- RMH provided an update regarding contact information.
- The respondent noted that the west access of the Colborne Lodge, off of Angeline Street, is the only access for residents. The respondent was concerned if this entrance will be maintained and safe.
- The respondent noted that in the event that its access off of Colborne Street and Angeline Street will be impacted, Fairview Baptist Church requests an opportunity for further discuss/review.

- A commercial owner provided a response with questions about whether the median will be concrete or painted at the north leg of the Kent Street/Angeline Street intersection. The respondent also inquired about left-turn movements of north/south traffic for the subject leg, noting that crossing multiple lanes of traffic may be difficult.
- Huron-Wendat Nation provided a response indicating interest in the archaeological process for this project, and that they would also like to receive copies of the archaeological reports.
- A property management agency provided a response with a contact update.
- Kawartha Conservation provided information with respect to the locations of the Intake Protection Zone (IPZ) 2 for the Lindsay municipal drinking water system. The response also noted that caution should be taken to prevent any fuel spills, and that sediment and turbid materials should be trapped to prevent them from entering drainage waters within the IPZ.
- The owner of an apartment building provided a response identifying items pertaining to the structural integrity of the building as well as the functionality of the site. These items included vibrations from traffic affecting the structural integrity of the building, the possible need for reinforcements to the building and underground parking due to the widened roadway, issues regarding parking (as the entrance to the underground parking garage is proposed to be closed), access for tenants at the sidewalk on Angeline Street, and potential truck size limits (or re-routing of larger vehicles).
- Infrastructure Ontario provided a response indicating that, from their initial review, no properties within the study limits are believed to be owned by the Minister of Government and Consumer Services, but that this information should be confirmed and, if provincial property is within the project limits, further consultation will be necessary.
- A resident on Angeline Street provided a response with concerns about the loss of trees through the widening of the road, the remediation of their driveway, the relocation of their gas service, mitigation of the increase in vehicle speeds that they anticipate as a result of additional lanes, and the safety of children due to increased vehicle speeds.
- An anonymous person provided a response with concerns that Angeline Street is already quite busy and widening the street with additional lanes will only make it busier. It was recommended to reroute traffic to Highway 35 to avoid further traffic within the Angeline Street corridor.

- A response was provided by a planning agent, on behalf of a property owner, with correspondence related to a proposed commercial development along the Angeline Street corridor. The respondent acknowledged that the widening did not appear to impact the proposed development; however, requested that it be considered in all future phases of the MCEA process, including its access conditions.

Consistent with the approach undertaken following PIC #1, all comments submitted before/at PIC #2 were considered as part of the MCEA process and responses were provided where necessary. All responses have been included in **Appendix G**. As a summary, responses generally included:

- Acknowledgement of site-specific concerns (i.e. vegetation clearing, entrances) and a response regarding how the Preliminary Preferred Alternative (PPA) may result in changes.
- Acknowledged site is partially located within IPZ-2 for Lindsay Municipal Drinking Water System. Noted that consideration will be made in the design regarding the system; however, not expecting any significant drinking water threat.
- Concern for vibrational and structural impacts to existing underground parking is noted and valid. The City plans to complete site specific investigation efforts to address these concerns. Scope of study yet to be finalized but expected to be completed in stage approach.
- Confirmed that provincially owned lands would be required along Angeline Street and requested direction on how to commence this process.

4.2 Stakeholder Meetings

Stakeholder meetings were also completed as part of the consultation process in an effort to further understand concerns and potential solutions for properties in immediate proximity to the Kent Street/Angeline Street intersection.

On November 3, 2022 at 12:00pm, a stakeholder meeting, the Kent Street West Intersection Stakeholder Meeting (KSWISM) was held at the City of Kawartha Lakes office located at 322 Kent Street West, Lindsay. Stakeholders and team members present at the meeting included persons from/representing; City of Kawartha Lakes, Dentistry on Kent, RMH, Ambassador Apartments, and Ainley Group. The purpose of the meeting was to deepen the project team's understanding of site-specific constraints and opportunities associated with each of the alternatives. The information collected was intended to further the MCEA process, including assistance with selection of the PPA ahead of PIC #2. A

separate on-site informal meeting was also completed immediately following the KSWISM and included members representing the Ambassador Apartment, Ainley Group, and City of Kawartha Lakes. Information gathered during the KSWISM is provided in **Appendix G**. Concerns identified during the meeting included the following:

- Ambassador Apartment noted concerns with proximity of the proposed roadway to existing underground parking. It was noted that the existing underground parking for the Ambassador Apartment extends northerly and easterly beyond the building's above-grade footprint. The below grade extents of the underground parking were not known to the City of Kawartha Lakes or Ainley Group staff prior to the stakeholder meeting. It was noted that the extents of the underground parking would need to be reviewed in consideration of the design alternatives.
- RMH noted concerns with relocation of ventilation structures and the quality of air they supply. It was noted that the increase in traffic associated with the additional lanes, and the elimination of horizontal separation between the roadway and ventilation structures could potentially negatively impact the air supply from a quality perspective.
- RMH noted concerns with the proposed expanded curb radius at the corner of the intersection. It was noted that the hospital's current fire plan includes maintaining one-way travel easterly along the south side of the building and turning northerly along the west side of the building. The reconfiguration of site parking and driving areas would need to maintain this access for fire trucks.
- RMH noted concerns with the construction process and protection of existing fibre optic services (eHealth line). It was noted that the existing fibre optic service is imperative to the daily operation of the hospital and special care should be taken for its protection during construction.
- Dentistry on Kent noted concerns with maintaining access from Angeline Street.
- Dentistry on Kent noted concerns with parking spaces. It was noted that a reduction in parking spaces to accommodate a new entrance should be limited.
- Dentistry on Kent noted concerns for maintaining building access. It was noted that the pedestrian walkway along the east side of the building should be maintained.

Consideration was given to all noted concerns during the development of the PPA.

On January 9, 2025 a virtual stakeholder meeting was held with RMH staff; herein referred to as the Ross Memorial Hospital Stakeholder Meeting (RMHSM). Stakeholders and team members present at the meeting included persons from/representing; City of Kawartha Lakes, RMH, Ainley Group, and Northern Applied Sciences. The purpose of the meeting

was to further understand and address the concerns of RMH. Information gathered during the RMHSM is provided in **Appendix G**. Concerns identified during the meeting included the following:

- RMH staff noted that while the quality of air at the ventilation structure should be considered, it is not their primary concern. Staff noted that care should be taken during construction to limit the run time of equipment in close proximity to the structures.
- RMH staff noted that their primary concern was site access/egress. Staff noted that the only public access to the Emergency Room and only ambulance access to the ambulance bay are located along Angeline Street. Staff noted that maintaining these accesses during construction is of paramount concern. Staff also noted concerns with left turn maneuvers and the safety of pedestrians crossing in the area of the Kent Street/Angeline Street intersection as a result of increased traffic queues.

Concerns as presented by RMH staff were recorded. It was also noted to staff that the PPA is intended to improve the efficiency of traffic flow through the corridor for future projected traffic volumes.

4.3 Other Consultation

Several comments were received from the public or agencies outside of the timing of the completed PICs and stakeholder meetings (KSWISM and RMHSM). These comments were generally similar to those received during the consultation events, and included:

- Kawartha Conservation did not foresee the project posing a significant drinking water threat requiring management. Respondent noted caution when operating machinery and completing work within the vulnerable area of the drinking water system is warranted. The vulnerable area (Intake Protection Zone 2) for the Lindsay municipal drinking water system was provided.

(list continued on following page)

- MECP noted acceptance of the notification, as well as contacts for any Part II order requests. MECP noted preference for email correspondence. Scanned copies of notices, as they appear in newspapers (including their date of publication), were requested. MECP noted that their areas of interest in road projects, as well as mitigation measures, should be addressed. MECP recommended that development of Dewatering and Excess Water Management Plan, Excavation and Sediment Control Plan, Excess Material Management Plan, and a Spill Prevention and Contingency Plan be completed, and EASR thresholds for dewatering activities were noted. It was noted that whether the project is occurring within a source water protection vulnerable area must be identified early in the process and documented in the MCEA documents, with relevant policies considered. MECP noted that a section in the report should be made for Source Water Protection, including any recommendations for protection. It was noted that the MCEA should determine the appropriate management of contaminated soil, sediment and groundwater, as well as health and safety measures with respect to their Standards and the Environmental Protection Act. Where permanent noise increases are expected, a noise study should be completed; additional guidance on noise and vibration (blasting) was provided. MECP recommended that Kawartha Nishnawbe First Nation be included in consultation activities.
- Several respondents requested project related information, with a subset requesting fees for project review.
- Respondent identified concerns with increased traffic volume as a result of nearby developments.
- Several respondents submitted requests for updates on the project status/time frame.
- Several respondents noted concerns with entrances to commercial properties.

The comments provided were considered during the MCEA process and design components. Responses were provided where warranted, including the provision of any project related materials (i.e. PIC notices/materials) as necessary. Comments and any required responses are provided in **Appendix G**.

5.0 Alternative Solutions and Evaluation Processes

The MCEA process provides a mechanism to permit the evaluation of a reasonable range of options to address the problem/opportunity statement. To address the problem and opportunity statement, alternatives were developed for review and consideration in selecting a Preferred Alternative for the Kent Street and Colborne Street intersection

improvements, along with improvements to the Angeline Street Corridor. The following alternatives were generated at the project on-set following recommendations from the previous MCEAs and corridor studies for Kent Street and Colborne Street prepared by HDR in 2016 and 2017.

5.1 Evaluation Criteria – Alternative Solutions

In order to evaluate the alternative solutions, an evaluation matrix was generated based on expected issues and constraints. The issues and constraints were sorted into the following categories, which were utilized in the evaluation of the alternative solutions/designs identified in **Section 6.1**.

5.1.1 Transportation

The potential transportation impacts were evaluated for each alternative solution based on traffic operations and performance, roadway safety and driver familiarity, and noise levels.

Social and Economic Environment

The social and economic environment was evaluated for potential impacts from alternative solutions based on property impacts and adjacent land use.

Natural Environment

The natural environment was evaluated for potential impacts due to alternative solutions on the adjacent landscape, surface water features, and SAR within and adjacent to the study area.

Cultural Environment

The cultural environment was evaluated for potential impacts due to the alternative solutions on the built heritage and archaeological resources within the study area.

Cost

The cost was evaluated for potential impacts from the alternative solutions on utility relocations and the preliminary construction costs of each option.

Evaluation criteria for each category were developed based on regulatory, policy, and or design requirements as they apply to this project. For each criterion, a scoring system of relative merit was used as outlined in **Table 2**. The symbol within the evaluation matrix represents the degree of impact relative to each alternative.

Table 2: Rating System for Alternatives Matrix

	Most Preferred	Overall benefit compared to other alternatives
	Better than Neutral	Somewhat positive compared to other alternatives but minor impacts may require mitigation measures
	Neutral	No significant impact (positive or negative) compared to other alternatives
	Worse than Neutral	Somewhat negative compared to other alternatives and may require mitigation measures
	Least Preferred	Overall negative compared to other alternatives

It should be noted that the evaluation of alternatives is subjective and is based on the information available relative to each factor. The evaluation considered the results of completed studies, consultation with the City, stakeholders, agencies, and the feedback provided by the public during the project. The Alternative Solution Matrix is included in **Table 3 and Table 4**.

5.2 Alternative Solutions for Angeline Street North Corridor

To address the Problem/Opportunity Statement for the Angeline Street corridor study area, the following alternative solutions (alternatives 1 to 4) were considered as part of the MCEA study. These alternatives were presented during the first Public Information Centre (PIC), PIC#1. Alternative solutions 1, 2, 3 and 4 are shown on **Figures 3, 4, 5, and 6**, respectively (pages 36 to 39)**.**

5.2.1 Westward Alignment Shift at Kent Street/Angeline Street Int. – Alt. 1

This alternative involves the full build out lane configuration as recommended in the 2016 Kent Street MCEA report, with a westward alignment shift at the Kent/Angeline Street intersection. The proposed configuration includes the following:

- **Kent Street Intersection**
  - **Northbound Lanes (NB) –** 2x Left-Turn Lane (LT), 1x Through-lane (Thru), 1x Thru/Right-Turn Lane (RT)
  - **Southbound Lanes (SB) –** 1x LT, 2x Thru, 1x Dedicated RT
  - **Eastbound Lanes (EB) –** Existing Conditions + 1x Dedicated RT
  - **Westbound Lanes (WB) –** Existing Conditions
- **Angeline Street Corridor**
  - **NB Lanes –** 2x Thru
  - **SB Lanes –** 2x Thru
  - **Centre –** 1x Shared LT

This alternative addresses the forecasted traffic constraints at the intersection and is interpreted to accommodate the projected 2031 traffic volume; however, will result in property impacts on the east side of Angeline Street at both the commercial property, and apartment building to the south of the intersection. A shortened taper in the south bound lane, south of the intersection, is proposed to minimize potential impacts to residential properties in this intersection quadrant.

5.2.2 Eastward Alignment Shift at Kent Street/Angeline Street Int. – Alt. 2

This alternative involves the full build out lane configuration as recommended in the 2016 Kent Street MCEA report, with an eastward alignment shift at the Kent/Angeline Street intersection. The proposed configuration includes the following:

- **Kent Street Intersection**
  - **NB Lanes –** 2x LT, 1x Thru, 1x Thru/RT
  - **SB Lanes –** 1x LT, 2x Thru, 1x Dedicated RT
  - **EB Lanes –** Existing Conditions + 1x Dedicated RT
  - **WB Lanes –** Existing Conditions
- **Angeline Street Corridor**
  - **NB Lanes –** 2x Thru
  - **SB Lanes –** 2x Thru
  - **Centre –** 1x Shared LT

This alternative addresses the forecasted traffic constraints at the intersection and is interpreted to accommodate the projected 2031 traffic volume; however, will result in property impacts on the east side of Angeline Street. It is anticipated that significant impacts to hospital infrastructure (ventilation units) can be avoided; however, encroachment and property acquisition will be required south of the intersection. This

alternative minimizes impacts on the west side of Angeline Street, and allows for an extended merge lane south of Kent Street on Angeline, for safer traffic movements.

5.2.3 Westward Alignment Shift and Reduced Lanes at Kent Intersection – Alt. 3

This alternative involves a westward shift and reduced lanes at the Kent Street West intersection. The proposed lane configuration for this alternative is as follows:

- **Kent Street Intersection**
  - **NB –** 2x LT, 1x Thru, 1x Thru/RT
  - **SB –** 1x LT, 1x Thru, 1x Dedicated RT
  - **EB –** Existing Conditions + 1x Dedicated RT
  - **WB –** Existing Conditions
- **Angeline Street Corridor**
  - **NB –** 2x Thru
  - **SB –** 2x Thru
  - **Centre –** 1x Shared LT

The proposed configuration provides a reduced level of property impacts within the intersection, and reduced amount of utility locates and tree removal requirements; however, the reduced southbound lanes both north and south of the Kent/Angeline Street intersection do not meet the long-term traffic demands of the study area, and are not anticipated to improve capacity concerns at the intersection in consideration of 2031 traffic volumes.

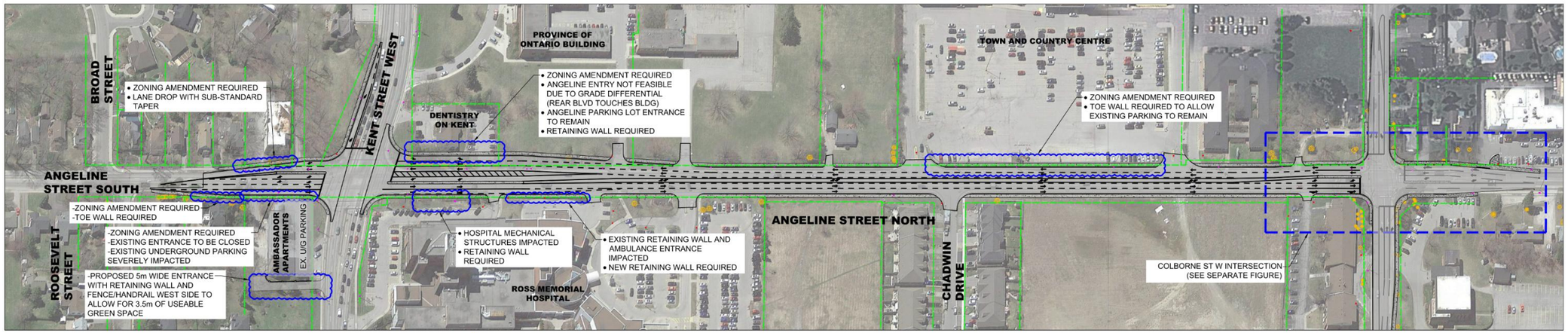
5.2.4 Eastward Alignment Shift and Reduced Lanes at Kent Intersection – Alt. 4

This alternative involves a westward shift and reduced lanes at the Kent Street West intersection. The proposed lane configuration for this alternative is as follows

- **Kent Street Intersection**
  - **NB –** 2x LT, 1x Thru/RT
  - **SB –** 1x LT, 1x Thru, 1x Dedicated RT
  - **EB –** Existing Conditions + 1x Dedicated RT
  - **WB –** Existing Conditions
- **Angeline Street Corridor**
  - **NB –** 2x Thru
  - **SB –** 2x Thru
  - **Centre –** 1x Shared LT

The proposed configuration provides a reduced level of property impacts within the intersection, and reduced amount of utility locates and tree removal requirements; however, the reduced southbound lanes both north and south of the Kent/Angeline Street intersection, and the shared northbound thru-right turn lane do not meet the long-term traffic demands of the study area, and are not anticipated to improve capacity concerns at the intersection in consideration of 2031 traffic volumes.

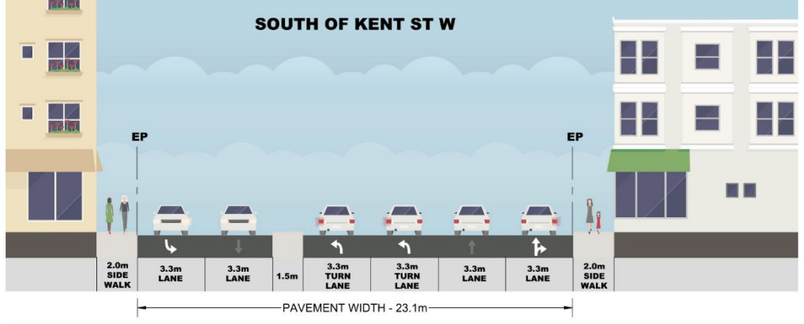
The above noted alternative solutions/designs were evaluated as part of the MCEA process (**Table 3**), with results of the assessment provided in **Section 6.3**. Criteria used in the evaluation ae described below.

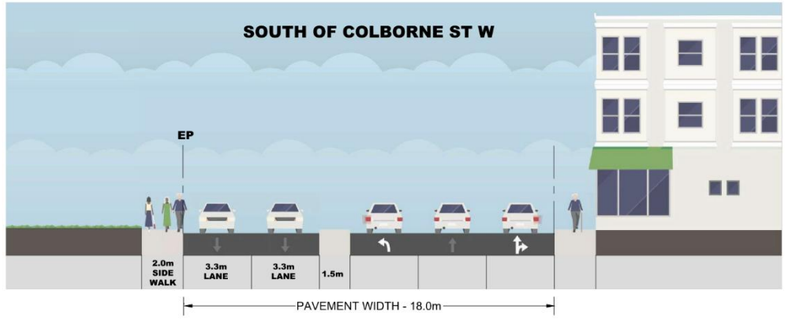


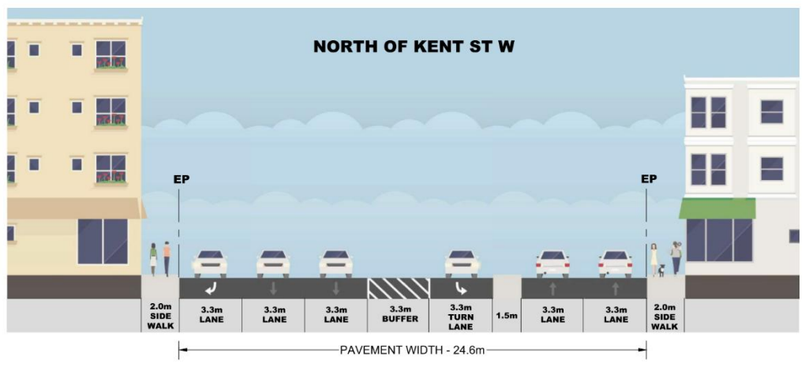
EXISTING R.O.W. ● EX. HYDRO POLE ● EX. LIGHT STANDARD EX. DECIDUOUS TREE EX. CONIFEROUS TREE

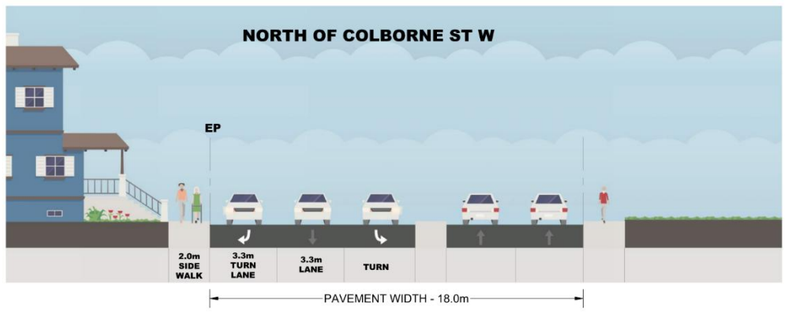
ALTERNATIVE 1

SOUTH OF COLBORNE STREET W INTERSECTION:
TREES REMOVED = 43 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 20
LIGHT STANDARDS RELOCATED = 4



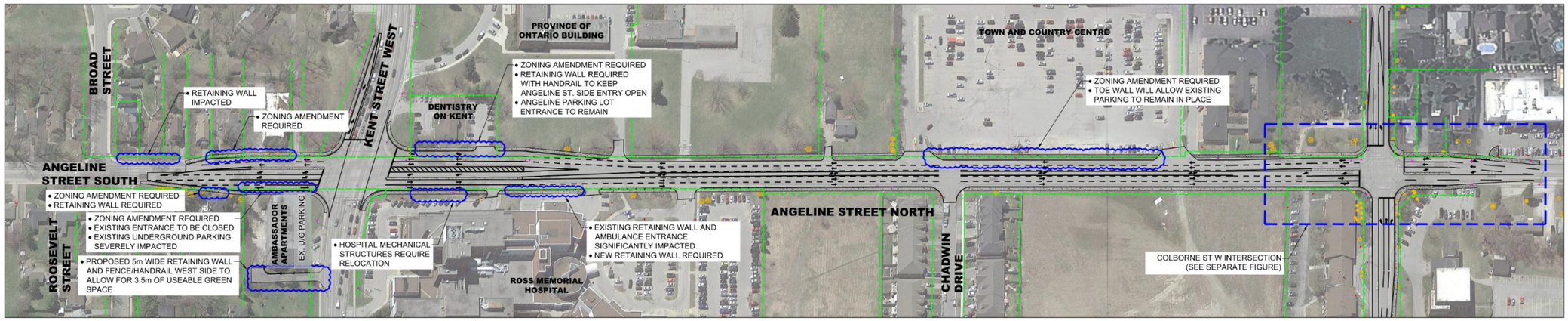


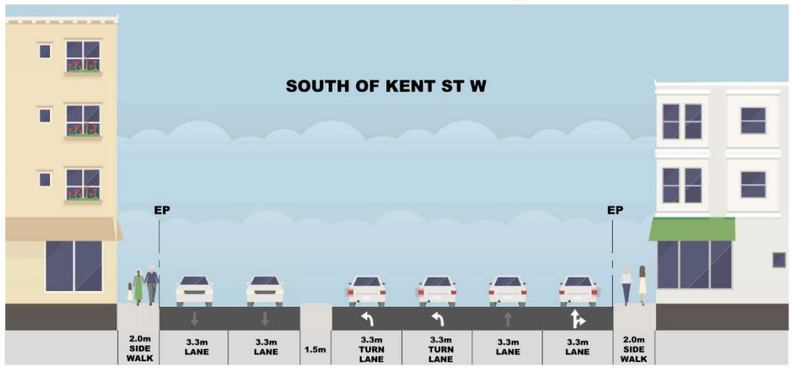


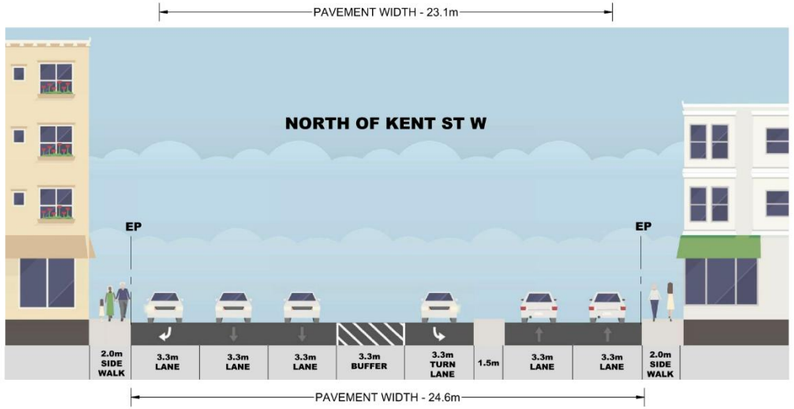


*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

FIGURE 3: ANGELINE STREET NORTH CORRIDOR - ALTERNATIVE 1

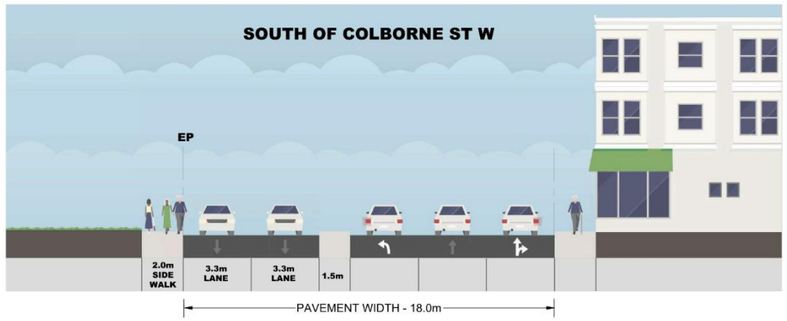


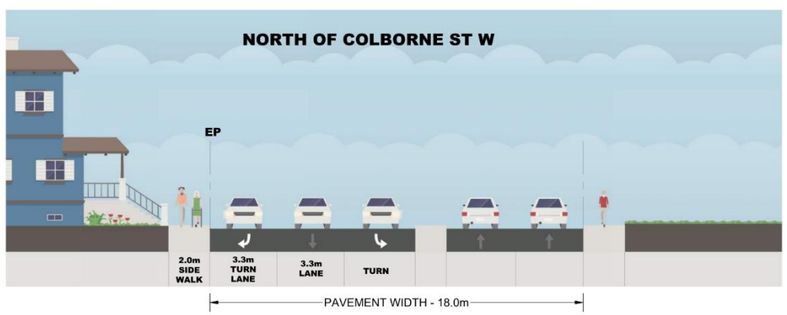




ALTERNATIVE 2

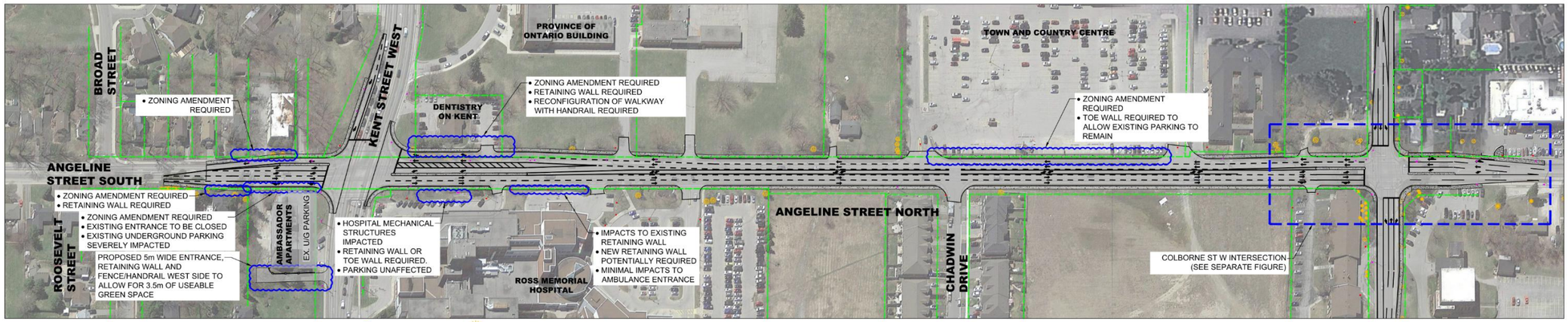
SOUTH OF COLBORNE STREET W INTERSECTION:
TREES REMOVED = 58 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 22*
***9 MAINTAINED THROUGH DETAILED DESIGN**
LIGHT STANDARDS RELOCATED = 3





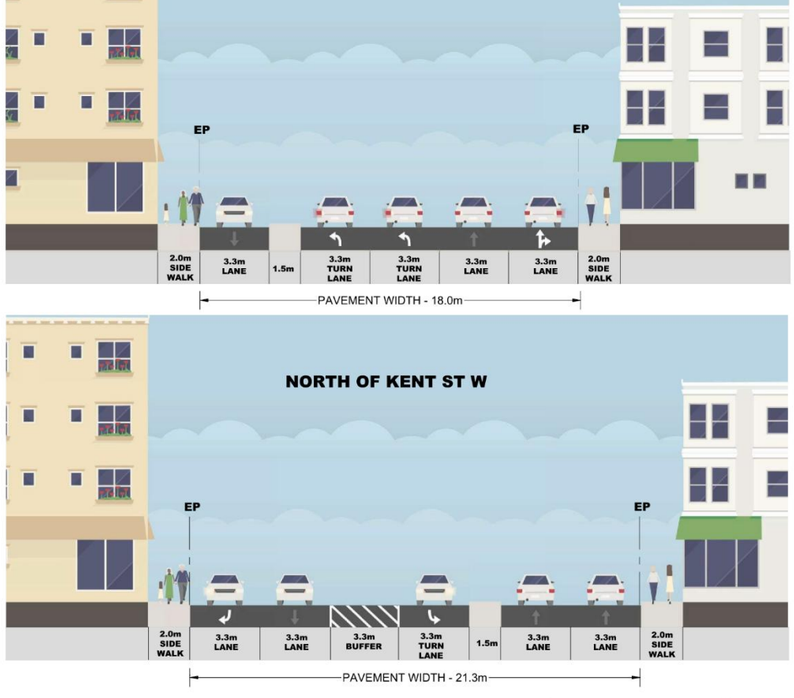
*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

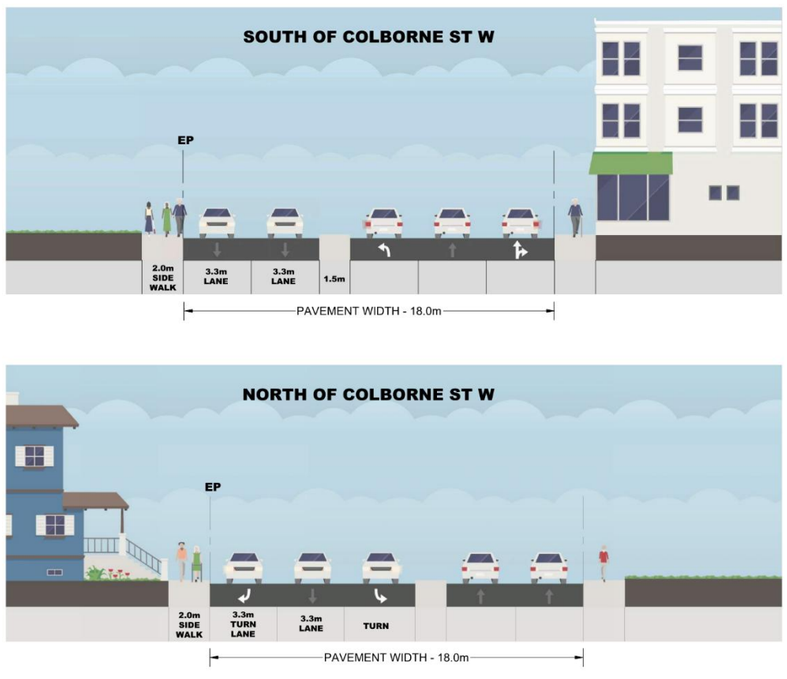
FIGURE 4: ANGELINE STREET NORTH CORRIDOR - ALTERNATIVE 2



ALTERNATIVE 3

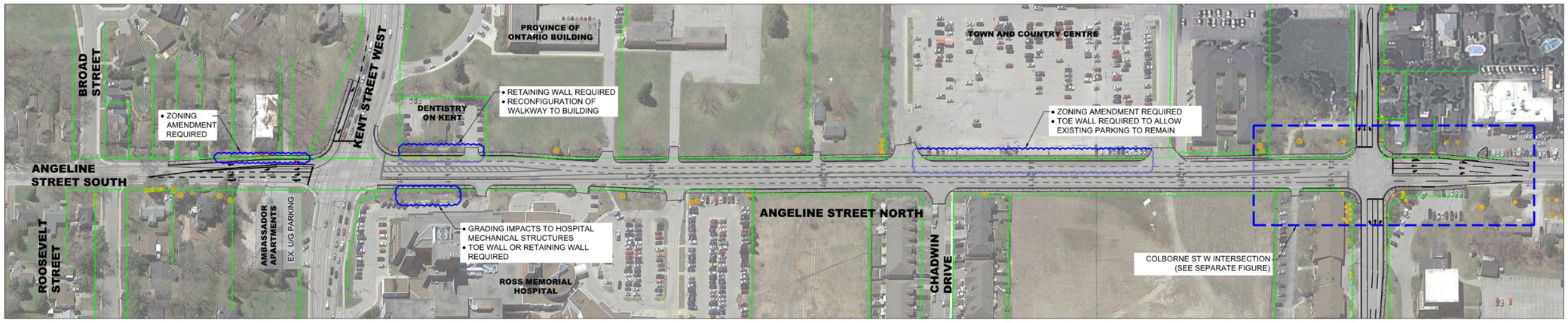
SOUTH OF COLBORNE STREET W INTERSECTION:
TREES REMOVED = 40 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 20
LIGHT STANDARDS RELOCATED = 3





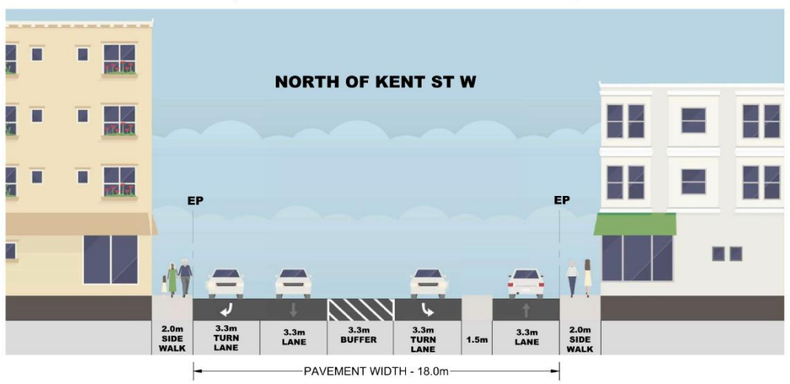
*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

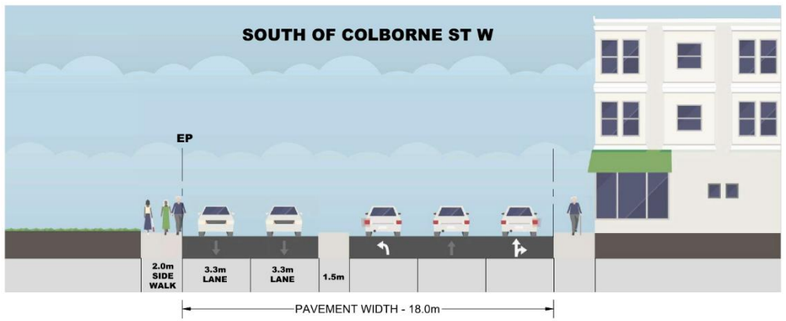
FIGURE 5: ANGELINE STREET NORTH CORRIDOR - ALTERNATIVE 3

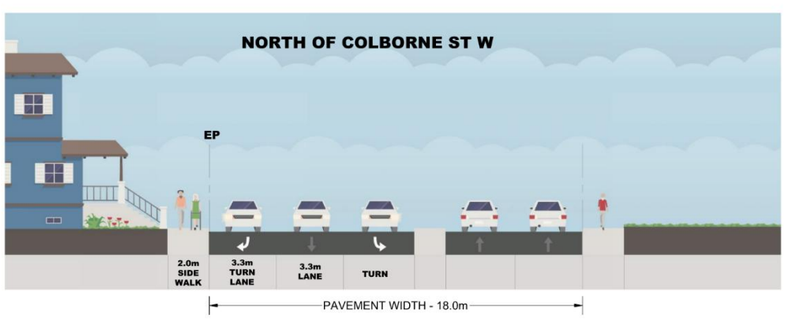


ALTERNATIVE 4

SOUTH OF COLBORNE STREET W INTERSECTION:
TREES REMOVED = 34 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 18*
***9 POTENTIALLY MAINTAINED THROUGH DETAILED DESIGN**
LIGHT STANDARDS RELOCATED = 3







*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

FIGURE 6: ANGELINE STREET NORTH CORRIDOR - ALTERNATIVE 4

Table 3: Evaluation Matrix – Alternative Solutions for Angeline Street North Corridor

CATEGORY	REGULATORY / POLICY / DESIGN REQUIREMENT	ALTERNATIVE 1 WESTWARD SHIFT AT KENT INTERSECTION **Kent St. W. Intersection:** **NB:** 2x LT, 1x Thru, 1x Thru/RT **SB:** 1x LT, 2x Thru, 1x Ded. RT **EB:** Ex. Conditions + 1x Ded. RT* **WB:** Ex. Conditions* **Angeline Corridor*:** **NB:** 2x Thru **SB:** 2x Thru **Centre:** 1x Shared LT * *Common among all Alternatives*			ALTERNATIVE 2 EASTWARD SHIFT AT KENT INTERSECTION **Kent St. W. Intersection:** **NB:** 2x LT, 1x Thru, 1x Thru/RT **SB:** 1x LT, 2x Thru, 1x Ded. RT **EB:** Ex. Conditions + 1x Ded. RT* **WB:** Ex. Conditions* **Angeline Corridor*:** **NB:** 2x Thru **SB:** 2x Thru **Centre:** 1x Shared LT * *Common among all Alternatives*			ALTERNATIVE 3 WESTWARD SHIFT AND REDUCED LANES AT KENT INTERSECTION **Kent St. W. Intersection:** **NB:** 2x LT, 1x Thru, 1x Thru/RT **SB:** 1x LT, 1x Thru, 1x Ded. RT **EB:** Ex. Conditions. + 1x Ded. RT* **WB:** Ex. Conditions* **Angeline Corridor*:** **NB:** 2x Thru **SB:** 2x Thru **Centre:** 1x Shared LT * *Common among all Alternatives*			ALTERNATIVE 4 EASTWARD SHIFT AND REDUCED LANES AT KENT INTERSECTION **Kent St. W. Intersection:** **NB:** 2x LT, 1x Thru/RT **SB:** 1x LT, 1x Thru, 1x Ded. RT **EB:** Ex. Conditions + 1x Ded. RT **WB:** Ex. Conditions **Angeline Corridor:** **NB:** 2x Thru **SB:** 2x Thru **Centre:** 1x Shared LT * *Common among all Alternatives*		
TRANSPORTATION	TRAFFIC OPERATIONS / PERFORMANCE	Accommodates 2031 traffic volume at Kent Street intersection Addresses problem statement	●	4	Accommodates 2031 traffic volume at Kent Street intersection Addresses problem statement	●	4	Will not accommodate 2031 traffic volume at Kent Street intersection **Does not address problem statement.**	○	0	Will not accommodate 2031 traffic volume at Kent Street intersection **Does not address problem statement.**	○	0
	ROADWAY SAFETY / DRIVER FAMILIARITY	Complex merging south of Kent Street, with ineffectively short taper	◔	1	Less complex merging south of Kent Street.	●	4						
	NOISE	Increase is negligible - all equal	◑	2	Increase is negligible - all equal	◑	2						
SOCIAL & ECONOMIC ENVIRONMENT	PROPERTY IMPACTS / LAND USE	Kent Street: High Density Res. - relatively lower impact Commercial - relatively higher impact Institutional - relatively lower impact Severe impact to underground parking structure Remaining property to north: generally equal impacts	◑	2	Kent Street : High Density Res. - relatively higher impacts Commercial - relatively lower impact Institutional - relatively higher impact Severe impact to underground parking structure Remaining property to north: generally equal impacts	◔	1						
NATURAL ENVIRONMENT	LANDSCAPE	Less tree removal	◑	2	More tree removal	◔	1						
	SURFACE WATER	No impacts to surface water features - all equal	◑	2	No impacts to surface water features - all equal	◑	2						
	SPECIES AT RISK	All equal	◑	2	All equal	◑	2						
CULTURAL ENVIRONMENT	BUILT HERITAGE / ARCHAEOLOGICAL RESOURCES	All equal - cleared of archaeological concerns via Stage 1 & 2 Archaeological Assessments	◑	2	All equal - cleared of archaeological concerns via Stage 1 & 2 Archaeological Assessments	◑	2						
COST	UTILITY RELOCATIONS	Highest level of impact to existing pole locations	◔	1	Potential to maintain greater degree of existing pole locations through detailed design	◑	2						
	PRELIMINARY CONSTRUCTION COSTS	All equal	◑	2	All equal	◑	2						
TOTALS		**20**			**22**			**DOES NOT ADDRESS PROBLEM STATEMENT**			**DOES NOT ADDRESS PROBLEM STATEMENT**		

5.3 Alternative Solutions for Colborne Street West Intersection

To address the Problem/Opportunity Statement for the Colborne Street Intersection study area, the following alternative solutions were considered as part of the MCEA study. These alternatives were presented during the PIC #2.

Alternatives at the Colborne Street/Angeline Street intersection were generated based on the recommendations of the previously approved Colborne Street corridor study and MCEA study, in which the following lane configuration was recommended.

- **Colborne Steet/Angeline Street Intersection**
  - **NB –** 1x LT, 1x Thru, 1x Dedicated RT
  - **SB –** 1x LT, 1x Thru, 1x Dedicated RT
  - **EB –** 1x LT, 1x Thru, 1x Dedicated RT
  - **WB –** 1x LT, 1x Thru, 1x Dedicated RT
- **Angeline Street Corridor**
  - **NB –** 2x Thru
  - **SB –** 2x Thru
  - **Centre –** 1x Shared LT

For Alternatives 1 through 3, the lane configuration above was applied; however, placement/alignment of the intersection was considered through three options, with the intent to minimize impacts to the extent possible. The three alternatives considered included intersection alignment shifts to the west, centered on existing, and an eastward shift. The three (3) alternatives are shown on **Figure 7** (page 43).

5.3.1 Westward Alignment Shift at Colborne Intersection – Alternative 1

This alternative involves a westward shift at the Colborne Street intersection. This alternative addresses traffic flow and safety issues, and will accommodate the projected 2031 traffic volume at the Angeline/Colborne Street intersection. Select tree removal and utility relocations will be required; however, these are considered to be generally equivalent across the three alternatives. The westward shift of the intersection will incur the most encroachment on residential properties and the commercial development in the northwest quadrant of the intersection, while minimizing impacts on the east side of Angeline Street.

5.3.2 Alignment Centered at Colborne Intersection – Alternative 2

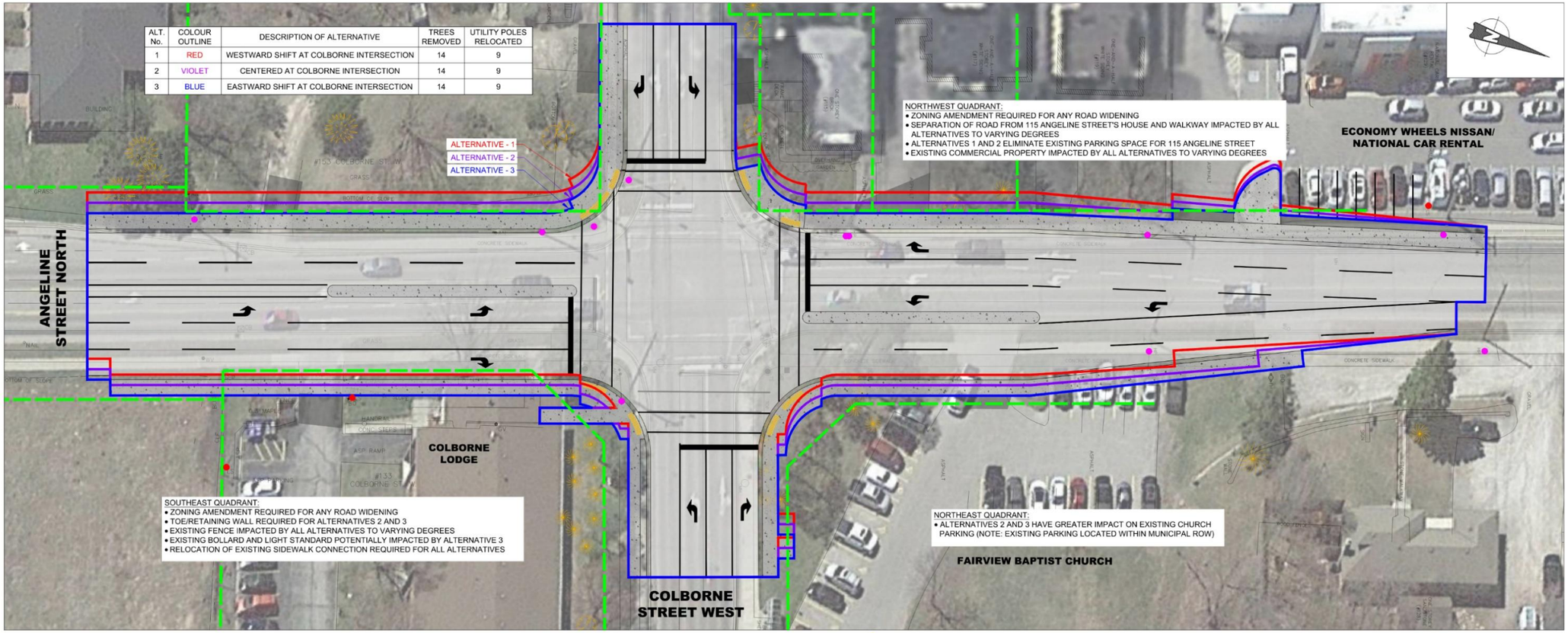
This alternative involves centering the improvements to the Colborne Street intersection on the existing alignment. This alternative addresses traffic flow and safety issues, and will accommodate the projected 2031 traffic volume at the Angeline/Colborne Street intersection. Select tree removal and utility relocations will be required; however, these are considered to be generally equivalent across the three alternatives. The centering of the intersection alignment will incur property impacts to the residential and commercial properties, albeit to a lesser extent then alternative one. On the east side of Angeline Street, encroachment beyond the existing ROW in the south quadrant is required; however, sufficient space appears to be available to accommodate and would permit extension of the City owned ROW south of the intersection in a uniform northward fashion. Impacts to existing parking in the northeast intersection quadrant are anticipated; however, the footprint of the proposed undertaking remains with the existing City ROW.

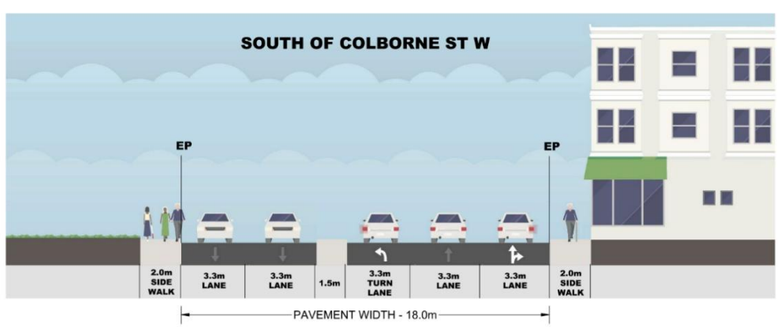
5.3.3 Eastward Shift at Colborne Intersection – Alternative 3

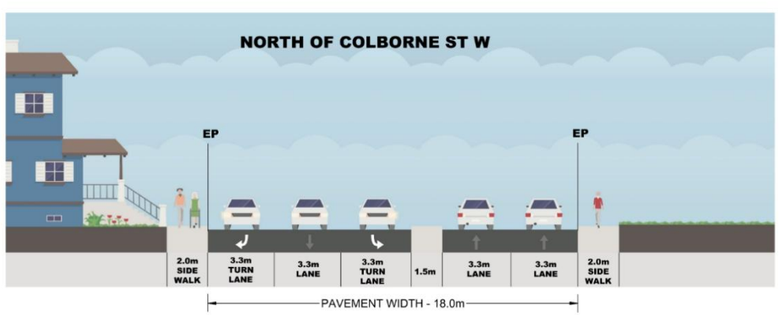
This alternative involves an eastward shift of the Colborne Street intersection. This alternative addresses traffic flow and safety issues, and will accommodate the projected 2031 traffic volume at the Angeline/Colborne Street intersection. Select tree removal and utility relocations will be required; however, these are considered to be generally equivalent across the three alternatives. The eastward shift of the alignment will incur the least amount of property impacts to the residential and commercial properties in the northwest quadrant of the intersection. On the east side of Angeline Street, encroachment beyond the existing ROW in the south quadrant is required; however, sufficient space appears to be available to accommodate and would permit extension of the City owned ROW south of the intersection in a uniform northward fashion. Impacts to existing parking in the northeast intersection quadrant are anticipated; however, the footprint of the proposed undertaking remains with the existing City ROW.

The above noted alternative solutions/designs were evaluated as part of the MCEA process (**Table 4**), using the same evaluation criteria as identified above for the Kent Street/Angeline Street intersection.

COLBORNE STREET INTERSECTION ALTERNATIVES







*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

FIGURE 7: COLBORNE STREET INTERSECTION - ALTERNATIVES (1 THROUGH 3)

Table 4: Alternative Solutions for Colborne Street West Intersection

CATEGORY	REGULATORY / POLICY / DESIGN REQUIREMENT	ALTERNATIVE 1 WESTWARD SHIFT AT COLBORNE INTERSECTION **Colborne St. W Intersection*:** **NB:** 1x LT, 1x Thru, 1x Ded. RT **SB:** 1x LT, 1x Thru, 1x Ded. RT **EB:** 1x LT, 1x Thru, 1x Ded. RT **WB:** 1x LT, 1x Thru, 1x Ded. RT **Angeline Corridor*:** **NB:** 2x Thru **SB:** 2x Thru **Centre:** 1x Shared LT * *Common among all Alternatives*			ALTERNATIVE 2 CENTRED AT COLBORNE INTERSECTION **Colborne St. W Intersection*:** **NB:** 1x LT, 1x Thru, 1x Ded. RT **SB:** 1x LT, 1x Thru, 1x Ded. RT **EB:** 1x LT, 1x Thru, 1x Ded. RT **WB:** 1x LT, 1x Thru, 1x Ded. RT **Angeline Corridor*:** **NB:** 2x Thru **SB:** 2x Thru **Centre:** 1x Shared LT * *Common among all Alternatives*			ALTERNATIVE 3 EASTWARD SHIFT AT COLBORNE INTERSECTION **Colborne St. W Intersection*:** **NB:** 1x LT, 1x Thru, 1x Ded. RT **SB:** 1x LT, 1x Thru, 1x Ded. RT **EB:** 1x LT, 1x Thru, 1x Ded. RT **WB:** 1x LT, 1x Thru, 1x Ded. RT **Angeline Corridor*:** **NB:** 2x Thru **SB:** 2x Thru **Centre:** 1x Shared LT * *Common among all Alternatives*		
TRANSPORTATION	TRAFFIC OPERATIONS / PERFORMANCE	Accommodates 2031 traffic volume at Kent Street Intersection, the Angeline Street Corridor, and the Colborne Street Intersection. Addresses problem statement	●	4	Accommodates 2031 traffic volume at Kent Street Intersection, the Angeline Street Corridor, and the Colborne Street Intersection. Addresses problem statement	●	4	Accommodates 2031 traffic volume at Kent Street Intersection, the Angeline Street Corridor, and the Colborne Street Intersection. Addresses problem statement	●	4
	ROADWAY SAFETY / DRIVER FAMILIARITY	All equal	◑	2	All equal	◑	2	All equal	◑	2
	NOISE	Increase is negligible - all equal	◑	2	Increase is negligible - all equal	◑	2	Increase is negligible - all equal	◑	2
SOCIAL & ECONOMIC ENVIRONMENT	PROPERTY IMPACTS / LAND USE	Residential - Minimal separation from NW property walkway; only parking space eliminared Commercial - Greatest impact to existing parking area Community Facility - Church parking maintained	◑	1	Residential - Increased separation from NW property walkway; only parking space eliminared Commercial - Reduced impact to existing parking area Community Facility - Church parking impacted (located within municipal right-of-way)	◑	2	Residential - Greatest separation from NW property walkway; existing parking space maintained Commercial - Least impact to existing parking area Community Facility - Church parking impacted (located within municipal right-of-way)	◕	3
NATURAL ENVIRONMENT	LANDSCAPE	All equal	◑	2	All equal	◑	2	All equal	◑	2
	SURFACE WATER	No impacts to surface water features - all equal	◑	2	No impacts to surface water features - all equal	◑	2	No impacts to surface water features - all equal	◑	2
	SPECIES AT RISK	All equal	◑	2	All equal	◑	2	All equal	◑	2
CULTURAL ENVIRONMENT	BUILT HERITAGE / ARCHAEOLOGICAL RESOURCES	All equal	◑	2	All equal	◑	2	All equal	◑	2
COST	UTILITY RELOCATIONS	All equal	◑	2	All equal	◑	2	All equal	◑	2
	PRELIMINARY CONSTRUCTION COSTS	Does not require toe/retaining wall in southeast quadrant	◕	3	Requires toe/retaining wall in southeast quadrant	◑	2	Requires toe/retaining wall in southeast quadrant	◑	2
TOTALS		**22**			**22**			**23**		

5.4 Evaluation of Alternative Solutions – Summary

5.4.1 Kent Street West Intersection/Angeline Street Corridor

The alternative solutions considered for the Kent Street/Angeline Street corridor are per recommendations within the previously approved MCEA and corridor study (HDR, 2016). The alternatives are shown in **Figures 3, 4, 5** and **6**, with Alternatives 1 and 2 utilizing the full build recommendation from the previous study in consideration of westward and eastward shifts of the alignment at the intersection, and a centered alignment for the Angeline Street corridor between Kent Street and Colborne Street. Alternatives 3 and 4 offer alternative and reduced lane configurations at the intersection.

Alternatives 3 and 4 do not provide an adequate solution for the forecasted 2031 traffic volumes and as such do not address the objectives of the study. These alternatives are not carried forth for further evaluation.

Between Alternatives 1 and 2, both are interpreted to address traffic capacity issues at the intersection and would provide a consistent widened corridor of Angeline Street to a 2031 horizon, which addresses the problem statement. With the westward shift in Alternative 1, there would be increased encroachment to residential properties to the south of the intersection, and the alternative was designed with a shorter merge lane to minimize potential impacts in this area. The shorter merge length results in slightly more complex merging south of the intersection as part of Alternative 1 when compared to Alternative 2.

Alternative 1 (westward shift) was noted to have lower impacts to high density residential units and community uses (RMH) adjacent to the intersection; however, would have higher impacts to local commercial property. Alternative 2 (eastward shift) was generally noted to yield inverse conditions, with higher impacts to high density residential and community use properties, and lower impacts to adjacent commercial property. Following determination of the underground parking garage in the south east quadrant of the intersection, both alternatives were noted to be in conflict with the underground facility.

Each of the alternatives will require temporary single lane closures; however, impacts to traffic are not anticipated to be in excess of typical construction operations and are considered to be generally equal across all alternatives. Construction of each alternative will generate minor noise during construction from machinery operations. Under each alternative, coordination with adjacent property owners for access during construction will be paramount, particularly with the RMH.

Each of the alternatives would result in minimal impacts to species at risk, and built heritage/archaeological impacts within the project limits. Alternative 2 is anticipated to require more vegetation removal throughout the corridor as a whole, and utility pole

relocations are slightly higher than alternative 1. No impacts are anticipated to surface water features under either alternative. Construction costs are anticipated to be generally equal between Alternatives 1 and 2.

Based on the evaluation of the alternatives, Alternative 2 is selected as the PPA for the Angeline Street corridor, as it addresses both the mid-term and long-term traffic flow and safety needs at the Kent Street intersection, effectively accommodating the projected 2031 traffic volume.

Alternative 2 would transition to the full build-out scenario on the Angeline Street corridor proper between Kent Street and Colborne Street of a five-lane cross section, including a two-way centre left turn lane, centered on the existing alignment

Although Alternative 2 is preferred and meets the problem statement, the presence of an underground parking garage in the southeast quadrant of the Angeline Street/Kent Street intersection prompted additional review in this area and further refinement of alternatives. The presence of the underground parking garage was determined mid-study and following PIC #1, resulting in refined alternatives provided and discussed at PIC #2 in an effort to continue with selection of the most suitable improvement for the intersection. Discussion, review, and assessment of refined alternatives, including additional technical studies completed, are provided in **Sections 6** and **7**.

5.4.2 Colborne Street West Intersection

The alternative solutions considered for the Colborne/Angeline Street intersection, and tying in to the Angeline Street corridor are per recommendations within the previously approved MCEA and corridor study for Colborne Street (HDR, 2017). The alternatives are shown in **Figures 7**, with Alternatives 1, 2, and 3, utilizing the full build recommendation from the previous study in consideration of westward, centered, and eastward shifts of the alignment at the intersection, and a centered alignment for the Angeline Street corridor between Kent Street and Colborne Street.

In reviewing each of the alternatives, all are interpreted to address traffic capacity issues at the intersection and would provide a consistent widened corridor of Angeline Street to a 2031 horizon, which addresses the problem statement. With the westward shift in Alternative 1, there would be increased encroachment to residential and commercial properties to the north and west of the intersection.

Alternative 1 (westward shift) was noted to have higher impacts and a reduced setback from the proposed roadway to existing residential and commercial properties in the northwest intersection quadrant. Alternative 2, the centering of the intersection alignment, will incur property impacts to the residential and commercial properties, albeit to a lesser extent then alternative one. On the east side of Angeline Street, encroachment beyond

the existing ROW in the south quadrant is required; however, sufficient space appears to be available to accommodate and would permit extension of the City owned ROW south of the intersection in a uniform northward fashion. Impacts to existing parking in the northeast intersection quadrant are anticipated; however, the footprint of the proposed undertaking remains with the existing City ROW. Alternative 3 will incur the least amount of property impacts to the residential and commercial properties in the northwest quadrant of the intersection. On the east side of Angeline Street, encroachment beyond the existing ROW in the south quadrant is required; however, sufficient space appears to be available to accommodate and would permit extension of the City owned ROW south of the intersection in a uniform northward fashion. Impacts to existing parking in the northeast intersection quadrant are anticipated; however, the footprint of the proposed undertaking remains with the existing City ROW

Each of the alternatives will require temporary single lane closures; however, impacts to traffic are not anticipated to be in excess of typical construction operations and are considered to be generally equal across all alternatives. Construction of each alternative will generate minor noise during construction from machinery operations. Under each alternative, coordination with adjacent property owners for access during construction will be a required consideration during construction.

Each of the alternatives would result in minimal impacts to species at risk, and built heritage/archaeological impacts within the project limits. Vegetation and utility impacts are considered to equal between the three alternatives, and no impacts to surface water features are anticipated. Construction costs are anticipated to be generally equal between alternatives 2 and 3, with Alternative 1 anticipated to have a slightly lower cost as a retaining wall in the southeast intersection quadrant would not be required.

Based on the evaluation of the alternatives, Alternative 3, the eastward shift of the alignment, is selected as the PPA for the Colborne/Angeline Street intersection, as it addresses both the mid-term and long-term traffic flow and safety needs and effectively accommodating the projected 2031 traffic volume.

Alternative 3 would transition to the full build-out scenario on the Angeline Street corridor proper between Kent Street and Colborne Street of a five-lane cross section, including a two-way centre left turn lane, centered on the existing alignment.

Based on these evaluations, Alternative 3 is the preferred solution for the Colborne Street Intersection. Further refinements may be required during the design phase to ensure that the needs of all stakeholders are met and that impacts are minimized.

6.0 Refining the Preferred Alternative Solution

To address the problem/opportunity statement in light of additional information uncovered pertaining to underground infrastructure at the Kent Street/Angeline Street intersection during the MCEA, Alternative 2 was revisited and further refined/evaluated in an effort to determine the best alternative for this intersection. Detailed descriptions of the revised alternative solutions considered for the Kent Street/Angeline Street, Alternatives 2A and 2B, are provided in **Section 6.3**.

6.1 Supplemental Technical Review and Reporting

In revisiting the alternatives, and through consultation with various stakeholders, additional technical review and input was considered warranted to further characterize existing conditions and assess potential impacts from the undertaking. To do so, supplement technical studies were completed including an air quality assessment, a vibrational assessment, a structural review of underground infrastructure, additional traffic analysis, and review of active transportation alternatives within the Angeline Street corridor. A summary of the additional technical reviews is provided in the following sections.

6.1.1 Air Quality Assessment for RMH Ground Level Intakes

At the KSISM, RMH staff identified a concern in the perceived potential impacts to existing ventilation structures located within the Angeline Street boulevard; in close proximity to the intersection improvements at Kent Street. At the time, RMH staff believed that the structures were used for the supply of air into the building and that a reduced separation with vehicular traffic, as a result of the proposed roadway widening, might negatively impact the quality of air supplied to the building.

Direct consultation efforts (the RMHSM and follow-up electronic correspondence) were completed with RMH staff to discuss this concern. As part of additional review and discussion with RMH they were unable to confirm whether the ventilation structures provided an air intake or exhaust function. As a level of caution and to determine any potential for impacts, an Air Quality Assessment was completed by Northern Applied Sciences Inc. in 2025 with the conservative assumption that the structures could, at times, provide an air intake function.

The Air Quality Assessment for the RMH, located at 10 Angeline Street, assessed impacts based on the guidance provided in the MTO's *"Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects"*, dated May 2020, and U.S. EPA guidelines. Using the MOVES5

emission model and AERMOD air dispersion model, and traffic volumes obtained from an Ainley Group traffic study, the following scenarios were analyzed:

- Existing traffic conditions (2027) with the existing intersection configuration (Baseline Scenario);
- Forecasted traffic conditions (2051) with the existing intersection configuration (No-Build Scenario) and;
- Forecasted traffic conditions (2051) with the Preferred Alternative's intersection configuration (Build Scenario).

The results indicated that, under the Baseline Scenario, emissions of Nitrous Oxide (NO_2) and Benzo(a)pyrene currently exceed air quality criteria. Under both the future Build and No-Build Scenarios, emissions of contaminants are expected to increase alongside the volume of traffic. However, impacts to the ventilation structures are expected to be lower under the Build Scenario relative to the No-Build Scenario for all contaminants. The Build Scenario is expected to reduce congestion and idling, leading to lower emissions and overall improved air quality compared to the No-Build Scenario.

The Assessment also recommended that its findings be shared with RMH staff and that further confirmation as to the function of the vents be obtained for review, if possible. The draft version of the Assessment was finalized after review by RMH staff in April 2025, whom indicated that they had no comments to provide regarding air quality. Ultimately, RMH staff were unable to confirm the function of the ventilation structures with certainty; however, the air quality assessment provides information to suggest improved conditions as part of the build out scenario.

A copy of the Air Quality Assessment report is included in **Appendix B**.

6.1.2 Vibration Assessment – Ambassador Apartments Parking Garage

At the KSWISM, the owner of Ambassador Apartments, located at 301 Kent Street West, indicated concern for the potential impacts associated with vibration on the building's underground parking structure which extends northerly and westerly below grade towards the ROW limits.

As intersection alternatives propose encroachment towards the underground parking structure, and to further characterize the potential for impacts to building structure from the proposed undertaking, a Vibration Assessment was completed by Northern Applied Sciences Inc. in 2025 to evaluate the potential for short-term (during construction) and long-term (during service/operational) vibrational loading on the underground parking structure. The Assessment included a 15-day monitoring program (November 24, 2024 to December 5, 2024) which used indoor and outdoor vibration sensors to measure

current road traffic impacts. The results indicated that existing vibrations from road traffic are minimal, with most readings well below the human perception threshold (0.1 mm/s), and significantly lower than the City of Toronto By-Law's construction vibration limit of 8 mm/s, which was used as a reference in the absence of local guidelines; two elevated readings were discounted as they were believed to be caused likely by physical interference with the sensor. The Assessment did not identify concerns with existing operational conditions or proposed conditions that would be associated with the Preferred Alternative; however, it was cautioned that future construction vibrations could approach the 8 mm/s threshold depending on the equipment used and proximity to the building. As a precaution, the Assessment recommended a pre-condition survey of the building, continuous vibration monitoring during construction, and an optional post-condition survey to document any changes. Methods and technologies that may limit the level of vibration that the building is subject to during construction, will be considered during detailed design efforts.

A copy of the vibration assessment report is included in **Appendix C**.

6.1.3 Structural Analysis Report – Ambassador Apartments Parking Garage

At the KSWISM, the owner of Ambassador Apartments also indicated concern for the potential impacts associated with structural loading on the building's underground parking structure.

To further characterize the potential for structural impacts to the adjacent building, a Structural Analysis Report was prepared by Ainley Group in 2025 to evaluate the potential structural impacts associated with the Preferred Alternative. To support the analysis, a visual inspection of the underground parking structure was completed by Ainley Group staff on September 19, 2024. In general, the structural elements of the building and underground parking structure were found to be sound and in good condition at the time of the site inspection and any observed defects were inventoried.

During the study, as-built structural drawings were unavailable for review, so a topographical survey was conducted at and below grade (alongside the visual inspection), to measure relevant dimensions of the underground parking structure. The data from the survey indicated that, for the Preferred Alternative's configuration, the east sidewalk of the south leg of the Kent Street/Angeline Street intersection, would extend over the west side of the existing parking garage structure.

To address the extra load associated with the extending the sidewalk over the existing parking garage structure, two Options were considered to further characterize the potential for impacts associated with the sidewalk location:

1. Additional non-destructive structural testing with the intent to demonstrate that the existing underground parking structure could accommodate the additional loading.
2. Design modifications to isolate the additional load away from the underground parking structure by utilizing a cantilevered slab beneath the new roadway and sidewalk.

City staff elected to pursue Option 2 as it eliminates the uncertainty associated with the potential structural impacts by transferring the loading away from the underground parking structure. Resultingly, and with consideration to the required design modifications, the potential structural impacts from the eastward expansion of Angeline Street (and sidewalk) south of Kent Street, are interpreted to be adequately mitigated. Design of the cantilevered slab will be completed during the future detailed design stage.

6.1.4 Supplemental Traffic Analysis – Angeline Street/Kent Street Intersection (2023)

In consideration of the underground parking garage located in the southeast quadrant of in the intersection, a supplemental traffic analysis was completed by Ainley Group in 2023. The purpose of the evaluation was to evaluate the level of service expected under future temporal horizons, including the year 2037 and 2051, with a reduced lane configuration from the ultimate recommended Preferred Alternative in the previously approved Kent Street corridor study and MCEA, and the original Preferred Alternative, Alternative 2. The lane configuration reviewed as part of the 2023 assessment is consistent with Alternative 2B (refer to **Section 6.3**), and includes an additional thru lane from existing conditions, but does not include two (2) northbound left turn lanes as recommended in the previous MCEA (HDR, 2016). The purpose of the 2023 Traffic Analysis was to determine whether a reduced lane configuration, which would minimize impacts to adjacent properties, would still meet the study objectives and address the problem statement.

To assess the future traffic conditions, traffic counts were collected on August 1, 2023, which were used to project traffic volumes for the years 2027, 2037, and 2051, assuming that the proposed improvements would be completed by 2027.

During the late phase of the Angeline Street North MCEA's development, a concurrent MCEA began to update the TMP. The TMP update ultimately considered the Angeline Street North improvements outlined in the Preferred Alternative as a "planned improvement" to be in place by 2031. The new capacity introduced by the planned

improvements were used in future projections and screenline analysis in the 2025 TMP Update.

In consultation with the TMP Update project team, and to ensure continuity between the TMP update and 2023 Traffic Analysis, new traffic counts and analysis shared an ultimate horizon year of 2051 and a traffic growth rate of 1.6% per year.

A copy of the 2023 Traffic Analysis is provided in **Appendix E**.

6.1.4.1 Existing Traffic Conditions 2023

For context in the traffic analysis the 2023 traffic conditions indicated that the intersection operates at an acceptable level of service (LOS D or better), with the maximum delay of 53.2 seconds for the southbound through movement.

To better understand future traffic conditions, a review of both the 'Do Nothing or Status Quo' was completed, along with the implementation of lane improvements as noted above.

6.1.4.2 Capacity Analysis: No Geometric Improvement (Do Nothing)

Study data was reviewed to determine how the intersection would perform in the future if no changes or improvements are made, using expected traffic volumes from 2027, 2037, and 2051 (using the current intersection setup and existing traffic signal timing). A summary of the status quo under future temporal horizons is below.

1. *Do-Nothing in 2027*:
    - The intersection will still function but with increased traffic and longer delays (up to 58.1 seconds).
    - It will perform at a lower level compared to current conditions, but still manageable with moderate traffic flow.
2. *Do-Nothing in 2037*:
    - By 2037, the intersection will experience heavy congestion and significantly longer delays, reaching up to 274 seconds (approximately 4.5 minutes).
    - Traffic queues for eastbound and westbound directions could exceed 279.2 meters.

(list continued on following page)

3. *Do-Nothing in 2051*:
    - In 2051, the situation worsens further, with severe congestion, and delays estimated up to 274 seconds.
    - The level of service (LOS) for most approaches and individual movements will drop to F, indicating extremely poor traffic flow.
    - The queue length for eastbound and westbound traffic is expected to exceed 279.2 meters.

Based on the above, improvements to the intersection are warranted to manage future traffic volumes, consistent with previous traffic studies.

6.1.4.3 Proposed Development (Intersection Modification)

Study data was used to analyze and evaluate lane configurations proposed to improve traffic flow, focusing on two options for modifying the south approach. The south approach will be limited to three lanes due to the presence of an underground parking lot at the Ambassador Apartments. The two options considered are:

- Option 1: Two left-turn lanes and one shared through/right-turn lane.
- Option 2: One left-turn lane, one through lane, and one shared through/right-turn lane.

For the purposes of summary within this report, only Option 2 has been detailed, as it aligns with alternatives considered as part of the MCEA, particularly Alternative 2B (see **Section 6.3**). Full details regarding both options are provided within the report in **Appendix E**.

With the implementation of a lane configuration consistent with Alternative 2B, the following traffic conditions are anticipated.

Option 2: Horizon Year 2037

- Traffic Improvement: Traffic conditions will operate with an acceptable LOS D or better for all movements.
- Delays and Queue Length: The maximum delay will be 36.8 seconds, with a maximum queue length of 124.4 meters in the westbound lane. The average queue length is 85 meters.
- Signal Timing: Optimizing signal timing could reduce the queue lengths to 82.4 meters for the 95th percentile and 65.5 meters for the average queue.

Option 2: Horizon Year 2051

- Traffic Impact: Traffic conditions will operate with an acceptable LOS D or better for all movements.
- Queue Length: The increased traffic volumes will lead to longer queues, especially in the eastbound and westbound directions; however, adjusting signal timing can help to alleviate queue lengths within the study area.

The proposed intersection modification in Option 2 provides for a level of service of D or better to a 2051 horizon.

6.2 Active Transportation Master Plan (ATMP)

The City of Kawartha Lakes has an Active Transportation Master Plan (ATMP), titled Kawartha Moves, which outlines a strategic framework to enhance active transportation options within the municipality. The plan, which commenced in 2021 and was finalized in May 2024, aims to promote walking, cycling, and other non-motorized forms of transportation, thereby improving community health, safety, and environmental sustainability.

The primary goal of the ATMP is to develop a comprehensive network of active transportation routes that are safe, accessible, and interconnected, with the following key objectives:

- Enhancing connectivity between neighborhoods, schools, and commercial areas.
- Improving infrastructure to support and encourage active transportation.
- Promoting the health and well-being of residents through increased physical activity.
- Reducing reliance on motor vehicles, thereby lowering greenhouse gas emissions.

The ATMP provides an overview of all of the City of Kawartha Lakes and emphasizes the need for:

- Infrastructure improvements including dedicated bike lanes, multi-use paths (MUPs), and enhanced pedestrian facilities to ensure safe and efficient travel for all users.
- Policy development including recommendation for adopting policies that prioritize active transportation in urban planning and development processes.
- Continued community engagement.

In May 2024, and concurrent with the general time frame of PIC #2 for the Angeline Street

North Reconstruction MCEA, in which the PPA was presented, the final ATMP document was published. The PPA as shown at PIC #2, constituted Alternative 2B of the "Kent Street Intersection and Main Corridor Alternatives" (refer to **Section 6.3**), and Alternative 3 of the "Colborne Street Intersection Alternatives".

Based on the Problem and Opportunity Statements of the Angeline Street North Reconstruction MCEA, the primary focus of the study is to address the anticipated increase in vehicular traffic demands along the corridor, as originally identified and recommended in previous corridor studies for the intersecting streets that generally bound the project area to the north and south (i.e., Kent Street and Colborne Street). As property constraints were prevalent throughout the study limits, the development of alternatives within the corridor did not focus on significant incorporation of active transportation components, outside of the inclusion of sidewalks. However, in an effort to align the vision of the ATMP, with the improvements of the Angeline Street Corridor, a review was undertaken for potential opportunities to include any of the recommended improvements from the ATMP for the Angeline Street corridor.

The improvements/recommendations envisioned by the ATMP for the subject section of the Angeline Street corridor, include both walking and biking facilities, as shown on the ATMP figures provided in the memorandum provided in **Appendix A**, and summarized in **Table 5**. Expanded descriptions of design considerations for each mode of active transportation are included in Appendix A.

Table 5: Facility Improvements Recommended by ATMP within MCEA Project Area

Facility Type	Proposed Improvement	Location
Cycling	Multi-Use Path	• Entirety of Project Area with the exception of the east leg of the Kent Street intersection
	Separated Bicycle Lane	• East leg of the Kent Street intersection
Walking	Walkability Improvement	• Entirety of subject section of Angeline Street
	Intersection Improvement	• Colborne Street intersection • Kent Street intersection
	Sidewalk – One Side	• Angeline Street between Colborne Street and Chadwin Drive • West leg of the Colborne Street intersection
	Traffic Calming	• West leg of the Colborne Street intersection

In consideration of the recommended ATMP improvements, site constraints and project objectives are expected to preclude the implementation of some of the ATMP's recommendations. An assessment of feasibility of recommendations with respect to the PPA is included in **Appendix A**.

Following the feasibility assessment, and through discussions with the City staff, incorporation of the following ATMP features into the PPA appears to be feasible, pending confirmation at the detailed design stage:

- Increased sidewalk widths throughout the project area, and additional sidewalk along the west side of Angeline Street (between Colborne Street and Chadwin Drive);
- Street furniture and landscaping outside of intersection areas (note: may be beyond scope of current reconstruction efforts but PPA is anticipated to accommodate future installation, if necessary, without major revisions);
- Accessibility features, and crossing pavement markings at the Colborne Street and Kent Street intersections; and,
- MUPs at the following locations:
    - West, north, and south legs of the Colborne Street intersection;
    - The west leg of the Kent Street intersection; and,
    - Along Angeline Street, to the north of the Kent Street intersection.

Of these ATMP features, the MUPs are the only aspects expected to require modification to the design envisioned by the proposed PPA; the others are expected to be accommodated through relatively minor revision.

The locations within the project area where the MUPs appear to be viable, represent only a portion of those which were recommended by the ATMP. Within the north and south legs of the Kent Street intersection, MUPs are not believed to be feasible (nor the separated bicycle lane within the east leg) as a result of property constraints and impacts associated with implementation.

The MUP along Angeline Street appears to be feasible for either side of the ROW; however, preference is for the MUP on the east side of Angeline Street. Termination of the MUP is anticipated to be required north of the RMH at a suitable junction; however, the MUP is still anticipated to provide connectivity to major features along the corridor such as RMH, and the residential area at Chadwin Drive. The MUP would also connect to the west leg of Colborne Street (at Angeline Street), and would extend north of Colborne along Angeline Street, before transitioning back into sidewalk. The proposed MUP configurations serves to implement the planned network to the greatest degree feasible, in consideration of property constraints and the overall objectives of the Angeline Street

MCEA. The final configuration of the MUP should be determined during detail design, with the southernmost limit to be further refined through consultation with City staff.

The ATMP Summary Memorandum as attached in **Appendix A**, was shared with the City's Active Transportation Implementation Group (ATIG) for review, comment, and feedback. The ATIG expressed support for the active transportation infrastructure outlined in the design memo, such as wider shoulders and the proposed MUP. The ATIG also expressed preference for extending the MUP to Kent Street; however, acknowledged that corridor constraints exist, and that the proposed limit north of the RMH are progress towards building a citywide active transportation network.

The ATIG encouraged continued collaboration during the detailed design phase and suggests that design drawings be presented to the group for further review. The ATIG noted that the proposed improvements are viewed as consistent with the ATMP and broader planning policies aimed at promoting healthier, more connected, and sustainable transportation options for the City of Kawartha Lakes.

6.3 Refined Alternative Solutions for Kent Street West Intersection

To better address the Problem/Opportunity statement for the Kent Street intersection study area, the following refined alternative solutions were considered as part of the MCEA study. The alternative solution options below provide an opportunity for the 'best fit' of the recommended alternative solution.

The refined alternatives process includes carrying forward the original Preferred Alternative, Alternative 2, and reviewing in consideration of the new information obtained regarding underground parking infrastructure in the southeast intersection quadrant. The City reserves the right to revisit the original Alternative 2 with the additional northbound lane in the future as necessary to further address the problem statement.

Key considerations for this refinement and re-evaluation include:

- **North Leg:** The east-west positioning of Angeline Street intersection alignment is associated with varying degrees of impacts to the Mixed Residential Commercial (Dentistry on Kent) and Community Facility (RMH) property located in this area.
- **South Leg:** The existing underground parking structure within the Residential High-Rise property (Ambassador Apartments) was noted to extend in proximity to the existing ROW and would provide potential conflict with future improvement footprints.

Other important considerations for the Kent Street intersection factored in to the need for re-evaluation include:

- Potential impacts to existing mechanical structures at RMH, such as air ventilation systems, due to the roadway widening.
- Potential impacts to residential properties south of the Kent Street/Angeline Street intersection.

As a result of the underground parking garage, a subset alternative, Alternative 2B was generated with a modified lane configuration, that was evaluated as part of the additional traffic review in 2023 (Ainley, 2023). The original preferred Alternative 2, has been renamed to Alternative 2A for the purposes of the refined assessment.

The revised alternative solutions considered for the Kent Street/Angeline Street, Alternatives 2A and 2B are shown on **Figure 8** (page 60) and **Figure 9** (page 61), respectively, and as described of in the sections below.

6.3.1 Alternative 2A (formerly Alternative 2 – Preliminary Preferred Alternative)

This alternative involves the full build out lane configuration as discussed in **Section 5.1.2**. The proposed configuration includes the following:

- **Kent Street Intersection**
  - **NB Lanes –** 2x LT, 1x Thru, 1x Thru/RT
  - **SB Lanes –** 1x LT, 2x Thru, 1x Dedicated RT
  - **EB Lanes –** Existing Conditions + 1x Dedicated RT
  - **WB Lanes –** Existing Conditions
- **Angeline Street Corridor**
  - **NB Lanes –** 2x Thru
  - **SB Lanes –** 2x Thru
  - **Centre –** 1x Shared LT

This alternative addresses the forecasted traffic constraints at the intersection and is interpreted to accommodate the projected 2031 traffic volume; however, will result in property impacts on the east side of Angeline Street. It is anticipated that significant impacts to hospital infrastructure (ventilation units) can be avoided; however, encroachment and property acquisition will be required south of the intersection. This alternative minimizes impacts on the west side of Angeline Street, and allows for an extended merge lane south of Kent Street on Angeline, for safer traffic movements.

6.3.2 Alternative 2B – Alternative 2 with Reduced Northbound Lanes

Alternative 2B is similar to Alternative 2A; however, has a reduced lane configuration in the northbound direction to minimize the footprint in the southeast intersection quadrant in consideration of the underground parking structure. The proposed lane configuration for Alternative 2B is:

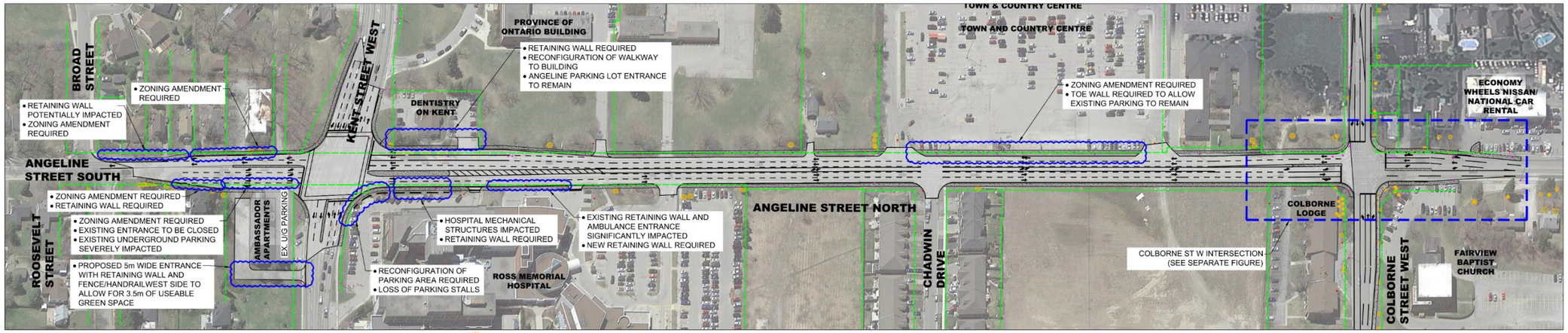
- **Kent Street Intersection**
  - **NB Lanes –** 1x LT, 1x Thru, 1x Thru/RT
  - **SB Lanes –** 1x LT, 2x Thru, 1x Dedicated RT
  - **EB Lanes –** Existing Conditions + 1x Dedicated RT
  - **WB Lanes –** Existing Conditions
- **Angeline Street Corridor**
  - **NB Lanes –** 2x Thru
  - **SB Lanes –** 2x Thru
  - **Centre –** 1x Shared LT

Based on the additional traffic capacity review (Ainley, 2023), this alternative addresses the forecasted traffic constraints at the intersection and is interpreted to accommodate the projected 2031 traffic volume, and provides for accommodating level of service out to a 2051 traffic horizon. The revised lane configuration in the south intersection leg also provides for a reduced overall footprint in the north intersection leg as a result of being able to modify with off-setting lanes and reduced lane gaps and median widths. The reduced overall footprint width as result of reduced lanes in the south and north legs provides for reduced encroachment on single residential and high density residential (generally avoids underground infrastructure) units south of the intersection, and provides reduced property and utility conflict points for the commercial and community uses adjacent north of the intersection. This alternative minimizes impacts on the west side of Angeline Street, and allows for an extended merge lane south of Kent Street on Angeline, for safer traffic movements

The above noted refined alternative solutions/designs were evaluated as part of the MCEA process. In order to evaluate the refined alternatives, the same evaluation matrix as described in **Section 6.2** was generated based on the expected issues and constraints. The same rating system as identified in **Table 2** was also used.

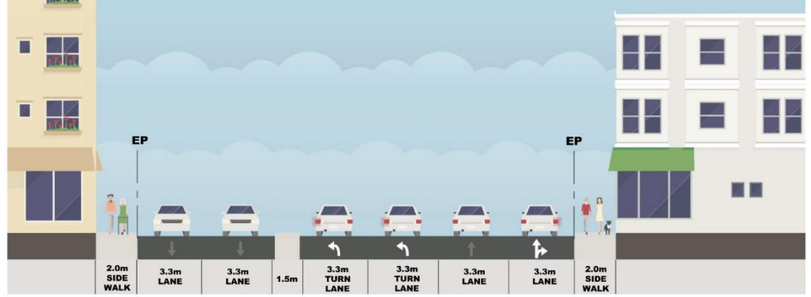
The evaluation of the refined alternatives is demonstrated by **Table 6**; results of the assessment are provided in **Section 7.2**.

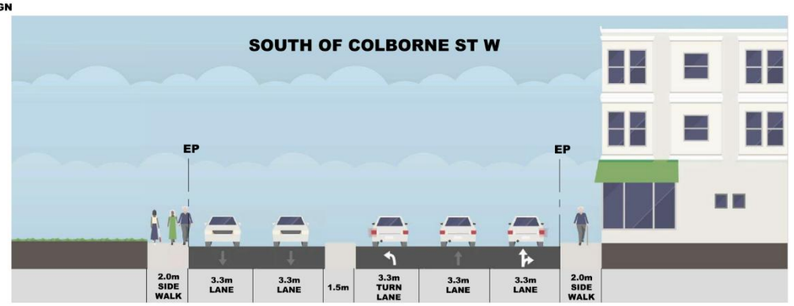
KENT STREET INTERSECTION AND MAIN CORRIDOR ALTERNATIVES

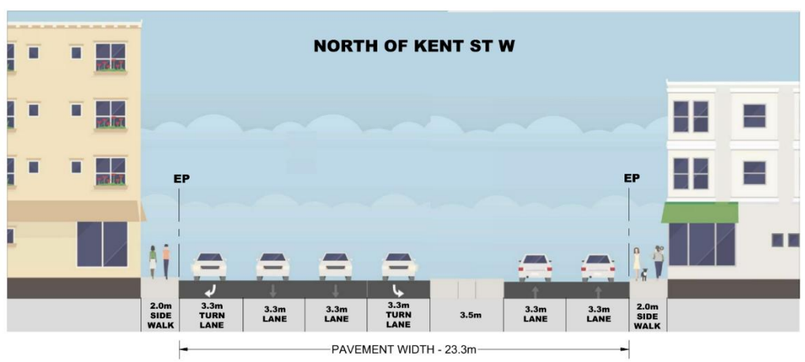


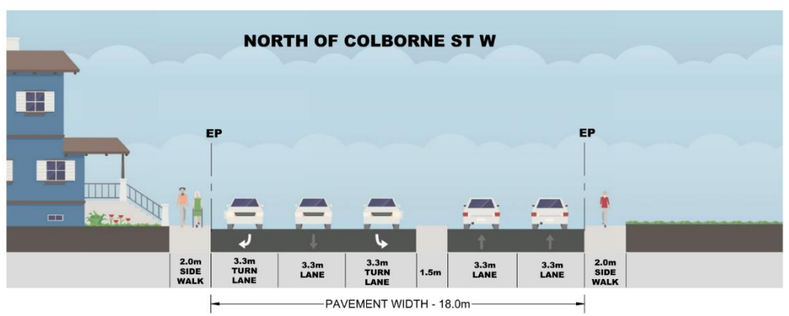
ALTERNATIVE 2A

SOUTH OF COLBORNE STREET W INTERSECTION:
TREES REMOVED = 55 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 21*
***9 POTENTIALLY MAINTAINED THROUGH DETAILED DESIGN**
LIGHT STANDARDS RELOCATED = 4





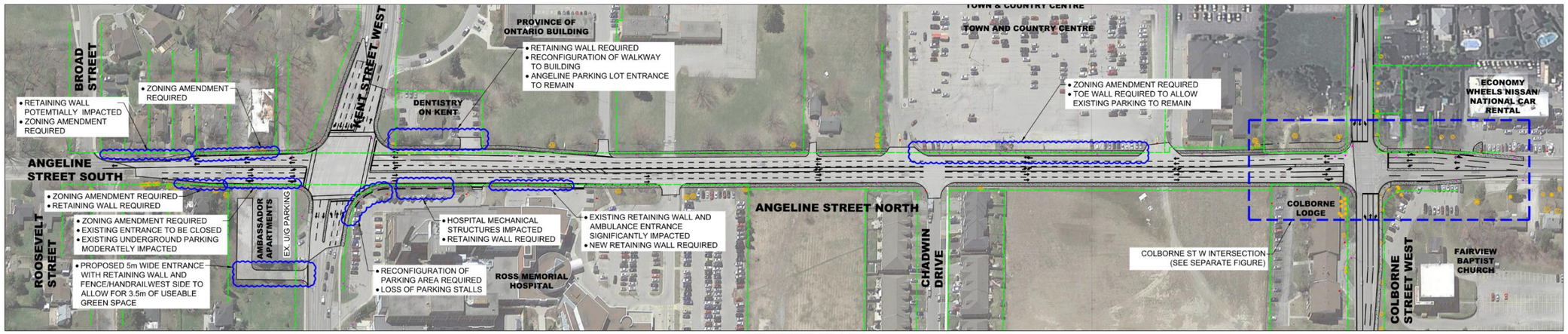




*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

FIGURE 8: REFINED ALTERNATIVE 2A FOR KENT STREET INTERSECTION

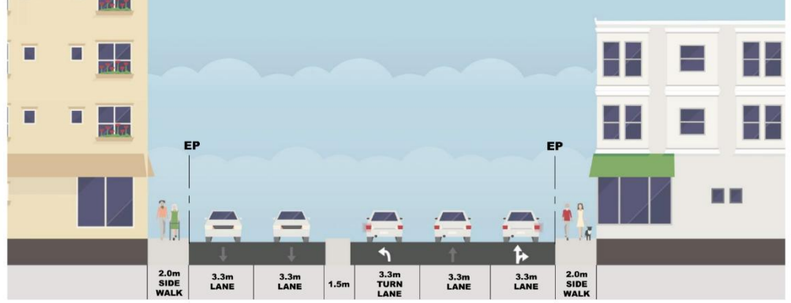
KENT STREET INTERSECTION AND MAIN CORRIDOR ALTERNATIVES

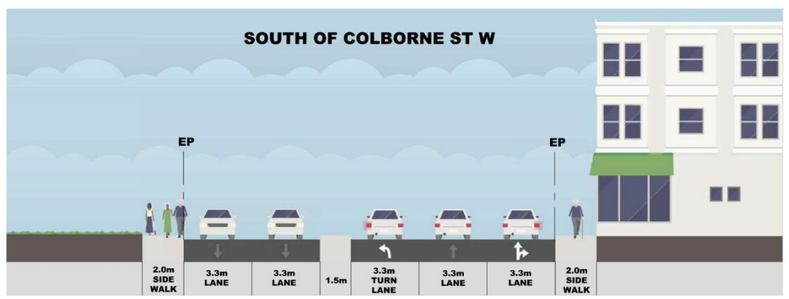


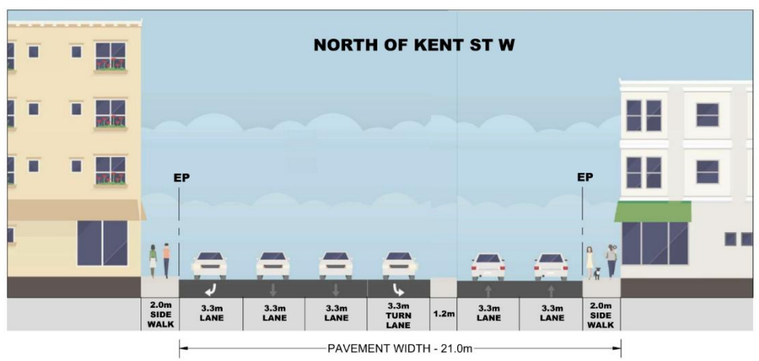
EXISTING R.O.W. ● EX. HYDRO POLE ● EX. LIGHT STANDARD EX. DECIDUOUS TREE EX. CONIFEROUS TREE

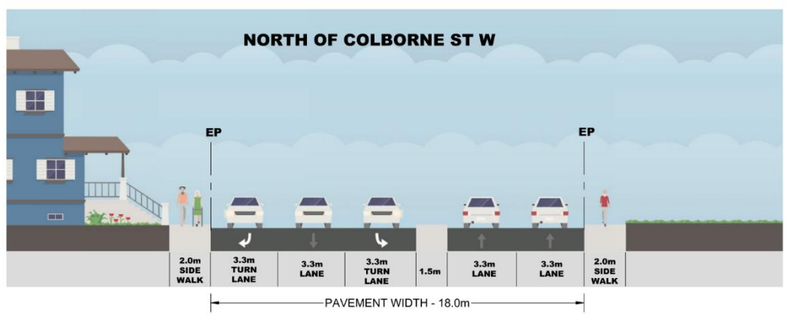
ALTERNATIVE 2B

SOUTH OF COLBORNE STREET W INTERSECTION:
TREES REMOVED = 52 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 21*
***9 POTENTIALLY MAINTAINED THROUGH DETAILED DESIGN**
LIGHT STANDARDS RELOCATED = 4









*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

FIGURE 9: REFINED ALTERNATIVE 2B FOR KENT STREET INTERSECTION

Table 6: Evaluation Matrix – Refined Alternative Solutions for Kent Street West Intersection

CATEGORY	REGULATORY / POLICY / DESIGN REQUIREMENT	ALTERNATIVE 2A FULL LANE BUILDOUT **Kent St. W. Intersection:** **NB:** 1x LT, 1x Thru, 1x Thru/RT **SB:** 1x LT, 2x Thru, 1x Ded. RT* **EB:** Ex. Conditions + 1x Ded. RT* **WB:** Ex. Conditions* **Angeline Corridor*:** **NB:** 2x Thru **SB:** 2x Thru **Centre:** 1x Shared LT * *Common among all Alternatives*			ALTERNATIVE 2B REDUCED NORTHBOUND LANES **Kent St. W. Intersection:** **NB:** 2x LT, 1x Thru, 1x Thru/RT **SB:** 1x LT, 2x Thru, 1x Ded. RT* **EB:** Ex. Conditions + 1x Ded. RT* **WB:** Ex. Conditions* **Angeline Corridor*:** **NB:** 2x Thru **SB:** 2x Thru **Centre:** 1x Shared LT * *Common among all Alternatives*		
TRANSPORTATION	TRAFFIC OPERATIONS / PERFORMANCE	Accommodates 2031 traffic volume at Kent Street intersection Addresses problem statement		4	Accommodates 2031 traffic volume at Kent Street intersection Comparitively lower Level of Service Addresses problem statement		3
	ROADWAY SAFETY / DRIVER FAMILIARITY	All equal		2	All equal		2
	NOISE	Increase is negligible - all equal		2	Increase is negligible - all equal		2
SOCIAL & ECONOMIC ENVIRONMENT	PROPERTY IMPACTS / LAND USE	Kent Street : High Density Res. - relatively higher impacts Commercial - all equal Institutional - all equal Severe impact to underground parking structure Remaining property to north: generally equal impacts		1	Kent Street : High Density Res. - relatively lower impacts Commercial - all equal Institutional - all equal Moderate impact to underground parking structure Remaining property to north: generally equal impacts		2
NATURAL ENVIRONMENT	LANDSCAPE	More tree removal		1	Less tree removal		2
	SURFACE WATER	No impacts to surface water features - all equal		2	No impacts to surface water features - all equal		2
	SPECIES AT RISK	All equal		2	All equal		2
CULTURAL ENVIRONMENT	BUILT HERITAGE / ARCHAEOLOGICAL RESOURCES	All equal - cleared of archaeological concerns via Stage 1 & 2 Archaeological Assessments		2	All equal - cleared of archaeological concerns via Stage 1 & 2 Archaeological Assessments		2
COST	UTILITY RELOCATIONS	All equal		2	All equal		2
	PRELIMINARY CONSTRUCTION COSTS	Relatively higher		1	Relatively lower		2
TOTALS		**19**			**21**		

6.4 Evaluation of Refined Alternative Solutions – Summary

6.4.1 Evaluation of Refined Alternatives Kent Street West Intersection

Between Alternatives 2A and 2B, both are interpreted to address traffic capacity issues at the intersection and would provide a consistent widened corridor of Angeline Street to a 2031 horizon, which addresses the problem statement. Both alternatives provide for an extended merge length south of Kent Street, providing for safer merging conditions.

Alternative 2A (eastward shift of full build out) was generally noted to have higher impacts to high density residential and community use properties, and lower impacts to adjacent commercial property. Alternative 2A was noted to be in conflict with the underground parking garage in the south east quadrant of the intersection. Alternative 2B has a reduced level of impact on single, and high density residential, along with commercial and community properties adjacent to the intersection. Traffic analysis (Ainley, 2023), including updated vehicle counts taken on August 1, 2023, and projections for the years 2027, 2037, and 2051, suggest that the lane configuration in Alternative 2B with a single northbound left-turn lane is sufficient to meet the future traffic demands

Each of the alternatives will require temporary single lane closures; however, impacts to traffic are not anticipated to be in excess of typical construction operations and are considered to be generally equal across all alternatives. Construction of each alternative will generate minor noise during construction from machinery operations. Under each alternative, coordination with adjacent property owners for access during construction will be paramount, particularly with the RMH.

Each of the alternatives would result in minimal impacts to species at risk, and built heritage/archaeological impacts within the project limits. Alternative 2B is anticipated to require less vegetation removal throughout the corridor as a whole, and fewer utility pole relocations. No impacts are anticipated to surface water features under either alternative. Construction costs are anticipated to be relatively lower for Alternative 2B based on the reduced footprint size.

Based on the evaluation of the refined alternatives, Alternative 2B is selected as the PPA for the Angeline Street corridor, as it addresses both the mid-term and long-term traffic flow and safety needs at the Kent Street intersection, effectively accommodating the projected 2031 traffic volume, reduces conflict with adjacent underground infrastructure, and minimizes property impacts to the extent possibly while maintaining project objectives. For the purposes of this MCEA, Alternative 2B is considered to be the Preferred Alternative; however, the City reserves the right to revisit the original Alternative 2 with the additional northbound lane in the future as necessary to further address traffic and safety concerns as they arise in consideration of the study problem statement.

Alternative 2B would also transition to the full build-out scenario on the Angeline Street corridor proper between Kent Street and Colborne Street of a five-lane cross section, including a two-way centre left turn lane, centered on the existing alignment

7.0 Preferred Alternative

Based on the results of the comparative analysis provided in **Tables 3, 4** and **6**, the Preferred Alternative solutions were selected.

The Preferred Alternative for the reconstruction of Angeline Street and its associated intersections was selected based on the results of a comprehensive analysis of the proposed alternatives, including the sub-set of refined alternatives at the Kent Street/Angeline Street intersection. This analysis considered factors such as traffic flow, safety, environmental impacts, and cost-effectiveness. The preferred solution aims to meet the long-term traffic needs of the area while minimizing impacts to the surrounding environment and infrastructure.

Angeline Street North Corridor

The Preferred Alternative for the primary section of the Angeline Street corridor involves widening the existing configuration from three lanes to five lanes, with two lanes in each direction (northbound and southbound), and a centre lane designated for two-way left turns. Subject to detail design, each travelled lane is anticipated to have a width of 3.3 m, while the centre lane for two-way left turns will be 3.5 m-wide. The widening of Angeline Street has also been reviewed in consideration of proposed future development north of Chadwin Drive, and egress/ingress to that property has been determined feasible, with site-specific entrance controls and design for that parcel.

A 2.0 m-wide sidewalk will be provided on the west side of Angeline Street between Kent Street and Colborne Street, as well as on the east side from Kent Street to the public entrance to RMH. Subject to City direction and upon acquiring the property necessary to facilitate the roadway widening, adequate area along the east side of the Angeline Street ROW, from RMH northwards, is expected to be available to accommodate a MUP with potential connection to a MUP area on the south side of Colborne Street, westerly from Angeline Street.

To support the proposed widening of Angeline Street, utility relocations and property-specific improvements, such as retaining walls at select locations (e.g., the commercial property and RMH at the northwest/northeast corners of the Angeline Street/Kent Street North intersection), will be required. Work at the northeast quadrant adjacent to RMH will require working in close proximity to the hospital's ventilation structures and other buried infrastructure (e.g., telecommunication services), and are anticipated to result in

modifications to the staff parking area which have been discussed with RMH as part of the MCEA process. Considerations in this regard include maintaining provisions for fire access in the parking lot.

Implementation of a toe retaining wall may be required at the Town and County Centre to facility relocation of the sidewalk and utilities. The requirement for a retaining wall and/or any potential modifications to adjacent parking spaces will be confirmed through detailed design; it's anticipated that the same number of parking spaces can be maintained through minor relocation easterly and a reduced driving aisle width.

Entrances throughout the corridor will be maintained and regraded to appropriate entrance standards, and will be reinstated to existing or an improved configuration. The entrance to the RMH, and associated parking area for the ambulance access bay, will require modifications to the existing retaining wall but acceptable turning movements/parking lot access are expected to be maintained.

For the main Angeline Street corridor, modest property requirements are anticipated along most of the ROW, bringing it to a uniform width with other wider right of way widths in most cases, to accommodate the proposed new roadway configuration and associated sidewalk/MUP. Where property is required beyond the uniform ROW width sections, and along the legs of the Colborne Street and Kent Street intersections, acquisitions will be minimized to the extent possible. To support the property acquisitions, discussions with the City will be undertaken during detailed design to confirm any associated zoning by-law amendments for individual properties affected by the proposed undertaking.

The above improvements to the Angeline Street corridor are consistent with recommendations from the previously approved corridor studies and MCEAs (HDR; 2016 and 2017), and are interpreted to be warranted to accommodate future traffic capacity constraints within the study area. The proposed lane configuration is anticipated to improve traffic capacity and flow, while enhancing safety by providing a dedicated lane for left turns, reducing the likelihood of rear-end collisions and improving overall mobility along the corridor. Specific improvements to the Kent Street/Angeline Street, and Colborne Street/Angeline Street intersection are summarized below.

Kent Street West Intersection

The Preferred Alternative for the Kent Street/Angeline Street intersection, is the refined Alternative 2B. The Preferred Alternative for the intersection includes the following lane configuration which was developed and assessed to minimize impacts to adjacent property owners, including residential, commercial, and community properties in proximity to the intersection.

- **Kent Street Intersection**
  - **NB Lanes –** 1x LT, 1x Thru, 1x Thru/RT
  - **SB Lanes –** 1x LT, 2x Thru, 1x Dedicated RT
  - **EB Lanes –** Existing Conditions + 1x Dedicated RT
  - **WB Lanes –** Existing Conditions
- **Angeline Street Corridor**
  - **NB Lanes –** 2x Thru
  - **SB Lanes –** 2x Thru
  - **Centre –** 1x Shared LT

Subject to detailed design, each travelled lane (including turn lanes) is anticipated to have a width of 3.3 m, while the centre lane for shared left turns will be 3.5 m-wide. Centre medians of 1.5 m in width are proposed at every leg of the intersection, with the exception of the north leg which will have a width of 1.2 m. The north leg's centre median will extend northerly past the entrance to the commercial property in the northwest intersection quadrant and exit from RMH's staff parking area; to limit left turns into and out of these properties.

A 2.0 m wide sidewalk will be provided on all quadrants of the intersection, tying into existing sidewalk infrastructure. Given the proximity of the underground parking garage in the southeast intersection quadrant, the roadway width of the Preferred Alternative will require travelled lanes extending in proximity to the underground infrastructure. With this configuration, sufficient space is not available between the travelled lane and the parking structure for implementation of the sidewalk without conflict of their footprints. To maintain the sidewalk, and to ascertain impacts to adjacent infrastructure are minimized, structural and vibrational assessments were completed in this area to confirm suitability of the Preferred Alternative. The findings of these studies were supportive of the Preferred Alternative and provided recommendations to mitigate potential impacts to the underground parking structure as a result of the widened roadway. As recommended by the structural analysis, the roadway in this area is proposed to be installed over a cantilevered concrete slab to avoid unnecessary loading on the underground parking structure, thereby permitting implementation of the Preferred Alternative. Easement/property configuration for the proposed sidewalk is to be confirmed with the property owner by the City as part of detailed design activities; this framework will be mindful of the responsibilities for ownership and future maintenance of the underground parking structure by the property owner while permitting the use of the overtopping sidewalk by the public.

Retaining walls are anticipated to be required in the northwest and northeast quadrants of the intersection to facilitate the roadway widening and avoid impacts to the commercial

properties building entrance and hospital infrastructure, respectively. Work at the northeast quadrant adjacent to RMH will require working in close proximity to the hospital ventilation structures and other buried infrastructure (e.g., telecommunication services), and are anticipated to result in modifications to the staff parking area, which have been discussed with RMH as part of the MCEA process. Considerations in this regard include maintaining provisions for fire access in the parking lot.

With the exception of the Ambassador Apartment complex, entrances in proximity to the intersection will be maintained. Grading adjustments may be required to tie into the new roadway platform; however, will be designed to current standards and determined during detailed design. The existing entrance and rear parking/access to the underground parking garage in the southeast intersection quadrant will require reconfiguration. This is envisioned as the closure of the existing entrance from Angeline Street, and the construction of a new entrance from Kent Street. Site-specific operational considerations (e.g., parking areas, access controls for underground parking) would be addressed during detailed design alongside consultation with the property owner.

Impacts to properties south of the intersection have been mitigated to the extent possible by refinement of the Preferred Alternative, and reduction of the northbound lanes (from the originally Preferred Alternative); however, narrow portions of property will be required from select properties south of the intersection to support implementation of the Preferred Alternative. The property requirements are necessary to support offsetting of the sidewalk beyond its existing limit to accommodate the widened roadway. Vegetation removal may be required; however, tree retainment and setback from the travelled lanes will be maximized to the extent possible, and will be considered a priority in detail design. In addition, the City and/or the design consultant will meet with property owners as required in detail design to review the proposed intersection improvements and localized property modifications. To support the property acquisitions, discussions with the City will be undertaken during detailed design to confirm any associated zoning by-law amendments for individual properties affected by the proposed undertaking.

The above improvements to the Kent Street/Angeline Street intersection are generally consistent with recommendations from the previously approved corridor studies and MCEAs (HDR; 2016 and 2017), with the exception of the removal of a northbound lane to minimize impacts to adjacent properties, and are interpreted to be warranted to accommodate future traffic capacity constraints within the study area. The proposed lane configuration is anticipated to improve traffic capacity and flow, while enhancing safety by providing a dedicated lane for left turns, and minimizes impacts to adjacent properties to the extent possible. The intention of this MCEA is to recommend Alternative 2B for implementation; however, the City reserves the right to revisit the original Alternative 2

with the additional northbound lane in the future as necessary to further address traffic and safety concerns as they arise in consideration of the study's problem statement

Colborne Street West Intersection

The Preferred Alternative for the Colborne Street intersection with Angeline Street, is Alternative 3 from the Colborne Street specific alternatives. The configuration for the Preferred Alternative is per recommendations within the previously approved MCEA and corridor study for Colborne Street (HDR, 2017), including 1x LT, 1x Thru, 1x Dedicated RT at all legs of the intersection. The recommended alternative utilizes the recommended lane configuration with an eastward shift of the intersection alignment. The Preferred Alternative was developed and selected to minimize impacts to adjacent property owners, including residential and community properties in proximity to the intersection.

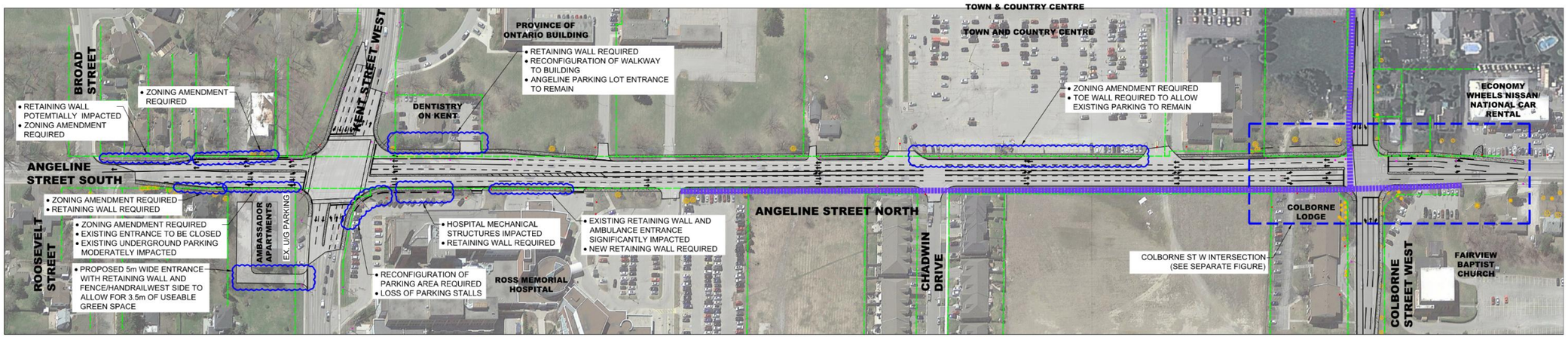
The Preferred Alternative entails a slight eastward shift of the alignment, which will result in the least amount of property impacts to the residential and commercial properties in the northwest quadrant of the intersection. On the east side of Angeline Street, encroachment beyond the existing ROW in the southeast quadrant is required, and is likely to result in a retaining wall, minor entrance modifications, and grading on west side of the Colborne Lodge (to be determined in detailed design). Modification to the existing parking lot in the northeast intersection quadrant will be required to support the intersection widening; however, the existing parking lot is interpreted to extend currently into the City ROW.

Impacts to properties north and west of the intersection have been mitigated to the extent possible by the eastward shift of the previous approved Preferred Alternative; however, a narrow strip of property may be required from select properties north of the intersection to support implementation of the Preferred Alternative. The property requirements are necessary to support offsetting of the sidewalk beyond its existing limits to accommodate the widened roadway. Vegetation removal may be required; however, tree retainment and setback from the travelled lanes will be maximized to the extent possible, and will be considered a priority in detail design. To support the property acquisitions, discussions with the City will be undertaken during detailed design to confirm any associated zoning by-law amendments for individual properties affected by the proposed undertaking.

The above improvements to the Colborne Street/Angeline Street intersection are consistent with recommendations from the previously approved corridor studies and MCEAs (HDR; 2017). The proposed lane configuration is anticipated to improve traffic capacity and flow, while enhancing safety, and minimizes impacts to adjacent properties to the extent possible.

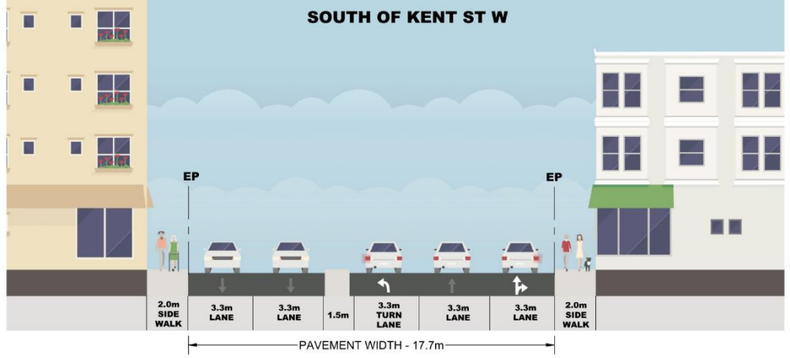
The final version of the Preferred Alternative, including the likely location of MUPs, is as shown in **Figures 10 and 11**. **Figure 12** conceptualizes the property requirements associated with the Preferred Alternative, subject to confirmation during detailed design.

KENT STREET INTERSECTION AND MAIN CORRIDOR - PREFERRED ALTERNATIVE

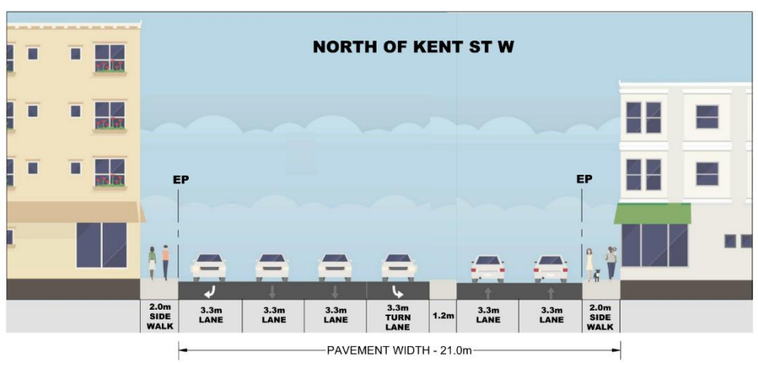


ALTERNATIVE 2B

SOUTH OF KENT ST W:

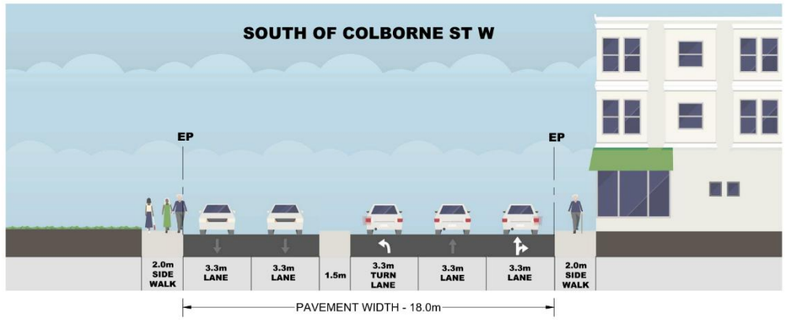


NORTH OF KENT ST W:

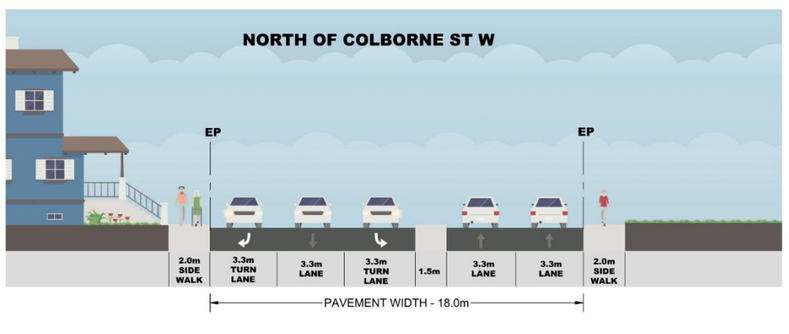


TREES REMOVED = 52 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 21*
*9 POTENTIALLY MAINTAINED THROUGH DETAILED DESIGN
LIGHT STANDARDS RELOCATED = 4

SOUTH OF COLBORNE ST W:



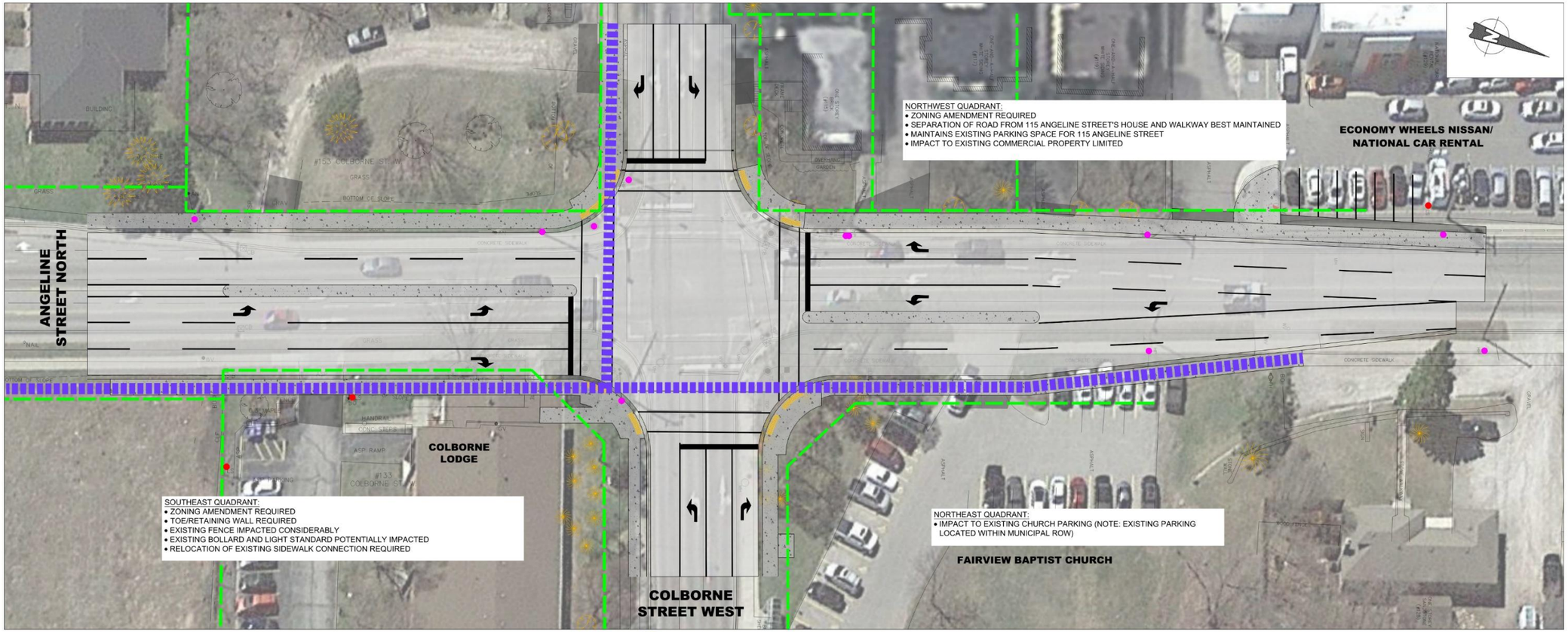
NORTH OF COLBORNE ST W:

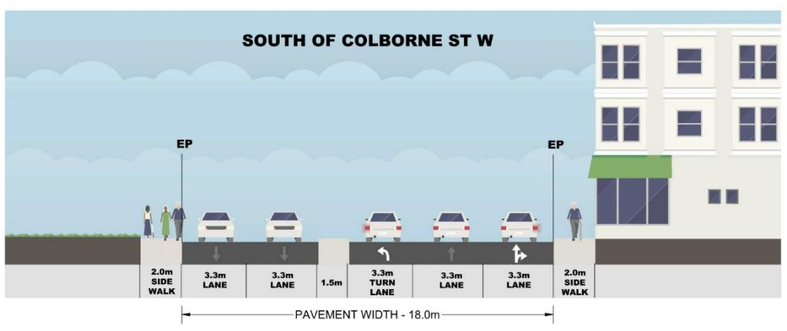


*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

FIGURE 10: FINAL VERSION OF THE PREFERRED ALTERNATIVE - KENT STREET INTERSECTION AND MAIN CORRIDOR

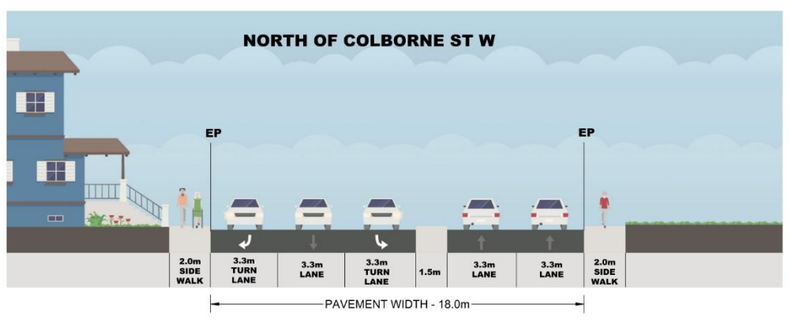
COLBORNE STREET INTERSECTION - PREFERRED ALTERNATIVE





ALTERNATIVE 3

COLBORNE STREET W INTERSECTION:
TREES REMOVED = 14
UTILITY POLES RELOCATED = 9



*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

FIGURE 11: FINAL VERSION OF THE PREFERRED ALTERNATIVE - COLBORNE STREET INTERSECTION

PREFERRED ALTERNATIVE CONCEPTUAL PROPERTY REQUIREMENTS

NOTE: EXACT PROPERTY REQUIREMENTS SUBJECT TO DETAILED DESIGN AND THOSE SHOWN ARE NOT TO SCALE

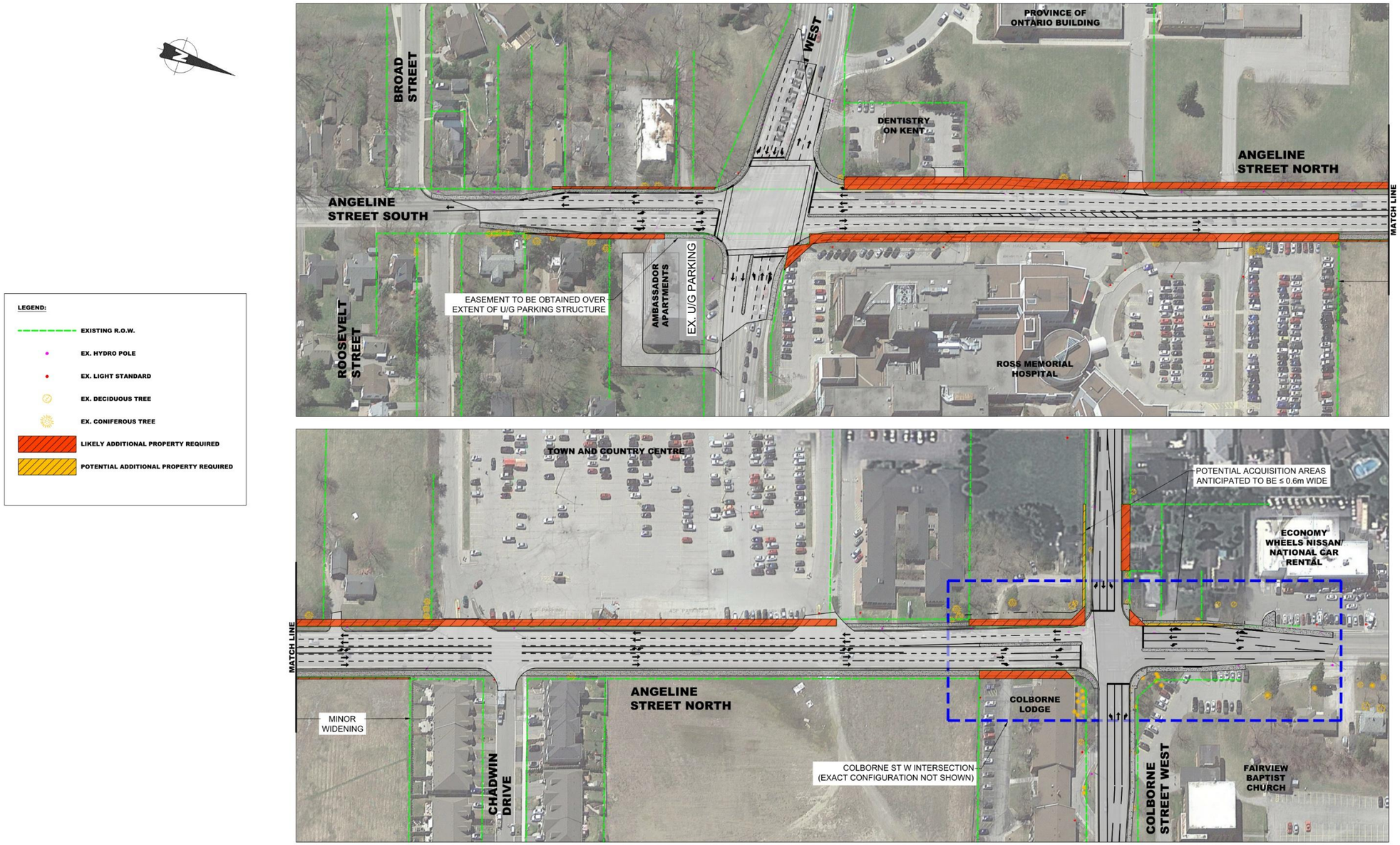


FIGURE 12: PREFERRED ALTERNATIVE CONCEPTUAL PROPERTY REQUIREMENTS

8.0 Potential Impacts and Mitigation Measures for the Preferred Alternative

As part of the MCEA screening process, an assessment of impacts was completed in consideration of the Preferred Alternative. This section of the report describes the potential impacts on the biophysical and socio-economic environments associated with the proposed improvements of Angeline Street, including the intersections of Kent Street/Angeline Street, and Colborne Street/Angeline Street. This section also outlines proposed mitigation measures in order to minimize or prevent negative impacts of the undertaking, which are to be considered during detail design.

8.1 Biophysical Environment

8.1.1 Erosion and Sediment Control

Potential Impacts

Road construction, excavation, and grading activities, may result in the release of sediment into adjacent natural heritage features. In addition, exposed soils and/or stockpiles of excess material (such as earth, rock) can result in sediment transport to these areas during rain events.

Mitigation

In order to mitigate the transport of sediment during construction, environmental protection measures should be incorporated into the construction process. To ensure protection of the downgradient environment, the following should be undertaken during development:

During construction and grading activities, silt barrier should be placed along the downgradient boundary of the construction zone to reduce the potential for sediment transport off property. The erosion and sediment control measures should remain in place until the grading area becomes sufficiently vegetated to limit erosion and sediment transport potential.

8.1.2 Surface Water/Source Water Contamination and Debris Accumulation

Potential Impacts

During construction activities, the potential for accidental fuel or lubricant spillage, debris accumulation, and subsequent contamination of the environment is increased. Construction activities may also result in litter and debris accumulation within the immediate study area.

Mitigation

To prevent the contamination of the environment within and adjacent to the project area during construction, precautions should be taken to avoid accidental spillage or discharge of chemical contaminants (e.g., gasoline, oils and lubricants). These precautions require refueling to be carried out in a controlled manner so as to prevent fuel spillage. In addition, an emergency spill response kit should be on site at all times. In the event that a spill occurs, proper containment, clean up and reporting, in accordance with provincial requirements, should be undertaken.

The Contractor should take all necessary precautions to prevent the accumulation of litter and construction debris in any natural areas within and outside of the construction grading limits.

8.1.3 Vegetation

Potential Impacts

Construction activities are anticipated to required removal of vegetation for the proposed widening of Angeline Street, and intersection improvements.

Mitigation

Vegetation removal is anticipated during widening and intersection improvements. Vegetation measures should be taken to limit vegetation removal to the extent possible, in an effort to maintain the ecological integrity of the landscape.

As part of any tree removal during construction, appropriate tree felling and grubbing procedures should be utilized in order to minimize impacts on surrounding vegetation.

Migratory breeding birds are protected under the *Migratory Birds Convention Act, 1994*. Under this act it is unlawful to kill or destroy migratory breeding birds or active nests. Efforts should be made to ensure no harm or destruction of migratory breeding birds or active nests during any vegetation removal required in the study area.

8.1.4 Wildlife and Bird Migration

Potential Impacts

The majority of the potential impacts to wildlife are associated with vegetation removal, excavation, and grading activities. The proposed undertaking is not anticipated to have any long-term impacts on wildlife and bird migration, as it will occur within an urban environment.

Mitigation

To limit potential impacts, care should be taken during construction to avoid incidental contact with wildlife.

Migratory breeding birds are protected under the *Migratory Birds Convention Act, 1994*. Under this act it is unlawful to kill or destroy migratory breeding birds or active nests. Efforts should be made to ensure no harm or destruction of migratory breeding birds or active nests during any vegetation removal required in the study area. If active nests are encountered than the Contact Administrator must be contacted.

8.1.5 Environmentally Sensitive Areas

Potential Impacts

No environmentally sensitive areas or rare vegetation communities were identified within the study limits during background reviews or field investigations.

There are no Provincially Significant Wetlands or ANSIs at or immediately adjacent to the study area.

No impacts to environmentally sensitive areas are anticipated as a result of the undertaking.

8.1.6 Fisheries and Associated Habitat

Potential Impacts/Mitigation

No fish or fish habitat was identified on the subject property or immediately adjacent. No impacts to fish or fish habitat are anticipated as a result of the undertaking.

8.1.7 Species At Risk (SAR)

Potential Impacts

No SAR are interpreted to have potential to be present/impacted by the roadway improvements proposed within the study limits. Regardless the following mitigation measures should be employed should SAR be encountered during construction.

Mitigation

Mitigation measures for protection of SAR are required, and should include the following:

- If SAR are identified during construction, all works in the immediate area should cease and the MECP must be contacted for direction on how to proceed.
- Harassment to SAR should not occur during construction activities.

8.2 Socio-Economic Environment

8.2.1 Cultural and Heritage Resources

Potential Impacts

Construction activities proposed for this undertaking will be confined to the roadway ROW, areas already disturbed by previous roadway construction, or areas deemed to have low potential for archaeological resources. Based on this, there are no expected impacts upon cultural, heritage, or archaeological resources.

Mitigation

Should human remains be encountered during construction, such construction activity shall cease, and the proponent shall immediately contact the Contract Administrator. In addition, the Ontario Provincial Police, the Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer and Commercial Relations (416)-326-8392, and the Ministry of Culture Development Plans Review Unit should also be contacted. Depending on the antiquity of human remains, certain aboriginal groups may need to be contacted.

Should any cultural heritage remains be encountered during construction activities, such activities shall cease, and the proponent shall immediately contact the Contract Administrator and the Ministry of Culture Development Plans Review unit.

8.2.2 Noise/Vibration

Potential Impacts

The existing noise environment along the Angeline Street project limits is dominated by traffic related noise; however, construction activities may generate temporary noise conditions that may disrupt the noise environment of adjacent residents during daily construction operations.

A Noise By-Law exemption is not anticipated; however, if through the detail design and/or construction that night works are required, conformance to the City of Kawartha Lakes by-laws and exemption process must be followed.

Mitigation

Mitigation measures are as follows:

- When it is possible, all construction should be carried out during normal operating hours as outlined in the City of Kawartha Lakes Noise by-law, and when not possible the Contractor should minimize the amount of noise being generated to not be audible in any noise sensitive areas.
- All equipment shall be maintained in an operating condition that prevents unnecessary noise, and idling of equipment shall be restricted to the minimum necessary to perform the work. All construction equipment should be operating with effective muffling devises that are in good working order.
- During construction, vibration monitoring requirements in proximity to the underground parking garage should be reviewed, determined, and implemented to avoid potential impacts from construction equipment working in proximity to the building.

8.2.3 Air Quality

Potential Impacts

During construction dust, fumes and odours may be created by working machinery. These fumes may degrade air quality in the immediate vicinity of the work site.

Mitigation

Dust generated during the construction period will be controlled by the Contractor in accordance with *General Conditions of Contract* clause *GC7.07.03.* Odor and fume

impacts will be minimized by ensuring that all equipment is properly maintained and that all pollution control devices on the equipment are operational and properly maintained.

Care should be taken to protect and prevent dust, odour, and any other air-borne emissions during construction from entering the ventilation structures adjacent to the RMH, and any other public gathering space or sensitive receivers within the project limits.

8.2.4 Adjacent Lands and Traffic Disruption

Potential Impacts

Roadway construction may temporarily disrupt traffic during the widening, intersection improvements, and paving activities. Short-term lane closures are anticipated to be required. Entrances will be temporarily closed as entrances are repaved; however, the contractor will be required to notify residences/commercial properties and the RMH prior to closures. These short-term closures may increase user commute times as well as impact emergency services. Prior to the start of construction, emergency services and local residents should be notified of the start and expected duration of the proposed works.

Mitigation

To address potential traffic disruption associated with temporary construction delays, provisions will be included in the contract to address the use of public roadways and disruption of traffic over the duration of the construction.

In addition, in order to limit the impacts to the travelling public, emergency services, and adjacent property owners, the following measures should be further reviewed during detail design and/or implemented during construction.

- Full road closures will not be permitted during the roadway improvements and a minimum of bi-directional traffic flow will remain open at all times.
- Construction signs will be installed to notify the public of the construction area and of any potential delays.
- Contractor should provide a minimum of one (1) week notice to property owners with potential to be impacted from construction works. The duration of advance notification is to be confirmed in detail design based on any and all additional feedback at that time with key project stakeholders.

(list continued on following page)

- A detailed emergency service and traffic staging and coordination plan should be developed during design and construction, in consultation with RMH and City of Kawartha Lakes Emergency Services (as appropriate) to develop staging plans that provide a consistent level of access, service, and timely ingress and egress from the hospital facilities (including Emergency/Ambulance Bays) during construction.

8.2.5 Management of Excess Material

Potential Impacts

The Ministry of the Environment, Conservation, and Parks (MECP) governs excess soil regulations, for management of excess earth materials that will require export off-site.

The volume of any excess materials is not known at this point; however, is it anticipated that some excess materials may be reused within the ROW as a construction material (e.g. earth, rock). Management of excess materials outside of the ROW will depend upon local circumstances, and requirements determined through detail design.

Potential impacts with stockpiling of material includes sediment transport and sediment laden runoff from excess material storage within the ROW.

Mitigation

In order to mitigate the potential impacts associated with excess material storage, runoff from stockpiles will be contained and discharged so as to prevent entry of sediment to watercourses/wetlands.

Any waste generated on-site, which requires removal off-site, will be carried out in accordance with *Ontario Regulation 347* under the *Ontario Environmental Protection Act*.

Any excess soil to be managed off-site should be completed in accordance with Ontario Regulation 406/19.

8.2.6 Utilities

Potential Impacts

Overhead hydro and bell lines are present throughout the project limits, primarily on the west side of Angeline Street; however, service crossing and transmission lines on adjacent streets are present. Underground gas, and City storm and sanitary sewers are also located within the Angeline Street corridor.

Mitigation

The utilities which will be impacted along Angeline Street corridor are anticipated to be relocated prior to the completion of the construction works. The exact location of all utilities should be confirmed by the contractor prior to excavations.

8.2.7 Emergency Spill Response

The Contractor will be required to have a spill kit available on site in the event of a spill in or near the watercourse/wetland. All spills that may have an adverse effect are reported to the Ontario Ministry of Environment, Conservation, and Parks Spills Action Centre (1-800-268-6060).

9.0 Approvals Schedule

This Project File Report will be made available to the public for a 30-day review period. The 30-day review period begins when the Notice of Study Completion is posted in local newspapers, and on the City of Kawartha Lakes website.

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

Requests should specify what kind of order is being requested (request for additional conditions or a request for an individual/comprehensive MCEA), how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statement in the request. This will ensure that the ministry is able to efficiently begin reviewing the request.

The requests should be sent in writing or by email to:

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

And,

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

Upon completion of the 30-day review period, if no Part II Orders or comments are received, then the project may proceed to detail design and construction, pending funding and any outstanding approvals.

The project schedule following the 30-day review period is proposed as follows (subject to funding and approvals):

- Proceeding with the detail design for the roadway widening and intersection improvements at Angeline Street from Colborne Street to Roosevelt Street (and other associated intersections and side streets within the study area as discussed in this report), including the mitigation measures and commitments as specified in **Section 8.0**.

10.0 Closure

Ainley Group has prepared this Project File Report to document the planning process involved in Phase 1 and Phase 2 of this MCEA. If no concerns arise from the Notice of Study Completion and the 30-day review period associated with the posting of this Project File Report, the City of Kawartha Lakes will proceed to detail design and construction for the project, pending funding and approvals.

11.0 References

City of Kawartha Lakes. 2024. Active Transportation Master Plan – City of Kawartha Lakes. https://www.kawarthalakes.ca/en/living-here/resources/Kawartha-ATMP_Final-Report_.pdf

Chapman, L.J. and D.F. Putnam. 1984. The Physiography of Southern Ontario. Ontario Ministry of Natural Resources.

Environment and Climate Change Canada. 2017. General Nesting Periods of Migratory Birds in Canada. https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods.html

Lee, H., W. Bakowsky, J. Riley, J. Bowles, M. Puddister, P.Uhlig, and S. McMurry. 1998. Ecological Land Classification for Southern Ontario. Ontario Ministry of Natural Resources, North Bay, Ontario Canada.

Lumbers, S.B. 1978. Ontario geological map, southern sheet; Ontario Geological Survey, Map 2392 1:1 013 760.

Ministry of Municipal Affairs and Housing, 2014. 2014 Provincial Policy Statement, Under the Planning Act.

Ministry of Natural Resources and Forestry (MNRF). 2015. Natural Heritage Information Centre-Queries. Ministry of Natural Resources, Ontario. http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US

Ministry of Natural Resources. 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. March 18, 2010.

Ministry of Natural Resources. 2009. The Ecosystems of Ontario, Part 1: Ecozones and Ecoregions. Science and Information Branch: Inventory, Monitoring and Assessment Section.

Municipal Class Environmental Assessment. Municipal Engineers Association. Approved by Order-in-Council no. 1923/2000. October 2000, as amended in 2007, 2011, and 2015.

Ontario Geological Survey. 1991. Bedrock Geology of Ontario, Southern Sheet. Ontario Geological Survey, Map 2544, Scale 1:1,000,000.

Appendix A:

Active Transportation Master Plan (ATMP) Discussion Memorandum

Appendix B:

Air Quality Assessment for Ross Memorial Hospital Ground Level Intakes Report

Appendix C:

Vibration Assessment - Ambassador Apartments Parking Garage

Appendix D:

Stage 1 Archaeological Assessment Report and Stage 2 Archaeological Assessment Report

Appendix E:

Traffic Evaluation Memorandum

Appendix F:

Tree Inventory and Assessment

Appendix G:

Consultation

Appendix H:

PIC Summary Report #1

Appendix I:

PIC Summary Report #2